

TOOMEY ENGINEERING CORPORATION
 PROJECT: NuClear Orthodontics
 PROJECT NO.: 190607

PREPARED BY: gpt
 DATE: 11/21/19

PANEL P1
 VOLTAGE: 277 / 480V
 PHASE WIRE: 3 PH, 4 W
 225 AMP MAIN MLO
 A.I.C.: MOUNTED
 FLUSH

| KVA CODE | CKT | SERVING | CB | | | WIRE | | | KVA | | | PH | | | WIRE | | | SERVING | CKT | KVA CODE |
|-------------------------------|-----|--------------------------|----|------|-----|------|------|------|-------------|------|--------------|-----|----|--------------------------|------|-----|-----|---------|-----|----------|
| | | | P | TRIP | QTY | AVG | QTY | AVG | P | TRIP | QTY | AVG | A | B | C | QTY | AVG | | | |
| L | 1 | WAITING AREA LIGHTS | 1 | 15 | 2 | 14 | 0.3 | A | 0.8 | 2 | 14 | 1 | 15 | OFFICE & CORRIDOR LIGHTS | 2 | L | | | | |
| L | 3 | PROCEDURE AREA LIGHTS | 1 | 15 | 2 | 14 | 0.7 | B | 1.7 | 2 | 12 | 1 | 20 | FALCULE FANS | 4 | F | | | | |
| WH | 5 | WATER HEATER | 2 | 30 | 3 | 10 | 0.5 | C | 0.1 | 2 | 14 | 1 | 15 | MEZZANINE LIGHTS | 6 | L | | | | |
| WH | 7 | | 1 | 20 | 2 | 12 | 0.5 | A | 2.2 | 2 | 12 | 1 | 20 | MEZZANINE RECEPTACLE | 8 | R | | | | |
| PA | 9 | FIRE ALARM CONTROL PANEL | 1 | 20 | 2 | 12 | 2.2 | B | 1.7 | 2 | 12 | 1 | 20 | SIGN LIGHT | 10 | L | | | | |
| | 11 | | | | | | | | | | | | | | | | | | | |
| | 13 | | | | | | | | | | | | | | | | | | | |
| | 15 | | | | | | | | | | | | | | | | | | | |
| | 17 | | | | | | | | | | | | | | | | | | | |
| PA | 19 | PANEL P2 VIA TRANSFORMER | 3 | 175 | | | 57.4 | A | | | | | | | | | | | | |
| PA | 21 | | | | | | 57.4 | B | | | | | | | | | | | | |
| PA | 23 | | | | | | 57.4 | C | | | | | | | | | | | | |
| TOTAL DEMAND KVA (PER PHASE): | | | A: | 43.8 | B: | 44.2 | C: | 40.5 | DESIGN KVA: | 133 | DESIGN AMPS: | 174 | | | | | | | | |

NOTES:
 * PROVIDE HANDLE LOCK-ON CB COVER

| CD | DESCRIPTION | CONN. KVA | | | DEMAND FACTOR | DEMAND KVA | | | DESIGN KVA = |
|-------|---------------|-----------|------|------|---------------|------------|------|------|-----------------------|
| | | A | B | C | | A | B | C | |
| L | LIGHTING | 1.0 | 2.4 | 0.1 | 125% | 1.3 | 2.9 | 0.1 | 132.6 KVA |
| WH | WATER HEATING | 4.5 | | | 65% | 2.9 | 2.9 | | 10% |
| PA | PANEL | 37.4 | 39.6 | 37.4 | 100% | 37.4 | 39.6 | 37.4 | DESIGN AMPS = 175 AMP |
| F | FANS | 1.7 | | | 100% | 1.7 | 1.7 | | MOCIP = 200 AMP |
| R | RECEPTACLES | 2.2 | | | | 2.2 | 1.7 | | |
| TOTAL | | | | | | 43.8 | 44.2 | 40.5 | |

* FIRST 10 KVA AT 100%, REMAINDER AT 50% PER NEC 220-13

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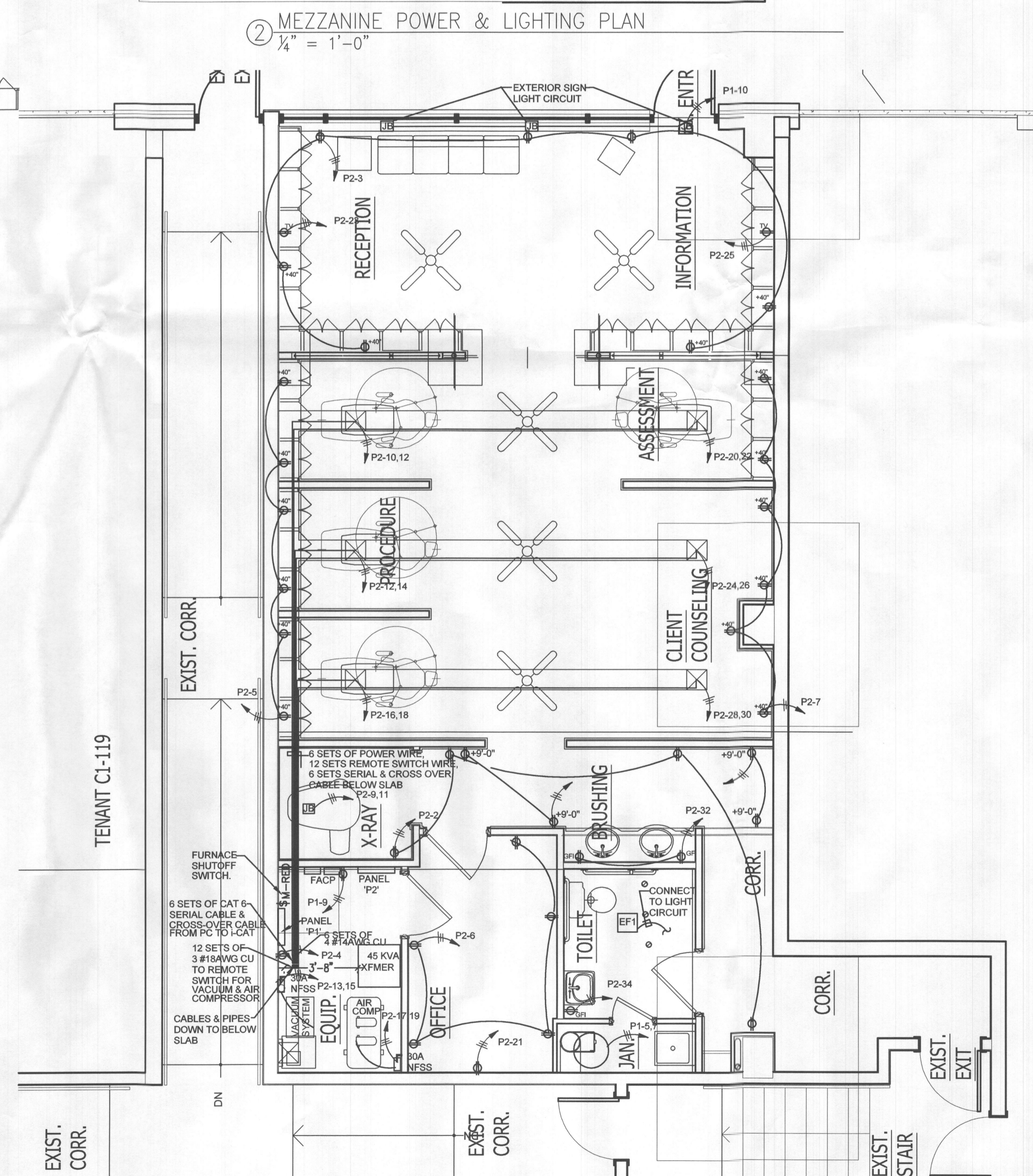
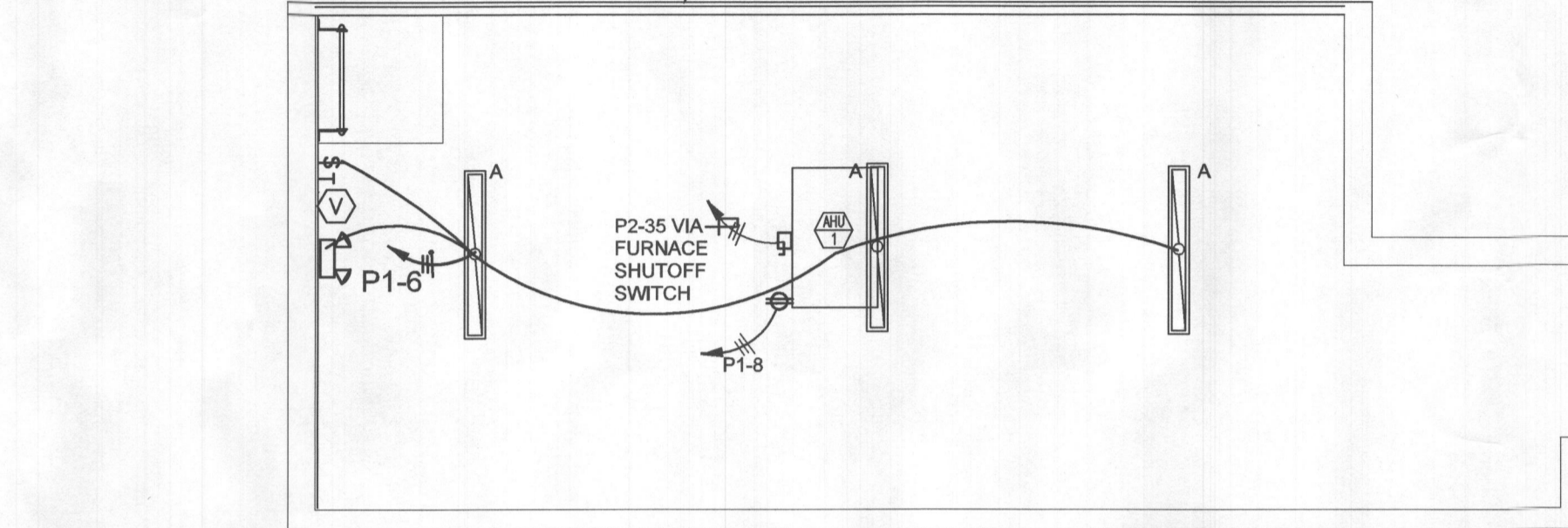
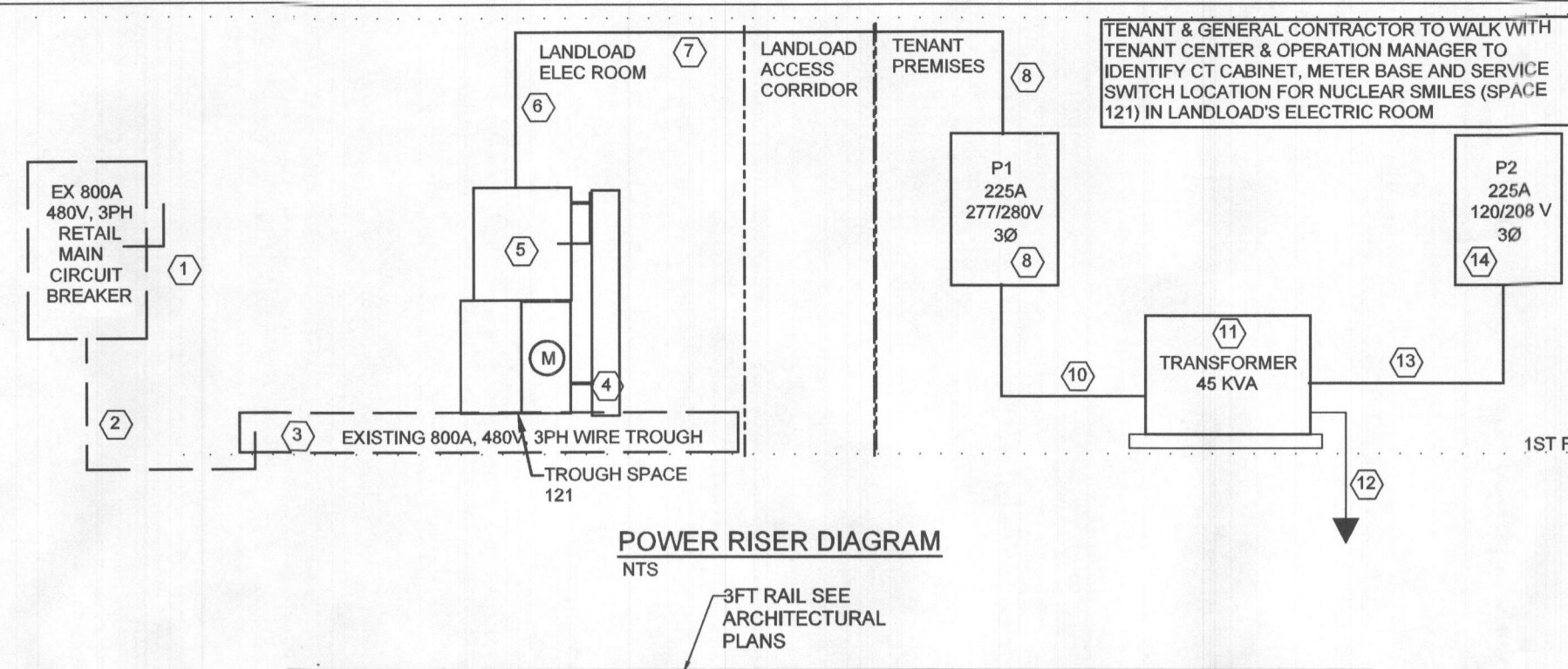
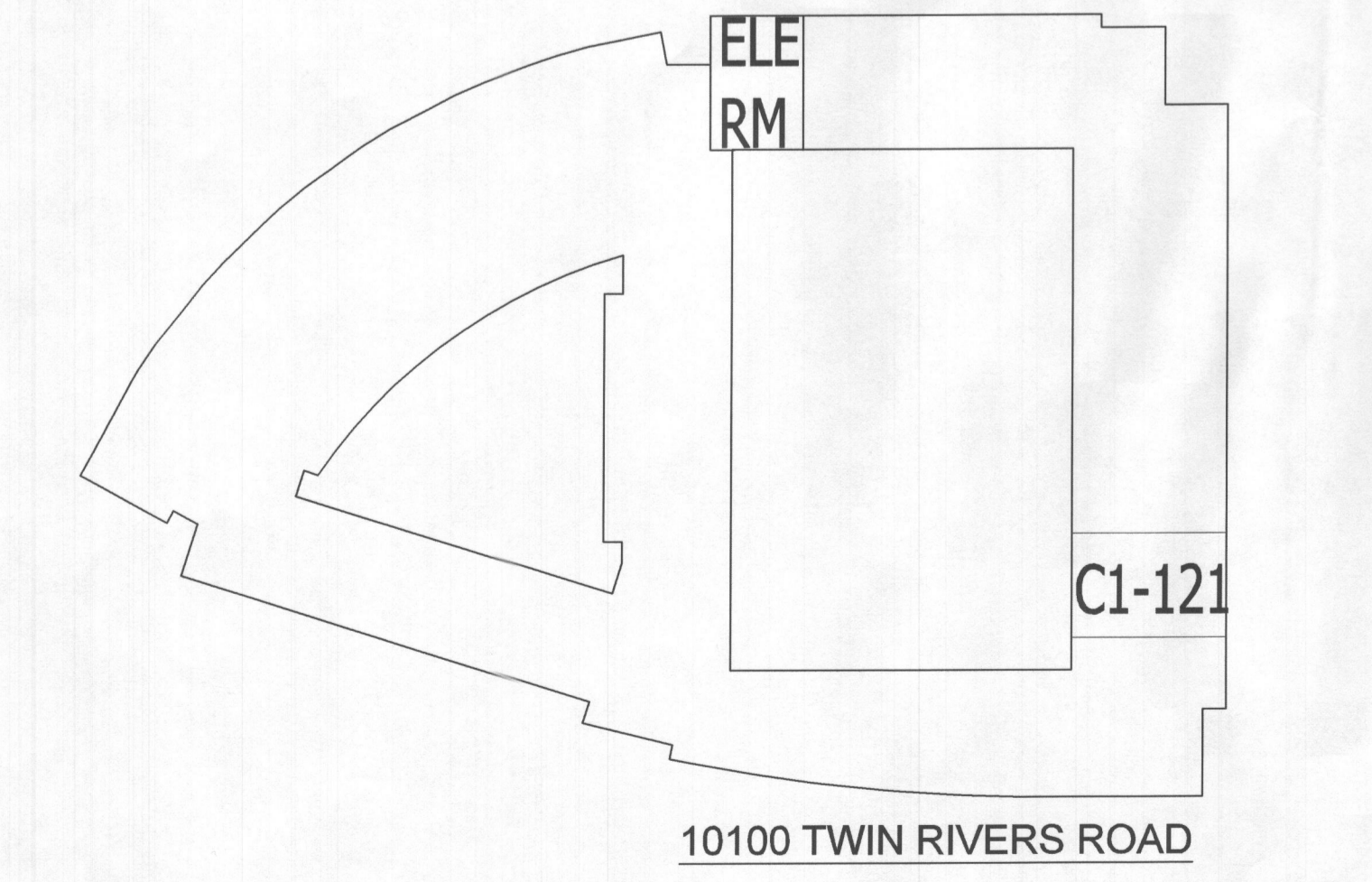
PANEL P2
 VOLTAGE: 120 / 208V
 PHASE WIRE: 3 PH, 4 W
 225 AMP MAIN CB
 A.I.C.: MOUNTED
 FLUSH

| KVA CODE | CKT | SERVING | CB | | | WIRE | | | KVA | | | PH | | | WIRE | | | SERVING | CKT | KVA CODE |
|-------------------------------|-----|------------------------|----|------|-----|------|------|-----|-------------|------|--------------|-----|----|--------------------------|------|-----|-----|---------|-----|----------|
| | | | P | TRIP | QTY | AVG | QTY | AVG | P | TRIP | QTY | AVG | A | B | C | QTY | AVG | | | |
| R | 1 | TOILET ROOM GR RECEPTS | 1 | 20 | 2 | 12 | 0.36 | A | 0.5 | 2 | 12 | 1 | 20 | CORRIDOR RECEPTACLES | 2 | R | | | | |
| R | 3 | WAITING AREA RECEPTS | 1 | 20 | 2 | 12 | 1.44 | B | 0.4 | 2 | 12 | 1 | 20 | PANEL RECEPTACLE | 4 | R | | | | |
| R | 5 | PROCEDURE RECEPTS | 1 | 20 | 2 | 12 | 1.20 | C | 0.7 | 2 | 12 | 1 | 20 | OFFICE RECEPTS | 6 | R | | | | |
| R | 7 | PROCEDURE RECEPTS | 1 | 20 | 2 | 12 | 0.48 | A | 0.6 | 3 | 14 | 2 | 15 | I-CAT IMAGING SYSTEM#1 | 8 | EQ | | | | |
| EQ | 9 | CS 9300 DENTAL IMAGER | 2 | 20 | 3 | 12 | 1.92 | B | 0.6 | | | | | I-CAT IMAGING SYSTEM#2 | 12 | EQ | | | | |
| EQ | 11 | | | | | | 1.92 | C | 0.5 | 4 | 14 | 2 | 15 | I-CAT IMAGING SYSTEM#3 | 14 | EQ | | | | |
| EQ | 13 | MOJAVE LITS | 2 | 20 | 3 | 12 | 0.66 | A | 0.5 | 4 | 14 | 2 | 15 | I-CAT IMAGING SYSTEM#4 | 16 | EQ | | | | |
| EQ | 15 | | | | | | 0.66 | B | | 4 | 14 | 2 | 15 | I-CAT IMAGING SYSTEM#5 | 18 | EQ | | | | |
| EQ | 17 | DENTAL AIR SYSTEM | 2 | 20 | 3 | 12 | 1.63 | C | | 4 | 14 | 2 | 15 | I-CAT IMAGING SYSTEM#6 | 20 | EQ | | | | |
| EQ | 19 | | | | | | 1.63 | A | | 4 | 14 | 2 | 15 | (FUTURE) | 22 | EQ | | | | |
| EQ | 21 | COMPUTER | 1 | 20 | 2 | 12 | 1.38 | B | | 4 | 14 | 2 | 15 | (FUTURE) | 24 | EQ | | | | |
| R | 23 | TV RECEPTACLE | 1 | 20 | 2 | 12 | 1.18 | C | | 4 | 14 | 2 | 15 | (FUTURE) | 26 | EQ | | | | |
| R | 25 | TV RECEPTACLE | 1 | 20 | 2 | 12 | 1.18 | A | | 4 | 14 | 2 | 15 | (FUTURE) | 28 | EQ | | | | |
| L | 27 | Cabinet Lighting | 1 | 20 | 2 | 12 | 0.48 | B | | 4 | 14 | 2 | 15 | (FUTURE) | 30 | EQ | | | | |
| L | 29 | Cabinet Lighting | 1 | 20 | 2 | 12 | 0.48 | C | | 4 | 14 | 2 | 15 | (FUTURE) | 32 | EQ | | | | |
| L | 31 | Cabinet Lighting | 1 | 20 | 2 | 12 | 0.48 | A | 0.7 | 2 | 12 | 1 | 20 | BUSINESS STATION RECEPTS | 34 | R | | | | |
| L | 33 | Cabinet Lighting | 1 | 20 | 2 | 12 | 0.48 | B | 0.4 | 2 | 12 | 1 | 20 | TOILET ROOM RECEPT | 36 | R | | | | |
| H | 35 | AHLU | 1 | 20 | 2 | 12 | 1.76 | C | 1.0 | 2 | 12 | 1 | 20 | INTERNAL SIGN PANEL | 38 | R | | | | |
| AC | 37 | A/C COMPRESSOR | 2 | 50 | 3 | 6 | 5.80 | A | 1.0 | 2 | 12 | 1 | 20 | SIGN & DISPLAY SHELF | 40 | R | | | | |
| AC | 39 | | | | | | 5.80 | B | | 1 | 20 | | | SPARE | 42 | R | | | | |
| | 41 | SPACE | | | | | | C | | 1 | 20 | | | SPARE | 44 | R | | | | |
| TOTAL DEMAND KVA (PER PHASE): | | | A: | 10.7 | B: | 10.1 | C: | 9.0 | DESIGN KVA: | 32 | DESIGN AMPS: | 98 | | | | | | | | |

NOTES:
 * PROVIDE HANDLE LOCK-ON CB COVER

| CD | DESCRIPTION | CONN. KVA | | | DEMAND FACTOR | DEMAND KVA | | | DESIGN KVA = |
|-------|------------------|-----------|-----|-----|---------------|------------|------|-----|----------------------|
| | | A | B | C | | A | B | C | |
| R | RECEPTACLES | 4.2 | 2.2 | 4.1 | | 4.1 | 2.1 | 4.0 | 10% |
| EQ | EQUIPMENT | 3.4 | 4.6 | 4.0 | 65% | 2.2 | 3.0 | 2.6 | DESIGN AMPS = 98 AMP |
| L | LIGHTING | 0.5 | 1.0 | 0.5 | 125% | 0.6 | 1.2 | 0.6 | MOCIP = 100 AMP |
| H | HEATING | 1.8 | | | 100% | 1.8 | 1.8 | | |
| AC | AIR CONDITIONING | 3.8 | 3.8 | | 100% | 3.8 | 3.8 | | |
| TOTAL | | | | | | 10.7 | 10.1 | 9.0 | |

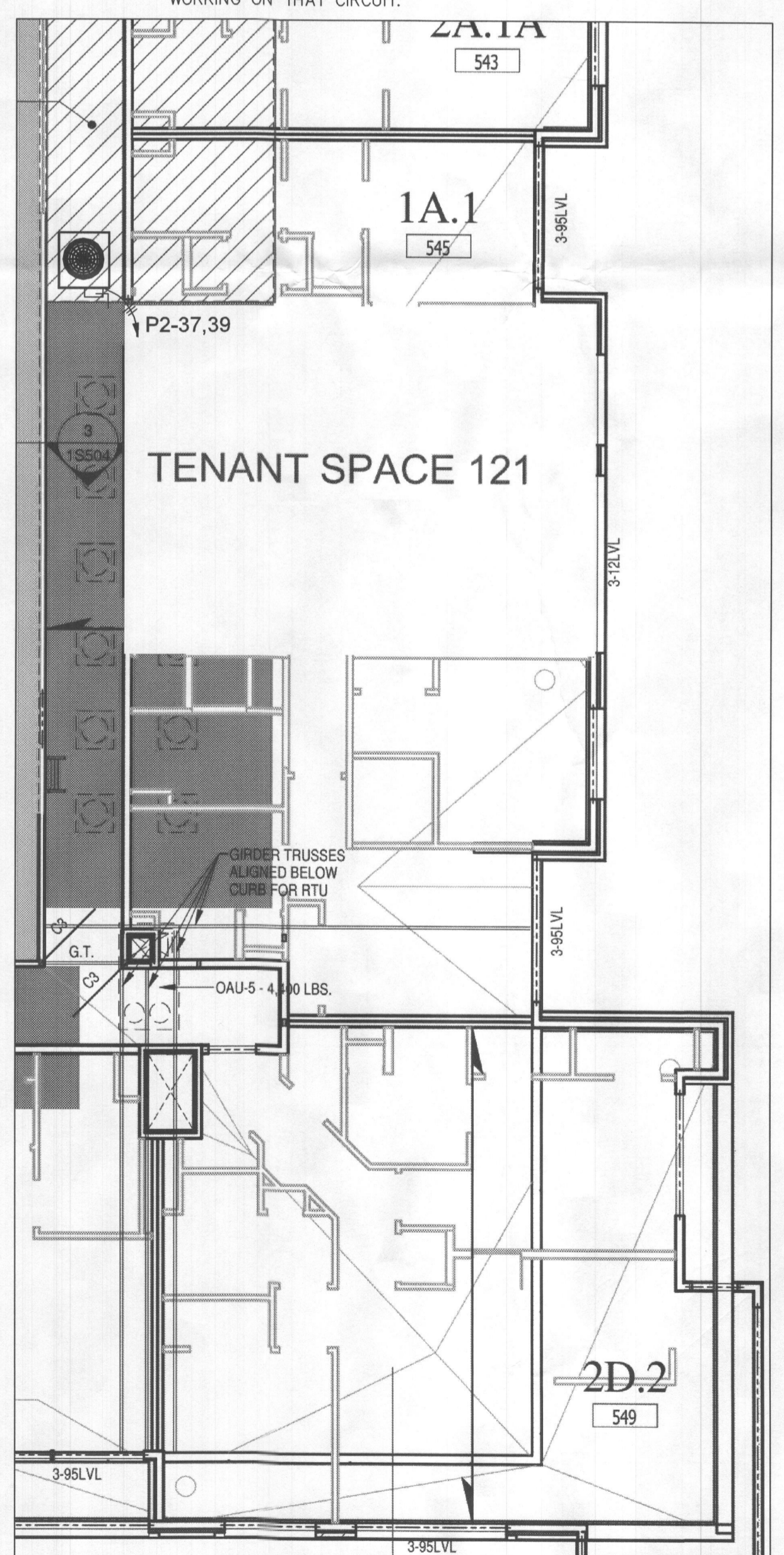
* FIRST 10 KVA AT 100%, REMAINDER AT 50% PER NEC 220-13



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

- POWER RISER DIAGRAM NOTES**
- EXISTING 800A, 480V, 30, 4W MAIN SWITCH LOCATED IN THE MAIN ELECTRIC ROOM, GRADE LEVEL, ON BROKEN LAND PKWY
 - EXISTING 8 SETS OF 4-500 KCMIL AL FEEDERS IN 4" CONDUIT UP TO WIRE TROUGH
 - NEW TERMINATION CABINET AND METER SOCKET PER B6&E REQUIREMENTS DEDICATED SPACE FOR TENANT 121
 - NEW SET OF 4-500 KCMIL AL FEEDERS IN WIRE WAY TO NEW 225A, 480V, 3PH FUSED SERVICE SWITCH
 - NEW 225, 480V, 3PH FUSED SERVICE SWITCH
 - NEW SET OF 4-500 KCMIL AL FEEDERS IN 4" CONDUIT UP TO EXISTING 4" CONDUIT AT CEILING, APPROX. 25 FT, IN THE SOUTHEAST CORNER OF THE ELECTRIC ROOM.
 - NEW SET OF 4-500 KCMIL AL FEEDERS IN EXISTING 4" CONDUIT TO TENANT SPACE 121
 - NEW SET OF 4-500 KCMIL AL FEEDERS IN 4" CONDUIT UP TO EXISTING 4" CONDUIT AT CEILING, APPROX. 25 FT, IN THE NORTHWEST CORNER OF TENANT SPACE 121.
 - NEW 225A, 277/480V, 3PH MLO PANEL P1 IN TENANT SPACE 121.
 - NEW SET OF 4-500 KCMIL AL FEEDERS IN 4" CONDUIT TO 45 KVA TRANSFORMER
 - NEW 45 KVA 480V TO 208Y/30, 4W DRY TYPE TRANSFORMER
 - NEW 100 AL ELECTRODE CONDUCTOR TO GROUND ROD.
 - NEW SET OF 4-500 KCMIL AL FEEDERS IN 4" CONDUIT TO NEW 225A/208V, 3PH PANEL
 - NEW 225A, 120/208V, 3PH MAIN CIRCUIT BREAKER PANEL P2 IN TENANT SPACE 121.

- ELECTRICAL NOTES**
- ALL MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH 2017 NFPA 70 NATIONAL ELECTRICAL CODE.
 - POLYVINYL CHLORIDE (PVC) CONDUIT SHALL BE USED FOR ALL UNDERGROUND WORK, EXCEPT WHERE NOTED OTHERWISE. ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED THROUGHOUT THE BUILDING. MC CABLE MAY BE USED IN CONCEALED LOCATIONS.
 - ALL FEEDER AND BRANCH CIRCUIT WIRING SHALL BE COPPER, 98% CONDUCTIVITY, 600 VOLT INSULATION, N.E.C. TYPE THW, THWN, OR XHHW.
 - ALL WIRING IN THE PATIENT CARE AREA SHALL BE INSTALLED PER SECTION 517 OF THE NATIONAL ELECTRICAL CODE. ALL BRANCH CIRCUITS, WIRING DEVICES, JUNCTION BOXES & PATIENT EQUIPMENT IN THE PATIENT CARE AREA SHALL BE PROVIDED WITH AN EFFECTIVE GROUND FAULT CURRENT PATH.
 - ALL BOXES SHALL BE GALVANIZED, PRESSED STEEL, OR CAST MALLEABLE IRON.
 - PANEL BOARDS SHALL BE DEAD-FRONT, SAFETY TYPE. PANELS SHALL BE CIRCUIT BREAKER TYPE EQUIPPED WITH QUICK-MAKE, QUICK-BREAK, BOLT-ON TRIP INDICATING, THERMAL MAGNETIC CIRCUIT BREAKERS. PANELS SHALL BE SQUARE D TYPE NOOD, OR EQUAL BY CUTLER-HAMMER, G.E., OR WESTINGHOUSE.
 - SAFETY SWITCHES SHALL BE HORSEPOWER RATED, QUICK-MAKE, QUICK-BREAK, BY SQUARE D, OR EQUAL BY CUTLER-HAMMER, G.E., OR WESTINGHOUSE.
 - WIRING DEVICES, SWITCHES, AND RECEPTACLES SHALL BE 20 AMP BY P&S OR APPROVED EQUAL DEVICE PLATES SHALL BE IVORY NYLON.
 - THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND INCIDENTAL TO THE FURNISHING AND INSTALLING COMPLETE ELECTRICAL SYSTEMS, ALL AS SHOWN ON THE CONTRACT DRAWINGS AND/OR CALLED FOR IN THE SPECIFICATIONS.
 - THE INCOMING ELECTRICAL SERVICE SHALL BE 120/208 VOLT, 3 PHASE, 4 WIRE. ALL MATERIALS AND METHODS SHALL BE IN ACCORDANCE WITH A.P.S. RULES AND REGULATIONS FOR METER AND SERVICE INSTALLATIONS.
 - COORDINATE LOCATIONS AND SIZES WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
 - UNLESS OTHERWISE NOTED, MOUNTING HEIGHTS ARE TO CENTER LINE OF EQUIPMENT.
 - WHERE ACCEPTABLE, MOUNTING HEIGHTS SHALL CONFORM TO HANDICAPPED CODE.
 - ELECTRICIAN TO TAG ALL WIRES TO PLACE OF ORIGIN AND FUNCTION AS REQUIRED.
 - ELECTRICIAN TO MAKE FINAL ELECTRICAL CONNECTIONS TO ALL EQUIPMENT AS REQUIRED.
 - CIRCUIT SOURCE INFORMATION (PANEL AND CIRCUIT NUMBER) SHOWN ON THE DRAWINGS WERE DERIVED FROM AS-BUILT DRAWINGS OR CASUAL OBSERVATIONS AND ARE PROVIDED FOR ASSISTANCE ONLY. VERIFY BY TESTING THAT A CIRCUIT IS TURNED OFF AT THE SOURCE BEFORE WORKING ON THAT CIRCUIT.



1 PARTIAL ROOF POWER PLAN
 1/4" = 1'-0"



I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

MARYLAND LICENSE NO. 12979 (EXPIRES 05/30/2020)

RECEIVED
 NOV 22 2019
 LICENSES & PERMITS
 DIVISION

Project: **NUCLEAR SMILES ORTHODONICS SPACE C121**
 10100 TWIN RIVERS ROAD
 COLUMBIA, MD 21044

Owner:

Architect:
 Alan R. Clapp
 424 West Patrick St
 Frederick, MARYLAND 21701
 301-831-8900 301-639-6127

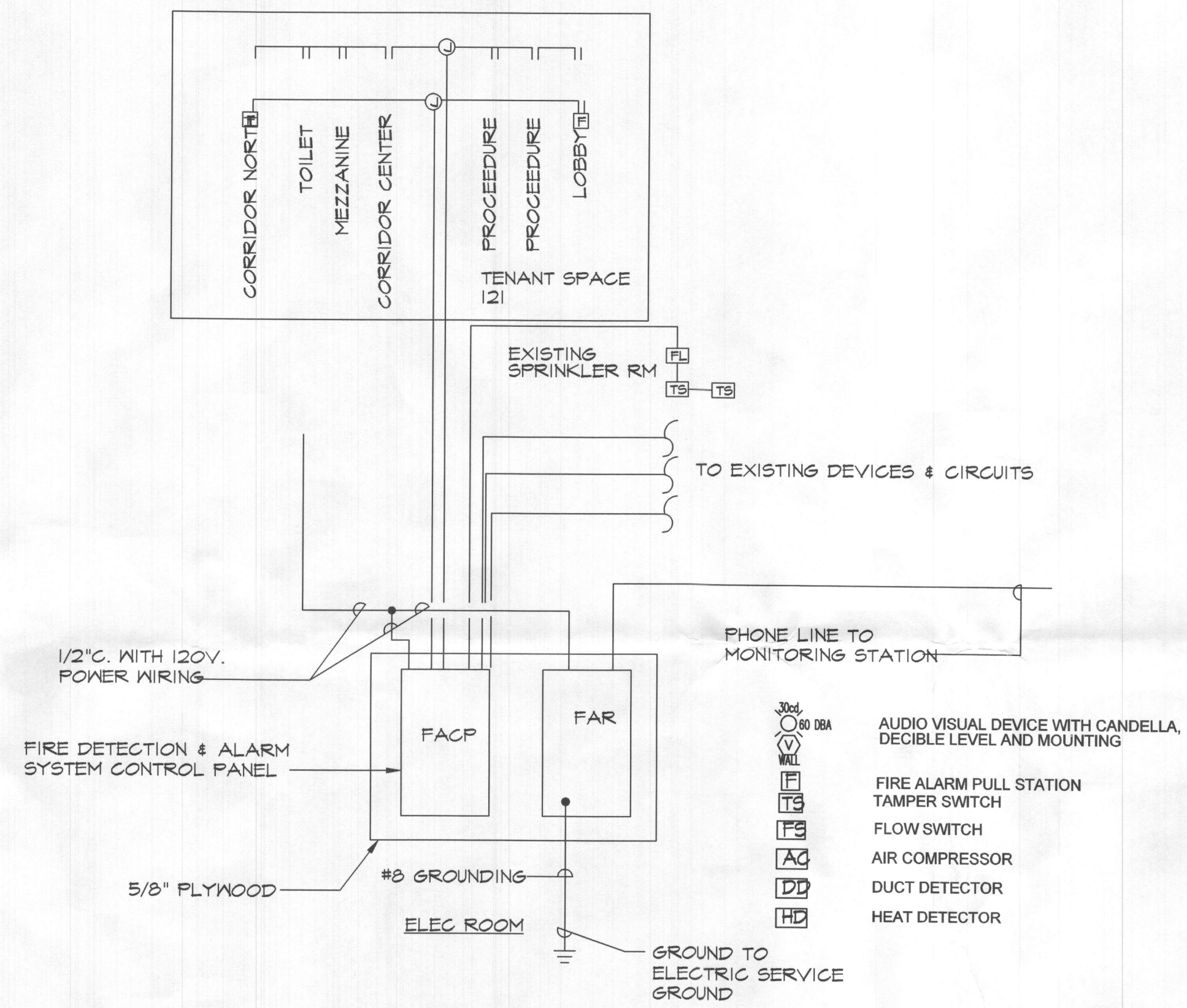
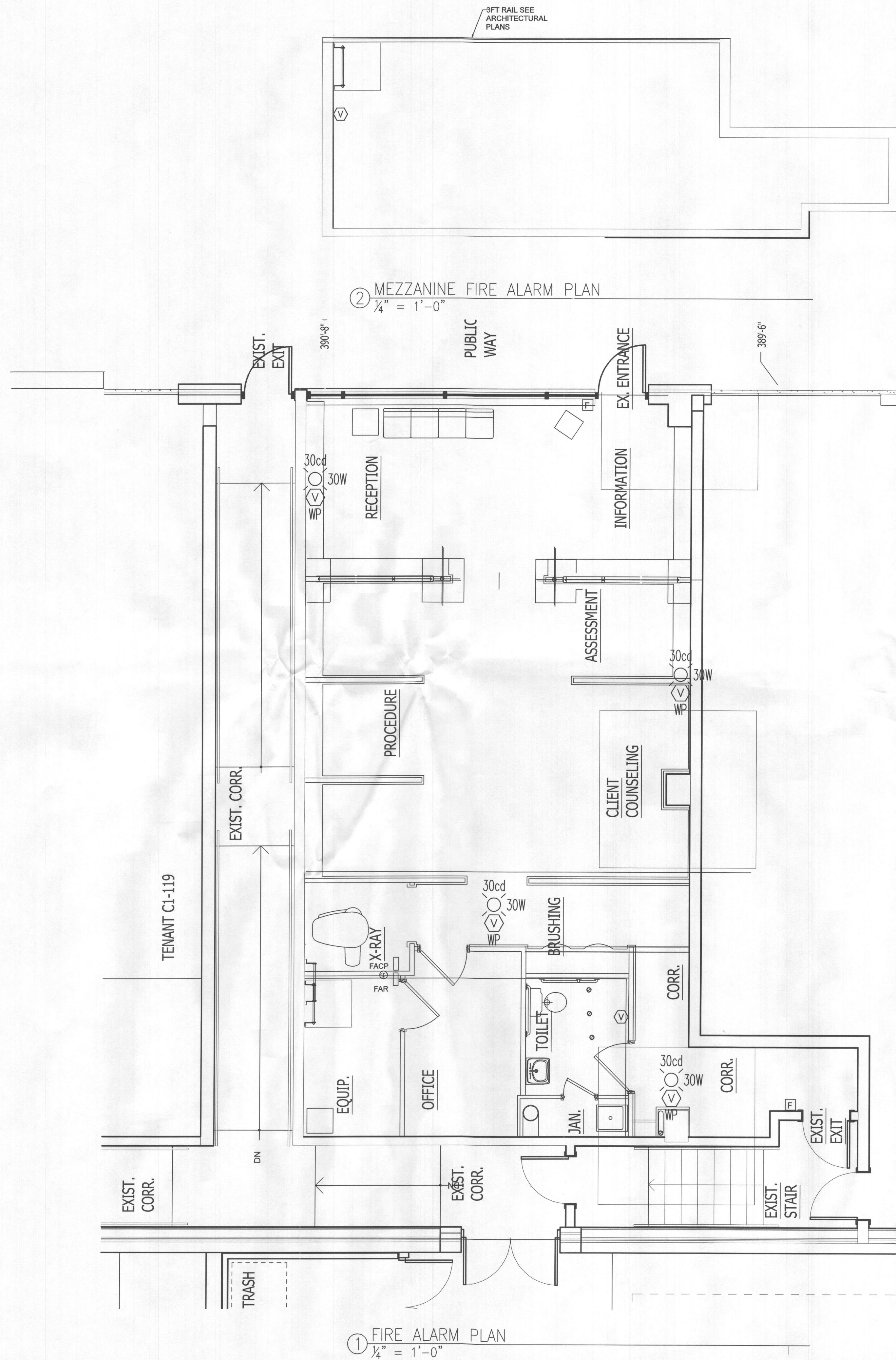
TOOMEY ENGINEERING CORPORATION
 2410 COBBLESTONE WAY, FREDERICK, MD 21701
 PHONE 301-620-2807 FAX 301-620-8782
 toomeycorp.com

Revisions:

| | |
|---|-------------|
| 1 | Plan Review |
| 2 | |
| 3 | |

Job Number: 190701
 Date: 11/20/2019
 Owner:
 Contractor:
 Sales:
 Scale: AS NOTED
 Issued For:

Sheet No. **E-2**
 POWER PLANS



FIRE ALARM SYSTEM-SCHEMATIC DIAGRAM

NO SCALE

TENANT/GC TO CONTRACT FIRE ALARM CONTRACTOR PER HOWARD COUNTY REQUIREMENTS



Gerald P. Toomey

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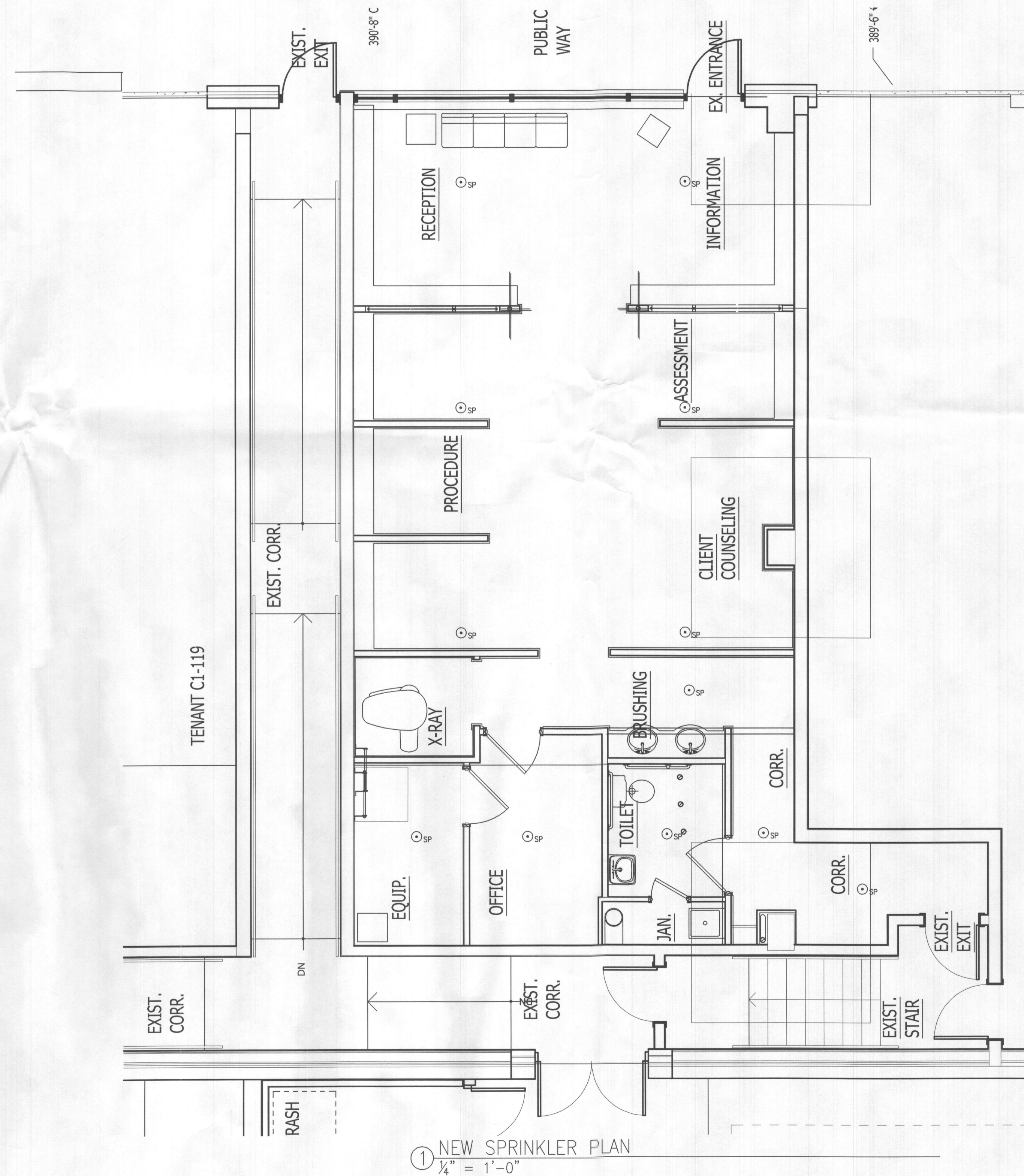
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Sheet No. **FA-1**
POWER PLANS

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SPRINKLER SYSTEM DESIGN CRITERIA


- EXISTING SPACE IS PROVIDED WITH UPRIGHT SPRINKLER AT 24 FT ABV FINISHED FLOOR. THE TENANT SPACE WILL HAVE A SLOPED CEILING WITH THE PEAK AT 20 FT ABV FINISH FLOOR. THE EXISTING UPRIGHT SPRINKLERS SHALL REMAIN & THE SPRINKLER SYSTEM EXTENDED TO TENANT SPACE
 - PROVIDE HYDRAULICALLY CALCULATED, WET-PIPE AUTOMATIC SPRINKLER SYSTEM
 - USE NFPA 13D 2018 EDITION IN GENERAL SPACES.
 - USE LISTED COMMERCIAL QUICK RESPONSE SPRINKLERS (160-165 F) IN GENERAL AREAS CENTRAL PENDENT MODEL C-1 OR EQUAL.
 - USE LISTED REGULAR SPRINKLERS WITH SAME FACE AND SIZE IN UNFINISHED AREA (165½ F).
 - PROVIDE INSPECTOR/TEST FOR ALL LEVELS AS REQUIRED BY NFPA AND LOCAL AUTHORITIES.
 - PROVIDE FIRE DEPARTMENT CONNECTION AS INDICATED ON THE DRAWINGS.
- ⊙_{SP} PROPOSED LOCATION OF NEW SPRINKLER HEADS

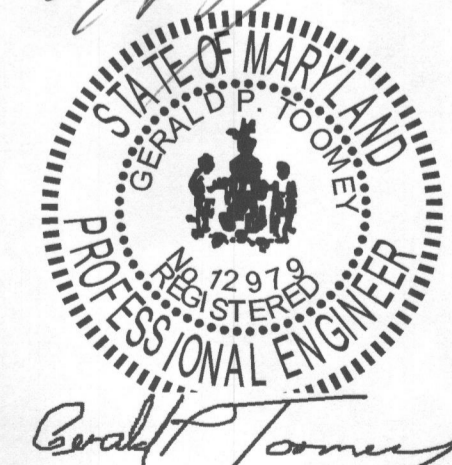


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Sheet No. **FP-1**
 SPRINKLER PLANS

RECEIVED
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 LICENSES & PERMITS DIVISION

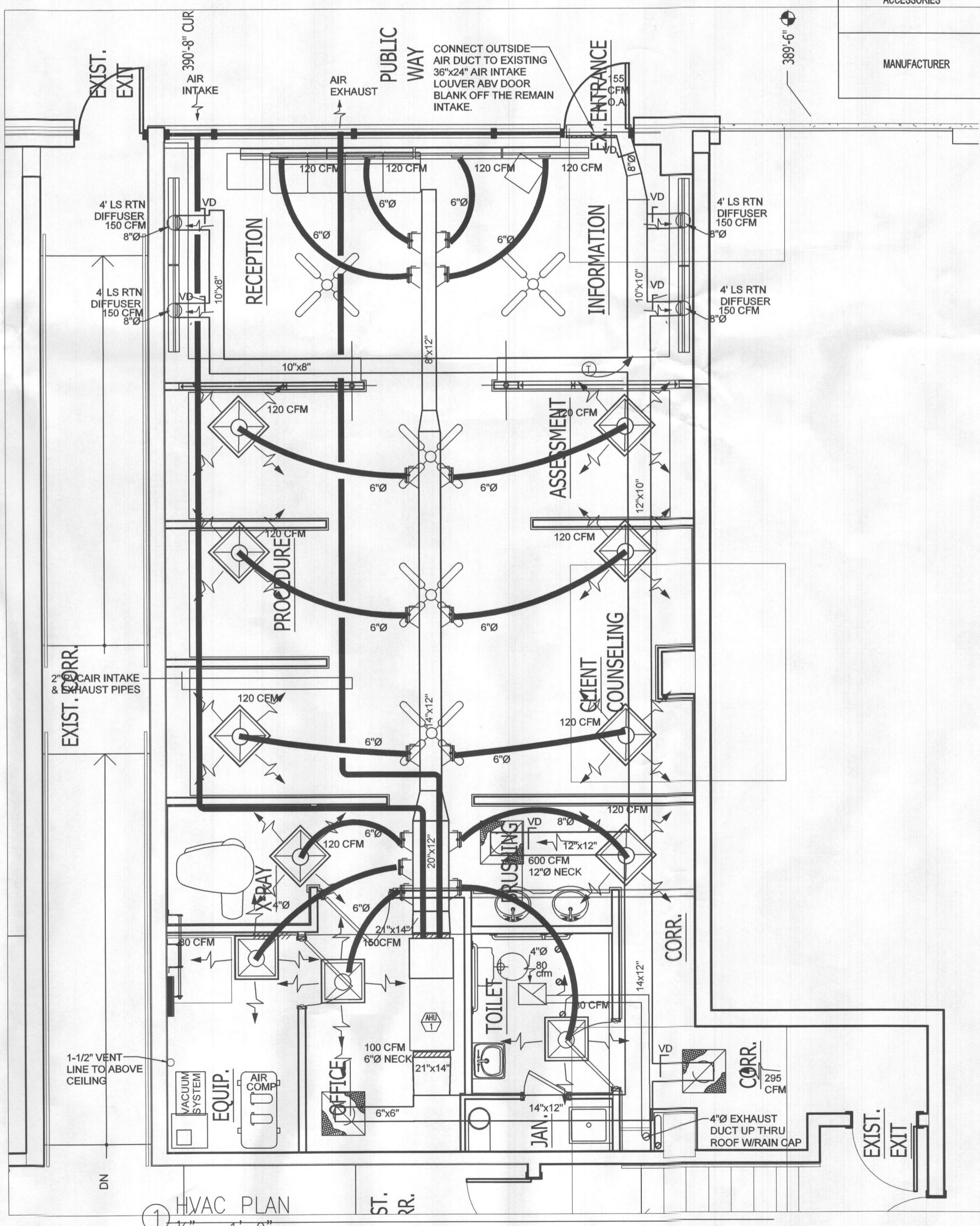
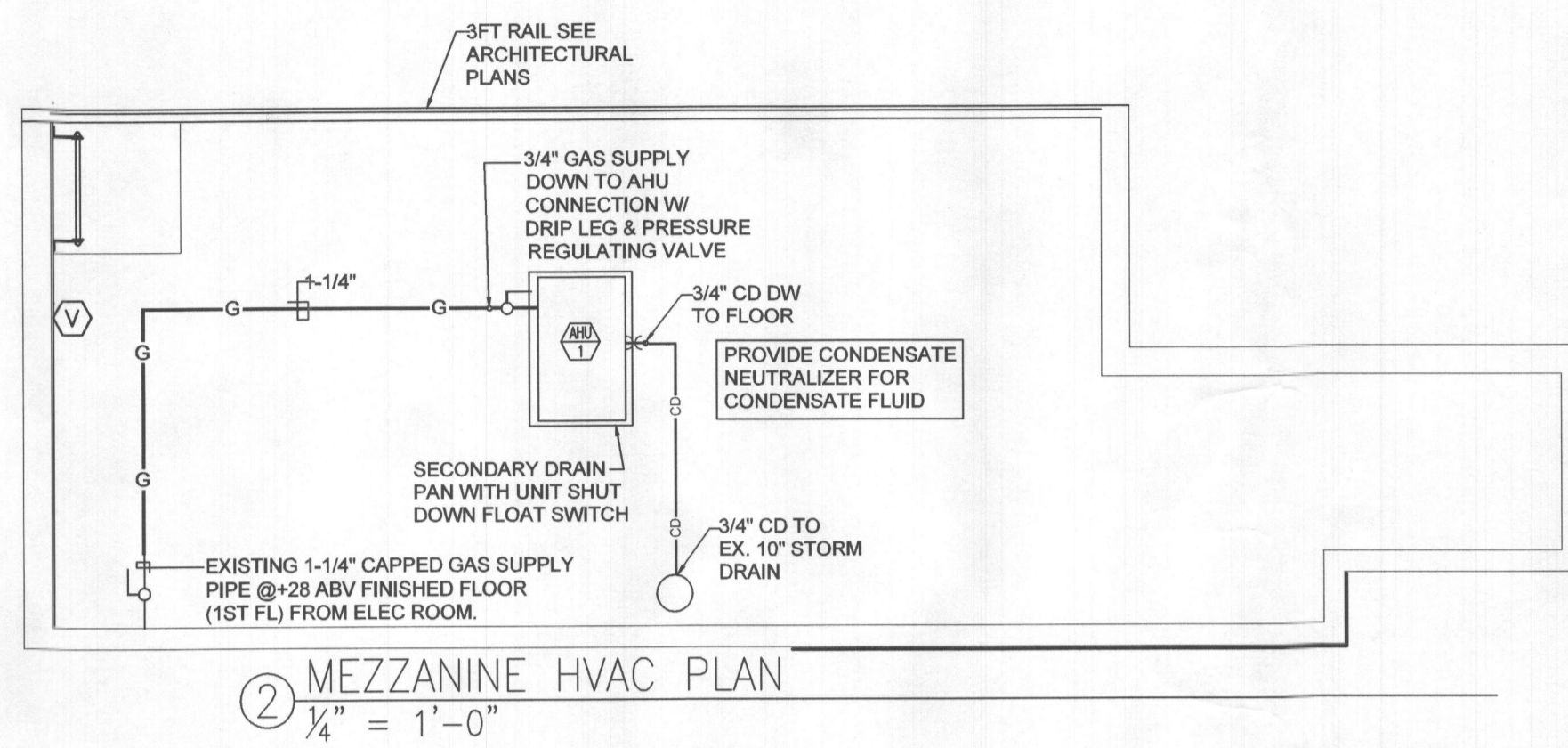
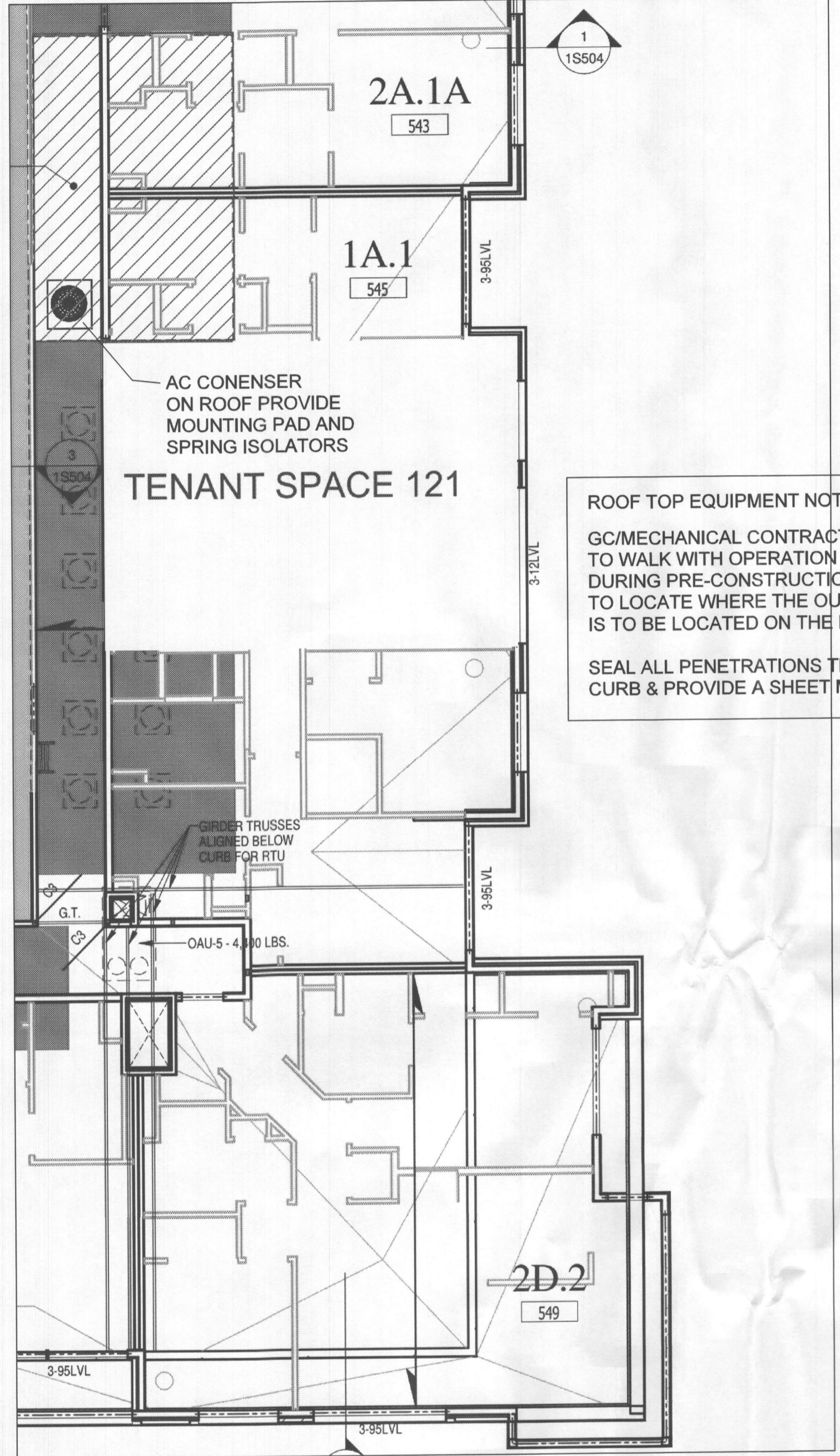
| OUTDOOR AIR REQUIREMENTS PER 2015 IMC TABLE 403.3 & ASHRAE-62.1 | | | | | | | | | | | | | |
|---|----------|---------------------------|---------------------------|---------------------------------------|-----------------|-------------------------------|-----------------------------------|---------------------------------|------------------|----------------------------|-----------------------|---------------------|--------------------------------|
| Room | Net Area | Occupant Classification | Occupant Load per 1000 SF | Area Outdoor Air Flow Rate per Person | Total Occupants | Area Outside Air Required CFM | Breathing Zone Outdoor Air CFM/SF | Zone Distribution Effectiveness | Zone Outdoor Air | Total Outside Air Required | Supply Air Design CFM | Outdoor Air Percent | Total Outside Air Provided CFM |
| Managers Office | 83 | Office space | 5 | 5 | 0.4 | 2.075 | 0.06 | 0.8 | 5.0 | 8.8 | 150 | 6% | 10 |
| Toilet Rooms | 67 | Toilet Room Private | | | 0.0 | 0 | | | | 0.0 | 80 | | 0 |
| Lobby/Entry | 270 | Main Entry Lobbies | 10 | 5 | 2.7 | 13.5 | 0.06 | 0.8 | 16.2 | 37.1 | 480 | 8% | 60 |
| Corridors | 180 | Corridor | 0 | | 0.0 | 0 | 0.06 | 0.8 | 10.8 | 13.5 | 240 | 6% | 15 |
| Procedures | 447 | Office space | 5 | 5 | 2.2 | 11.175 | 0.06 | 0.8 | 26.8 | 47.5 | 720 | 7% | 60 |
| Electrical Room | 50 | Electrical Equipment room | 0 | | 0.0 | 0 | 0.06 | 0.8 | 3.0 | 3.8 | 80 | 5% | 10 |
| Total Outside Air | | | | | | | | | | 110.7 | 1750 | 6% | 155 |

MECHANICAL LEGEND

| SYMBOL | ABBREVIATION | DESCRIPTION |
|---------------------------------------|--------------|---|
| | ABV | ABOVE |
| | AFF | ABOVE FINISHED FLOOR |
| | CLG | CEILING |
| | DN | DOWN |
| $\overleftrightarrow{20' \times 10'}$ | | GALVANIZED, INSULATED DUCT, INTERIOR SIZE SHOWN |
| $\overleftrightarrow{}$ | | DUCT TURNING UP |
| $\overleftrightarrow{}$ | | DUCT TURNING DOWN |
| $\square \square \square$ | | DUCT SECTIONS (SUPPLY, EXHAUST, RETURN) |
| $\overline{\quad}$ | | FLEXIBLE DUCT |
| $\overline{\quad}$ | VD | MANUAL VOLUME DAMPER |
| \square | DIF | SUPPLY DIFFUSER |
| $\overline{\quad}$ | LS | LINEAR SLOT DIFFUSER |
| $\overline{\quad}$ | RAG | RETURN AIR GRILL |
| $\overline{\quad}$ | OBD | OPPOSED BLADE DAMPER |
| | MFR | MANUFACTURER |
| | MIN | MINIMUM |
| | OSA | OUTSIDE AIR |
| \bigcirc | | ROUND RIGID DUCTWORK |
| | TSP | TOTAL STATIC PRESSURE |
| $\overline{\quad}$ | | TURNING VANES |
| | TYP | TYPICAL |
| | WG | WATER GAUGE |
| 1 | | CONSTRUCTION NOTES |
| EF 1 | | MECHANICAL EQUIPMENT DESIGNATION |
| 1 | | THERMOSTAT |
| SD | | SMOKE DETECTOR (CONTROL) |

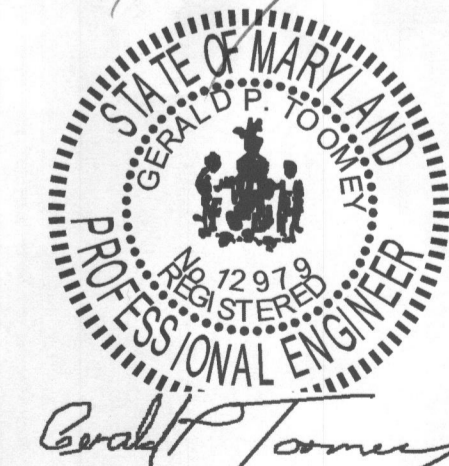
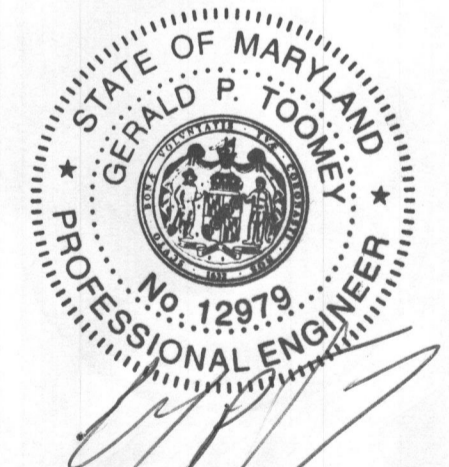
EXHAUST FAN SCHEDULE

| | |
|------------------------|---|
| FAN NO. | EF 1 |
| LOCATION | CEILING |
| AREA SERVED | TOILET ROOMS |
| FAN DUTY | AIR EXHAUST |
| FAN TYPE | CENTRIFUGAL DIRECT DRIVE |
| FAN ARRANGEMENT | INLINE |
| MIN. WHEEL DIAMETER | - |
| C.F.M. | 80 |
| T.S.P. | 0.75" |
| B.H.P. | 0.08 |
| FAN R.P.M. | 938 |
| MOTOR H.P. | 1/6 |
| ELEC. CHARACTERISTICS | 120V/1PH/60HZ |
| MOTOR R.P.M. | - |
| MOTOR SPECIAL FEATURES | OPEN DRIP-PROOF |
| ACCESSORIES | |
| MANUFACTURER | GREENHECK MODEL: A50-90-VG WT. 35 LBS |



SPLIT SYSTEM AC SCHEDULE

| | |
|-------------|--|
| UNIT SYMBOL | AC 1, AHU 1 |
| LOCATION | ROOF/MEZZANINE |
| CFM | 1750 |
| BOILER | MIN OUTSIDE AIR CFM: 155 |
| | TSP (IN W.G.): 0.5" |
| | TOTAL (BTUHR): 64,250 |
| | SENSIBLE (BTUHR): 48,850 |
| COOLING | AMBIENT (F): 95 |
| | DESIGN (F): 75 DB/67 WB |
| | HEATING INPUT OUTPUT (BTUHR): 80,000/78,000 |
| ELECTRICAL | AHU POWER SUPPLY: 120V/1Ø/60HZ |
| | AHU MCA: 14.7A |
| | AHU MOCP: 20A |
| | AC UNIT POWER SUPPLY: 208V/1Ø/60HZ |
| | AC MCA: 31.7A |
| | AC MOCP: 50A |
| REMARK | CARRIER OR EQUAL AIR CONDITIONER CONDENSER MODEL 24AC480C*30 COOLING COIL UNIT MODEL CAP*9024AL*TD* AIR HANDLING UNIT 597P8B MODEL 59MN208E220 ELECTRONIC PROGRAMMABLE THERMOSTAT. LOW (0°F) AMBIENT. AC UNITS MOUNTING PAD, SPRING ISOLATORS, SUPPORT RODS, FLEX CONNECTIONS OPER. WT. AC 248 LBS; AHU 150 LBS SEER=14.0 EER=11.7 HSPF = 6.8 PER IECC CODE APLUE = 92% TABLE 403.2.3(2) |



I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENCED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

MARYLAND LICENCE NO. 12979 (EXPIRES 05/30/2020)

Project:
**NUCLEAR SMILES ORTHODONICS
SPACE C121**
10100 TWIN RIVERS ROAD
COLUMBIA, MD 21044

Owner:
Architect:
Alan R. Clapp
424 West Patrick St
Frederick, MARYLAND 21701
301-831-8900 301-639-6127

TOOMEY ENGINEERING CORPORATION
2410 COBBLESTONE WAY, FREDERICK, MD 21701
PHONE 301.620.2801 FAX 301.620.8762
toomeycorp.com

| Revisions: | |
|------------|-------------|
| 1 | Plan Review |
| 2 | |
| 3 | |

| | |
|------------|------------|
| Job Number | 190701 |
| Date | 11/20/2019 |
| Owner | |
| Contractor | |
| Sales | |
| Scale | AS NOTED |
| Issued For | |

Sheet No. **M-1**
HVAC PLANS

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DIVISION

10100 TWIN RIVERS ROAD

COMcheck Software Version 4.1.1.0
Interior Lighting Compliance Certificate

Project Information
Energy Code: 2015 IECC
Project Title: NuClear Smiles Orthodontics Addition
Project Type: Addition
Construction Site: 10100 Twin Rivers Road, Suite C1-121, Columbia, MD 21044
Owner/Agent: Dr. Jon Moles, Moles Orthodontics, 3549 Urbana Pike, Frederick, MD 21704
Designer/Contractor: Gerald Toomey, Toomey Engineering Corporation, 2410 Cobblestone Way, Frederick, MD 21702, 301-620-2801, gtoomey@toomeycorp.com

Allowed Interior Lighting Power

| A Area Category | B Floor Area (ft ²) | C Allowed Watts / ft ² | D Allowed Watts (B X C) |
|---|---------------------------------|-----------------------------------|-------------------------|
| 1-Waiting Room (Common Space Types:Lobby - General) | 270 | 0.90 | 243 |
| 2-Dental Treatment (Healthcare Facility:Exam/Treatment) | 465 | 1.66 | 772 |
| 3-Managers Office (Common Space Types:Office - Enclosed) | 87 | 1.11 | 97 |
| 4-Toilet Room (Common Space Types:Restrooms) | 85 | 0.98 | 83 |
| 5-Electric Room (Common Space Types:Electrical/Mechanical) | 66 | 0.95 | 63 |
| 6-Corridor (Common Space Types:Corridor/Transition >=8 ft wide) | 319 | 0.66 | 211 |
| Total Allowed Watts = 1468 | | | |

Proposed Interior Lighting Power

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps / Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|--|-------------------|-----------------|-----------------|------------------|
| 1-Waiting Room (Common Space Types:Lobby - General) LED 1: C. Post Mounted Sconce: LED PAR 13W. LED 2: C. Linear Strip: LED Linear 8W. LED 3: F. Cabinet Lights: LED Linear 8W. | 2 8 1 | 3 1 4 | 13 8 19 | 39 8 76 |
| 2-Dental Treatment (Healthcare Facility:Exam/Treatment) LED 3: B. Recessed 2x2: LED Panel 60W. LED 9: A. Cabinet Lights: LED Linear 8W. | 1 1 4 | 6 1 4 | 60 36 36 | 360 36 144 |
| 3-Managers Office (Common Space Types:Office - Enclosed) LED 4: B. Recessed 2x2: LED Panel 60W. | 1 | 2 | 60 | 120 |
| 4-Toilet Room (Common Space Types:Restrooms) LED 5: D. Recessed Downlight: LED A Lamp 13W. | 1 | 2 | 13 | 26 |
| 5-Electric Room (Common Space Types:Electrical/Mechanical) LED 6: A. Surface Mounted 1x4: LED Linear 33W. | 1 | 2 | 33 | 66 |
| 6-Corridor (Common Space Types:Corridor/Transition >=8 ft wide) LED 7: B. LED Panel 60W. | 2 | 4 | 60 | 240 |

Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 1 of 14
Report date: 10/01/19

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Interior Lighting PASSES: Design 34% better than code

Interior Lighting Compliance Statement
Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name: Title: *Gerald Toomey* Signature: *[Signature]* Date: 10/1/19

Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 2 of 14
Report date: 10/01/19

COMcheck Software Version 4.1.1.0
Inspection Checklist

Energy Code: 2015 IECC
Requirements: 0.0% were addressed directly in the COMcheck software
Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section # & Req. ID | Plan Review | Complies? | Comments/Assumptions |
|---------------------------|---|--|----------------------|
| C103.2 [PR2] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C103.2 [PR4] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C103.2 [PR6] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C406 [PR9] ¹ | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 5 of 14
Report date: 10/01/19

| Section # & Req. ID | Footing / Foundation Inspection | Complies? | Comments/Assumptions |
|-----------------------------|---|--|----------------------|
| C403.2.4 [F91] ¹ | Snow/ice melting system sensors for future connection to controls. Freeze protection systems have automatic controls installed. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 6 of 14
Report date: 10/01/19

COMcheck Software Version 4.1.1.0
Exterior Lighting Compliance Certificate

Project Information
Energy Code: 2015 IECC
Project Title: NuClear Smiles Orthodontics Addition
Project Type: Addition
Exterior Lighting Zone: 2 (Neighborhood business district)
Construction Site: 10100 Twin Rivers Road, Suite C1-121, Columbia, MD 21044
Owner/Agent: Dr. Jon Moles, Moles Orthodontics, 3549 Urbana Pike, Frederick, MD 21704
Designer/Contractor: Gerald Toomey, Toomey Engineering Corporation, 2410 Cobblestone Way, Frederick, MD 21702, 301-620-2801, gtoomey@toomeycorp.com

Allowed Exterior Lighting Power

| A Area/Surface Category | B Quantity | C Allowed Watts / Unit | D Tradable Wattage | E Allowed Watts (B X C) |
|---|------------|------------------------|--------------------|-------------------------|
| Store Front (Sales lot street frontage) | 720 ft | 10 | Yes | 7200 |
| Total Tradable Watts (a) = | | | | 7200 |
| Total Allowed Watts (b) = | | | | 7200 |
| Total Allowed Supplemental Watts (b) = | | | | 600 |

(a) Wattage tradables are only allowed between tradable areas/surfaces.
(b) A supplemental allowance equal to 8% watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps / Fixture | C # of Fixtures | D Fixture Watt. | E (C X D) |
|--|-------------------|-----------------|-----------------|-----------|
| Store Front (Sales lot street frontage 720 ft): Tradable Wattage LED 1: Sign Light: LED Linear 20W. | 1 | 7 | 20 | 140 |
| Total Tradable Proposed Watts = | | | | 140 |

Exterior Lighting PASSES: Design 98% better than code

Exterior Lighting Compliance Statement
Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name: Title: *Gerald Toomey* Signature: *[Signature]* Date: 10/1/19

Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 3 of 14
Report date: 10/01/19

| Section # & Req. ID | Plumbing Rough-In Inspection | Complies? | Comments/Assumptions |
|-----------------------------|---|--|----------------------|
| C404.5 [PL3] ¹ | Heated water supply piping conforms to pipe length and volume requirements. Refer to section details. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C404.6.3 [PL7] ¹ | Pumps that circulate water between a heater and storage tank have controls that limit operation from startup to <= 5 minutes after end of heating cycle. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C404.7 [PL8] ¹ | Water distribution system that pumps water from a heated-water supply pipe back to the heated-water source through a cold-water supply pipe is a demand recirculation water system. Pumps within this system have controls that start the pump upon receiving a signal from the action of a user of a fixture or appliance and limits the temperature of the water entering the cold-water piping to 104°F. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 7 of 14
Report date: 10/01/19

COMcheck Software Version 4.1.1.0
Mechanical Compliance Certificate

Project Information
Energy Code: 2015 IECC
Project Title: NuClear Smiles Orthodontics Addition
Location: Columbia, Maryland
Climate Zone: 4a
Project Type: Addition
Construction Site: 10100 Twin Rivers Road, Suite C1-121, Columbia, MD 21044
Owner/Agent: Dr. Jon Moles, Moles Orthodontics, 3549 Urbana Pike, Frederick, MD 21704
Designer/Contractor: Gerald Toomey, Toomey Engineering Corporation, 2410 Cobblestone Way, Frederick, MD 21702, 301-620-2801, gtoomey@toomeycorp.com

Mechanical Systems List

| Quantity | System Type & Description |
|----------|---|
| 1 | HVAC System 1 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 60 kBtu/h Proposed Efficiency = 82.0% E1, Required Efficiency: 80.00 % E1 or 78% AFUE Cooling: 1 each - Split System, Capacity = 64 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: Low Operating Hours Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER Fan System: Unspecified |

Mechanical Compliance Statement
Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name: Title: *Gerald Toomey* Signature: *[Signature]* Date: 10/1/19

Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 4 of 14
Report date: 10/01/19

| Section # & Req. ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|-------------------------------|--|--|---|
| C402.2.6 [ME4] ¹ | Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.12 [ME5] ¹ | HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Mechanical Systems list for values. |
| C403.2.12 [ME11] ¹ | Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.13 [ME7] ¹ | Unenclosed spaces that are heated use only radiant heat. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.3 [ME5] ¹ | HVAC equipment efficiency verified. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Mechanical Systems list for values. |
| C403.2.6 [ME9] ¹ | Demand control ventilation provided for spaces >500 ft ² and >25 people/1000 ft ² occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >= 3,000 cfm. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.6 [ME11] ¹ | Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.7 [ME7] ¹ | Exhaust air energy recovery on systems meeting Table C403.2.7(1) and C403.2.7(2). | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.8 [ME16] ¹ | Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.9 [ME6] ¹ | HVAC ducts and plenums insulated, where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.9 [ME10] ¹ | Ducts and plenums sealed based on static pressure and location. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.9 [ME11] ¹ | Ductwork operating >3 in. water column requires air leakage testing. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: NuClear Smiles Orthodontics
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 8 of 14
Report date: 10/01/19

Project:
NUCLEAR SMILES ORTHODONICS
SPACE C121
10100 TWIN RIVERS ROAD
COLUMBIA, MD 21044

Owner:
Architect:
Alan R. Clapp
424 West Patrick St
Frederick, MARYLAND 21701
301-831-8900 301-639-6127

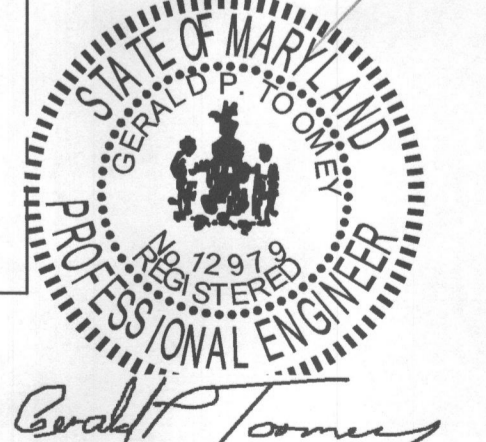
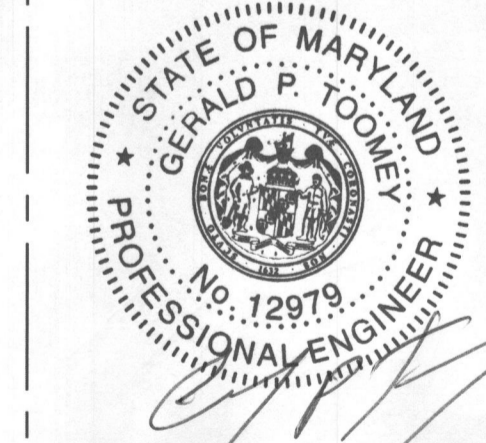
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Revisions:

| 1 | Plan Review |
|---|-------------|
| 2 | |
| 3 | |

| | |
|------------|------------|
| Job Number | 190701 |
| Date | 11/20/2019 |
| Owner | |
| Contractor | |
| Sales | |
| Scale | AS NOTED |
| Issued For | |

Sheet No.
ME-1
MECHANICAL & LIGHTING
CERTIFICATION



I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
MARYLAND LICENCE NO. 12979 (EXPIRES 05/30/2020)

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| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|--|--|--|---|
| C403.4.4 6 [ME110] | Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Mechanical Systems list for values. |
| C408.2.2 1 [ME53] | Air outlets and zone terminal devices have means for air balancing. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.5. C403.5.1 C403.5.2 [ME123] | Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered systems that comply with Sections C403.5.1 and refrigeration compressor systems that comply with C403.5.2. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: NuClear Smiles Orthodontics Report date: 10/01/19
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 9 of 14

| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|---|--|----------------------|
| C405.2.1 1 [EL15] | Lighting controls installed to uniformly reduce the lighting load by at least 50%. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.1 1 [EL18] | Occupancy sensors installed in required spaces. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.1 3 [EL23] | Independent lighting controls installed per approved lighting plans and all manual controls readily accessible and visible to occupants. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.2 1 [EL22] | Automatic controls to shut off all building lighting installed in all buildings. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.3 1 [EL16] | Daylight zones provided with individual controls that control the lights independent of general area lighting. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.3 1 C405.2.3.1 C405.2.3.2 [EL20] | Primary sidelighted areas are equipped with required lighting controls. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.3 1 C405.2.3.1 C405.2.3.2 [EL21] | Enclosed spaces with daylight area under skylights and rooftop monitors are equipped with required lighting controls. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.4 1 [EL4] | Separate lighting control devices for specific uses installed per approved lighting plans. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.4 1 [EL8] | Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.2.5 1 [EL25] | Automatic lighting controls for exterior lighting installed. Controls will be daylight controlled, set based on business operation time-of-day, or reduce connected lighting > 30%. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.3 1 [EL6] | Exit signs do not exceed 5 watts per face. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: NuClear Smiles Orthodontics Report date: 10/01/19
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 10 of 14

| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|---|---|--|--|
| C403.3. C408.2.5. 2 [F117] | Furnished O&M instructions for systems and equipment to the building owner or designated representative. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.3. C408.2.5. 3 [F8] | Furnished O&M manuals for HVAC systems within 90 days of system acceptance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.2 1 [F127] | HVAC systems and equipment capacity does not exceed calculated loads. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.4. 1 [F147] | Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.4. 1,2 [F138] | Thermostatic controls have a 5 °F deadband. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.4. 1,3 [F120] | Temperature controls have setpoint overlap restrictions. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.4. 2 [F139] | Each zone equipped with setback controls using automatic time clock or programmable control system. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C403.2.4. 2,1. C403.2.4. 2,2 [F140] | Automatic Controls: Setback to 55°F (heat) and 85°F (cool), 7-day clock, 2-hour occupant override, 10-hour backup. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C405.4.1 1 [F18] | Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Interior Lighting fixture schedule for values. |
| C405.5.1 1 [F19] | Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | See the Exterior Lighting fixture schedule for values. |
| C408.2.1 1 [F128] | Commissioning plan developed by registered design professional or approved agency. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.2.3. 1 [F131] | HVAC equipment has been tested to ensure proper operation. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: NuClear Smiles Orthodontics Report date: 10/01/19
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 12 of 14

| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|--------------------------|--|--|----------------------|
| C408.2.3. 2 [F110] | HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.2.4 1 [F129] | Preliminary commissioning report completed and certified by registered design professional or approved agency. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.2.5. 1 [F17] | Furnished HVAC as-built drawings submitted within 90 days of system acceptance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.2.5. 2 [F16] | Furnished as-built drawings for electric power systems within 90 days of system acceptance. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.2.5. 3 [F143] | An air and/or hydronic system balancing report is provided for HVAC systems. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.2.5. 4 [F130] | Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |
| C408.3 1 [F133] | Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation. | <input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable | |

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: NuClear Smiles Orthodontics Report date: 10/01/19
Data filename: C:\ToomeyCorp\Company\Projects\2019\190607 NuClear Orthodontics\NuClear ComCheck.cck Page 13 of 14

Project:
**NUCLEAR SMILES ORTHODONICS
SPACE C121
10100 TWIN RIVERS ROAD
COLUMBIA, MD 21044**

Owner:

Architect:
Alan R. Clapp
424 West Patrick St
Frederick, MARYLAND 21701
301-831-8900 301-639-6127

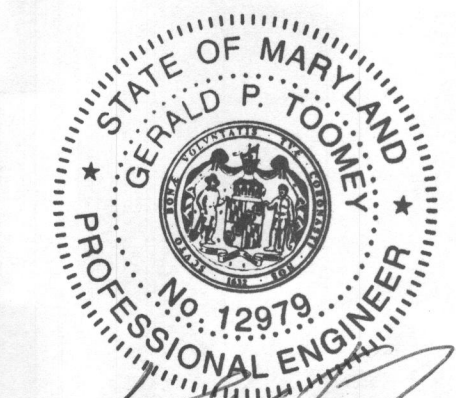
TOOMEY ENGINEERING CORPORATION
2410 COBBLESTONE WAY, FREDERICK, MD 21701
PHONE 301.620.2001 FAX 301.620.8762
toomeycorp.com

Revisions:

| Rev. No. | Description |
|----------|-------------|
| 1 | Plan Review |
| 2 | |
| 3 | |

| | |
|------------|------------|
| Job Number | 190701 |
| Date | 11/20/2019 |
| Owner | |
| Contractor | |
| Sales | |
| Scale | AS NOTED |
| Issued For | |

Sheet No.
ME-1
MECHANICAL & LIGHTING
CERTIFICATION



Gerald P. Toomey

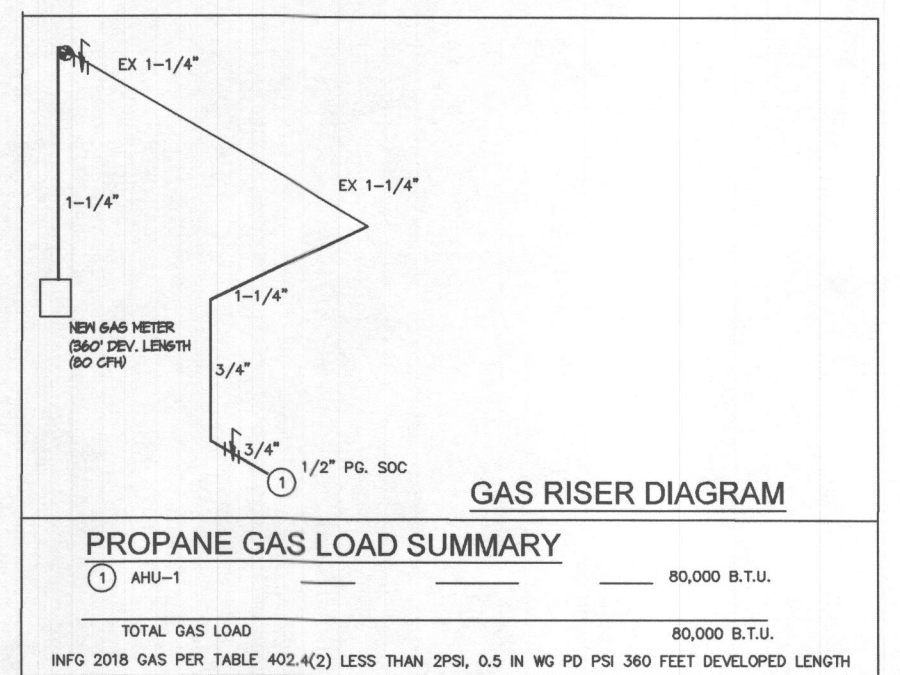
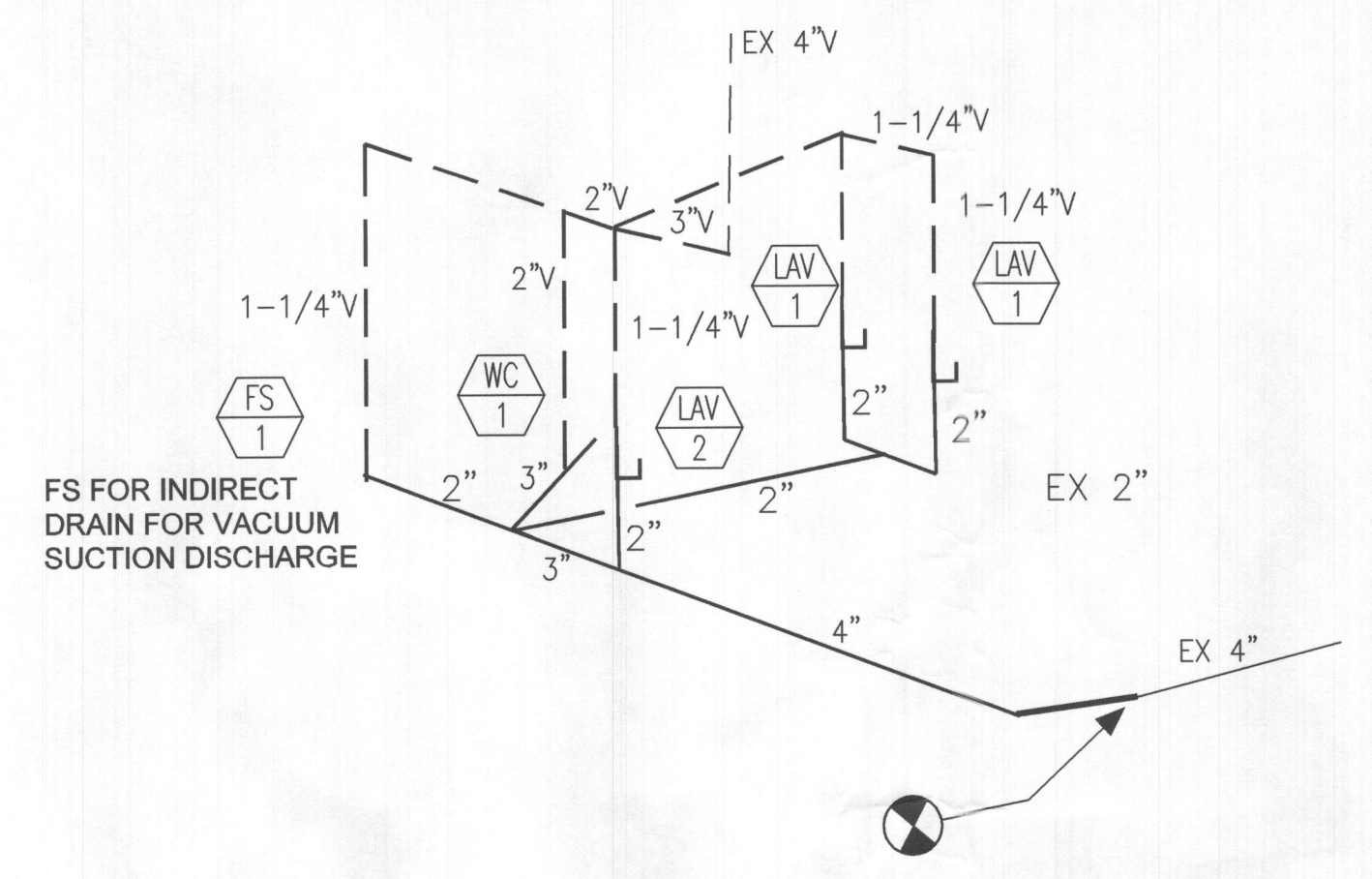
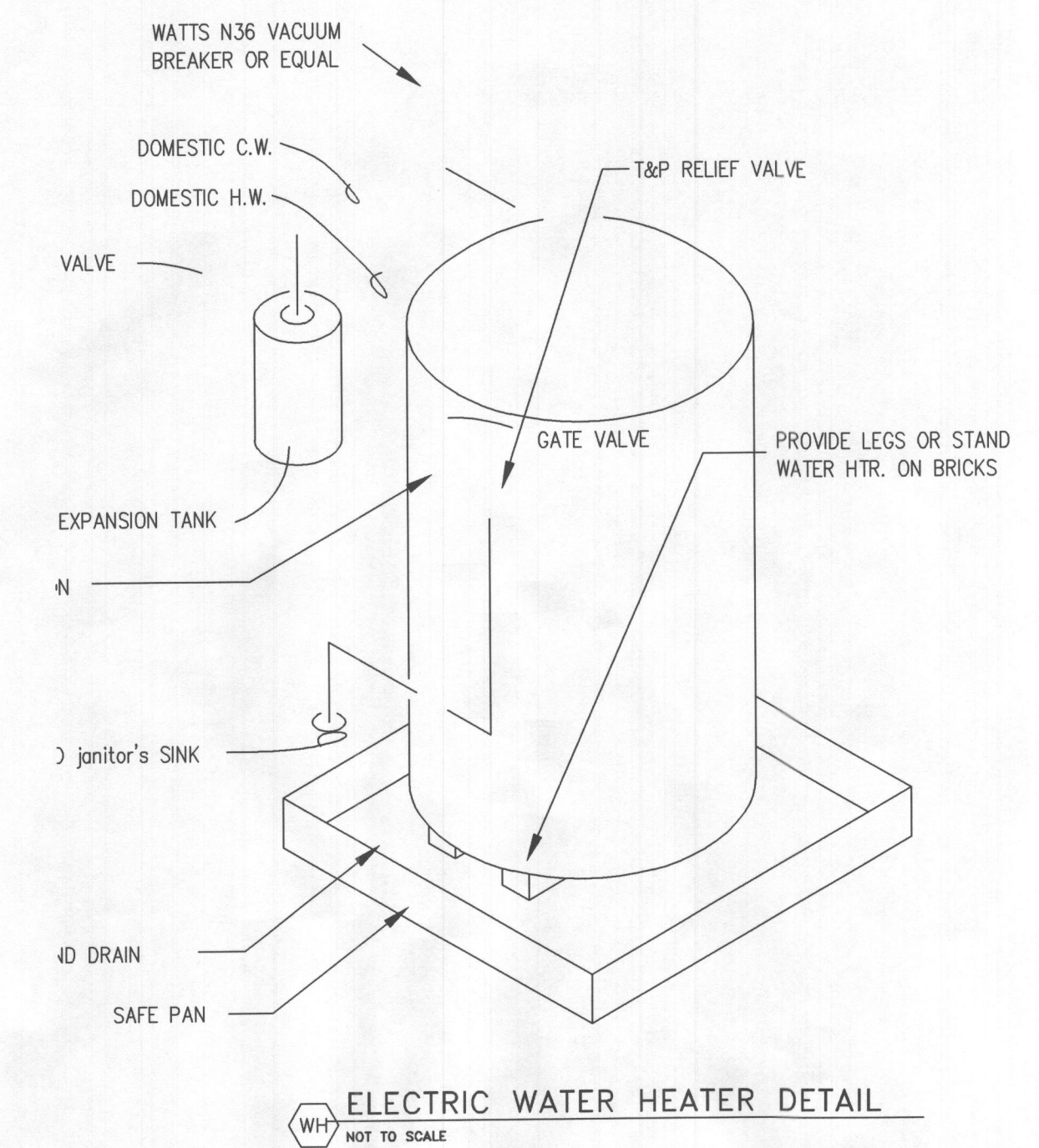
I CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENCED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

MARYLAND LICENCE NO. 12979 (EXPIRES 05/30/2020)

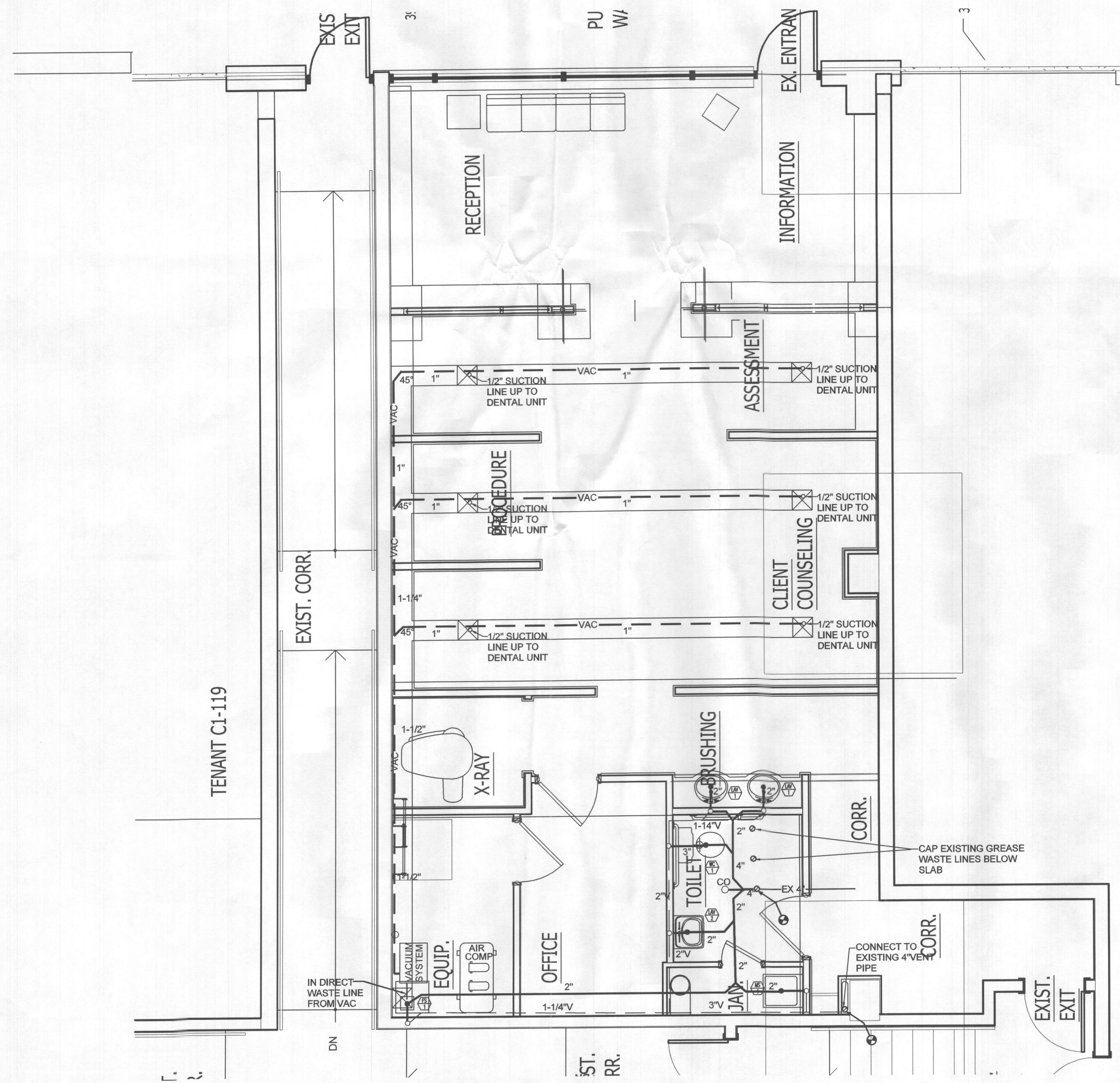
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DIVISION

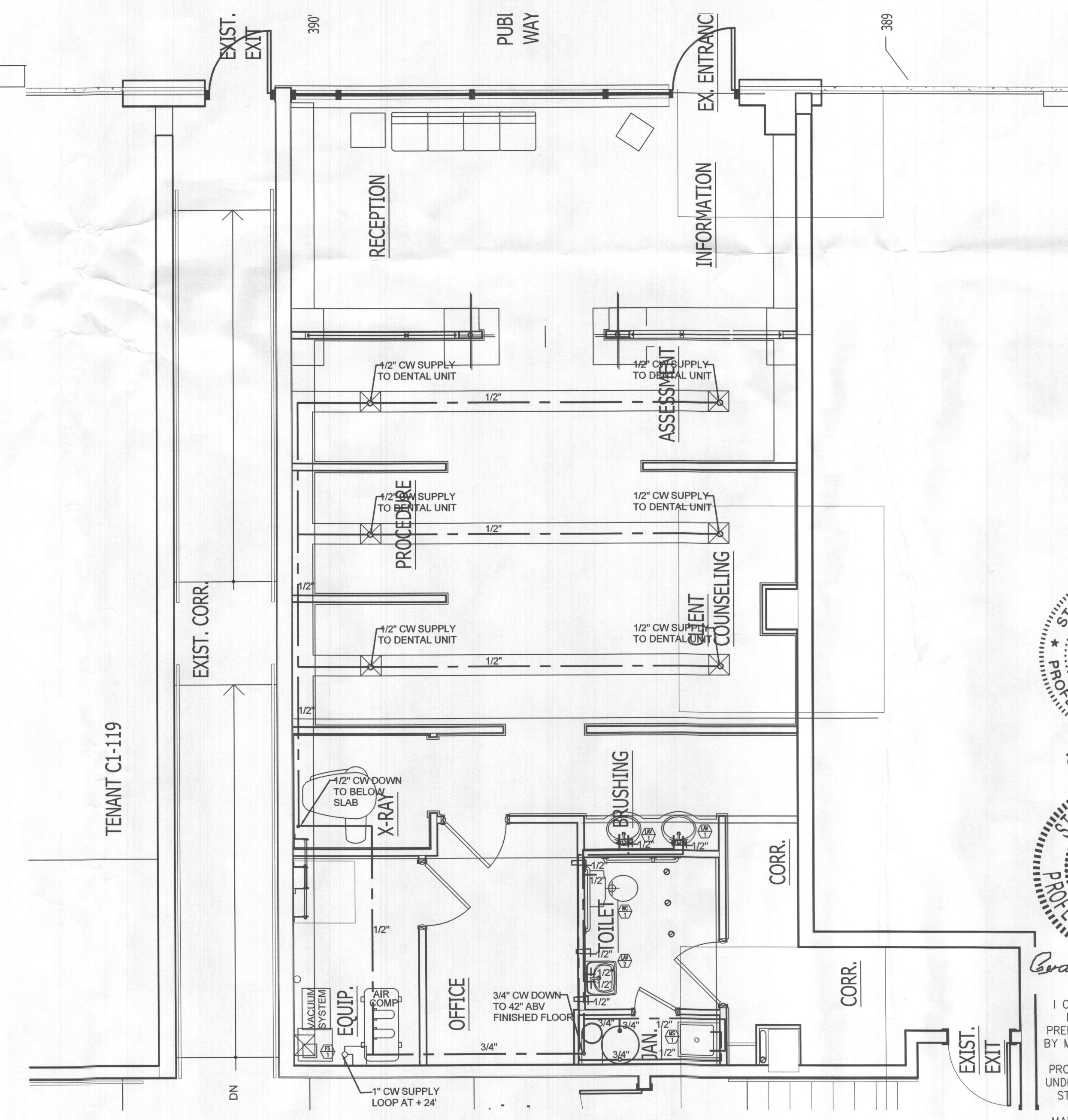
| SYMBOL DESCRIPTION | ABBREV DESCRIPTION |
|--------------------|---|
| — | SEWER LINE |
| —G— | GREASE WASTE LINE |
| —W— | INDIRECT WASTE LINE |
| —C— | CLEAN OUT TO GRADE |
| —H— | COLD WATER SUPPLY |
| —H— | HOT WATER SUPPLY |
| —V— | VENT LINE |
| — | VENT VALVE |
| — | ELBOW DOWN |
| — | ELBOW UP |
| — | CONDENSATE DRAIN |
| — | EQUIPMENT DRAIN |
| — | PLUMBING FIXTURE OR EQUIPMENT DESIGNATION |
| — | POINT OF CONNECTION EXISTING |
| AF | ABOVE FINISHED FLOOR |
| AB | ABOVE |
| HP | HEAT PUMP |
| BP | BACKFLOW PREVENTER |
| CV | CLEANOUT TO GRADE |
| CL | COLD WATER |
| CH | HOT WATER |
| IM | INDIRECT WASTE |
| SO | SHUT-OFF VALVE |
| V | VENT |
| VTR | VENT THROUGH ROOF |
| W | WASTE OR SOIL |
| WC | WALL CLEANOUT |



P1 SANITARY WASTE & VENT RISERS DIAGRAM



2 SANITARY WASTE & VENT PLAN
1/4" = 1'-0"



1 DOMESTIC HOT & COLD WATER PLAN
1/4" = 1'-0"



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| Job Number | 190701 |
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Sheet No.
P-1
 PLUMBING PLANS

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