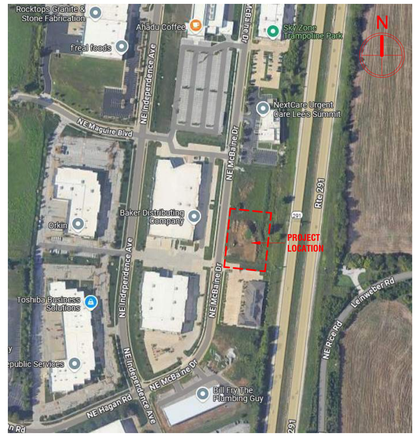
# ASSOCIATED PLASTIC SURGEONS

## I-470 BUSINESS & TECHNOLOGY CENTER
## NE McBAIN DRIVE
## LEE'S SUMMIT, MISSOURI




SEAL:


10/31/2025

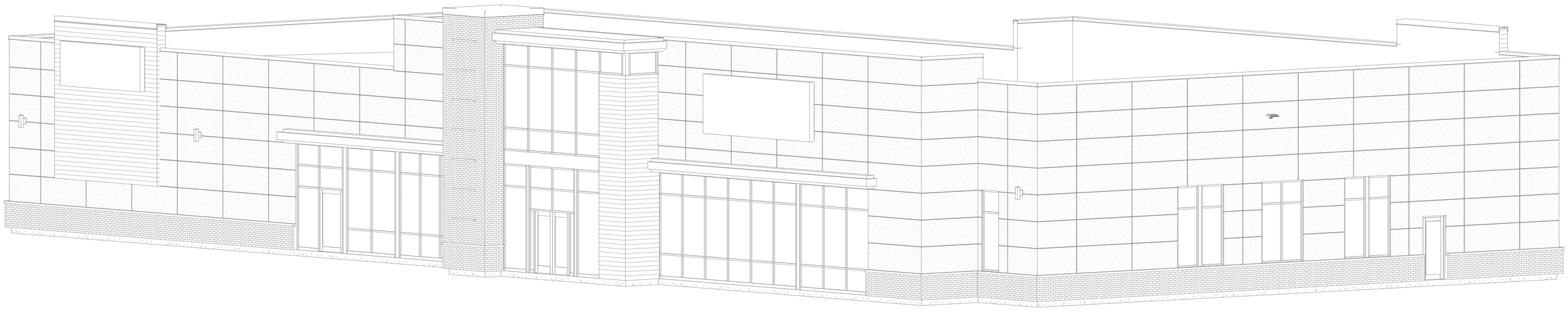

ARCHITECT
DEV INC
8807 MONROVIA STREET
LENEXA, KANSAS 66215
PH: 913-322-8882

MEP ENGINEER
ARCHITECTURAL ENGINEERING CONSORTIUM, INC
10511 AUGUSTA DRIVE
KANSAS CITY, KANSAS 66109
PH: 816-916-4675


TENANT FINISH SUBMITTAL: OCTOBER 31, 2025

| SHEET NUMBER | SHEET NAME | CURRENT REVISION |
|---|---|---|
| I. ARCHITECTURE | | |
| A00 | COVER | |
| A0.0 | PROJECT INFORMATION | |
| A0.1 | SCHEDULES | |
| A1.0 | FLOOR PLAN | |
| A1.1 | PARTIAL PLAN A | |
| A1.2 | PARTIAL PLAN B | |
| A1.3 | CEILING PLAN | |
| A1.4 | FINISH PLAN & SCHEDULE | |
| A2.0 | ENLARGED PLANS & INT. ELEVATIONS | |
| A2.1 | ENLARGED PLANS & INT. ELEVATIONS | |
| A2.2 | ENLARGED PLANS & INT. ELEVATIONS | |
| A2.3 | ENLARGED PLANS & INT. ELEVATIONS | |
| A2.4 | INTERIOR ELEVATIONS | |
| A2.5 | INTERIOR ELEVATIONS | |
| 14 SHEETS | | |
| II. MEP | | |
| P201TI | PLUMBING ABOVE WATER & GAS PLAN | |
| P202TI | MED GAS PLAN | |
| P300TI | PLUMBING RISERS | |
| M200TI | MECHANICAL FLOOR PLAN SOUTH | |
| M201TI | MECHANICAL FLOOR PLAN NORTH | |
| M202TI | ROOF PLAN | |
| MP300TI | SCHEDULES & DETAILS | |
| MP301TI | SCHEDULES & DETAILS | |
| MP302TI | SCHEDULES & DETAILS | |
| MP400TI | MECHANICAL/PLUMBING SPECIFICATIONS | |
| MP401TI | MECHANICAL/PLUMBING SPECIFICATIONS | |
| MP402TI | MECHANICAL/PLUMBING SPECIFICATIONS | |
| MP403TI | MED GAS SPECIFICATIONS | |
| E2.0T | POWER FLOOR PLAN NORTH | |
| E2.1T | POWER FLOOR PLAN SOUTH | |
| E2.2T | LIGHTING FLOOR PLAN NORTH | |
| E2.3T | LIGHTING FLOOR PLAN SOUTH | |
| E2.4T | SYSTEMS POWER FLOOR PLAN NORTH | |
| E2.5T | SYSTEMS POWER FLOOR PLAN SOUTH | |
| E3.0T | ELECTRICAL RISER DIAGRAM | |
| E3.1T | ELECTRICAL SCHEDULES | |
| E4.0T | ELECTRICAL SPECIFICATIONS | |
| 22 SHEETS | | |
| 36 SHEETS TOTAL | | |

ADDED SHEET: P203TI
1



# CODE INFORMATION

OCCUPANCY USE GROUP: B
TYPE OF CONSTRUCTION: V-B

| | REQUIRED/ALLOWED | PROVIDED |
|---|---|---|
| SQUARE FOOTAGE | | |
| PER STORY (IBC 506.2) | 36,000 SQ.FT. | 13,538 SQ.FT. |
| TOTAL BUILDING AREA | N/A | 13,538 SQ.FT. |
| NUMBER OF STORY (IBC 504.4) | 3 STORIES | 1 STORY |
| BUILDING HEIGHT (IBC 504.3) | 60 FT. | 29 FT. |
| **BUILDING ELEMENT FIRE RESISTANCE RATING** | | |
| PRIMARY STRUCTURAL FRAME | 0 HR | 0 HR |
| BEARING WALL - EXTERIOR | 0 HR | 0 HR |
| BEARING WALL - INTERIOR | 0 HR | 0 HR |
| NONBEARING WALL AND PARTITIONS - EXTERIOR (IBC 602) | 0 HR (10<X<30; X >30) | 0 HR |
| NONBEARING WALL AND PARTITIONS - INTERIOR | 0 | 0 |
| FLOOR CONSTRUCTION | 0 HR | 0 HR |
| ROOF CONSTRUCTION | 0 HR | 0 HR |
| **FIRE PROTECTION AND RESISTANCE REQUIREMENTS** | | |
| FIRE BARRIERS - STAIR ENCLOSURES | N/A | N/A |
| FIRE PARTITIONS - DEMISING WALL | 1HR | 1HR |
| FIRE PARTITIONS - HOR. ASSEMBLIES | N/A | N/A |
| FIRE PARTITIONS - CORRIDOR WALLS | N/A | N/A |
| FIRE PROTECTION SYSTEM | NFPA 13 | NFPA 13 |
| FIRE ALARM AND DETECTION (IBC 907) | FIRE & SMOKE ALARM | FIRE & SMOKE ALARM |
| | | |

**EGRESS**

| OCCUPANT LOAD | TYPE | SF/LOAD FACTOR | OCCUPANCY LOAD |
|---|---|---|---|
| | ASC (BUSINESS) | 6,818/150 | 46 |
| | CLINIC & MED SPA (BUSINESS) | 6,721/150 | 45 |
| | TOTAL | | 91 |
| EGRESS WIDTH - STAIRS (IBC 1005.3) | N/A | | N/A |
| EGRESS WIDTH - OTHER (IBC 1005.3) | 91 x 0.15" = 13.65" MIN. | | 300" |
| NUMBER OF EXITS - ASC | 2 (PER IBC 1006.2.1) | | 4 |
| NUMBER OF EXITS - CLINIC & MED SPA | 1 | | 2 |
| MAX. TRAVEL DISTANCE TO EXIT | 300' MAX. (PER IBC TABLE 1017.2) | | 122'-6" |
| ROOF COVER CLASSIFICATION | B | | B |

PLUMBING FIXTURES
( PER IBC 2902.1)

ASC

| TYPE | REQUIRED | PROVIDED |
|---|---|---|
| WATER CLOSET | 1 WOMEN / 1 MEN | 5 WOMEN / 4 MEN, INCL. 3 @ UNISEX RR's |
| LAVATORIES | 1 WOMEN / 1 MEN | 4 WOMEN / 4 MEN INCL. 3 @ UNISEX RR's |
| SERVICE SINK | 1 | 2 |
| WATER FOUNTAIN | 1 | 1 |

CLINIC & MED SPA

| TYPE | REQUIRED | PROVIDED |
|---|---|---|
| WATER CLOSET | 1 WOMEN / 1 MEN | 5 WOMEN / 5 MEN, VIA 5 UNISEX RESTROOMS |
| LAVATORIES | 1 WOMEN / 1 MEN | 5 WOMEN / 5 MEN, VIA 5 UNISEX RESTROOMS |
| SERVICE SINK | 1 | 1 |
| WATER FOUNTAIN | 1 | 1 |

**KEY**

xxx
MAXIMUM EGRESS CAPACITY

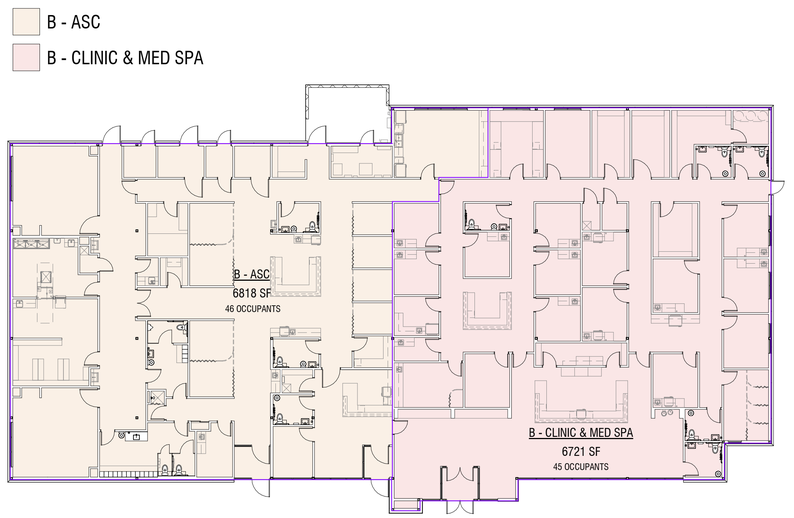
40'
EGRESS WIDTH / TRAVEL DISTANCE

FIRE EXTINGUISHER 75- FOOT RADIUS

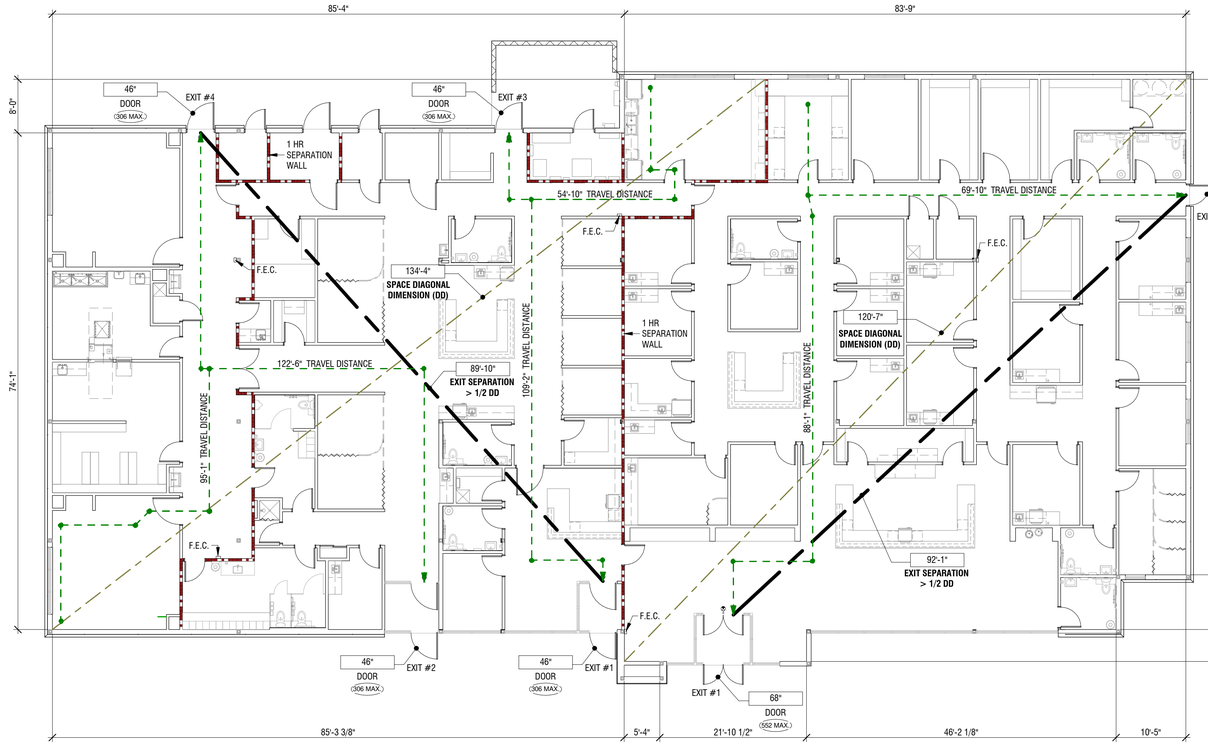
F.E.C.
FIRE EXTINGUISHER CABINET

# APPLICABLE BUILDING CODES

- 2018 INTERNATIONAL BUILDING CODE
- 2018 INTERNATIONAL PLUMBING CODE
- 2018 INTERNATIONAL MECHANICAL CODE
- 2018 INTERNATIONAL FUEL GAS CODE
- 2018 INTERNATIONAL FIRE CODE
- 2017 NATIONAL ELECTRICAL CODE
- ANSI A117.1-2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES




1 OCCUPANT LOAD PLAN
1/16" = 1'-0"




2 LIFE SAFETY PLAN
3/32" = 1'-0"


DEV INC

Dev Anand
President & CEO

Kevin Campbell
Senior Architect

8807 Monrovia Street
Lenexa, Kansas 66215

Phone: 913.322.8882
Fax: 913.322.8886
Email: kevin@dev-inc.com




A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
C. KEVIN CAMPBELL
NUMBER A-2010067496
ARCHITECT

10/31/2025

PROJECT NO. 231206

DRAWING ISSUANCE: OCT 31, 2025

| NO. | REVISION | DATE |
|---|---|---|
| | | |

SHEET NUMBER

**A0.0**

PROJECT INFORMATION

# DOOR SCHEDULE

| DOOR NUMBER | ELEVATION | LOCATION | SIZE | | | OPERATION | FIRE RATING | DOOR TYPE | DOOR MATERIAL | DOOR FINISH | FRAME MATERIAL | FRAME FINISH | HARDWARE SET | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | WIDTH | HEIGHT | THICKNESS | | | | | | | | | |
| FIN. FLR. | | | | | | | | | | | | | | |
| 1 | F | CLINIC & MED SPA ENTRANCE - VESTIBULE | 6' - 0" | 7' - 0" | 0' - 1 3/4" | SW | NON | AF-GP | ALUM/GL | ANODIZED | ALUM | ANODIZED | 1 | ENTRY/EGRESS DOOR |
| 2 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 3 | C | CORRIDOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | WF-GP | SCW/GL | STAINED | HM | PAINTED | 4 | |
| 4 | A | MAIL | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 5 | A | MAIL | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 6 | A | ESTHETICIAN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 7 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 8 | A | MED SPA LOUNGE | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 9 | A | MANAGER | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 6 | |
| 10 | A | RN INJECTOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 11 | A | RN INJECTOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 12 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 13 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 14 | A | STORAGE | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 15 | A | EQUIP | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 16 | A | CLEAN LINEN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 17 | A | RN INJECTOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 18 | A | ESTHETICIAN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 19 | A | ESTHETICIAN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 20 | A | IT | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 21 | A | JAN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 22 | A | DIRTY LINEN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 23 | A | CONSULT | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 24 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 25 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 26 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 27 | C | CORRIDOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | WF-GP | SCW/GL | STAINED | HM | PAINTED | 4 | |
| 28 | A | WORK RM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 29 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 30 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 31 | A | CONSULT | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 32 | A | PROCEDURE | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 33 | A | IMPLANT | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 34 | A | SUPPLY | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 35 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 36 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 37 | B | ASC-CLINIC & MED SPA SEPARATION | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | WF-GP | SCW/GL | STAINED | HM | PAINTED | 3 | PROVIDE PANIC HARDWARE |
| 38 | A | BREAK RM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 39 | B | ASC-CLINIC & MED SPA SEPARATION | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | WF-GP | SCW/GL | STAINED | HM | PAINTED | 3 | PROVIDE PANIC HARDWARE |
| 40 | E | ASC ENTRANCE - VESTIBULE | 4' - 0" | 7' - 0" | 0' - 1 3/4" | SW | NON | AF-GP | ALUM/GL | ANODIZED | ALUM | ANODIZED | 2 | ENTRY/EGRESS DOOR |
| 41 | A | CORRIDOR | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 42 | A | OR SUPERVISOR/ADMINISTRATOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 6 | |
| 43 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 44 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 45 | A | JAN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 46 | A | COED RESTROOM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 47 | A | CONSULT | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 48 | E | ASC DISCHARGE - VESTIBULE | 4' - 0" | 7' - 0" | 0' - 1 3/4" | SW | NON | AF-GP | ALUM/GL | ANODIZED | ALUM | ANODIZED | 2 | EGRESS DOOR |
| 49 | A | SOILED UTILITY | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 50 | A | BIO HAZ | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 51 | A | VACUUM | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | F | SCW | STAINED | HM | PAINTED | 4 | |
| 52 | A | TO STERILE CORRIDOR | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | F | SCW | STAINED | HM | PAINTED | 4 | |
| 53 | A | STORAGE | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 54 | A | FORMALIN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | F | SCW | STAINED | HM | PAINTED | 4 | |
| 55 | A | ANESTHESIA STORAGE | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 56 | A | FROM STERILE CORRIDOR | 6' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | F | SCW | STAINED | HM | PAINTED | 4 | |
| 57 | A | MEN'S LOCKERS | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | F | SCW | STAINED | HM | PAINTED | 4 | |
| 58 | A | MEN'S LOCKERS | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 59 | A | SHOWER | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 7 | |
| 60 | A | WOMEN'S LOCKERS | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 61 | A | WOMEN'S LOCKERS | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | 45 MINUTE | F | SCW | STAINED | HM | PAINTED | 4 | |
| 62 | A | OR | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 63 | A | STERILE UTILITY/STORAGE | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 64 | A | SOILED UTILITY | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 65 | A | JAN | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 66 | A | OR | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 67 | D | SCRUBS | 4' - 0" | 6' - 8" | 0' - 1 3/4" | SL | NON | F | SCW | STAINED | HM | PAINTED | 8 | |
| 68 | A | EXAM | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 4 | |
| 69 | A | MECH | 3' - 0" | 6' - 8" | 0' - 1 3/4" | SW | NON | F | SCW | STAINED | HM | PAINTED | 5 | |
| 69 | | | | | | | | | | | | | | |
| Grand total: 69 | | | | | | | | | | | | | | |

## ABBREVIATION LEGEND

**DOOR OPERATION**

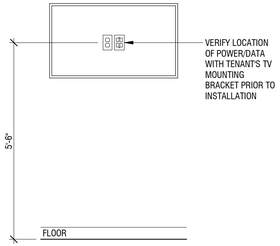
| | |
|---|---|
| SW | SWING |
| OH | OVERHEAD |
| BF | BIFOLD |
| PKT | POCKET |
| SL | SLIDING |
| BYP | BYPASS |

**DOOR MATERIALS**

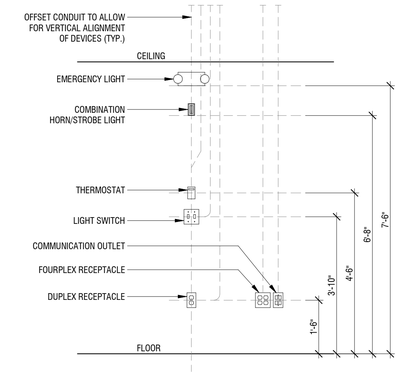
| | |
|---|---|
| WD | WOOD |
| MTL | METAL |
| SCW | SOLID CORE WOOD |
| HCW | HOLLOW CORE WOOD |
| HM | HOLLOW METAL |
| ALUM | ALUMINUM |
| GL | GLASS |

**DOOR PANEL TYPE**

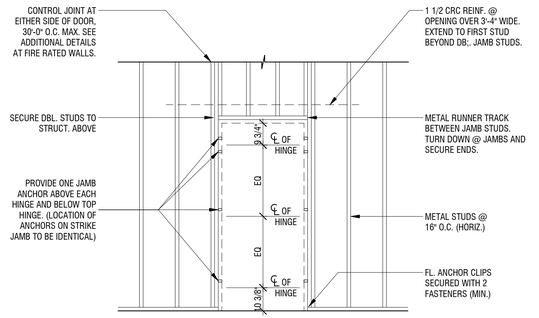
| | |
|---|---|
| F | FLUSH PANEL |
| WF-GP | WOOD FRAME/GLASS PANEL |
| AF-GP | ALUMINUM FRAME/GLASS PANEL |
| MF-GP | METAL FRAME/GLASS PANEL |



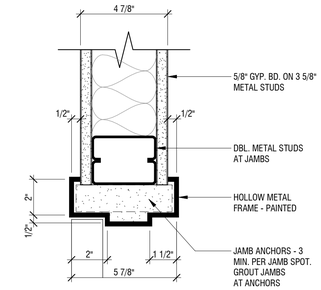

4 TV MOUNTING
1/2" = 1'-0"




3 DEVICE MOUNTING
1/2" = 1'-0"

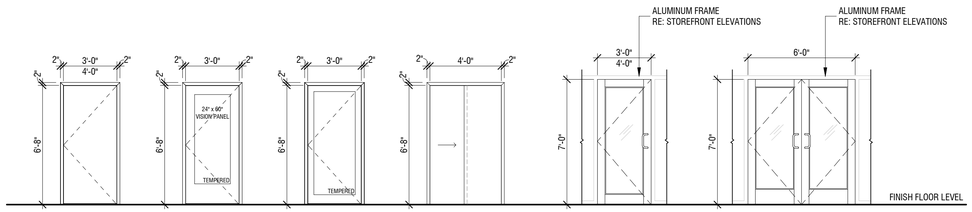



2 DOOR FRAMING DETAIL
3/8" = 1'-0"




1 DOOR JAMB DETAIL
3" = 1'-0"

## DOOR ELEVATIONS




TYPE A
METAL FRAME - SOLID CORE WOOD DOOR STAINED

TYPE B
METAL FRAME - SOLID CORE WOOD DOOR STAINED WITH TEMPERED FIRE RATED CERAMIC GLASS PANEL

TYPE C
METAL FRAME - SOLID CORE WOOD DOOR STAINED WITH TEMPERED CERAMIC GLASS PANEL

TYPE D
METAL FRAME - SOLID CORE WOOD DOOR STAINED

TYPE E
STOREFRONT FRAME/ ALUMINUM FRAME - GLASS PANEL DOOR

TYPE F
STOREFRONT FRAME/ ALUMINUM FRAME - GLASS PANEL DOOR

HARDWARE SCHEDULE:

SET 1
(6) BUTTS
(1) FIRE EXIT/PANIC HARDWARE
(1) STOP
CLOSER
THRESHOLD

SET 2
(3) BUTTS
(1) FIRE EXIT/PANIC HARDWARE
(1) STOP
CLOSER
THRESHOLD

SET 3
(3) BUTTS
(1) FIRE EXIT/PANIC HARDWARE
(1) STOP
CLOSER
DOOR SILENCERS

SET 4
(3) BUTTS
(1) PASSAGE SET
(1) STOP
DOOR SILENCERS

SET 5
(3) BUTTS
(1) STORAGE LOCK SET
(1) STOP
DOOR SILENCERS

SET 6
(3) BUTTS
(1) OFFICE LOCK SET
(1) STOP
DOOR SILENCERS

SET 7
(3) BUTTS
(1) PRIVACY LOCK SET
W/ OCCUPIED INDICATOR
(1) STOP
DOOR SILENCERS
(1) CLOSER WITH STOP

SET 8
(1) SLIDING TRACK
(1) STOP

DOOR NOTES:
1. ALL WOOD TO BE QUARTER CUT WHITE BIRCH WITH STAIN FINISH.
2. ALL DOORS SHALL HAVE ADA ACCEPTABLE LEVER OPERATED HARDWARE IN COMPLIANCE WITH IBC 1008.1.9.
3. KEY CYLINDERS TO MASTER KEY.
4. ALL DOORS TO COMPLY WITH ADA 404.2.8 AND 404.2.9.
   - DOOR CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90 DEGREES, THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12 DEGREES FROM THE LATCH IS 5 SECONDS MIN.
   - DOOR SPRING HINGES SHALL BE ADJUSTED SO THAT FROM THE OPEN POSITION OF 70 DEGREES, THE DOOR OR GATE SHALL MOVE TO THE CLOSED POSITION IN 1.5 SECONDS MIN.
   - THE FORCE FOR PUSHING OR PULLING OPEN A DOOR, OTHER THAN FIRE DOORS, SHALL BE 5 LBS MAX. FOR INTERIOR HINGED, SLIDING OR FOLDING DOORS. THESE FORCES DO NOT APPLY TO THE FORCE REQUIRED TO RETRACT LATCH BOLTS OR DISENGAGE OTHER DEVICES THAT HOLD THE DOOR OR GATE IN A CLOSED POSITION.
5. VERIFY WEIGHT OF DOOR FOR HARDWARE SPECIFIED.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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI


02/13/2026

PROJECT NO. 231206

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| 2 | Rev 02 | 02/13/2026 |

SHEET NUMBER

**A0.1**

SCHEDULES


1 FLOOR PLAN - TENANT FINISH
1/8" = 1'-0"

N

## WALL TYPES

COLD-FORMED STEEL FRAMING

2 — INTERIOR WALL - 3 5/8" METAL STUD - TYPICAL
25 GA. 3 5/8" METAL STUDS @ 16" O.C.
EXTENDING TO 6" ABOVE CEILING WITH BATT INSULATION WHERE REQUIRED AND 5/8" LIGHT WEIGHT TYPE 'X' GYP. BD. ON BOTH SIDES EXTENDING TO 6" ABOVE CEILING.

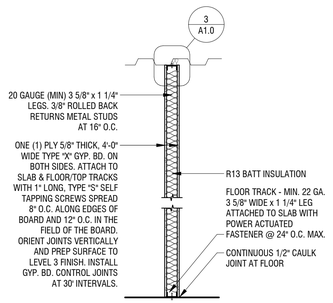
3 — 1HR RATED INTERIOR WALL - 3 5/8" METAL STUD - DEMISING
20 GA. 3 5/8" METAL STUDS @ 16" O.C.
EXTENDING TO DECK WITH BATT INSULATION AND 5/8" LIGHT WEIGHT TYPE 'X' GYP. BD. ON BOTH SIDES EXTENDING TO DECK.
RE: 2/A1.0

4 — INTERIOR WALL - 6" METAL STUD
25 GA. 6" METAL STUDS @ 16" O.C.
EXTENDING TO 6" ABOVE CEILING WITH BATT INSULATION AND 5/8" LIGHT WEIGHT TYPE 'X' GYP. BD. ON BOTH SIDES EXTENDING TO 6" ABOVE CEILING.

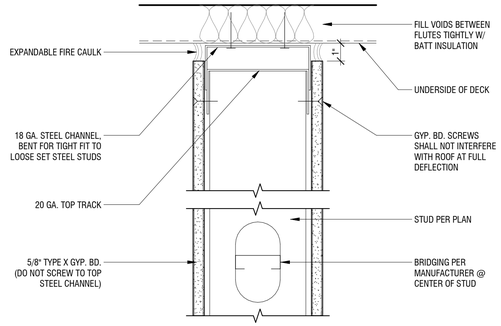
5 — INTERIOR WALL - 2 1/2" METAL STUD - FURRING
25 GA. 2 1/2" METAL STUDS @ 16" O.C.
EXTENDING TO 6" ABOVE CEILING WITH BATT INSULATION AND 5/8" LIGHT WEIGHT TYPE 'X' GYP. BD. ON ONE SIDE EXTENDING TO 6" ABOVE CEILING.

6 — HALF WALL AT RECEPTION COUNTER WITH DIETRICH PONY WALL SUPPORTS

WALL NOTES:
1. ALL GYP. BD. INSTALLED SHALL BE PREPPED TO LEVEL 4 FINISH WITH GYP. BD. CONTROL JOINTS AT 30' INTERVALS.
2. INSTALL BATT INSULATION IN ALL WALLS.
3. INSTALL GYP. BD. ON EXPOSED SIDES ONLY AT DOUBLE WALLS OR BLOCKOUTS.
4. INSTALL MOLD RESISTANT DRYWALL AT ALL WET WALLS/ROOMS INCLUDING TOILETS, LOCKERS, SHOWER 190, EXAM ROOMS, RN INJECTORS, ESTHETICIANS, JANITOR CLOSETS, PROCEDURE 139, IMPLANT 140, SUPPLY 141, BREAK ROOM 145, NURSE STATION 161, NOURISHMENT 162, SOILED UTILITY 185, STERILE UTILITY 186, FORMALIN 189, AND SINKS ALONG CORRIDOR 166 AND STERILE CORRIDOR 183.
5. INSTALL GYP. BD. ON INSIDE FACE OF EXTERIOR WALLS.




2 1 HR. DEMISING PARTITION
1/2" = 1'-0" UL DESIGN NO. U465




3 1 HR. RATED SLIP TRACK
3" = 1'-0" UL DESIGN NO. HW-D-0042

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ARCHITECT

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**A1.0**

FLOOR PLAN

## GENERAL NOTES

1. ALL PLAN DIMENSIONS GIVEN ARE TO WALL'S FINISHED FACE.
2. SEE ENLARGED PLANS ON A2 SHEETS FOR INTERIOR ELEVATIONS MARKERS NOT SHOWN ON PARTIAL PLANS.
3. REFER TO INTERIOR ELEVATIONS FOR MILLWORK DIMENSIONS.
4. COORDINATE AND PROVIDE BLOCKING FOR MILLWORK AND ITEMS ATTACHED OR MOUNTED TO WALLS AND CEILINGS


1 PARTIAL PLAN A
3/16" = 1'-0"

N


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**A1.1**

PARTIAL PLAN A

## GENERAL NOTES

1. ALL PLAN DIMENSIONS GIVEN ARE TO WALL'S FINISHED FACE.
2. SEE ENLARGED PLANS ON A2 SHEETS FOR INTERIOR ELEVATIONS MARKERS NOT SHOWN ON PARTIAL PLANS.
3. REFER TO INTERIOR ELEVATIONS FOR MILLWORK DIMENSIONS.
4. COORDINATE AND PROVIDE BLOCKING FOR MILLWORK AND ITEMS ATTACHED OR MOUNTED TO WALLS AND CEILINGS


1 PARTIAL PLAN B
3/16" = 1'-0"

N


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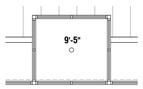
**A1.2**

PARTIAL PLAN B

## CEILING LEGEND

- 2x4 LAY-IN GRID & CEILING TILE, COMMERCIAL GRADE, WHITE USE VINYL-FACED TILES WHERE SHOWN ON PLAN
- PAINTED GYP. CEILING, GYP. HEADER OR GYP. OR SOFFIT. REFER TO NOTES ON PLAN
- 1 HR FIRE RATED WALL
- 2x4 LED LIGHT FIXTURE
- 4FT LINEAR LED LIGHT FIXTURE
- RECESSED CAN LIGHT FIXTURE
- DIRECTIONAL CAN LIGHT FIXTURE
- PENDANT LIGHT FIXTURE
- PENDANT LIGHT FIXTURE


1 CEILING PLAN - TENANT FINISH
1/8" = 1'-0"



2 CEILING PLAN - MAIN ENTRY VESTIBULE
1/8" = 1'-0"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SHEET NUMBER

**A1.3**

CEILING PLAN

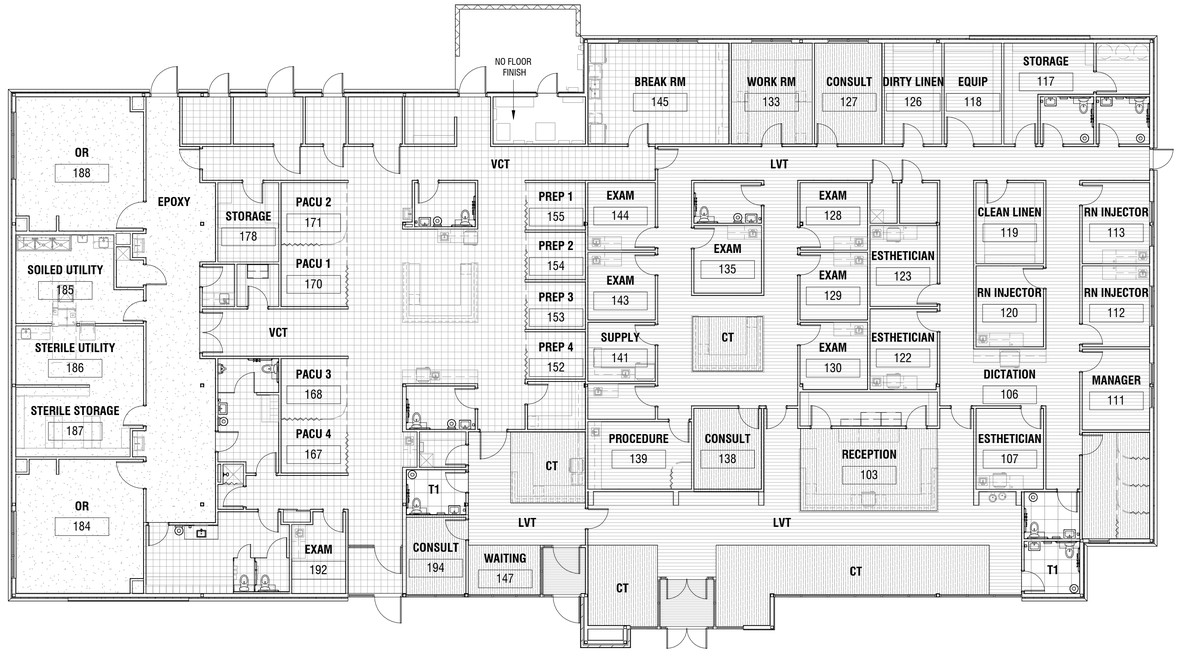
# ROOM FINISH SCHEDULE

| ROOM NUMBER | NAME | FLOOR | BASE | WALLS N | WALLS E | WALLS S | WALLS W | CEILING | CASEWORK BASE CABINET | CASEWORK COUNTER TOP | CASEWORK UPPER CABINET | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FIN. FLR. | | | | | | | | | | | | |
| 100 | VEST | | | | | | | GYP. | | | | |
| 101 | LOBBY | LVT / CT | VB | P | P | P | P | ACT / GYP. | | | | |
| 102 | COED RESTROOM | T1 | CTB | P | T2 / P | T2 / P | P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 103 | RECEPTION | CT | VB | | P | | | ACT | | PL2 | PL3 | |
| 104 | MAIL | LVT | VB | P | P | P | P | ACT | | | | |
| 105 | CORR | LVT | VB | P | P | P | | GYP. | | | | |
| 106 | DICTATION | LVT | VB | | P | | P | ACT | PL1 | PL2 | PL3 | |
| 107 | ESTHETICIAN | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 108 | CORR | LVT | VB | P | | P | P | ACT | | | | |
| 109 | COED RESTROOM | T1 | CTB | T2 / P | P | P | T2 / P | GYP. | | | PL3 | |
| 110 | MED SPA LOUNGE | CT | VB | P | P | P | P | ACT | | | | |
| 111 | MANAGER | LVT | VB | P | P | P | P | ACT | | | | |
| 112 | RN INJECTOR | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 113 | RN INJECTOR | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 114 | CORR | LVT | VB | P | P | P | P | ACT | | | | |
| 115 | COED RESTROOM | LVT | VB | P | T2 / P | T2 / P | P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 116 | COED RESTROOM | LVT | VB | P | T2 / P | T2 / P | P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 117 | STORAGE | LVT | VB | P | P | FRP / P | FRP / P | ACT | | | | |
| 118 | EQUIP | LVT | VB | FRP / P | P | P | FRP / P | ACT | | | | |
| 119 | CLEAN LINEN | LVT | VB | P | P | P | P | ACT | | | | |
| 120 | RN INJECTOR | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 121 | CORR | LVT | VB | P | | P | P | ACT | | | | |
| 122 | ESTHETICIAN | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 123 | ESTHETICIAN | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 124 | IT | LVT | VB | P | P | P | P | ACT | | | | |
| 125 | JAN | LVT | VB | P | P | P | P | ACT | | | | USE EPOXY BASED PAINT FINISH AT WALLS ADJACENT TO MOP SINK (2) |
| 126 | DIRTY LINEN | LVT | VB | P | P | FRP / P | FRP / P | ACT | | | | |
| 127 | CONSULT | CT | VB | P | P | P | P | ACT | | | | |
| 128 | EXAM | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 129 | EXAM | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 130 | EXAM | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 131 | CORR | LVT | VB | P | P | P | | GYP. | | | | |
| 132 | CORR | LVT | VB | P | | P | P | ACT | | | | |
| 133 | WORK RM | CT | VB | P | P | P | P | ACT | | | | |
| 134 | COED RESTROOM | LVT | VB | T2 / P | P | P | T2 / P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 135 | EXAM | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 136 | NURSE STATION | CT | VB | | P | | | ACT / GYP. | | | | |
| 137 | CORR | LVT | VB | | | | P | ACT | | | | |
| 138 | CONSULT | CT | VB | P | P | P | P | ACT | | | | |
| 139 | PROCEDURE | LVT | VB | P | FRP / P | FRP / P | FRP / P | ACT | PL1 | PL2 | PL3 | |
| 140 | IMPLANT | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 141 | SUPPLY | LVT | VB | P | FRP / P | FRP / P | P | ACT | PL1 | PL2 | PL3 | |
| 142 | CORR | LVT | VB | P | | P | P | ACT | | | | |
| 143 | EXAM | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 144 | EXAM | LVT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 145 | BREAK RM | VCT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 146 | VEST | | | | | P | | GYP. | | | | |
| 147 | WAITING | CT | VB | P | | | | ACT | | | | |
| 148 | ASC RECEPTION | CT | VB | | P | | P | ACT / GYP. | | | | |
| 149 | CORR | LVT | VB | P | P | | | ACT | | | | |
| 150 | CORR | VCT | VB | FRP / P | | P | P | ACT | | | | |
| 151 | OR SUPERVISOR | VCT | VB | P | P | P | P | ACT | | | | |
| 152 | PREP 4 | VCT | VB | | FRP / P | FRP / P | FRP / P | ACT | | | | |
| 153 | PREP 3 | VCT | VB | | FRP / P | FRP / P | FRP / P | ACT | | | | |
| 154 | PREP 2 | VCT | VB | | FRP / P | FRP / P | FRP / P | ACT | | | | |
| 155 | PREP 1 | VCT | VB | | FRP / P | FRP / P | FRP / P | ACT | | | | |
| 156 | CORR | VCT | VB | P | FRP / P | P | FRP / P | ACT | | | | |
| 157 | FIRE/ELEC | | | P | P | P | P | ACT | | | | |
| 159 | CORR | VCT | VB | P | P | P | | ACT | | | | |
| 160 | COED RESTROOM | VCT | VB | P | P | T2 / P | T2 / P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 161 | NURSE STATION | VCT | VB | | P | | | ACT / GYP. | PL1 | PL2 | PL3 | |
| 162 | NOURISHMENT | VCT | VB | | | | P | ACT / GYP. | PL1 | PL2 | PL3 | |
| 163 | COED RESTROOM | VCT | VB | T2 / P | P | P | T2 / P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 164 | JAN | VCT | VB | P | P | P | P | | | | | NO CEILING DUE TO ROOF HATCH, USE EPOXY BASED PAINT FINISH AT WALLS ADJACENT TO MOP SINK (2) |
| 165 | VEST | VCT | VB | P | | P | | GYP. | | | | |
| 166 | CORR | VCT | VB | P | | FRP / P | | ACT | PL1 | PL2 | PL3 | |
| 167 | PACU 4 | VCT | VB | FRP / P | | | FRP / P | ACT | | | | |
| 168 | PACU 3 | VCT | VB | FRP / P | FRP / P | | | ACT | | | | |
| 169 | CORR | VCT | VB | P | FRP / P | | FRP / P | ACT | | | | |
| 170 | PACU 1 | VCT | VB | FRP / P | | | FRP / P | ACT | | | | |
| 171 | PACU 2 | VCT | VB | FRP / P | FRP / P | | | ACT | | | | |
| 172 | STORAGE | VCT | VB | P | P | P | P | ACT | | | | |
| 173 | SOILED UTILITY | VCT | VB | FRP / P | FRP / P | FRP / P | FRP / P | ACT | | | | |
| 174 | BIO HAZ | VCT | VB | FRP / P | FRP / P | FRP / P | FRP / P | ACT | | | | |
| 175 | VACUUM | VCT | VB | P | P | P | P | ACT | | | | |
| 176 | MED GAS | VCT | VB | P | P | P | P | ACT | | | | |
| 177 | JAN | E | EB | P | P | P | P | GYP. | | | | USE EPOXY BASED PAINT FINISH AT WALLS ADJACENT TO MOP SINK (2) |
| 178 | STORAGE | VCT | VB | P | P | P | P | ACT | | | | |
| 179 | ANESTHESIA STORAGE | VCT | VB | P | P | P | P | ACT | | | | |
| 180 | MEN LOCKERS | VCT | VB | T2 / P | T2 / P | T2 / P | P | ACT | | | PL3 | 5' TILE WAINSCOT AT TOILETS |
| 181 | CORR | VCT | VB | P | P | | P | ACT | | | | |
| 182 | WOMEN LOCKERS | VCT | VB | P | P | T2 / P | T2 / P | ACT | | | PL3 | 5' TILE WAINSCOT AT TOILETS |
| 183 | STERILE CORR | E | EB | FRP / P | FRP / P | FRP / P | FRP / P | GYP. | | | | |
| 184 | OR | E | EB | FRP / P | FRP / P | FRP / P | FRP / P | GYP. | | | | |
| 185 | SOILED UTILITY | E | EB | P | FRP / P | FRP / P | FRP / P | ACT | | | | VINYL-FACED CEILING TILE |
| 186 | STERILE UTILITY | E | EB | P | P | FRP / P | P | ACT | | | | VINYL-FACED CEILING TILE |
| 187 | STERILE STORAGE | E | EB | P | P | P | P | ACT | | | | VINYL-FACED CEILING TILE |
| 188 | OR | E | EB | FRP / P | FRP / P | FRP / P | FRP / P | GYP. | | | | |
| 189 | FORMALIN | E | EB | P | P | P | P | ACT | PL1 | PL2 | PL3 | VINYL-FACED CEILING TILE |
| 190 | SHOWER | VCT | VB | T2 / P | T2 / P | T2 / P | P | GYP. | | | | |
| 191 | SCRUBS | VCT | VB | P | | P | P | GYP. | | | | |
| 192 | EXAM | VCT | VB | P | P | P | P | ACT | PL1 | PL2 | PL3 | |
| 193 | COED RESTROOM | T1 | CTB | T2 / P | P | P | T2 / P | GYP. | | | PL3 | 5' TILE WAINSCOT |
| 194 | CONSULT | CT | VB | P | P | P | P | ACT | | | | |
| 195 | MECH | LVT | VB | P | P | P | P | ACT | | | | |

## ABBREVIATION LEGEND

FINISHES

| | |
|---|---|
| E | EPOXY COATING |
| VCT | VINYL COMPOSITION TILE |
| LVT | LUXURY VINYL TILE |
| CT | CARPET TILE |
| T1 | CERAMIC TILE, FLOOR |
| T2 | CERAMIC TILE, WALL |
| EB | EPOXY BASE, 4" |
| RB | RUBBER BASE, 4" |
| VB | VINYL COVE BASE, 4" |
| CTB | CERAMIC TILE BASE |
| P | PAINT |
| FRP | FIBER REINFORCED PANEL, 4' HIGH |
| ACT | ACOUSTICAL CEILING TILE, 2' X 4' |
| PL1 | PLASTIC LAMINATE, FORMICA BIRCH |
| PL2 | PLASTIC LAMINATE, FORMICA SURF |
| PL3 | PLASTIC LAMINATE, FORMICA OAK RIFTWOOD |




1 FLOOR FINISH PLAN
3/32" = 1'-0"

N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C. KEVIN CAMPBELL
NUMBER A-2010007409
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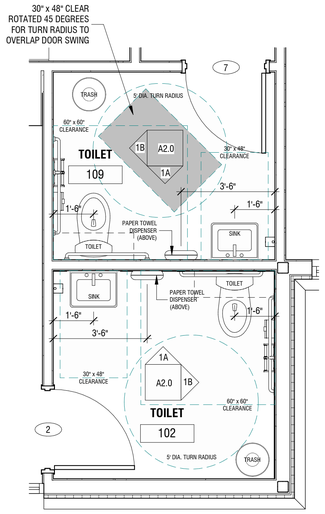
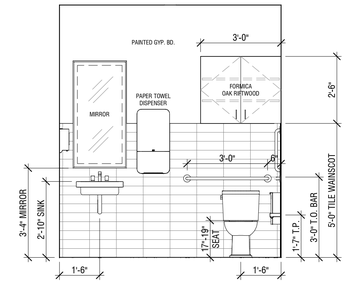
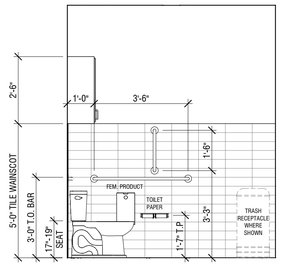
FINISH PLAN & SCHEDULE




1 ENLARGED PLAN - TOILET 102 & 109
3/8" = 1'-0"

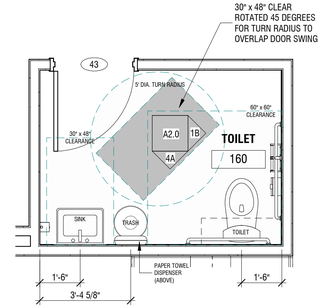



1A TOILET 102 & 109 - INT. ELEVATION A
3/8" = 1'-0"

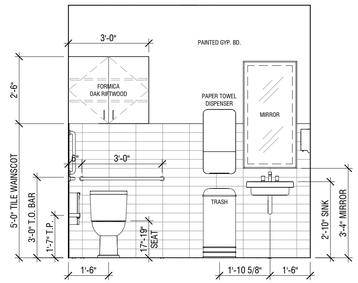



1B ALL TOILETS - INT. ELEVATION B
3/8" = 1'-0"

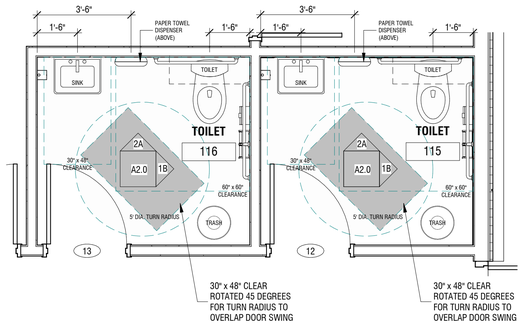
| TOILET ACCESSORY SCHEDULE | | |
|---|---|---|
| TYPE | MANUFACTURER | NOTES |
| MIRROR (48"H X 24"W) | BOBRICK B-165 OR EQUAL | |
| GRAB BARS (SET OF 3 BARS: 18", 36", 42") | BOBRICK B-5806 OR EQUAL | STEEL TUBE, SATIN FINISH |
| TOILET PAPER DISPENSER | BOBRICK B-2740 OR EQUAL | |
| FEMININE PRODUCT DISPOSAL | BOBRICK B-35139 OR EQUAL | |
| SOAP DISPENSER | BOBRICK B-2013 OR EQUAL | |
| PAPER TOWEL DISPENSER | TORK PEAKSERVE CONTINOUS | |
| TRASH RECEPTACLE | BOBRICK B-2300 OR EQUAL | |



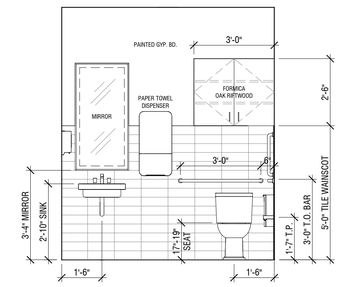

4 ENLARGED PLAN - TOILET 160
3/8" = 1'-0"



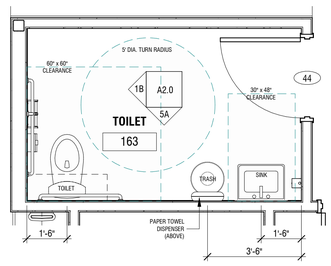

4A TOILET 160 - INT. ELEVATION A
3/8" = 1'-0"



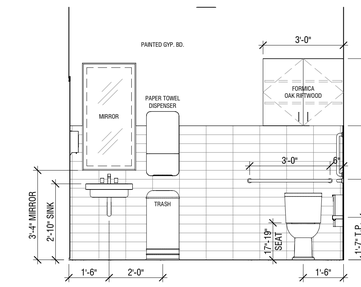

2 ENLARGED PLAN - TOILET 115 & 116
3/8" = 1'-0"



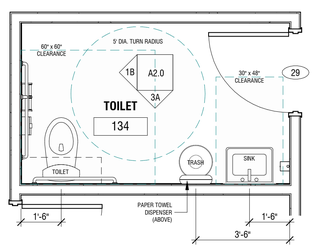

2A TOILET 115 & 116 - INT. ELEVATION A
3/8" = 1'-0"



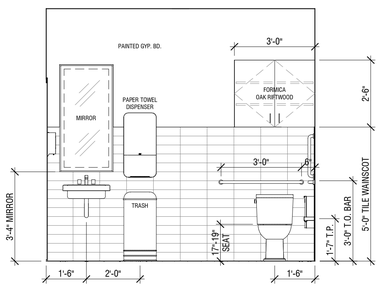

5 ENLARGED PLAN - TOILET 163
3/8" = 1'-0"



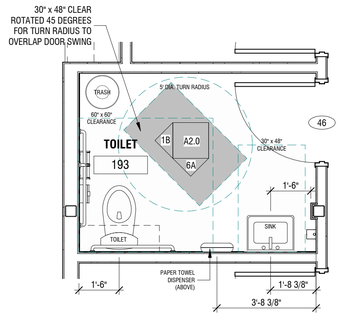

5A TOILET 163 - INT. ELEVATION A
3/8" = 1'-0"



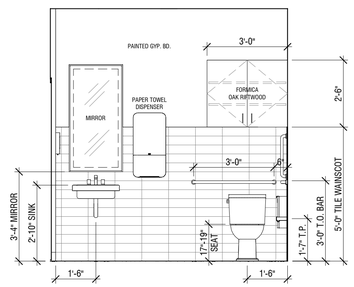

3 ENLARGED PLAN - TOILET 134
3/8" = 1'-0"




3A TOILET 134 - INT. ELEVATION A
3/8" = 1'-0"




6 ENLARGED PLAN - TOILET 193
3/8" = 1'-0"




6A TOILET 193 - INT. ELEVATION A
3/8" = 1'-0"

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ASSOCIATED PLASTIC SURGEONS

A NEW BUILDING FOR:

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
C. KEVIN CAMPBELL
NUMBER A-2010067490
ARCHITECT

10/31/2025

PROJECT NO. 231206
DRAWING ISSUANCE: OCT 31, 2025

| NO. | REVISION | DATE |
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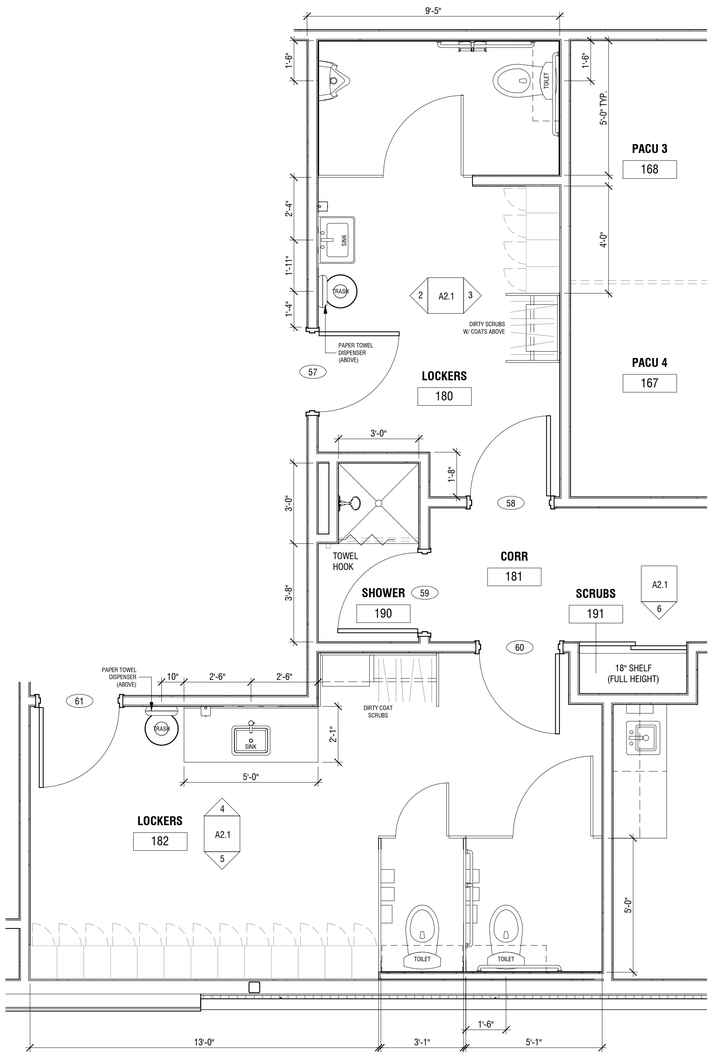
| | | |

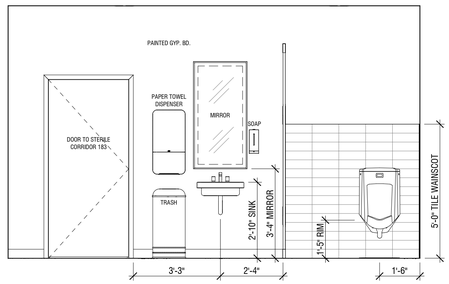
SHEET NUMBER
**A2.0**
ENLARGED PLANS & INT. ELEVATIONS

## TOILET ACCESSORY SCHEDULE

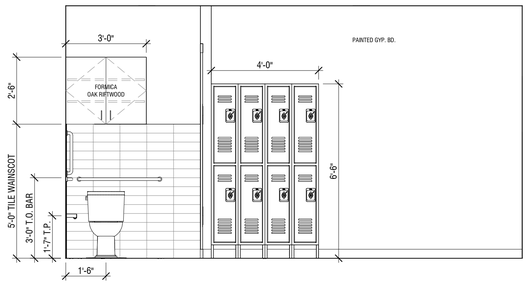
| TYPE | MANUFACTURER | NOTES |
|---|---|---|
| MIRROR (48"H X 24"W) | BOBRICK B-165 OR EQUAL | |
| GRAB BARS (SET OF 3 BARS: 18", 36", 42") | BOBRICK B-5806 OR EQUAL | STEEL TUBE, SATIN FINISH |
| TOILET PAPER DISPENSER | BOBRICK B-2740 OR EQUAL | |
| FEMININE PRODUCT DISPOSAL | BOBRICK B-35139 OR EQUAL | |
| SOAP DISPENSER | BOBRICK B-2013 OR EQUAL | |
| PAPER TOWEL DISPENSER | TORK PEAKSERVE CONTINOUS | |
| TRASH RECEPTACLE | BOBRICK B-2300 OR EQUAL | |



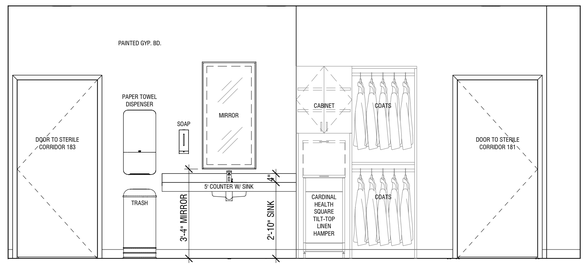

1 ENLARGED PLAN - LOCKER ROOMS
3/8" = 1'-0"



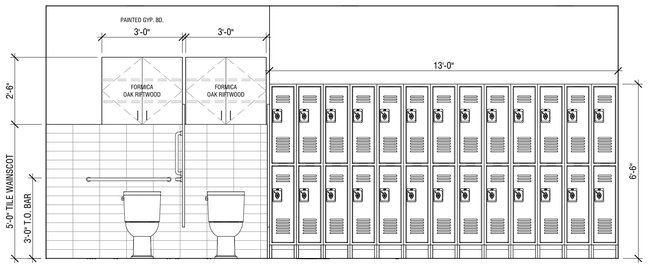

2 MEN'S LOCKER - INT. ELEVATION A
3/8" = 1'-0"



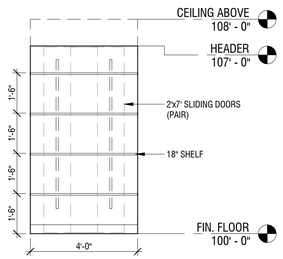

3 MEN'S LOCKER - INT. ELEVATION B
3/8" = 1'-0"




4 WOMEN'S LOCKER - INT. ELEVATION A
3/8" = 1'-0"




5 WOMEN'S LOCKER - INT. ELEVATION B
3/8" = 1'-0"




6 SCRUBS 191 - INT. ELEVATION
3/8" = 1'-0"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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
C. KEVIN CAMPBELL
NUMBER A-2010067408
ARCHITECT

10/31/2025

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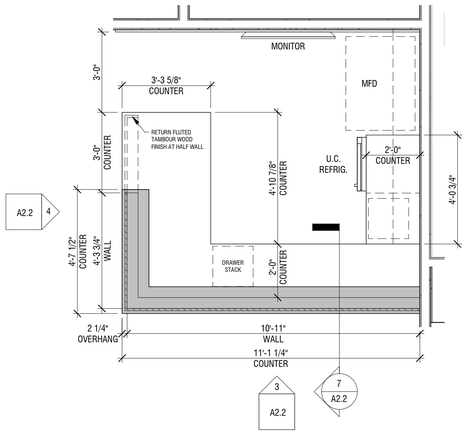
SHEET NUMBER

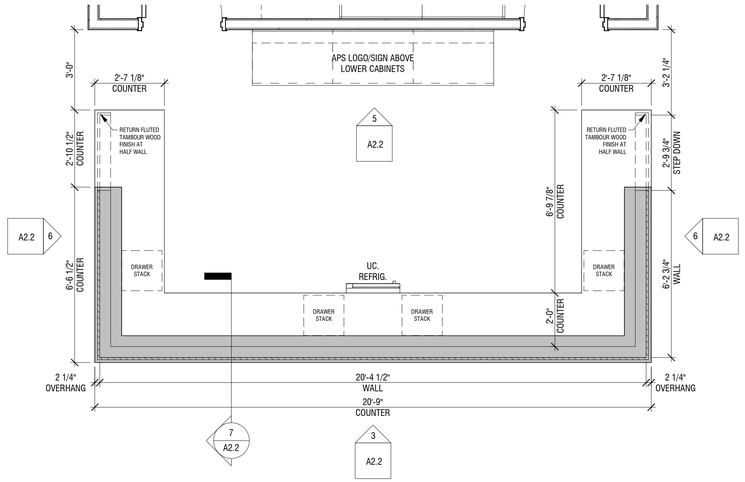
**A2.1**

ENLARGED PLANS & INT. ELEVATIONS



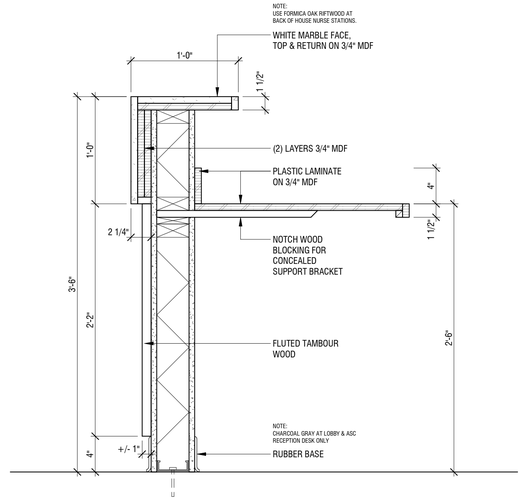

## 1 ENLARGED PLAN - ASC RECEPTION 148

3/8" = 1'-0" — RECEPTION DESK



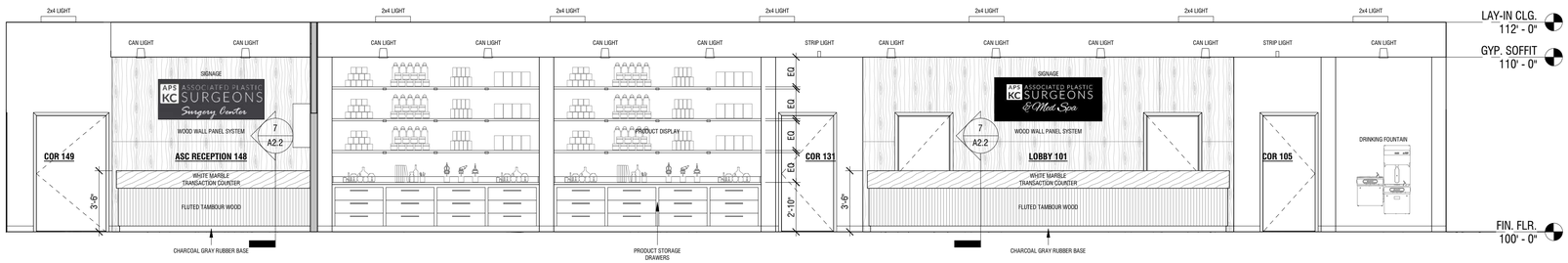

## 2 ENLARGED PLAN - RECEPTION 103

3/8" = 1'-0" — RECEPTION DESK



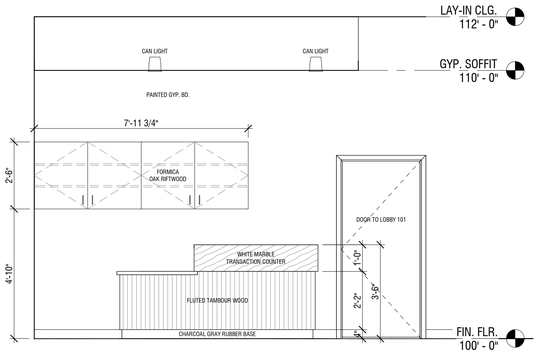

## 7 SECTION - LOBBY RECEPTION DESK

1 1/2" = 1'-0" — SIM. AT NURSE STATIONS



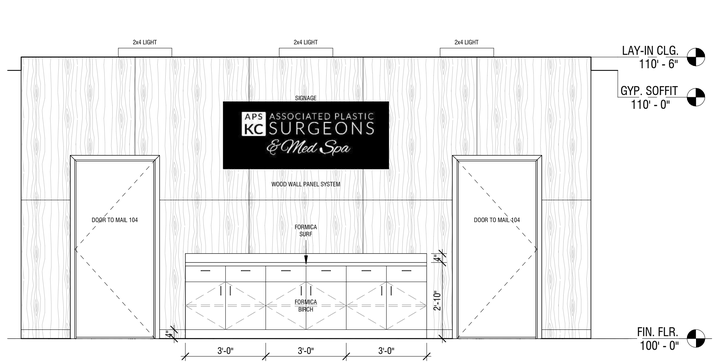

## 3 LOBBY - INT. ELEVATION

1/4" = 1'-0"



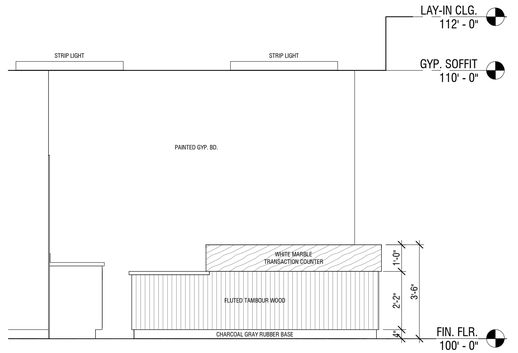

## 4 ASC RECEPTION 148 - INT. ELEVATION B

3/8" = 1'-0" — RECEPTION DESK SIDE




## 5 RECEPTION 103 - INT. ELEVATION C

3/8" = 1'-0" — BACK WALL




## 6 RECEPTION 103 - INT. ELEVATION B

3/8" = 1'-0" — RECEPTION DESK SIDES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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
C. KEVIN CAMPBELL
NUMBER A-2010067496
ARCHITECT

10/31/2025

PROJECT NO. 231206

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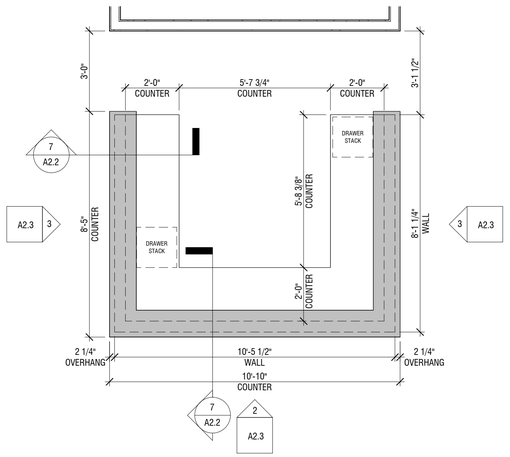
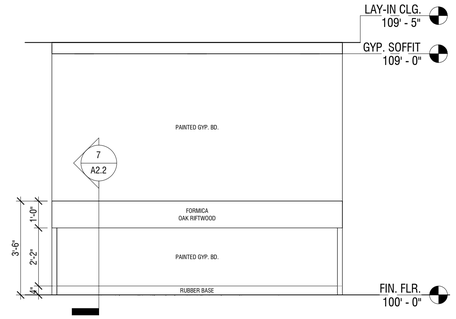
**A2.2**

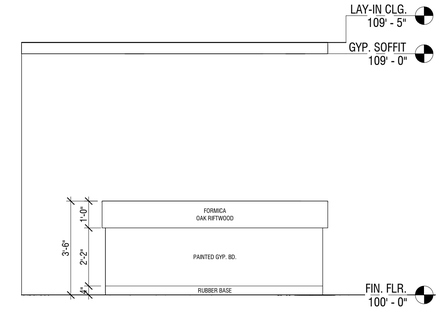
ENLARGED PLANS & INT. ELEVATIONS



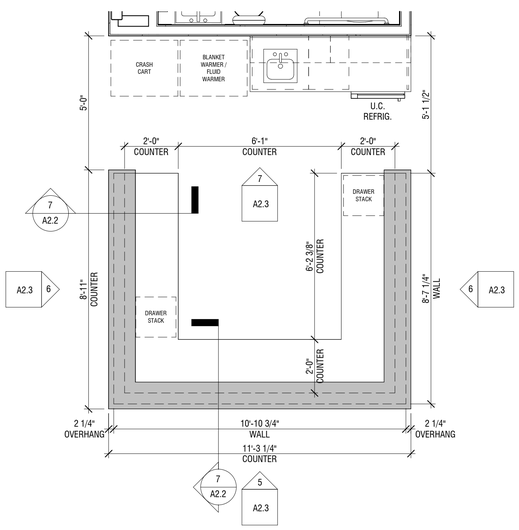

1 ENLARGED PLAN - NURSE STATION 136
3/8" = 1'-0" RECEPTION DESK



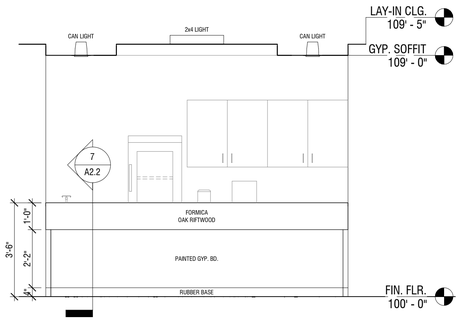

2 NURSE STATION 136 - INT. ELEVATION A
3/8" = 1'-0"



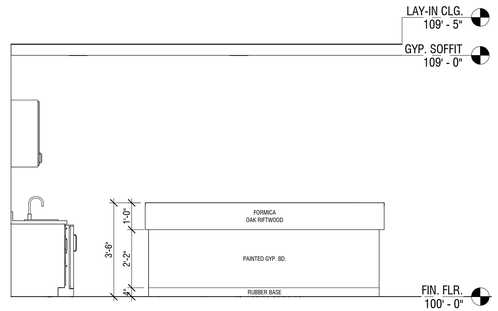

3 NURSE STATION 136 - INT. ELEVATION B
3/8" = 1'-0" RECEPTION DESK SIDES



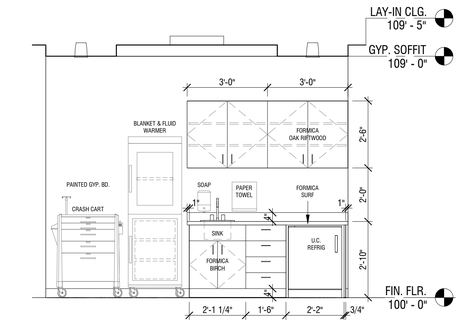

4 ENLARGED PLAN - NURSE STATION 161
3/8" = 1'-0" RECEPTION DESK




5 NURSE STATION 161 - INT. ELEVATION A
3/8" = 1'-0"




6 NURSE STATION 161 - INT. ELEVATION B
3/8" = 1'-0" RECEPTION DESK SIDES




7 NURSE STATION 161 - INT. ELEVATION C
3/8" = 1'-0" BACK WALL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NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
C. KEVIN CAMPBELL
NUMBER A-2010067490
ARCHITECT

10/31/2025

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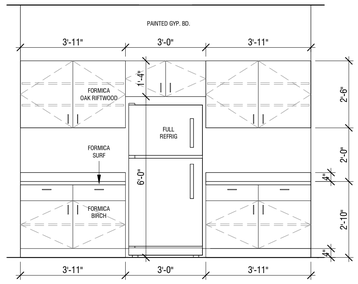
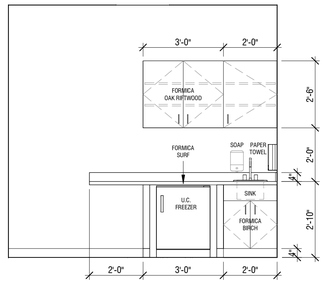
SHEET NUMBER

**A2.3**

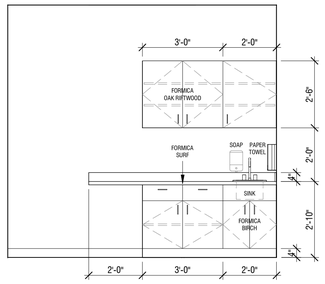
ENLARGED PLANS & INT. ELEVATIONS



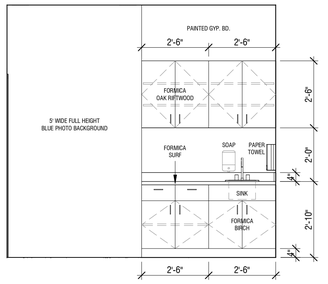

1 DICTATION 106 - INT. ELEVATION
3/8" = 1'-0"



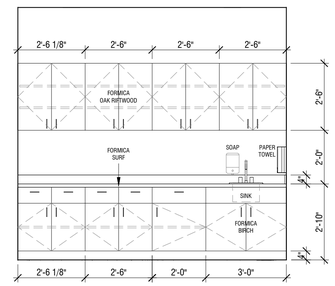

2 ESTHETICIAN - INT. ELEVATION
3/8" = 1'-0" TYPICAL



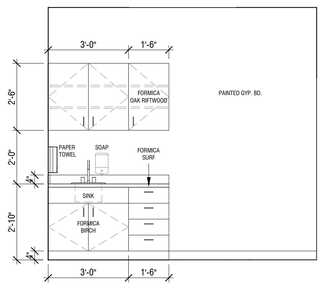

3 RN INJECTOR - INT. ELEVATION
3/8" = 1'-0" TYPICAL



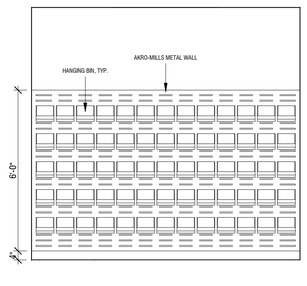

4 EXAM - INT. ELEVATION
3/8" = 1'-0" TYPICAL



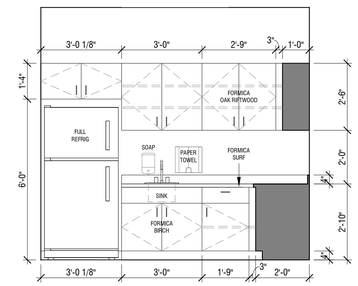

5 PROCEDURE 139 - INT. ELEVATION
3/8" = 1'-0"



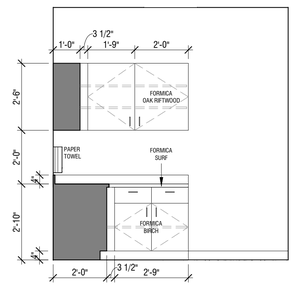

6 IMPLANT 140 - INT. ELEVATION A
3/8" = 1'-0" EAST



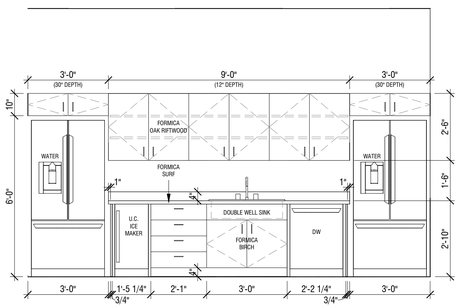

7 IMPLANT 140 - INT. ELEVATION B
3/8" = 1'-0" WEST



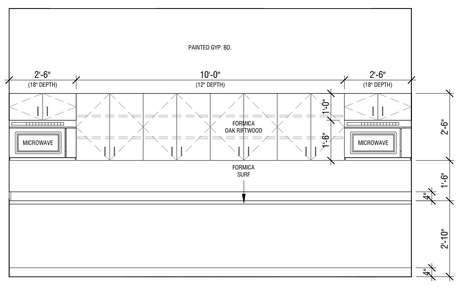

8 SUPPLY 141 - INT. ELEVATION A
3/8" = 1'-0" WEST



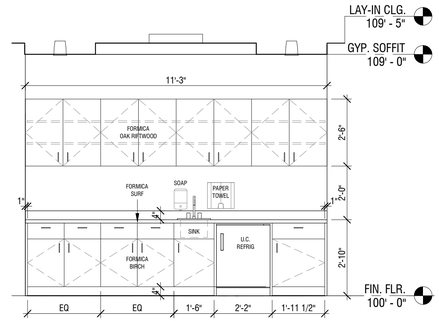

9 SUPPLY 141 - INT. ELEVATION B
3/8" = 1'-0" NORTH



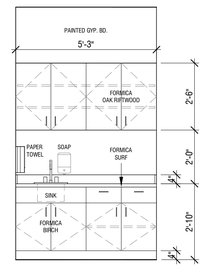

10 BREAK RM 145 - INT. ELEVATION A
3/8" = 1'-0"




11 BREAK RM 145 - INT. ELEVATION B
3/8" = 1'-0"




12 NOURISHMENT 162 - INT. ELEVATION
3/8" = 1'-0"




13 CORRIDOR 166 - INT. ELEVATION
3/8" = 1'-0" CORRIDOR SINK


DEV INC

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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
C. KEVIN CAMPBELL
NUMBER A-2010067490
ARCHITECT

10/31/2025

PROJECT NO. 231206

DRAWING ISSUANCE: OCT 31, 2025

| NO. | REVISION | DATE |
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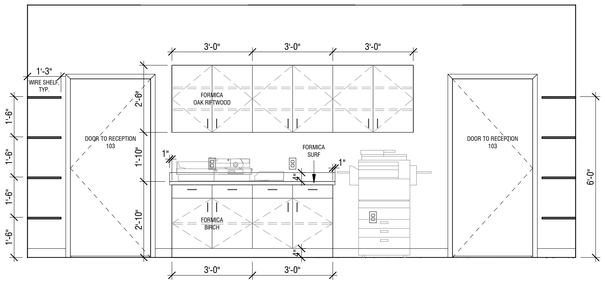
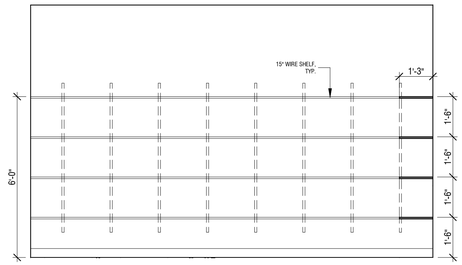
SHEET NUMBER

**A2.4**

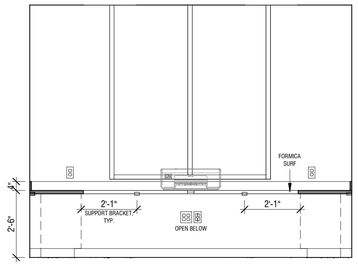
INTERIOR ELEVATIONS



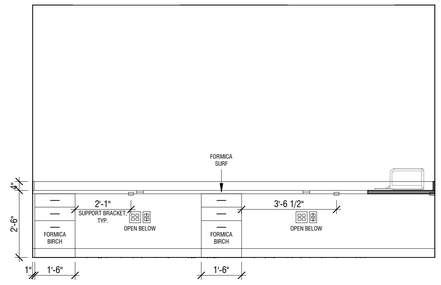

1 MAIL 104 - INT. ELEVATION
3/8" = 1'-0"



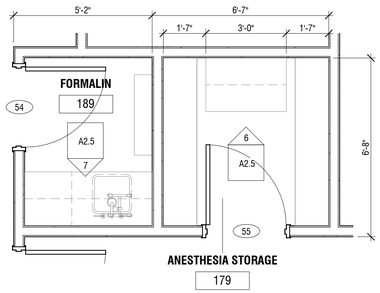

2 DIRTY LINEN 126 - INT. ELEVATION
3/8" = 1'-0" TYP. SHELF STANDARDS



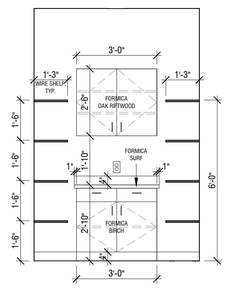

3 WORK RM 133 - INT. ELEVATION A
3/8" = 1'-0" EAST



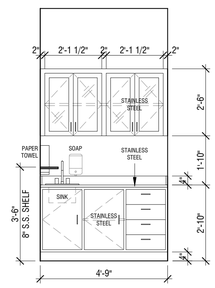

4 WORK RM 133 - INT. ELEVATION B
3/8" = 1'-0" NORTH (SIM. SOUTH)



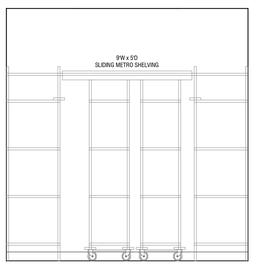

ENLARGED PLAN - FORMALIN & ANESTHESIA STG
5 3/8" = 1'-0"



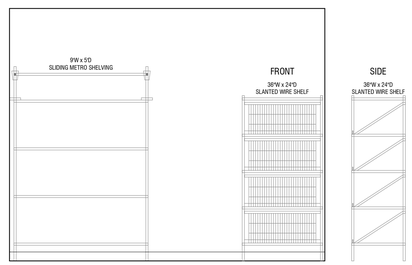

6 ANESTHESIA STG 179 - INT. ELEVATION
3/8" = 1'-0"



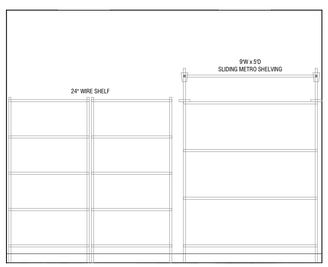

7 FORMALIN 189 - INT. ELEVATION
3/8" = 1'-0"



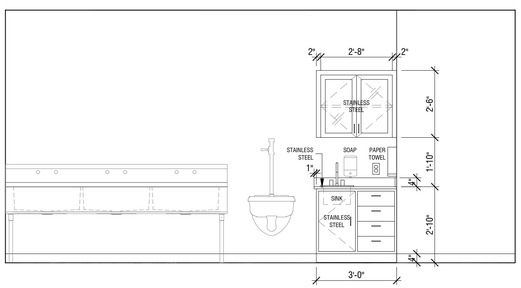

8 STORAGE 178 - INT. ELEVATION A
3/8" = 1'-0" WEST



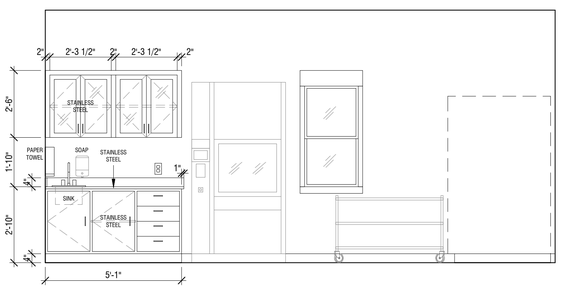

9 STORAGE 178 - INT. ELEVATION B
3/8" = 1'-0" NORTH




10 STORAGE 178 - INT. ELEVATION C
3/8" = 1'-0" SOUTH




11 SOILED UTILITY 185 - INT. ELEVATION
3/8" = 1'-0"




12 STERILE UTILITY 186 - INT. ELEVATION
3/8" = 1'-0"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10/31/2025

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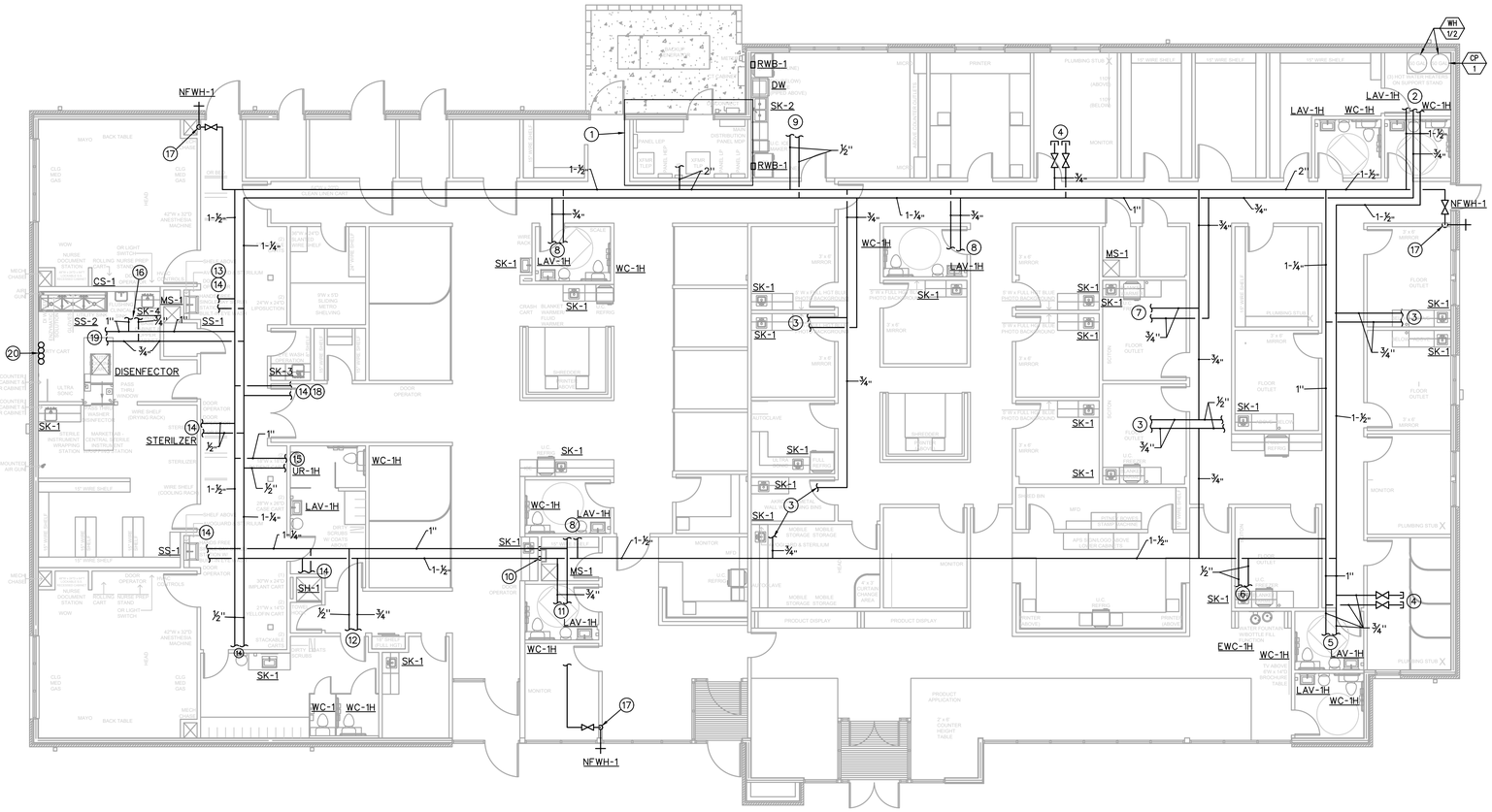
SHEET NUMBER

**A2.5**

INTERIOR ELEVATIONS



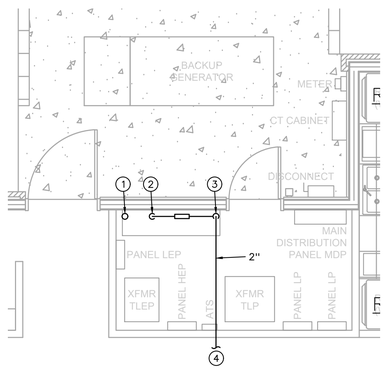

## PLUMBING ABOVE FLOOR WATER AND NATURAL GAS PLAN

1/8" = 1'-0"

NORTH

## PLUMBING PLAN NOTES (#):

1. SEE "ENLARGED PLUMBING FLOOR PLAN", THIS SHEET, FOR PLUMBING WORK IN THIS AREA.
2. 1-1/2" CW AND 3/4" HWR TO WATER HEATERS, 1-1/2" HW FROM WATER HEATERS. SEE," DUAL ELECTRIC WATER HEATER DETAIL", SHEET MP301, FOR CONTINUATION.
3. EXTEND 1/2" CW AND HW TO EACH SK-1.
4. 3/4" CAPPED CW AND HW FOR FUTURE FIXTURES.
5. EXTEND 1/2" CW TO EACH WC-1H AND LAV-1H, 1/2" HW TO EACH LAV-1H.
6. EXTEND 1/2" CW TO SK-1 AND EWC-1H, 1/2" HW TO LAV-1H.
7. EXTEND 1/2" CW AND HW TO EACH SK-1 AND MS-1.
8. EXTEND 1/2" CW TO WC-1H, EACH SK-1 AND LAV-1H, 1/2" HW TO LAV-1H AND EACH SK-1, 1/2" VALVED CW SUPPLY TO HUMIDIFIER.
9. EXTEND 1/2" CW TO SK-2, RWB-1 (2) AND ICE MACHINE, 1/2" HW TO SK-2 AND DISHWASHER.
10. EXTEND 1/2" CW AND HW DOWN TO SK-1 AND MS-1.
11. EXTEND CW TO NFWH-1 AND WC-1H AND LAV-1H, 1/2 HW TO LAY-1H
12. EXTEND 1/2" CW TO EACH WC-1H AND SK-1, 1/2" HW TO SK-1.
13. 1/2" CW AND HW TO MS-1.
14. 1/2" CW AND HW TO SK-1, SH-1 OR SS-1, 1/2" VALVED CW SUPPLY TO HUMIDIFIER.
15. EXTEND 3/4" CW TO UR-1H, 1/2" CW TO WC-1H AND LAV-1H, 1/2" HW TO LAV-1H.
16. EXTEND 1" CW TO CS-1, 1/2" CW TO CS-1 FAUCET AND SK-1, 1/2" HW TO SK-1 AND TO CS-1 FAUCET, 1/2" VALVED CW SUPPLY TO HUMIDIFIER.
17. 1/2" CW DOWN IN WALL TO NFWH-1.
18. 1/2" CW AND HW TO EYEWASH.
19. 3/4" CW TO SS-2, SPD WATER TREATMENT, WATER SOFTENER, 3/4 HW TO SS-2. EXTEND TREATER WATER OR SOFT WATER TO STERILIZERS AS REQUIRED.
20. WATER TREATMENT/WATER SOFTENER TANKS BY OTHERS.




## ENLARGED PLUMBING FLOOR PLAN

1/4" = 1'-0"

NORTH

## PLUMBING GENERAL NOTES

A) ALL FIXTURES USED SPECIFICALLY FOR HANDWASHING PURPOSES (LAVATORIES, HAND SINKS, ETC.) SHALL BE PROVIDED WITH A TEMPERING VALVE TO TEMPER THE HOT WATER TO THE FIXTURE (MAXIMUM OF 105-DEGREES F).

B) SEE "PLUMBING RISER DIAGRAMS", SHEET P300TI, FOR PIPING NOT SHOWN ON THE PLANS.

C) PC SHALL ROUGH-IN AND MAKE FINAL CONNECTION FOR ALL SINKS, FAUCETS, EQUIPMENT, APPLIANCES AND ACCESSORIES PROVIDED BY THE OWNER. WHERE REQUIRED, PC TO PROVIDE BASKET STRAINER DRAIN, TAILPIECE, 3/8-INCH FLEXIBLE RISERS W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET/2-INCH OUTLET CHROME PLATED "P" TRAP AND ESCUTCHEON W/SET SCREW.

D) CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK. FIELD VERIFY LOCATION OF EXISTING UTILITIES.

## ENLARGED PLUMBING PLAN NOTES (#):

1. 6" FIRE SUPPRESSION SERVICE (EXTENDED BY THE FIRE SUPPRESSION CONTRACTOR). SEE "FIRE SUPPRESSION SERVICE DETAIL", SHEET MP301.
2. 2" CW FROM BELOW CONTINUING THROUGH BACKFLOW PREVENTER AND PRV. SEE "DOMESTIC CW SERVICE DETAIL", SHEET MP301, FOR CONFIGURATION OF DOMESTIC WATER PIPING.
3. 2" CW UP TO ABOVE THE CEILING.
4. SEE "PLUMBING ABOVE FLOOR PLAN", THIS SHEET, FOR CONTINUATION.

## PLUMBING FIXTURE SCHEDULE

A. INSTALL PLUMBING FIXTURES AND EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. VERIFY ROUGH-IN REQUIREMENTS WITH MANUFACTURER'S DRAWINGS AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE WATER-CONSERVING FIXTURES AND APPURTENANCES IF/AS REQUIRED BY LOCAL AUTHORITIES. CONFIRM ALL LOCATIONS AND MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS AND/OR SPECIFICATIONS. CAULK FIXTURES TO WALLS/FLOORS. SET COUNTER MOUNTED SINKS AND LAVATORIES IN A BED OF CAULK. THE SPECIFIED PLUMBING FIXTURES, OR APPROVED EQUALS, SHALL BE USED UNLESS OTHERWISE NOTED OR INDICATED.

B. WATER CLOSET (WC-1), TOTO #CST744S, VITREOUS CHINA, FLOOR-MOUNTED, ELONGATED BOWL, SIPHON JET ACTION, CLOSE-COUPLED TANK TYPE WATER CLOSET, 1.6-GPF, 14-5/8" HIGH, FULLU GLAZED TRAPWAY AND MANUFACTURER'S BOLT CAPS, CHROME-PLATED BRASS TRIP LEVER AND 3/8" FLEXIBLE RISER WITH LOOSE KEY QUARTER TURN ANGLE STOP VALVE. PROVIDE TOTO #SC534 WHITE ELONGATED OPEN FRONT SEAT LESS COVER.

C. WATER CLOSET (WC-1H), TOTO #CSC744SL.01, FLOOR-MOUNTED, CONSTRUCTED OF VITREOUS CHINA, MEETING ANSI A-117.1 AND ADA BARRIER-FREE REQUIREMENTS, 17" HIGH, 1.6-GALLON FLUSH, CLOSE-COUPLED TANK DESIGN WITH ELONGATED BOWL AND SIPHON JET ACTION. TANK SHALL BE VITREOUS CHINA WITH COVER, 3/8" FLEXIBLE RISER WITH LOOSE KEY ANGLE STOP VALVE, CHROME-PLATED BRASS TRIP LEVER AND MANUFACTURER'S BOLT CAPS. PROVIDE BENKE #527 WHITE ELONGATED OPEN FRONT SEAT LESS COVER, PERMA BUMPER.

D. LAVATORY (LAV-1), TOTO #LT307.4 (20"X18"), WALL-HUNG TYPE, CONSTRUCTED OF VITREOUS CHINA. LAVATORY SHALL HAVE 4-INCH FAUCET CENTERS AND DRILLED FOR CONCEALED ARM CARRIER. PROVIDE 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/4-INCH INLET 1-1/2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW. PROVIDE DELTA #523-WFHDF HEAVY DUTY SINGLE LEVER FAUCET, 4-INCH CENTERS, VANDAL-RESISTANT 2.2 GPM AERATOR, PERFORATED GRID DRAIN (W/ 1-1/4" TAILPIECE) AND VANDAL-RESISTANT SINGLE LEVER HANDLE. PROVIDE WITH WADE CARRIER (TO MATCH WALL TYPE). SEE ARCHITECTURAL PLANS FOR MOUNTING DETAILS.

E. LAVATORY (LAV-1H), TOTO #LT307.4 (20"X18"), WALL-HUNG TYPE, CONSTRUCTED OF VITREOUS CHINA, MEETING ANSI A-117.1 AND ADA BARRIER-FREE REQUIREMENTS. LAVATORY SHALL HAVE 4-INCH FAUCET CENTERS AND DRILLED FOR CONCEALED ARM CARRIER. PROVIDE 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/4-INCH INLET 1-1/2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW. PROVIDE DELTA #523-WFOGHDF HEAVY DUTY SINGLE LEVER FAUCET, 4-INCH CENTERS, VANDAL-RESISTANT 2.2 GPM AERATOR, PERFORATED OFFSET GRID DRAIN (W/ 1-1/4" TAILPIECE) AND VANDAL-RESISTANT SINGLE LEVER HANDLE. PROVIDE WITH WADE CARRIER (TO MATCH WALL TYPE). MOUNT AT ADA HEIGHT AND MAINTAIN CLEARANCES UNDER LAVATORY AS REQUIRED BY ADA REGULATIONS. INSULATE WASTE AND HOT WATER SUPPLY UNDER LAVATORY WITH UNDERSINK PROTECTIVE PIPE COVER, MOLDED, ANTIMICROBIAL, WITH FLUSH REUSABLE FASTENERS, TRUEBRO LAV GUARD.

F. SINK (SK-1), JUST #SL-2222-A-GR, SINGLE COMPARTMENT, 18 GAUGE TYPE 304 STAINLESS STEEL, SELF RIMMING, UNDERSIDE FULLY UNDERCOATED WITH SOUND DAMPENING MATERIAL, 3 HOLE PUNCH, NOMINAL DIMENSIONS OF 22"X22"X7-1/2" DEEP. PROVIDE WITH DELTA COMMERCIAL #27T2934 HEAVY DUTY DECKMOUNT SINK FAUCET, 6" RIGID/SWIVEL GOOSENECK SPOUT, 8" CENTERS, 2.0 GPM VANDAL-RESISTANT AERATOR, BASKET STRAINER DRAIN, 1-1/2" TAILPIECE, 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET 2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG, ESCUTCHEON W/SET SCREW AND 4" VANDAL-RESISTANT WRIST BLADE HANDLES.

G. SINK (SK-2), JUST #DL-2133-A-GR, DOUBLE COMPARTMENT, 18 GAUGE TYPE 304 STAINLESS STEEL, SELF RIMMING, UNDERSIDE FULLY UNDERCOATED WITH SOUND DAMPENING MATERIAL, 4 HOLE PUNCH, NOMINAL DIMENSIONS OF 21"X33"X8" DEEP. PROVIDE WITH DELTA #400-WFELHHDF HEAVY DUTY SINGLE LEVER SINK FAUCET WITH SPRAYER, 8" LONG SWIVEL SPOUT, 8" CENTERS, 2.0 GPM VANDAL-RESISTANT AERATOR, JUST J-35 BASKET STRAINER DRAIN, 1-1/2" TAILPIECE, 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET - 2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW.

H. SINK (SK-3), JUST #DL-2133-A-GR, SINGLE COMPARTMENT WITH DECK MOUNTED EYEWASH, 18 GAUGE TYPE 304 STAINLESS STEEL, SELF RIMMING, UNDERSIDE FULLY UNDERCOATED WITH SOUND DAMPENING MATERIAL, 4 HOLE PUNCH, NOMINAL DIMENSIONS OF 21"X33"X8" DEEP. PROVIDE WITH DELTA #400-WFELHHDF HEAVY DUTY SINGLE LEVER SINK FAUCET WITH SPRAYER, 8" LONG SWIVEL SPOUT, 8" CENTERS, 2.0 GPM VANDAL-RESISTANT AERATOR, JUST J-35 BASKET STRAINER DRAIN, 1-1/2" TAILPIECE, 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET - 2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW.

I. SINK (SK-4), JUST #DL-2133-A-GR, SINGLE COMPARTMENT, 18 GAUGE TYPE 304 STAINLESS STEEL, SELF RIMMING, UNDERSIDE FULLY UNDERCOATED WITH SOUND DAMPENING MATERIAL, 4 HOLE PUNCH, NOMINAL DIMENSIONS OF 21"X33"X8" DEEP. PROVIDE WITH DELTA #400-WFELHHDF HEAVY DUTY SINGLE LEVER SINK FAUCET WITH SPRAYER, 8" LONG SWIVEL SPOUT, 8" CENTERS, 2.0 GPM VANDAL-RESISTANT AERATOR, JUST J-35 BASKET STRAINER DRAIN, 1-1/2" TAILPIECE, 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET - 2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW.

J. SURGEON'S SCRUB SINK (SS-1), PROVIDE STAINLESS STEEL SURGEON'S SCRUB SINK AND FAUCET TO MATCH EXISTING SUBJECT TO OWNER APPROVAL. PROVIDE 3/8-INCH FLEXIBLE RISERS W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET/2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG, ESCUTCHEON W/SET SCREW AND OWNER APPROVED FAUCET.

K. CLINIC SINK (CS-1), AMERICAN STANDARD #9512.999.075 WITH RIM GUARD, WALL HUNG VITREOUS CHINA WITH RIM GUARD, 1-1/2" TOP SPUD, SLOAN ROYAL #117 FLUSH VALVE, WALL HANGER. PROVIDE WITH DELTA #28T2383 FAUCET WITH VACUUM BREAKER, LEVER HANDLES, 3/4" HOSE THREAD SPOUT WITH 48" LONG HOSE, WALL SUPPORT, INTEGRAL STOPS AND ROUGH CHROME-PLATED FINISH.

L. ELECTRIC WATER COOLER (EWC-1H), HAWS #1212 BI-LEVEL BARRIER FREE STYLE WITH SENSOR OPERATED BOTTLE FILLER, STAINLESS STEEL OUTER SHELL, FRONT TOUCHPAD OPERATORS, FLEXIBLE ANTIMICROBIAL BUBBLER MOUTH GUARD, ELECTRONIC BUBBLER VALVE. PROVIDE 3/8-INCH FLEXIBLE RISER W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, AND 1-1/4-INCH INLET 1-1/2-INCH OUTLET CHROME-PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW. MOUNT PER MANUFACTURER'S INSTRUCTIONS AND AS SHOWN ON THE ARCHITECTURAL PLANS.

M. MOP SINK (MS-1), STERN WILLIAMS #SB-900, CONSTRUCTED OF TERRAZZO, 32" SQUARE BY 12" HIGH (COORDINATE SIZE WITH ARCHITECTURAL PLANS), CHROME-PLATED CAST BRASS DRAIN (CAST INTEGRAL) WITH STAINLESS STEEL CAP. PROVIDE WITH DELTA #28T2383 FAUCET WITH VACUUM BREAKER, LEVER HANDLES, 3/4" HOSE THREAD SPOUT WITH 48" LONG HOSE, WALL SUPPORT, INTEGRAL STOPS AND ROUGH CHROME-PLATED FINISH.

N. 3-COMPARTMENT SINK AND ASSOCIATED FAUCET IS PROVIDED BY THE THE OWNER. PC TO PROVIDE BASKET STRAINER DRAIN, TAILPIECE, 3/8-INCH FLEXIBLE RISERS W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET/2-INCH OUTLET CHROME PLATED CAST BRASS "P" TRAP W/CLEANOUT PLUG AND ESCUTCHEON W/SET SCREW. PC TO PROVIDE OWNER FAUCETS (DELTA OR EQUAL) TO GO ALONG WITH FIXTURES PROVIDED BY THE OWNER UNLESS OTHERWISE NOTED.

O. FLOOR DRAINS (FD-1), WADE #1100-G5-1-27. RATED FOR GENERAL LIGHT DUTY USE WITH CAST IRON BODY WITH FLANGE, SEEPAGE OPENINGS,INTEGRAL REVERSING CLAMPING COLLAR, TRAP PRIMER CONNECTION, 5" SQUARE NICKEL BRONZE ADJUSTIBLE STRAINER, SEDIMENT BUCKET AND HEEL PROOF GRATE, PROVIDE WITH SEPARATE DEEP SEAL "P" TRAP (SEE PLANS FOR SIZE).

P. EQUIPMENT DRAINS (ED-1) WADE #1100-94 ADJUSTABLE CAST IRON FLOOR DRAIN WITH FLANGE, SEEPAGE OPENINGS, INTEGRAL CLAMPING COLLAR, EXTENSION ADAPTER INSTALLED ABOVE THE FLOOR ELEVATION APPROXIMATELY 3/4" TO PREVENT WATER ON THE FLOOR FROM ENTERING DRAIN AND 1/2" PLUGGED TRAP PRIMER CONNECTION. PROVIDE WITH SEPARATE DEEP SEAL "P" TRAP (SEE PLANS FOR SIZE).

Q. FINISHED FLOOR CLEANOUTS: (FFCO) WADE #6000-1-2-S CAST IRON FLOOR CLEANOUT WITH FLANGE, PLASTIC TAPERED PLUG AND SQUARE NICKEL BRONZE ADJUSTABLE TOP. PROVIDE WITH CARPET CLEANOUT MARKER WHEN CLEANOUT IS LOCATED BELOW CARPET. COORDINATE WITH ARCHITECTURAL PLANS.

R. FINISHED WALL CLEANOUTS: (FWCO) WADE #8560, W/ 8304-85-6 CAST IRON CLEANOUT TEE WITH BRASS PLUG AND 6" ROUND STAINLESS STEEL ACCESS COVER. J.R. SMITH FIGURE 4530. PROVIDE DUCO CAST IRON WALL CLEANOUT TEE WITH COUNTERSUNK PLUG. DELETE COVER PLATE IF CLEANOUT IS IN EXPOSED LOCATION.

S. ALL FIXTURES USED SPECIFICALLY FOR HANDWASHING PURPOSES (LAVATORIES, HAND SINKS, ETC.) SHALL BE PROVIDED WITH A TEMPERING VALVE TO TEMPER THE HOT WATER TO THE FIXTURE (MAXIMUM OF 105-DEGREES F).

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President & CEO

Kevin Campbell
Senior Architect

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NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-200150421
REGISTERED PROFESSIONAL ENGINEER
02/10/2026

PROJECT NO. 231206

DRAWING ISSUANCE

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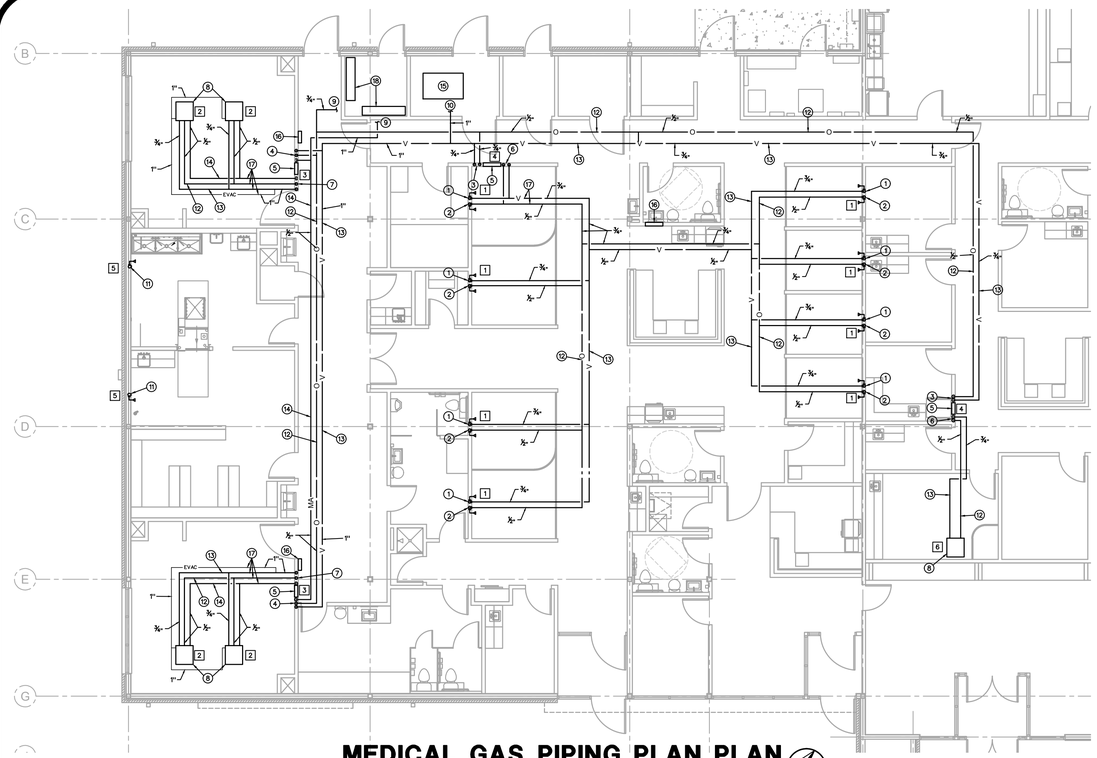
| 02/10/2026 | REV 01 |

SHEET NUMBER

**P201TI**

FLOOR PLAN



## MEDICAL GAS PIPING PLAN PLAN

1/8" = 1'-0"

NORTH

## MEDICAL GAS PLAN NOTES

1. VACUUM PIPING DOWN IN WALL TO VACUUM OUTLETS (2).
2. OXYGEN PIPING DOWN IN WALL TO OXYGEN OUTLET.
3. OXYGEN AND VACUUM PIPING DOWN IN WALL TO MEDICAL GAS VALVE BOX AT 5'-0" AFF. REFER TO SPECIFICATION FOR MEDICAL GAS VALVE BOX. PROVIDE LOCAL ALARM PANEL (LAP) MOUNTED NEXT TO VALVE BOX AT 5'-0"AFF.
4. OXYGEN, VACUUM AND MEDICAL AIR PIPING DOWN IN WALL TO MEDICAL GAS VALVE BOX AT 5'-0" AFF. REFER TO SPECIFICATION FOR MEDICAL GAS VALVE BOX. PROVIDE ADDITIONAL MODULE AT MASTER ALARM PANEL IN NURSE STATION TO SERVE OXYGEN SYSTEM. INSTALL OXYGEN SYSTEM AND MEDICAL ALARM SYSTEM PER NFPA 99.
5. MEDICAL GAS SYSTEM VALVE BOX.
6. OXYGEN AND VACUUM UP IN WALL TO ABOVE CEILING.
7. OXYGEN, VACUUM AND MEDICAL AIR UP IN WALL TO ABOVE CEILING.
8. CEILING COLUMN. SEE ARCHITECTURAL PLANS FOR EXACT LOCATION.
9. SEE "TYPICAL CYLINDER SUPPLY SYSTEM DETAIL", THIS SHEET, FOR CONTINUATION OF OXYGEN OR MEDICAL AIR PIPING.
10. SEE "VACUUM PUMP DETAIL", THIS SHEET, FOR CONTINUATION OF VACUUM PIPING.
11. 3/4" INSTRUMENT AIR PIPING DOWN TO INSTRUMENT AIR OUTLET IN WALL. EXTEND INSTRUMENT AIR PIPING PROVIDED FROM OWNER PROVIDED EQUIPMENT IN THIS ROOM.
12. OXYGEN PIPING ABOVE THE CEILING.
13. VACUUM PIPING ABOVE THE CEILING.
14. MEDICAL AIR PIPING ABOVE THE CEILING.
15. INSTALL VACUUM PUMP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
16. MEDICAL GAS ALARM PANEL. INSTALL PER NFPA 99.
17. EXTEND 1/2" COPPER SENSOR PIPES TO MEDICAL GAS ALARM PANEL IN ACCORDANCE WITH NFPA 99.
18. PLACE 4X4 OXYGEN 2X2 AND MEDICAL AIR MANIFOLDS HERE.

## MEDICAL GAS GENERAL NOTES

A) THE INSTALLER OF THE MEDICAL GAS SYSTEMS FOR THIS FACILITY SHALL HAVE OVER 5 YEARS EXPERIENCE WITH SUCH SYSTEMS. INSTALLATION SHALL COMPLY WITH NFPA 99, ALL LOCAL AND STATE BUILDING CODES, STATE OF MISSOURI HEALTH DEPARTMENT AND AUTHORITY HAVING JURISDICTION.

B) REFER TO MEDICAL GAS SPECIFICATION, SHEET MP403, FOR MEDICAL GAS SYSTEM REQUIREMENTS AND MASTER ALARM PANEL.

C) COORDINATE ELECTRICAL POWER AND ALARM REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR.

MEDICAL GAS SYSTEM NOTES:

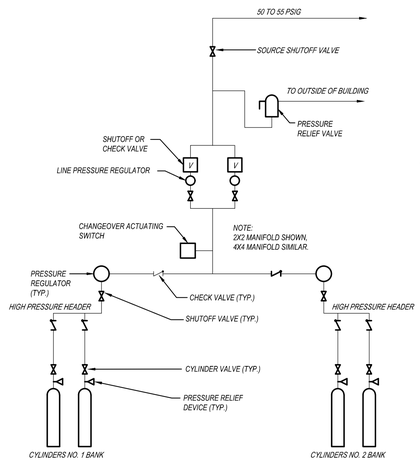
- INSPECT, TEST AND CERTIFY COMPLETE MEDICAL GAS SYSTEMS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 99, STANDARD FOR HEALTH CARE FACILITIES. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL MEDICAL GAS SYSTEM EQUIPMENT AND DEVICES (MED VAC PUMP, MANIFOLD CONTROLS, ZONE VALVE BOXES, ALARM PANEL VALVES, ETC.) SHALL BE LISTED AND INSTALLED TO MEET ALL NFPA 99 REQUIREMENTS. ANY EQUIPMENT OR DEVICES THAT ARE ARE FOUND TO NOT BE IN COMPLIANCE WITH NFPA SHALL BE REPLACED SUCH THAT ENTIRE SYSTEM IS COMPLIANT.
- INSTALLER SHALL PROVIDE/INSTALL/LOCATE ALL ALARMS AND INDICATORS IN ACCORDANCE WITH NFPA 99. COORDINATE INSTALLATION OF DEVICES WITH THE ARCHITECT/OWNER.
- THE MEDICAL GAS SYSTEM INSTALLER SHALL HAVE THE NECESSARY NFPA CREDENTIALS TO PERFORM MEDICAL GAS AND VACUUM SYSTEM INSTALLATIONS. THIS INSTALLER SHALL ASSESS ALL DESIGN METHODS AND PROPOSED MATERIALS AND REPORT AND DEFICIENCIES TO ENGINEER PRIOR TO START OF WORK. THE ENTIRE SYSTEM INSTALLATION SHALL BE COMPLIANT WITH NFPA REQUIREMENTS.
- PLEASE REFER TO CHAPTER 5 OF THE NFPA 99 CODE BOOK FOR DETAILED REQUIREMENTS OF MEDICAL GAS AND VACUUM SYSTEMS PIPING METHODS.
- ALL NFPA 99 TESTING REQUIRED BY THE MEDICAL GAS AND VACUUM SYSTEM INSTALLER SHALL BE PERFORMED AFTER SYSTEM INSTALLATION IS COMPLETED AND BY THE CERTIFIED INSTALLER. THIS INCLUDES (BUT NOT LIMITED TO) THE FOLLOWING: INITIAL PIPING BLOW-DOWN TEST, INITIAL POSITIVE PRESSURE TEST, INITIAL STANDING PRESSURE TEST FOR POSITIVE PRESSURE MEDICAL GAS PIPING AND THE STANDING VACUUM TEST FOR VACUUM PIPING. PLEASE REFER TO NFPA 99, CHAPTER 5.1.12.2 "INSTALLER-PERFORMED TEST" FOR DETAILED REQUIREMENTS.
- ALL DOCUMENTATION FOR THE ABOVE SHALL BE SHARED WITH THE MEDICAL GAS AND VACUUM SYSTEMS VERIFIER AND AUTHORITIES HAVING JURISDICTION. REFER TO NFPA 99 FOR ALL DOCUMENTATION REQUIRED.
- AFTER INITIAL TESTING, THE SYSTEMS SHALL BE INSPECTED, TESTED AND VERIFIED BY AN ASSE CERTIFIED INDIVIDUAL (ASSE 6030 VERIFIER) TO ASSURE COMPLIANCE WITH NFPA 99. THE VERIFIER SHALL PROVIDE DOCUMENTATION THAT THE SYSTEMS ARE COMPLIANT AND READY FOR USE.

## # MEDICAL GAS EQUIPMENT SCHEDULE (POWEREX OR APPROVED EQUAL)

| MARK NO. | MANUFACTURER | MODEL NO. | ITEM | RPM | ELECTRICAL VOLT | ø | HZ | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | POWEREX | - | QUICK CONNECT WALL OUTLET | $O_2$, VACUUM (2), SLIDE | - | - | - | 1,3,7 |
| 2 | POWEREX | - | CEILING COLUMN | $O_2$, AIR, VACUUM (2), EVAC, 4-PLEX 20-AMP OUTLET, GROUND JACK | 120 | 1 | 60 | 1,2,4,5 |
| 3 | POWEREX | - | TRIPLE VALVE BOX ASSEMBLY | 3/4" $O_2$, 3/4" AIR, 1" VACUUM | - | - | - | 6 |
| 4 | POWEREX | - | DOUBLE VALVE BOX ASSEMBLY | 3/4" $O_2$, 3/4" VACUUM | - | - | - | 6 |
| 5 | POWEREX | - | QUICK CONNECT WALL OUTLET | AIR | - | - | - | 8 |
| 6 | POWEREX | - | CEILING COLUMN | $O_2$, VACUUM (2), 4-PLEX 20-AMP OUTLET, GROUND JACK | - | - | - | 6 |
| | | | | | | | | |

NOTES:

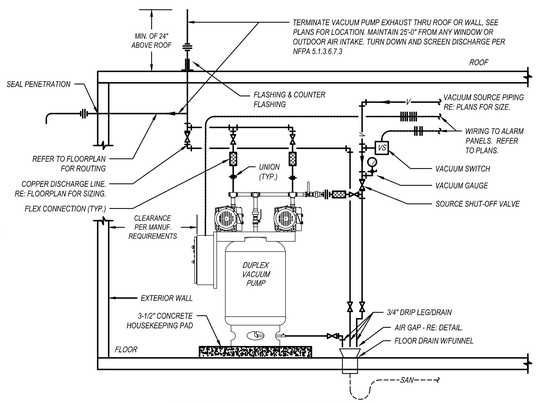
1. NOTE EACH DEVICE WITH ENGRAVED PHENOLIC TAG.
2. PROVIDE WITH COLUMN MOUNT ACCESSORIES AS REQUIRED, INCLUDING SUPPLEMENTAL STEEL FOR ANCHORAGE TO STRUCTURAL STEEL.
3. GANGED OUTLETS WITH COVER PLATES.
4. DELETE MEDICAL AIR AT COLUMN AT FOOT OF BED.
5. STATIONARY COLUMN WITH QUICK CONNECT OUTLETS.
6. WITH STACKED PRESSURE GAGES.
7. LOCATE OFF CENTER OF BED LOCATION. SEE ARCHITECTURAL PLANS.
8. COORDINATE LOCATION WITH THE OWNER.




## TYPICAL CYLINDER SUPPLY SYSTEM DIAGRAM

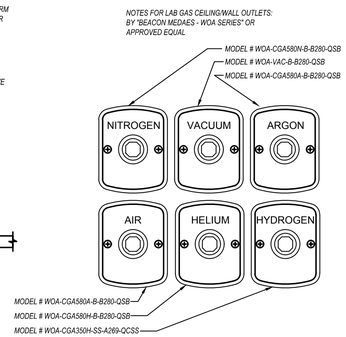
NOT TO SCALE

VP 1 POWEREX #VVTD0503 DUPLEX LUBRICATED ROTARY VANE AIR COOLED VACUUM PUMP, 37 SCFM @ 19" HG, 1750 RPM, 5 HP MOTOR (2), 480/3/60 (14.9 FLA), WITH 80 GALLON ASME RECEIVER. PROVIDE WITH MANUFACTURER STANDARD NEMA 12 CONTROL PANEL, VACUUM CONTROL (SET @ 19" HG), ISOLATION VALVE, 10 MICRON INLET FILTER MANUAL DRAIN, INLET/OUTLET FLEX CONNECTORS, LEAD/LAG SEQUENCING, AUTOMATIC ALTERNATING CONTROL, VIBRATION ISOLATION PADS, 1400 LBS.




## VACUUM PUMP DETAIL

NOT TO SCALE




## LAB GAS OUTLET DETAIL

NOT TO SCALE

## MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA COMPLIANCE

| TAG | GAS NAME | MATERIAL TYPE | PROPOSED VOLUME CALCULATION: TANKS (MAX) | PROPOSED VOLUME CALCULATION: VOLUME PER TANK (CUBIC FEET) | PROPOSED VOLUME CALCULATION: TOTAL VOLUME | ALLOWABLE CALCULATION: TABLE 5003.1.1 CLASSIFICATION | ALLOWABLE CALCULATION: TABLE 5003.1.1 QUANITIES | ALLOWABLE CALCULATION: ALLOWABLE VOLUME | REMARKS |
|---|---|---|---|---|---|---|---|---|---|
| 02 | MEDICAL GRADE OXYGEN | OXIDIZING GAS | 4 | 282 | 1128 | OXIDIZING GAS | 1-4 | 1500 CF | ALL |

NOTES:

1. CALCULATIONS BASED ON TABLE 5003.1.1 OF THE 2018 INTERNATIONAL FIRE CODE AND MSDS DATA FOUND AT WWW.AIRGAS.COM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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-2000150421
REGISTERED PROFESSIONAL ENGINEER
12/01/2025

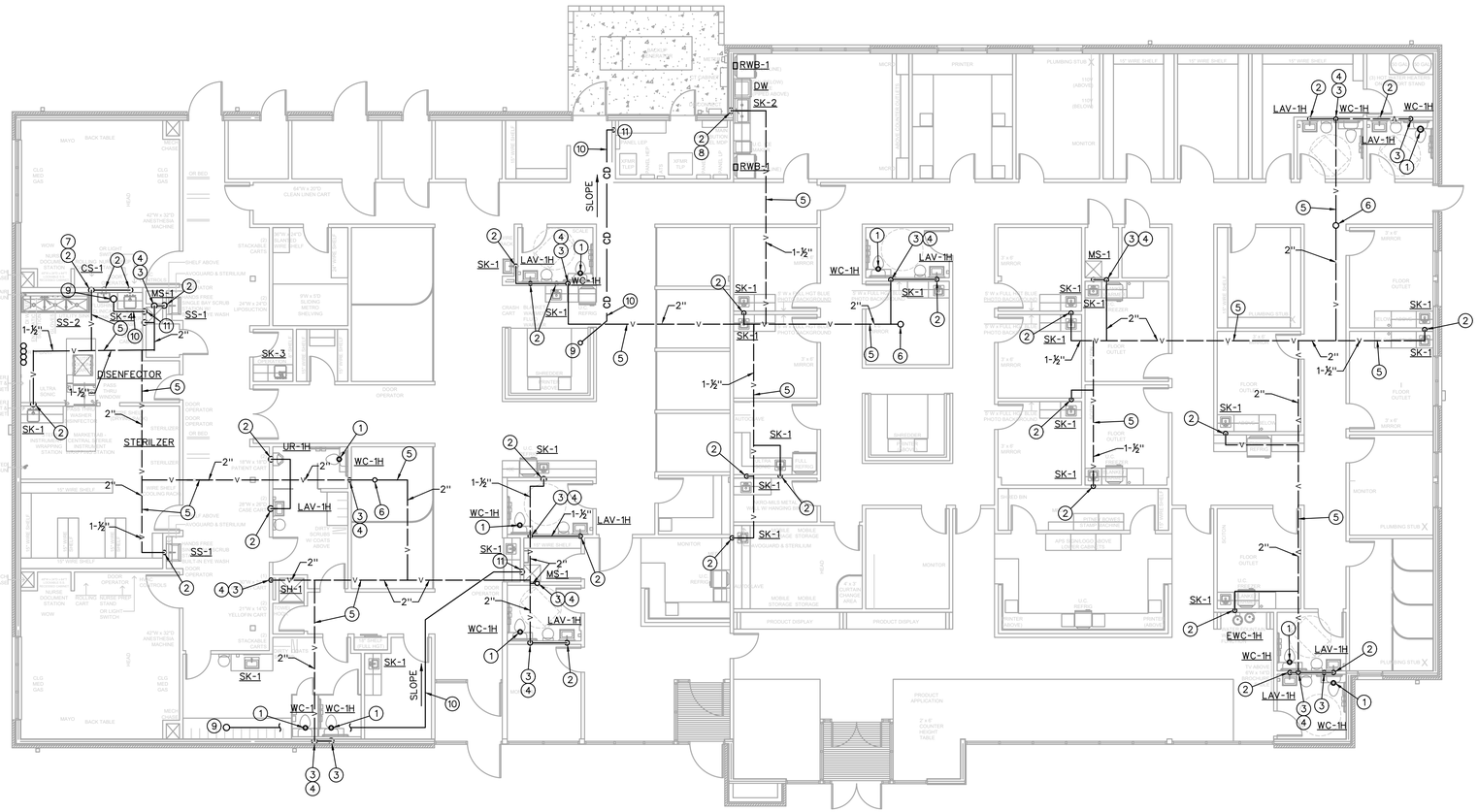
PROJECT NO. 231206

DRAWING ISSUANCE
12/01/2025 PERMIT

SHEET NUMBER

**P202TI**

FLOOR PLAN




## PLUMBING ABOVE FLOOR WASTE AND VENT PLAN

1/8" = 1'-0"

NORTH

## PLUMBING PLAN NOTES (#):

1. 4" S DOWN.
2. 2" W DOWN, 1-1/2" V UP.
3. 2" V FROM BELOW.
4. CONTINUE 2" V UP TO ABOVE CEILING.
5. PIPING ABOVE CEILING.
6. 2" V UP TO 3" VTR.
7. CONTINUE 1-1/2" V UP TO ABOVE CEILING.
8. EXTEND DRAIN FROM DISHWASHER TO SK-2 DRAIN TAILPIECE. (1)
9. CONDENSATE DRAIN FROM HUMIDIFIER (SIZE AS RECOMMENDED BY THE MANUFACTURER). INSTALL PER MANUFACTURER'S INSTRUCTIONS.
10. CONDENSATE DRAIN. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
11. DAYLIGHT CONDENSATE DRAIN ABOVE MOP SINK OR FLOOR SINK.

## PLUMBING GENERAL NOTES:

A) ALL FIXTURES USED SPECIFICALLY FOR HANDWASHING PURPOSES (LAVATORIES, HAND SINKS, ETC.) SHALL BE PROVIDED WITH A TEMPERING VALVE TO TEMPER THE HOT WATER TO THE FIXTURE (MAXIMUM OF 105-DEGREES F).

B) SEE "PLUMBING RISER DIAGRAMS", SHEET P300TI, FOR PIPING NOT SHOWN ON THE PLANS.

C) PC SHALL ROUGH-IN AND MAKE FINAL CONNECTION FOR ALL SINKS, FAUCETS, EQUIPMENT, APPLIANCES AND ACCESSORIES PROVIDED BY THE OWNER. WHERE REQUIRED, PC TO PROVIDE BASKET STRAINER DRAIN, TAILPIECE, 3/8-INCH FLEXIBLE RISERS W/ANGLE SUPPLIES WITH LOOSE KEY STOPS, 1-1/2-INCH INLET/2-INCH OUTLET CHROME PLATED "P" TRAP AND ESCUTCHEON W/SET SCREW.

D) CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK. FIELD VERIFY LOCATION OF EXISTING UTILITIES.

E) SEE SHEET PE200S (SHELL CONSTRUCTION) FOR UNDERFLOOR PIPING INSTALLED PREVIOUSLY.

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02/10/2026

PROJECT NO: 231206

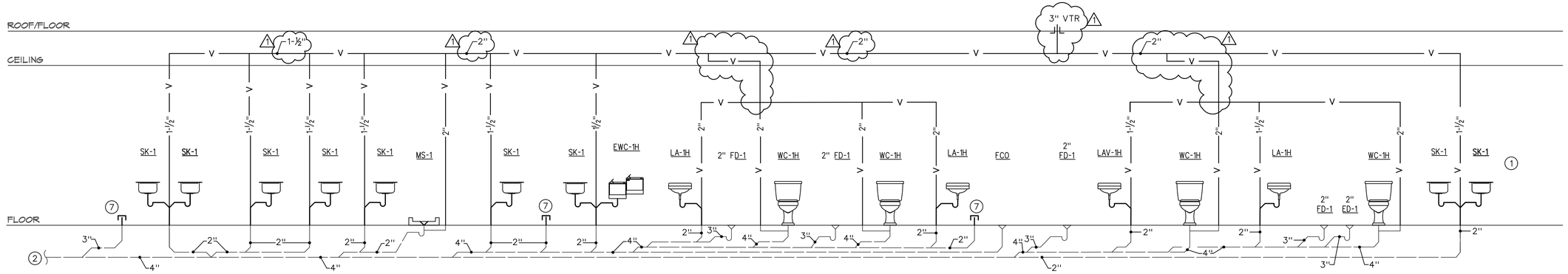
DRAWING ISSUANCE

| | |
|---|---|
| 12/01/2025 | PERMIT |
| 02/10/2026 | REV 01 |

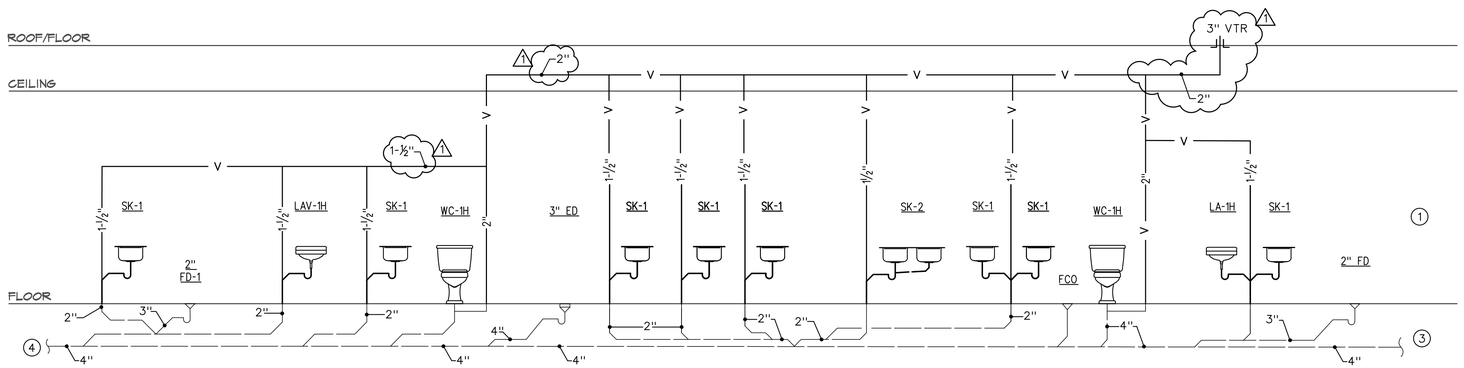
SHEET NUMBER

**P203TI**

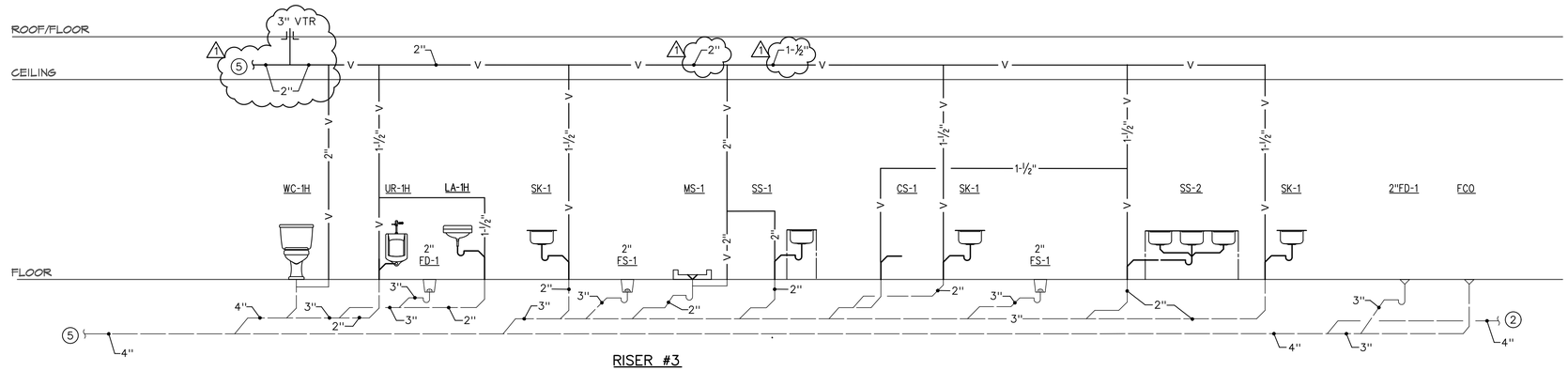
FLOOR PLAN



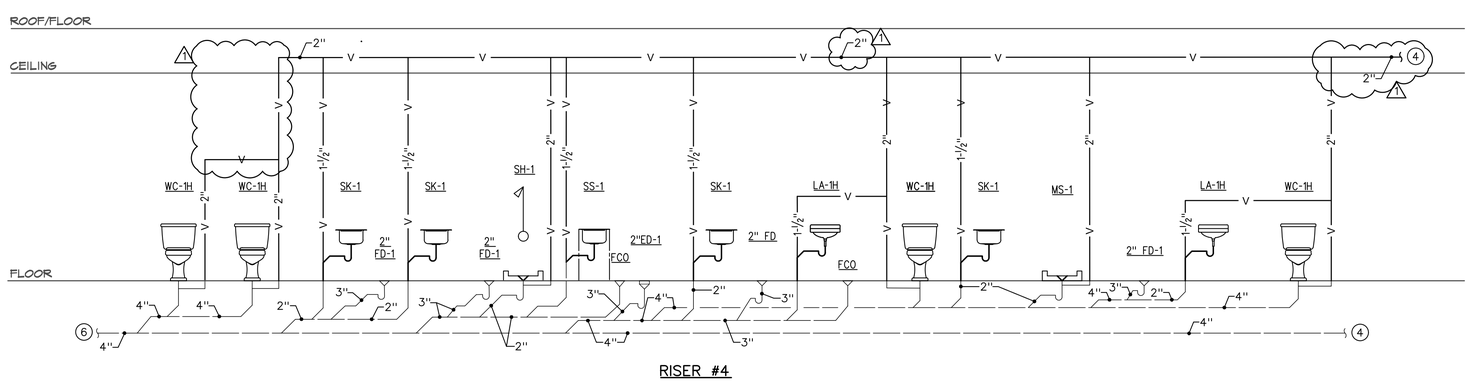

RISER #1




RISER #2




RISER #3




RISER #4

## RISER DIAGRAM NOTES:

1. PIPING BELOW THE FLOOR WAS INSTALLED DURING SHELL CONSTRUCTION PHASE.
2. SEE RISER #2 FOR CONTINUATION.
3. SEE RISER #1 FOR CONTINUATION.
4. SEE RISER #3 FOR CONTINUATION.
5. SEE RISER #4 FOR CONTINUATION.
6. SEE "PLUMBING PLAN", SHEET P200TI, FOR CONTINUATION.
7. 2" CAPPED STUB-UP FOR FUTURE FIXTURE (MIN 6" AFF).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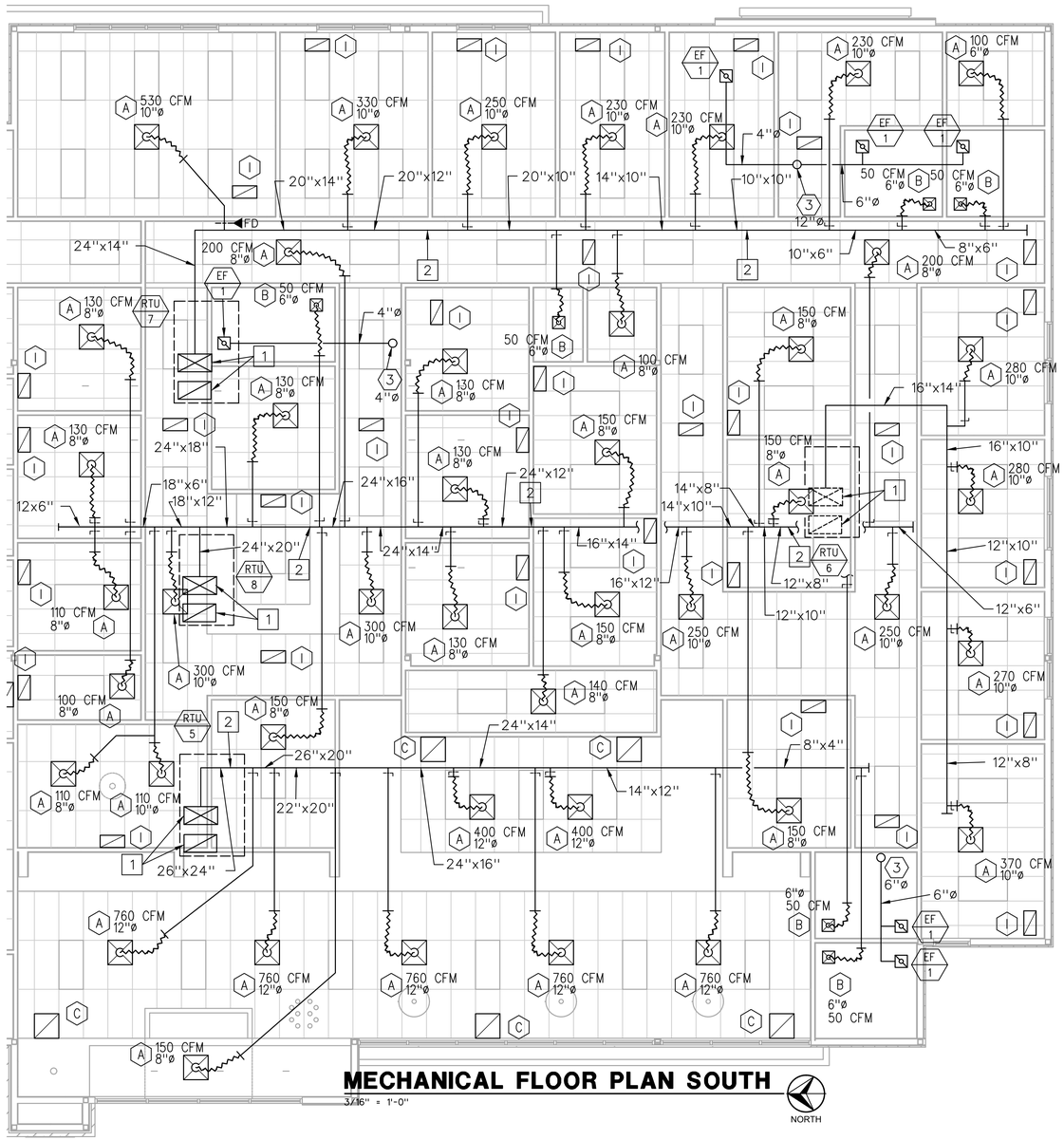
| 01/27/2026 | REV 01 |

SHEET NUMBER

**P300**

**TI**




## MECHANICAL FLOOR PLAN SOUTH

3/16" = 1'-0"

NORTH

## MECHANICAL PLAN NOTES #:

1. SA AND RA UP THRU ROOF TO ROOFTOP UNIT (RTU) ROOFTOP UNIT INSTALLED DURING SHELL CONSTRUCTION. COORDINATE SIZE WITH RTU MANUFACTURER. INSTALL "U" RA BOOT ON RA DUCT CONNECTION. SEE DETAIL ON SHEET MP301TI. TYPICAL EACH RTU.
2. DUCTWORK ABOVE CEILING.
3. EXHAUST DUCT UP THROUGH THE ROOF TO WP CAP (SIZE AS INDICATED).

## MECHANICAL GENERAL NOTES (RTU)

A) COORDINATE LOCATION OF CEILING DIFFUSERS AND RETURN GRILLES WITH ARCHITECTURAL REFLECTED CEILING PLAN.

B) CONTRACTOR SHALL INSURE THAT A PROPER RETURN AIR PATH EXISTS FROM EACH SPACE. WHERE NOT OTHERWISE INDICATED AND IN RETURN AIR PLENUM APPLICATIONS, PROVIDE FLANGED RETURN AIR OPENINGS ABOVE CEILING LEVEL, THRU WALLS TO STRUCTURE, SO THAT RETURN AIR VELOCITY AND PRESSURE DROP DOES NOT EXCEED 1000 FPM AND 0.065"WG/100' RESPECTIVELY.

C) CONFIRM THAT NO COMBUSTIBLE MATERIALS ARE LOCATED IN CEILING RETURN AIR PLENUMS.

D) TEMPERATURE CONTROL INCLUDES ALL CONTROL WIRING FOR COMPLETE OPERATION OF ROOFTOP UNITS BY MECHANICAL CONTRACTOR ACCORDING TO THE FOLLOWING SEQUENCE OF OPERATIONS:

RTU SEQUENCE OF CONTROL:

PROVIDE A WALL MOUNTED 7-DAY HEATING/COOLING THERMOSTAT FOR EACH ROOFTOP UNIT INSTALLED IN A LOCATION APPROVED BY THE OWNER. INSTALL TAMPERPROOF COVER.

DAY OPERATION - THE TIMECLOCK OR MANUAL OVERIDE FUNCTION SHALL AUTOMATICALLY ACTIVATE THE SYSTEM TO THE "OCCUPIED" OR "DAY" MODE. THE SYSTEM SHALL HEAT OR COOL THE SPACE TO THE DESIRED SET POINTS (COOLING: 74°F AND HEATING: 70°F) THROUGH THE THERMOSTATS BUILT-IN DEADBAND. THE OUTSIDE AIR DAMPERS SHALL BE AT THEIR MINIMUM POSITION AND THE FAN SHALL MAINTAIN CONTINUOUS OPERATION.

NIGHT OPERATION - THE TIMECLOCK SHALL AUTOMATICALLY ACTIVATE THE SYSTEM TO THE "NIGHT/UNOCCUPIED" MODE. THE SYSTEM SHALL HEAT OR COOL THE SPACE TO THE DESIRED NIGHT SET POINTS (COOLING: 85°F AND HEATING: 60°F) THROUGH THE THERMOSTATS NIGHT/UNOCCUPIED SETPOINTS. THE OUTSIDE AIR DAMPERS SHALL BE CLOSED AND THE FAN SHALL CYCLE AS NEEDED TO MAINTAIN THE THERMOSTAT SETPOINTS.

ECONOMIZER OPERATION TO ENABLE FREE COOLING SHALL BE A FUNCTION OF THE RTU MANUFACTURER'S STANDARD CONTROLS.

SAFETY OPERATION - THE FIRE ALARM SYSTEM SHALL SHUTDOWN OPERATION OF RTU FAN UPON DETECTION OF SMOKE AT ANY SMOKE DETECTOR INSTALLED AT THIS FACILITY.

E) DUCT SIZES INDICATED ARE BASED ON FREE AREA AND DO NOT INCLUDE ANY ADJUSTMENT FOR DUCT LINER.

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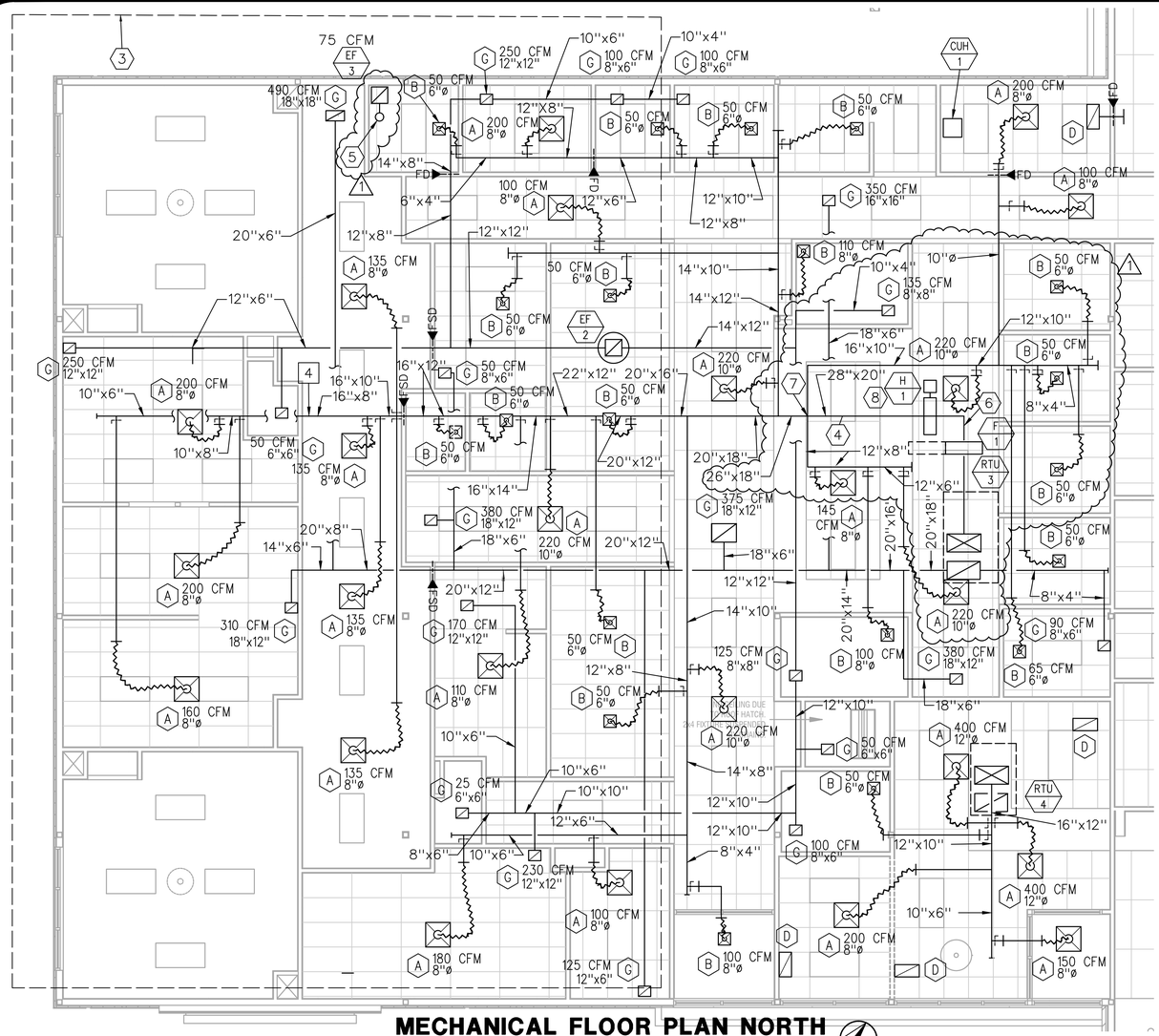
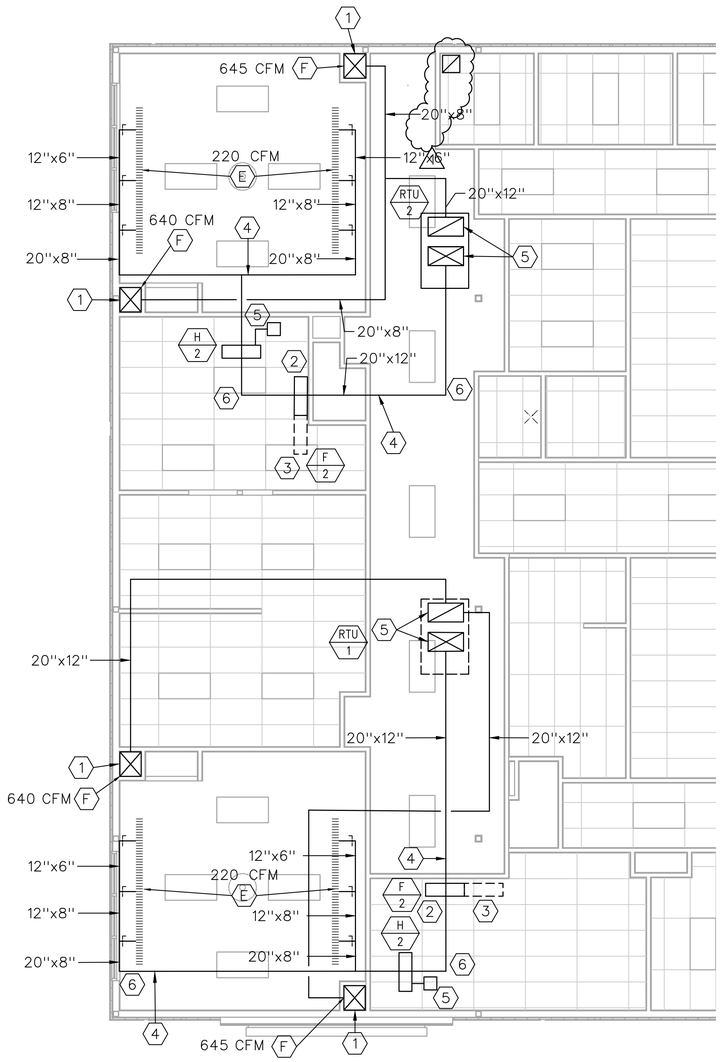
**M200TI**

FLOOR PLAN




## MECHANICAL FLOOR PLAN NORTH

3/16" = 1'-0"




## PARTIAL PLAN SURGERY

3/16" = 1'-0"

## MECHANICAL GENERAL NOTES (RTU)

A) COORDINATE LOCATION OF CEILING DIFFUSERS AND RETURN GRILLES WITH ARCHITECTURAL REFLECTED CEILING PLAN.

B) CONTRACTOR SHALL INSURE THAT A PROPER RETURN AIR PATH EXISTS FROM EACH SPACE. WHERE NOT OTHERWISE INDICATED AND IN RETURN AIR PLENUM APPLICATIONS, PROVIDE FLANGED RETURN AIR OPENINGS ABOVE CEILING LEVEL, THRU WALLS TO STRUCTURE, SO THAT RETURN AIR VELOCITY AND PRESSURE DROP DOES NOT EXCEED 1000 FPM AND 0.065"WG/100' RESPECTIVELY.

C) CONFIRM THAT NO COMBUSTIBLE MATERIALS ARE LOCATED IN CEILING RETURN AIR PLENUMS.

D) DUCT SIZES INDICATED ARE BASED ON FREE AREA AND DO NOT INCLUDE ANY ADJUSTMENT FOR DUCT LINER.

E) TEMPERATURE CONTROL INCLUDES ALL CONTROL WIRING FOR COMPLETE OPERATION OF ROOFTOP UNITS BY MECHANICAL CONTRACTOR ACCORDING TO THE FOLLOWING SEQUENCE OF OPERATIONS:

RTU SEQUENCE OF CONTROL:

PROVIDE A WALL MOUNTED 7-DAY HEATING/COOLING THERMOSTAT FOR EACH ROOFTOP UNIT INSTALLED IN A LOCATION APPROVED BY THE OWNER. INSTALL TAMPERPROOF COVER.

DAY OPERATION - THE TIMECLOCK OR MANUAL OVERRIDE FUNCTION SHALL AUTOMATICALLY ACTIVATE THE SYSTEM TO THE "OCCUPIED" OR "DAY" MODE. THE SYSTEM SHALL HEAT OR COOL THE SPACE TO THE DESIRED SET POINTS (COOLING: 74°F AND HEATING: 70°F) THROUGH THE THERMOSTATS BUILT-IN DEADBAND. THE OUTSIDE AIR DAMPERS SHALL BE AT THEIR MINIMUM POSITION AND THE FAN SHALL MAINTAIN CONTINUOUS OPERATION.

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ECONOMIZER OPERATION TO ENABLE FREE COOLING SHALL BE A FUNCTION OF THE RTU MANUFACTURER'S STANDARD CONTROLS.

SAFETY OPERATION - THE FIRE ALARM SYSTEM SHALL SHUTDOWN OPERATION OF RTU FAN UPON DETECTION OF SMOKE AT ANY SMOKE DETECTOR INSTALLED AT THIS FACILITY.

## MECHANICAL PLAN NOTES (#):

1. SA AND RA UP THRU ROOF TO ROOFTOP UNIT (RTU) ROOFTOP UNIT INSTALLED DURING SHELL CONSTRUCTION. COORDINATE SIZE WITH RTU MANUFACTURER.
2. DUCTWORK ABOVE CEILING.
3. SEE "PARTIAL PLAN SURGERY" FOR HVAC SYSTEMS SERVING OPERATING ROOMS.
4. DUCTWORK DOWNSTREAM OF FILTERS SHALL NOT HAVE ANY INSULAING LINER.
5. 6"ø EXHAUST DUCT UP THRU ROOF TO WP CAP.
6. ELBOW WITH TURNING VANES.
7. 3-WAY SPLITTER DAMPER.
8. INSTALL STEAM GENERATOR AND DUCT MOUNTED DISTRIBUTOR PER MANUFACTURER'S INSTRUCTIONS. SEE PLUMBING PLANS FOR DOMESTIC WATER AND CONDENSATE DRAINS.

## PARTIAL PLAN SURGERY NOTES (#):

1. 20"x18" RA DOWN IN CHASE TO RETURN GRILLE MOUNTED IN WALL OF CHASE. THE BOTTOM OF THE RETURN GRILLE SHALL BE AT LEAST 3" A.F.F. AND THE TOP OF THE RETURN GRILLE SHALL BE A MAXIMUM OF 12" A.F.F.
2. INSTALL NEW FILTER SECTION WHERE IT CAN BE ACCESSED FOR FILTER CHANGE.
3. ALLOW REQUIRED SPACE AS SHOWN FOR FILTER REPLACEMENT.
4. DUCTWORK DOWNSTREAM OF FILTERS SHALL NOT HAVE ANY INSULATING LINER.
5. INSTALL STEAM GENERATOR AND DUCT MOUNTED DISTRIBUTOR PER MANUFACTURER'S INSTRUCTIONS. SEE PLUMBING PLANS FOR DOMESTIC WATER AND CONDENSATE DRAINS.

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NE McBAIN DRIVE
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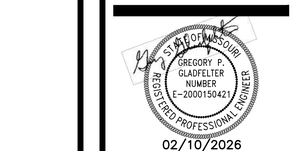



02/10/2026

PROJECT NO. 231206

DRAWING ISSUANCE

12/01/2025 PERMIT
02/10/2026 REV 01

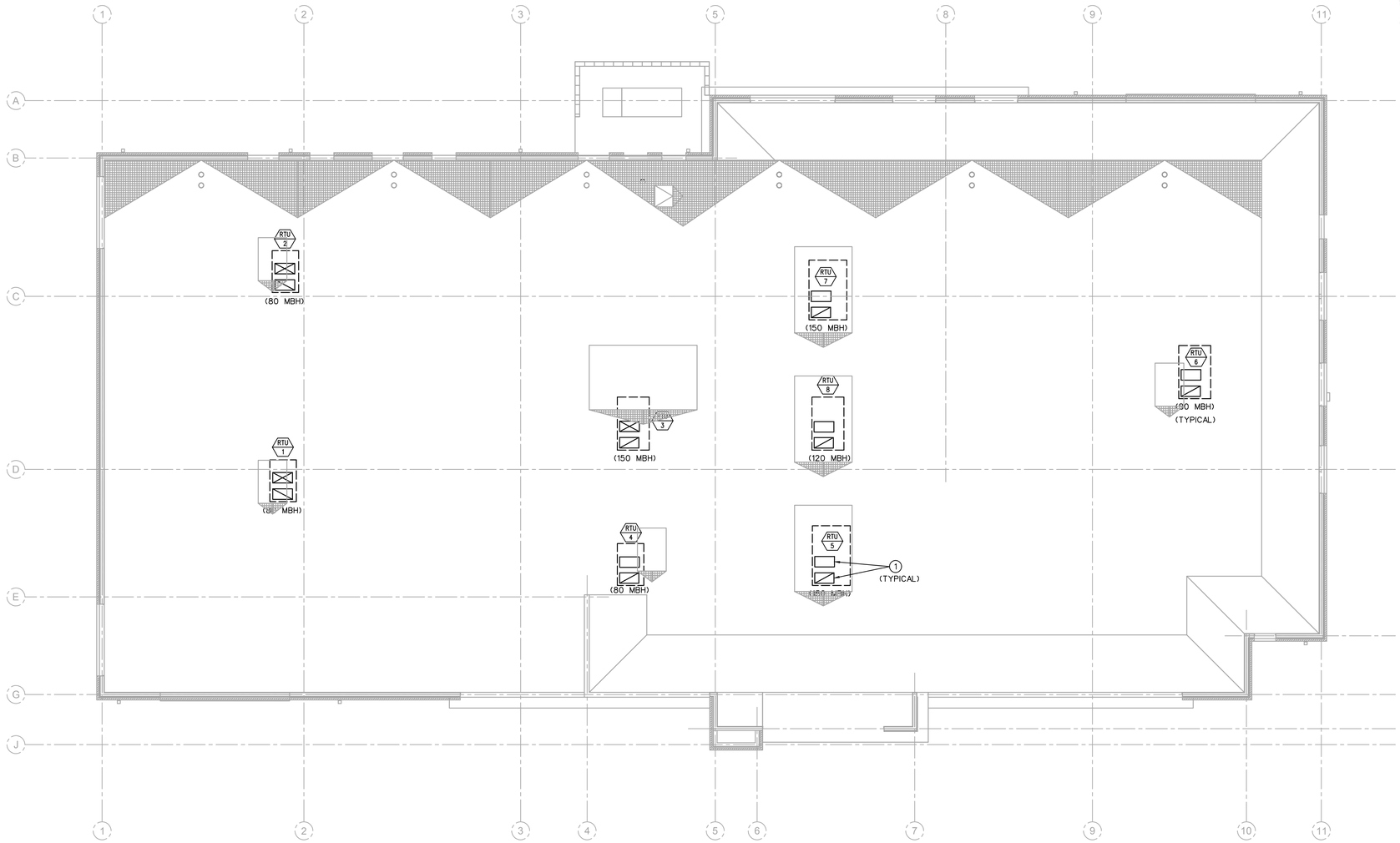
SHEET NUMBER

**M201TI**

FLOOR PLAN

## HVAC PLAN NOTES (#):

1. SA AND RA DOWN THROUGH ROOF.
2. SEE STRUCTURAL ROOF PLAN FOR EXACT LOCATION OF RTU.




## HVAC ROOF PLAN

1/8" = 1'-0"

NORTH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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-2000150421
REGISTERED PROFESSIONAL ENGINEER

12/01/2025

PROJECT NO. 231206

DRAWING ISSUANCE
12/01/2025 PERMIT

SHEET NUMBER

**M202TI**

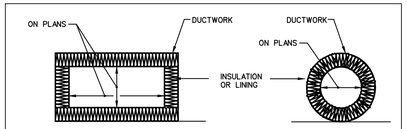
FLOOR PLAN

## ROOFTOP UNIT SCHEDULE (GAS-FIRED) (INSTALLED DURING SHELL PHASE)

| MARK NO. | LOCATION | MANUFACTURER | MODEL NO. | ARRANGEMENT | DISCHARGE | DRY BULB ECONOMIZER | SUPPLY | | | | | | COOLING | | | | | | | | | HEATING | | | ELECTRICAL | | | | | WEIGHT | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | CFM | MIN. O.A. | EXT. S.P. IN. W.G. | FAN TYPE | FAN SIZE | RPM | EVAP. HP | AMBIENT °F | EDB °F | EWB °F | LDB °F | LWB °F | TOTAL MBH | SENS. MBH | MAX FPM | STAGES | UNIT EER 2 | INPUT MBH | OUTPUT MBH | STAGES | VOLT | ø | HZ | MCA | MOCP | | |
| RTU-1 | ROOF | CAPTIVEAIRE | CAS-HVAC1-I.100-16-5T | HORIZ. | DOWN | Y | 1325 | 320 | 2.5 | - | - | - | 2.0 | - | 92.3 | 79.5 | 50.3 | 50.2 | 81.5 | 48.6 | - | - | 19.5 | 98.5 | 79.8 | - | 460 | 3 | 60 | 16.6 | 20.0 | 1300 | 1-7,9,12 |
| RTU-2 | ROOF | CAPTIVEAIRE | CAS-HVAC1-I.100-16-5T | HORIZ. | DOWN | Y | 1325 | 320 | 2.5 | - | - | - | 2.0 | - | 92.3 | 79.5 | 50.3 | 50.2 | 81.5 | 48.6 | - | - | 19.5 | 98.5 | 79.8 | - | 460 | 3 | 60 | 16.6 | 20.0 | 1300 | 1-7,9,12 |
| RTU-3 | ROOF | CAPTIVEAIRE | CAS-HVAC3-I.300-24-20T | HORIZ. | DOWN | Y | 4410 | 1475 | 2.5 | - | - | - | 7.5 | - | 92.3 | 79.5 | 60.3 | 52.9 | 256.1 | 147.6 | - | - | 18.2 | 296.3 | 240.0 | - | 460 | 3 | 60 | 46.6 | 50.0 | 2608 | 1-9,12 |
| RTU-4 | ROOF | LENNOX | LGT036H5E | HORIZ. | DOWN | Y | 1100 | - | 0.5 | - | - | - | 0.5 | 95 | 79.3 | 67.0 | 57.9 | 56.1 | 36.0 | 24.4 | - | 2.0 | 13.5 | 65.0 | 52.0 | 2 | 460 | 3 | 60 | 10.0 | 15.0 | 858 | 1-7 |
| RTU-5 | ROOF | LENNOX | LGT120H5E | HORIZ. | DOWN | Y | 4800 | - | 0.75 | - | - | - | 3.75 | 95 | 77.0 | 64.8 | 58.8 | 56.5 | 117.6 | 90.4 | - | 3.0 | 12.1 | 180.0 | 146.0 | 2 | 460 | 3 | 60 | 23.0 | 30.0 | 1388 | 1-8 |
| RTU-6 | ROOF | LENNOX | LGT036H5E | HORIZ. | DOWN | Y | 1200 | - | 0.5 | - | - | - | 0.5 | 95 | 76.8 | 66.3 | 57.5 | 56.2 | 36.2 | 23.9 | - | 2.0 | 13.5 | 65.0 | 52.0 | 2 | 460 | 3 | 60 | 10.0 | 15.0 | 858 | 1-7 |
| RTU-7 | ROOF | LENNOX | LGT060H5E | HORIZ. | DOWN | Y | 2000 | - | 0.5 | - | - | - | 1.0 | 95 | 78.3 | 66.2 | 57.0 | 55.9 | 61.1 | 44.3 | - | 2.0 | 12.5 | 108.0 | 87.0 | 2 | 460 | 3 | 60 | 14.0 | 15.0 | 753 | 1-8 |
| RTU-8 | ROOF | LENNOX | LGT120H5E | HORIZ. | DOWN | Y | 4000 | - | 0.75 | - | - | - | 3.75 | 95 | 79.6 | 68.2 | 60.7 | 58.5 | 120.6 | 78.3 | - | 3.0 | 12.1 | 180.0 | 146.0 | 2 | 460 | 3 | 60 | 23.0 | 30.0 | 1241 | 1-8 |

NOTES:

1. PROVIDE 2' MERV 8 THROWAWAY AIR FILTERS.
2. PROVIDE 14" HIGH INSULATED ROOF CURB.
3. PROVIDE WITH ENTHALPY ECONOMIZER.
4. PROVIDE WITH 7 DAY PROGRAMMABLE THERMOSTAT WITH STAGED HEATING AND COOLING CAPABILITY AS REQUIRED FOR OPERATION OF AUXILIARY HEATING, COOLIN6 AND ECONOMIZER CONTROLS.
5. PROVIDE FLEXIBLE DUCT CONNECTORS AT ALL DUCT TO UNIT CONNECTIONS.
6. PROVIDE FUSED DISCONNECT SWITCH.
7. SEE "OA CALCULATION" FOR MINIMUM OA FOR RTU-4 THRU 8 OA CALCULATION. OA CALCULATION FOR RTU-1 THRU 3 PER MO ASC REQUIREMENTS. (1)
8. ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL SMOKE DETECTORS IN SUPPLY AIR AND RETURN AIR DUCTS..
9. PROVIDE LOW AMBIENT CONTROL TO 0 DEGREES F.
10. DISABLE ECONOMIZER IF ONE EXISTS. OA VOLUME CALCULATED PER "MO DEPARTMENT OF HEALTH AND SENIOR SERVICES" REQUIREMENTS.
11. INFORMATION FROM ORIGINAL CONSTRUCTION DOCUMENTS FOR THIS SPACE USED TO POPULATE THIS SCHEDULE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND NOTIFY ARCHITECT OF ANY DISCREPANCY.
12. FULLY MODULATING GAS HEAT AND REHEAT.




| DUCT INSULATION SCHEDULE | INTERNAL INSULATION | | | EXTERNAL INSULATION | | | NOTES |
|---|---|---|---|---|---|---|---|
| | 1/2" | 1" | OTHER | 1" | 2" | OTHER | |
| LOW VELOCITY DUCTS: | | | | | | | |
| RETURN DUCTS | | o | | | | | 1 |
| SUPPLY DUCTS (RECT.) | | o | | | | | |
| SUPPLY DUCTS (ROUND) | | | | | o | | 3,4 |
| EXHAUST DUCTS | o | | | o | | | 2 |
| OUTSIDE AIR DUCTS | | | | o | | | |
| RELIEF DUCTS | o | | | | | | 1 |
| MEDIUM/HIGH VELOCITY DUCTS: | | | | | | | |
| ROUND SUPPLY | | | | o | | | |
| FLAT OVAL SUPPLY | | | | o | | | |

NOTES:

1. INSULATION SHALL BE INSTALLED WHEN INDICATED OTHERWISE IN THE CONSTRUCTION DOCUMENTS. OTHERWISE, NO INSULATION IS REQUIRED.
2. INSULATION IS REQUIRED WITHIN 6'-0" OF TERMINATION POINT OF EXHAUST AIR. RECTANGULAR DUCTS SHALL BE LINED, ROUND DUCTS SHALL BE WRAPPED.
3. CONCEALED ROUND SUPPLY AIR DUCTS AND ROUND SUPPLY AIR DUCTS IN UNCONDITIONED SPACES SHALL BE INSULATED AS INDICATED AND SHALL INCLUDE A VAPOR BARRIER TO PREVENT CONDENSATION FROM FORMING ON COLD METAL SURFACES. NO INSULATION IS REQUIRED FOR ROUND SUPPLY AIR DUCT EXPOSED IN CONDITIONED SPACES UNLESS INDICATED OTHERWISE.
4. AT CONTRACTORS OPTION, GALVANIZED STEEL ROUND DOUBLE WALL DUCT MAY BE USED WHERE ROUND SUPPLY AIR DUCTS ARE REQUIRED TO BE INSULATED. DOUBLE WALL DUCT SHALL BE LINX LINDLAB SPIRO-SAFE SPIRAL LOCKSEAM DUCTWORK. SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
5. AT CONTRACTOR'S OPTION, ROUND DUCT LINER MAY BE USED WHERE ROUND SUPPLY AIR DUCTS ARE REQUIRED TO BE INSULATED. DUCT LINER SHALL BE JOHNS MANVILLE SPIRACOUSTIC PLUS, OR APPROVED EQUAL, 1.5" THICK (R6.4). SEE THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

1 / MP300 INSULATED OR LINED DUCT DETAIL
NO SCALE

## WATER HEATER SCHEDULE (ELECTRIC)

| MARK NO. | MANUFACTURER | MODEL NO. | TYPE | ASME | TANK LINING | STORAGE (GALLONS) | RECOVERY GAL/HR | TEMP RISE °F | DISCH. SET POINT °F | ELECTRICAL KW | ELECTRICAL VOLT | ELECTRICAL ø | ELECTRICAL HZ | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/2 | LOCHUNVAR | LDT-50-XK | TK | N | GL | 55 | 30 | 80 | 120 | 6.0 | 277 | 1 | 60 | 1 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

NOTES:

1. PROVIDE WITH ASME RATED P&T VALVE, DRAIN VALVE WITH HOSE THREAD OUTLET AND STAND AND/OR DRAIN PAN WHERE INDICATED.

## FILTER SCHEDULE

| MARK NO. | MANUFACTURER | HOUSING | WIDTH x HEIGHT | DEPTH | CFM | MAX VELOCITY | FILTER MODEL NO. | TYPE | DUST SPOT EFFICIENCY | INITIAL S.P. | FINAL S.P. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F-1 | KOCH | BLC CLEANLINE | (2)24 x 24, (1)12 X 24 | 12 | - | 4200 | MULTI-FLO | MERV 14 | 90-95 | 0.46 | - | 1-8 |
| F-2 | KOCH | BLC CLEANLINE | (1)24 x 24,(1)12x24 | 12 | - | 1365 | MULTI-FLO | MERV 14 | 90-95 | 0.46 | - | 1-8 |
| | | | | | | | | | | | | |

NOTES:

1. ALL DIMENSIONS SHOWN ARE INCHES.
2. FILTER HOUSING SHALL BE PROVIDED WITH SIDE ACCESS DOORS AND SIZED TO MATCH FILTERS INSTALLED.
3. PROVIDE INTEGRAL STATIC PRESSURE TAPS W/ MAGNETIC GAUGE FOR MEASURING FILTER DIFFERENTIAL PRESSURE.
4. MAXIMUM FINAL RESISTANCE ALLOWED IS 0.7" WG.
5. INSTALL FILTER HOUSING WITH MANUFACTURER APPROVED CLEARANCES FOR FILTER CHANGE.
6. PROVIDE HOUSING FOR OVER FILTER DIMENSIONS OF 36"x24" UNLESS NOTED OTHERWISE.
7. PROVIDE FILTER WITH HEADER.
8. FILTERS SHALL UTILIZE SYNTHETIC MEDIA.

## FAN SCHEDULE

| MARK NO. | MANUFACTURER | MODEL NO. | CFM | ESP IN W.G. | TYPE | FAN SIZE | RPM | DRIVE | ACCESSORIES | ELECTRICAL VOLT | ELECTRICAL ø | ELECTRICAL HZ | ELECTRICAL HP/W | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | COOK | C-220 | 100 | 0.25 | CEILING | - | 1050 | D | - | 120 | 1 | 60 | 39W | 1 |
| 2 | COOK | 150C13D | 1585 | 1.0 | ROOF | - | - | D | - | 208 | 1 | 60 | 3/4HP | 3,4 |
| 3 | COOK | CC-220 | 75 | 0.25 | CEILING | - | 1050 | D | - | 120 | 1 | 60 | 39W | 1,2 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

NOTES:

1. PROVIDE CEILING FANS WITH CEILING GRILLE, DISCONNECT SWITCH, HANGER HARDWARE, BACKDRAFT DAMPER, UNIT MOUNTED VARIABLE SPEED SWITCH, WALL OR ROOF CAP, FLEX CONNECTOR, SWITCH WITH LIGHTS UNLESS OTHERWISE NOTED.
2. FAN SHALL MAINTAIN CONTINUOUS OPERATION.
3. FAN SHALL OPERATE WHEN ASSOCIATED RTU IS OPERATING.
4. PROVIDE ROOF FANS WITH DISCONNECT SWITCH, ROOF CURB, BACKDRAFT DAMPER, FLEX CONNECTOR,

## HUMIDIFIER SCHEDULE (ELECTRIC)

| MARK NO. | MANUFACTURER | MODEL NO. | TYPE | KW | OUTPUT LB/HR | MANIFOLD LENGTH | DUCT SIZE | ELECTRICAL VOLT | ELECTRICAL ø | ELECTRICAL HZ | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| H-1 | CONDAIR | RS045/208/3 | - | 16.2 | 48 | 24" | 28"x10" | 208 | 3 | 60 | 1-3 |
| H-2 | CONDAIR | RS010/208/3 | - | 3.7 | 11 | 10" | 20"x12" | 208 | 3 | 60 | 1-3 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

NOTES:

1. PROVIDE WITH OPERATING CONTROLS, SPACE HUMIDITY SENSOR, MANUAL RESET, DUCT HIGH LIMIT STAT.
2. MAINTAIN MANUFACTURER REQUIRED CLEARANCES TO OBSTRUCTIONS & FITTINGS.
3. PROVIDE FINISH CABINET FOR ROOM MOUNTED UNITS.

## DIFFUSER SCHEDULE

| MARK NO. | TYPE | MANUFACTURER | MODEL NO. | FACE SIZE (INCHES) | MOUNTING | REMARKS |
|---|---|---|---|---|---|---|
| A (SD-1) | SUPPLY DIFFUSER | TITUS | TCD | 24x24 | DUCT | 1,2,3 |
| B (SD-2) | SUPPLY DIFFUSER | TITUS | TDC | 12x12 | LAY-IN OR SURFACE | 1,2,3 |
| C (RG-1) | PERFORATED RETURN | TITUS | PAR | 24x24 | LAY-IN OR SURFACE | 1,2,4 |
| D (RG-2) | PERFORATED RETURN | TITUS | PAR | 24x12 | LAY-IN OR SURFACE | 1,2,4 |
| E (SD-5) | LINEAR SLOT DIFFUSER | TITUS | ML-39, MP-39 PLENUM | (3) 1" SLOT x 12' LONG | SURFACE | 1,2,4 |
| F (RG-3) | RETURN GRILLE | TITUS | 350RL | SEE PLANS | SURFACE | 1,2,4 |
| G (SG-1) | EXHAUST/RETURN REGISTER | TITUS | 23R | SEE PLANS | SURFACE | 1,2,4 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

NOTES:

1. SEE THE PLANS FOR NECK SIZE.
2. COLOR PER ARCHITECT.
3. PROVIDE DAMPER AT DUCT TAKE-OFF EXCEPT PROVIDE GRILLE MOUNTED DAMPER WHERE OUTLET IS ABOVE INACCESSIBLE CEILING.
4. PROVIDE WITH DAMPER OR EXTRACTOR IF REQUIRED FOR BALANCING.

## EXPANSION TANK SCHEDULE

| MARK NO. | MANUFACTURER | MODEL NO. | TYPE ARRANGEMENT | CAPACITY (GAL) | ASME | MAX WORKING PRESSURE (PSIG) | MAX OPERATING TEMP (°F) | REMARKS |
|---|---|---|---|---|---|---|---|---|
| 1 | ELBI | DTS-45 | - | 2.1 | N | 150 | 210 | 1 |
| | | | | | | | | |

NOTES:

1. PROVIDE POLYPROPYLENE LINED BLADDER TYPE EXPANSION TANK WITH BUTYL RUBBER DIAPHRAGM, AIR CHARGE & SYSTEM CONNECTION FITTING, MOUNING HARDWARE.

## UNIT HEATER SCHEDULE (ELECTRIC)

| MARK NO. | LOCATION | MANUFACTURER | MODEL NO. | TYPE | CFM | EAT | INPUT KW | OUTPUT MBH | STAGES | ELECTRICAL VOLT | ELECTRICAL ø | ELECTRICAL HZ | ELECTRICAL HP | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | RAYWALL | E3038DWBW | HORIZ | - | 55 | 1.8 | 6.1 | 1 | 120 | 1 | 60 | - | 1 |
| | | | | | | | | | | | | | | |

NOTES:

1. INSTALL RECESSED IN CEILING. 18 GAUGE STEEL WITH POWDER COAT FINISH, PROPELLER FAN. PROVIDE WITH SELF CONTAINED THERMOSTAT AND DISCONNECT SWITCH. CYCLE FAN ON A CALL FOR HEAT.

## WATER HAMMER ARRESTOR SCHEDULE

| MARK NO. | MANUFACTURER | MODEL NO. | PDI UNIT RATING | FIXTURE UNIT CAPACITY | REMARKS |
|---|---|---|---|---|---|
| AA | SIOUX CHIEF | 660 SERIES | AA | 4 (SINGLE FIXT) | X |
| A | SIOUX CHIEF | 652 | A | 1 - 11 | X |
| B | SIOUX CHIEF | 653 | B | 12 - 32 | X |
| C | SIOUX CHIEF | 654 | C | 33 - 60 | X |
| D | SIOUX CHIEF | 655 | D | 61 - 113 | X |
| X | X | X | X | X | X |

NOTES:

1. INSTALL IN AN ACCESSIBLE LOCATION IN ACCORDANCE WITH THE PLUMBING CODE.

## FIXTURE BRANCH SCHEDULE

| FIXTURE | WASTE | VENT | COLD | HOT |
|---|---|---|---|---|
| Water Closet (ft) | 4" | 2" | ½" | --- |
| Water Closet (fv) | 4" | 2" | 1" | --- |
| Urinal | 2" | 1 ½" | ¾" | --- |
| Lavatory | 1 ½" | 1 ½" | ½" | ½" |
| Sink | 2" | 1 ½" | ½" | ½" |
| Triple Sink | 2" | 1 ½" | (2) ½" | (2) ½" |
| Shower, Tub | 2" | 1 ½" | ½" | ½" |
| Water Fountain | 1 ½" | 1 ½" | ½" | --- |
| Janitor Sink (flr) | 3" | 2" | ¾" | ¾" |
| Janitor Sink (wall) | 2" | 1 ½" | ½" | ½" |
| Floor Drain | 2" | 1 ½" | --- | --- |
| Floor Sink | 3" | 2" | --- | --- |
| Eqpt Floor Drain | 3" | 2" | --- | --- |
| Hub Drain | 2" | 1 ½" | --- | --- |
| Dishwasher | 2" | 1 ½" | --- | ½" |
| Washer Box | 2" | 1 ½" | ½" | ½" |
| Ice Maker | --- | --- | ½" | --- |
| FPWH, HB | --- | --- | ¾" | --- |

1. Minimum waste or veht size below slab on grade shall be 2".
2. Size as shown on drawings and diagrams, but not less than listed.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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
GREGORY P. GLADFELTER
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PROJECT NO. 231206

DRAWING ISSUANCE

| 12/01/2025 | PERMIT |
|---|---|
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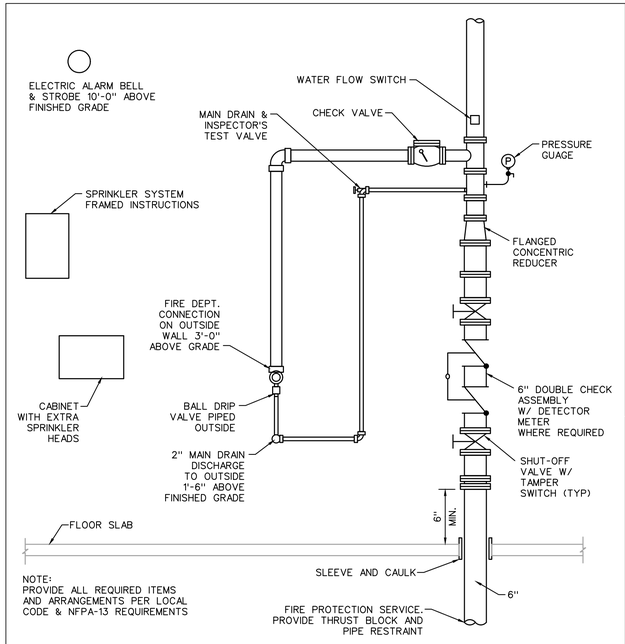
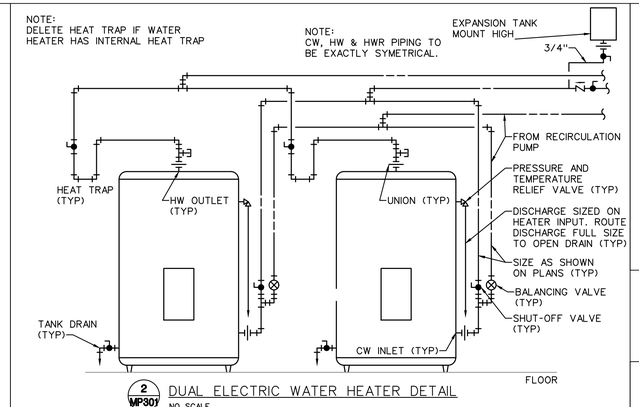
SHEET NUMBER

**MP300TI**

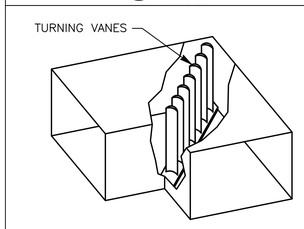
SCH/DETALS



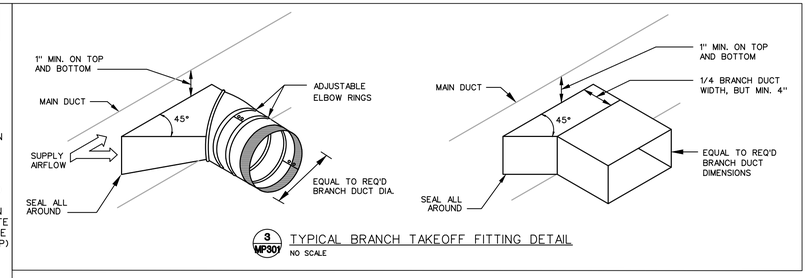

1 MP301 FIRE PROTECTION SERVICE DETAIL
NO SCALE



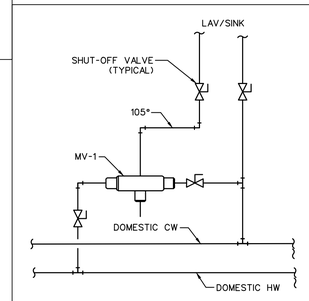

2 MP301 DUAL ELECTRIC WATER HEATER DETAIL
NO SCALE



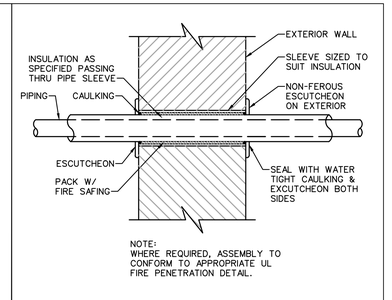

4 MP301 TYPICAL DUCT ELBOW DETAIL
NO SCALE



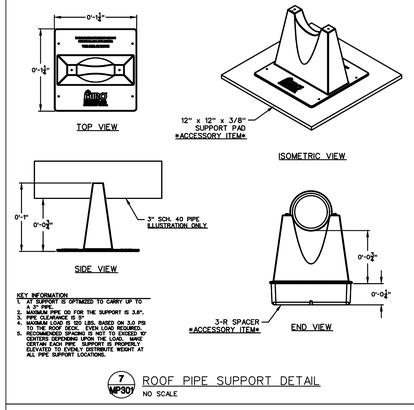

3 MP301 TYPICAL BRANCH TAKEOFF FITTING DETAIL
NO SCALE



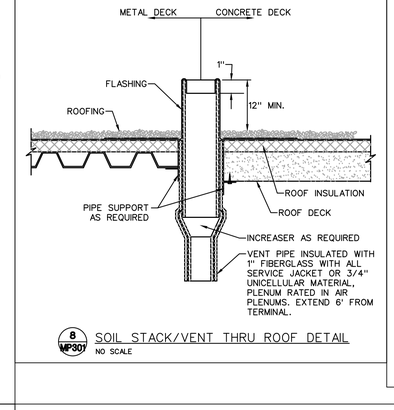

5 MP301 MIXING VALVE DETAIL
NO SCALE



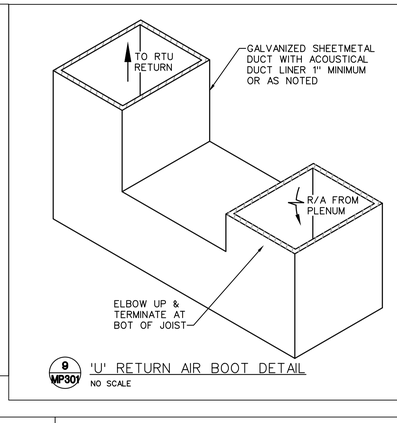

6 MP301 EXTERIOR WALL PIPE PENETRATION DETAIL
NO SCALE




7 MP301 ROOF PIPE SUPPORT DETAIL
NO SCALE



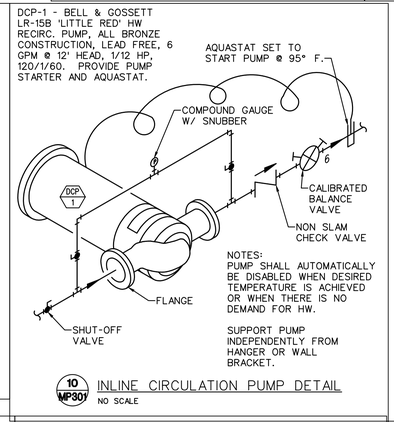

8 MP301 SOIL STACK/VENT THRU ROOF DETAIL
NO SCALE




9 MP301 'U' RETURN AIR BOOT DETAIL
NO SCALE

DCP-1 - BELL & GOSSETT LR-15B 'LITTLE RED' HW RECIRC. PUMP, ALL BRONZE CONSTRUCTION, LEAD FREE, 6 GPM @ 12' HEAD, 1/12 HP, 120/1/60. PROVIDE PUMP STARTER AND AQUASTAT.

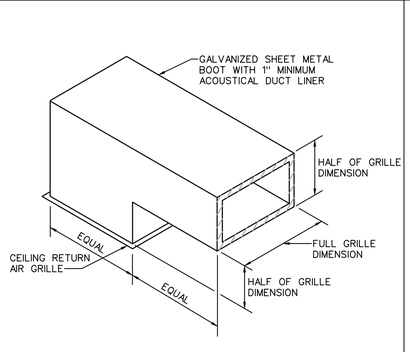
AQUASTAT SET TO START PUMP @ 95° F.



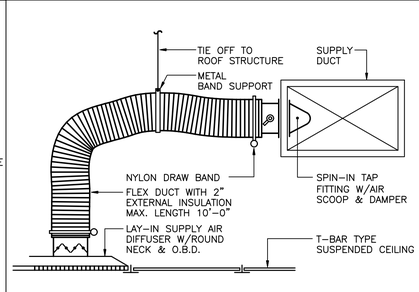

NOTES:
PUMP SHALL AUTOMATICALLY BE DISABLED WHEN DESIRED TEMPERATURE IS ACHIEVED OR WHEN THERE IS NO DEMAND FOR HW.

SUPPORT PUMP INDEPENDENTLY FROM HANGER OR WALL BRACKET.

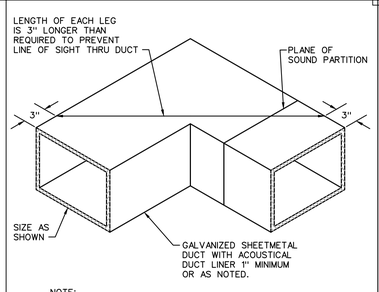
10 MP301 INLINE CIRCULATION PUMP DETAIL
NO SCALE




11 MP301 RETURN GRILLE BOOT DETAIL
NO SCALE

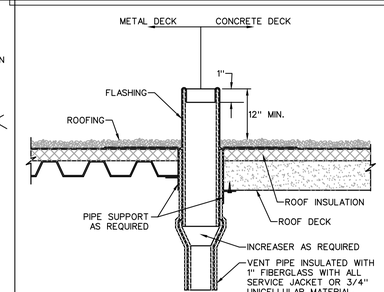



12 MP301 SUPPLY AIR DIFFUSER DETAIL
NO SCALE

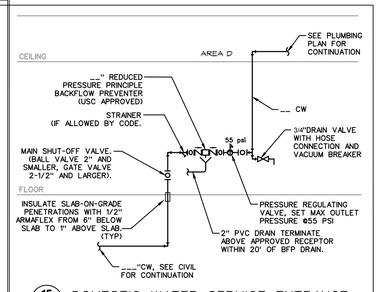



NOTE:
WHERE NOTED, TRANSFER AIR DUCT MAY BE CONSTRUCTED OF DUCT BOARD AT CONTRACTORS OPTION.

13 MP301 'L' RETURN AIR BOOT DETAIL
NO SCALE




14 MP301 SOIL STACK/VENT THRU ROOF DETAIL
NO SCALE




15 MP301 DOMESTIC WATER SERVICE ENTRANCE
NO SCALE

DEV INC

Dev Anand
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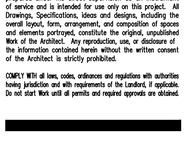
A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI




12/01/2025

PROJECT NO. 231206

DRAWING ISSUANCE
12/01/2025 PERMIT

SHEET NUMBER
**MP301TI**

## OUTSIDE AIR SUMMARY (SINGLE ZONE SYSTEMS) (NOTES 2 & 3)

| SYSTEM | SPACE | AREA (SQUARE FEET) | CALCULATED OCCUPANT TOTAL (Pz) | VENTILATION RATE (CFM/PERS) (Rp) | AREA OUTDOOR AIRFLOW IN BREATHING ZONE (Ra) CFM/SF | SPACE OUTDOOR AIRFLOW IN BREATHING ZONE Vbz=RpPz+RaAz CFM | ZONE AIR DISTRIBUTION EFFECTIVENESS (Ez) COOLING/HEATING (NOTE 1) | ZONE OUTDOOR AIRFLOW (Voz=Vbz/Ez) COOLING | ZONE OUTDOOR AIRFLOW (Voz=Vbz/Ez) HEATING | ZONE OUTDOOR AIR SETPOINT (CFM) | EXHAUST REQUIRED (CFM) (NOTE 5) | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RTU-1 | OR #1 184 | 383 | 2 | 5 | 0.06 | 32.98 | 1.0/0.8 | 32.98 | 41.23 | 286 | | 6 |
| | **TOTAL** | **383** | **2** | | | | | | | **286** | **0** | |
| RTU-2 | OR #2 188 | 383 | 2 | 5 | 0.06 | 32.98 | 1.0/0.8 | 32.98 | 41.23 | 286 | | 6 |
| | **TOTAL** | **383** | **2** | | | | | | | **286** | **0** | |
| RTU-3 | OR SUPERVISOR 151 | 60 | 1 | 5 | 0.06 | 8.60 | 1.0/0.8 | 8.60 | 10.75 | 11 | | |
| | PRE/POST OP 155 | 1,635 | 9 | 5 | 0.06 | 143.10 | 1.0/0.8 | 143.10 | 178.88 | 495 | | 6 |
| | CORRIDOR 156 | 376 | 0 | 5 | 0.06 | 22.56 | 1.0/0.8 | 22.56 | 28.20 | 29 | | |
| | ELECTRIC 157 | 96 | 0 | 0 | 0.12 | 11.52 | 1.0/0.8 | 11.52 | 14.40 | 15 | | |
| | TOILET 160 | 59 | | | | | | | | | 70 | 5 |
| | NURSES STATION 161 | 161 | 1 | 5 | 0.06 | 14.66 | 1.0/0.8 | 14.66 | 18.33 | 19 | | |
| | TOILET 163 | 69 | | | | | | | | | | |
| | VESTIBULE 165 | 57 | 0 | 0 | 0.06 | 3.42 | 1.0/0.8 | 3.42 | 4.28 | 5 | | |
| | STORAGE 172 | 53 | 0 | 0 | 0.12 | 6.36 | 1.0/0.8 | 6.36 | 7.95 | 8 | | |
| | SOILED UTILITY 173 | 56 | 1 | 5 | 0.06 | 8.36 | 1.0/0.8 | 8.36 | 10.45 | 17 | | 6 |
| | BIOHAZARD 174 | 42 | 0 | 0 | 0.12 | 5.04 | 1.0/0.8 | 5.04 | 6.30 | 7 | | |
| | VACUUM 175 | 73 | 0 | 0 | 0.12 | 8.76 | 1.0/0.8 | 8.76 | 10.95 | 11 | | |
| | MEDICINE GAS 176 | 50 | 0 | 0 | 0.12 | 6.00 | 1.0/0.8 | 6.00 | 7.50 | 8 | | |
| | STORAGE 178 | 106 | 0 | 0 | 0.12 | 12.72 | 1.0/0.8 | 12.72 | 15.90 | 16 | | |
| | ANESTHESIA STORAGE 179 | 39 | 1 | 5 | 0.06 | 7.34 | 1.0/0.8 | 7.34 | 9.18 | 10 | | |
| | MEN'S LOCKERS 180 | 145 | 1 | 5 | 0.06 | 13.70 | 1.0/0.8 | 13.70 | 17.13 | 36 | | 5 |
| | WOMEN'S LOCKERS 182 | 236 | 2 | 5 | 0.06 | 24.16 | 1.0/0.8 | 24.16 | 30.20 | 59 | | 5 |
| | STERILE CORRIDOR 183 | 543 | 0 | 5 | 0.06 | 32.58 | 1.0/0.8 | 32.58 | 40.73 | 171 | | 6 |
| | SOILED UTILITY 185 | 214 | 0 | 0 | 0.12 | 25.68 | 1.0/0.8 | 25.68 | 32.10 | 64 | | 6 |
| | STERILE UTILITY 186 | 169 | 0 | 0 | 0.12 | 20.28 | 1.0/0.8 | 20.28 | 25.35 | 64 | | 6 |
| | STERILE STORAGE 187 | 187 | 0 | 0 | 0.12 | 22.44 | 1.0/0.8 | 22.44 | 28.05 | 56 | | 6 |
| | FORMALIN 189 | 30 | 1 | 5 | 0.06 | 6.80 | 1.0/0.8 | 6.80 | 8.50 | 9 | | |
| | EXAM 192 | 92 | 1 | 5 | 0.06 | 10.52 | 1.0/0.8 | 10.52 | 13.15 | 14 | | |
| | **TOTAL** | **4,545** | **16** | | | | | | | **1,101** | **70** | |
| RTU-4 | VESTIBULE 146 | 44 | 0 | 0 | 0.06 | 2.64 | 1.0/0.8 | 2.64 | 3.30 | 4 | | |
| | ASC RECEPTION 148 | 375 | 12 | 5 | 0.06 | 82.50 | 1.0/0.8 | 82.50 | 103.13 | 104 | | |
| | TOILET 193 | 59 | | | | | | | | | 70 | 5 |
| | CONSULT 194 | 103 | 1 | 5 | 0.06 | 11.18 | 1.0/0.8 | 11.18 | 13.98 | 14 | | |
| | **TOTAL** | **581** | **0** | | | | | | | **4** | **70** | |
| RTU-5 | VESTIBULE 100 | 56 | 0 | 0 | 0.06 | 3.36 | 1.0/0.8 | 3.36 | 4.20 | 5 | | |
| | LOBBY 101 | 1,119 | 34 | 7.5 | 0.06 | 322.14 | 1.0/0.8 | 322.14 | 402.68 | 403 | | |
| | TOILET 102 | 63 | | | | | | | | | | |
| | RECEPTION 103 | 264 | 8 | 5 | 0.06 | 55.84 | 1.0/0.8 | 55.84 | 69.80 | 70 | | |
| | **TOTAL** | **1,502** | **42** | | | | | | | **478** | **0** | |
| RTU-6 | MED SPA LOUNGE 110 | 159 | 1 | 5 | 0.06 | 14.54 | 1.0/0.8 | 14.54 | 18.18 | 19 | | |
| | MANAGER 111 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | RN INJECTOR 112 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | RN INJECTOR 113 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | **TOTAL** | **519** | **4** | | | | | | | **67** | **0** | |
| RTU-7 | TOILET 115 | 56 | | | | | | | | | | |
| | TOILET 116 | 56 | | | | | | | | | | |
| | STORAGE 117 | 139 | 0 | 0 | 0.12 | 16.68 | 1.0/0.8 | 16.68 | 20.85 | 21 | 70 | 5 |
| | EQUIPMENT 118 | 128 | 0 | 0 | 0.12 | 15.36 | 1.0/0.8 | 15.36 | 19.20 | 20 | 70 | 5 |
| | DIRTY LINEN 126 | 128 | 1 | 5 | 0.06 | 12.68 | 1.0/0.8 | 12.68 | 15.85 | 16 | | |
| | CONSULT 127 | 150 | 1 | 5 | 0.06 | 14.00 | 1.0/0.8 | 14.00 | 17.50 | 18 | | |
| | WORK ROOM 133 | 180 | 1 | 5 | 0.06 | 15.80 | 1.0/0.8 | 15.80 | 19.75 | 20 | 90 | 5 |
| | BREAK ROOM 143 | 315 | 16 | 5 | 0.06 | 98.90 | 1.0/0.8 | 98.90 | 123.63 | 124 | | |
| | MECHANICAL ROOM 195 | 60 | 0 | 0 | 0.12 | 7.20 | 1.0/0.8 | 7.20 | 9.00 | 9 | | |
| | **TOTAL** | **1,212** | **19** | | | | | | | **230** | **230** | |
| RTU-8 | MAIL 104 | 104 | 1 | 5 | 0.06 | 11.24 | 1.0/0.8 | 11.24 | 14.05 | 15 | | |
| | DICTATION 106 | 70 | 0 | 5 | 0.06 | 4.20 | 1.0/0.8 | 4.20 | 5.25 | 6 | | |
| | ESTHETICIAN 107 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | TOILET 109 | 58 | 1 | 5 | 0.06 | 8.48 | 1.0/0.8 | 8.48 | 10.60 | 11 | | |
| | CLEAN LINEN 119 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | RN INJECTOR 120 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | ESTHETICIAN 122 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | ESTHETICIAN 123 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | IT 124 | 34 | 1 | 5 | 0.06 | 7.04 | 1.0/0.8 | 7.04 | 8.80 | 9 | | |
| | JANITOR 125 | 24 | 0 | 0 | 0.12 | 2.88 | 1.0/0.8 | 2.88 | 3.60 | 4 | | |
| | EXAM 128 | 100 | 1 | 5 | 0.06 | 11.00 | 1.0/0.8 | 11.00 | 13.75 | 14 | | |
| | EXAM 129 | 100 | 1 | 5 | 0.06 | 11.00 | 1.0/0.8 | 11.00 | 13.75 | 14 | | |
| | EXAM 130 | 100 | 1 | 5 | 0.06 | 11.00 | 1.0/0.8 | 11.00 | 13.75 | 14 | | |
| | RESTROOM 134 | 60 | | | | | | | | | 70 | 5 |
| | EXAM 135 | 100 | 1 | 5 | 0.06 | 11.00 | 1.0/0.8 | 11.00 | 13.75 | 14 | | |
| | NURSES STATION 136 | 116 | 1 | 5 | 0.06 | 11.96 | 1.0/0.8 | 11.96 | 14.95 | 15 | | |
| | CONSULT 138 | 120 | 1 | 5 | 0.06 | 12.20 | 1.0/0.8 | 12.20 | 15.25 | 16 | | |
| | PROCEDURE 139 | 155 | 1 | 5 | 0.06 | 14.30 | 1.0/0.8 | 14.30 | 17.88 | 18 | | |
| | IMPLANT 140 | 53 | 1 | 5 | 0.06 | 8.18 | 1.0/0.8 | 8.18 | 10.23 | 11 | | |
| | SUPPLY 141 | 89 | 1 | 5 | 0.06 | 10.34 | 1.0/0.8 | 10.34 | 12.93 | 13 | | |
| | EXAM 143 | 100 | 1 | 5 | 0.06 | 11.00 | 1.0/0.8 | 11.00 | 13.75 | 14 | | |
| | EXAM 144 | 100 | 1 | 5 | 0.06 | 11.00 | 1.0/0.8 | 11.00 | 13.75 | 14 | | |
| | CORRIDOR 109/114/121 | 556 | 0 | 5 | 0.06 | 33.36 | 1.0/0.8 | 33.36 | 41.70 | 42 | | |
| | CORRIDOR 114/132/137/142 | 612 | 0 | 5 | 0.06 | 36.72 | 1.0/0.8 | 36.72 | 45.90 | 46 | | |
| | **TOTAL** | **3,251** | **19** | | | | | | | **230** | **70** | |

1. ZONE AIR DISTRIBUTION EFFECTIVENESS (Ez) DETERMINED FROM TABLE 403.3.1.2 AND IS BASED ON AIR DISTRIBUTION CONFIGURATION IN ACCORDANCE WITH THE 2018 IMC.
2. CALCULATION DONE IN ACCORDANCE WITH 2018 IMC, CHAPTER 4
3. VENTILATION AIR PROVIDED BY DIRECT CONNECTION TO THE OUTDOORS IN ACCORDANCE WITH SECTION 401, 2018 IMC.
4. BATHROOM MINIMUM EXHAUST AIR PROVIDED AT MINIMUM 70 CFM PER FIXTURE IN ACCORDANCE WITH CHAPTER 4, 2018 IMC.
5. SPACE EXHAUST REQUIRED AT THE INDICATED RATE.

## RTU BALANCE REPORT - RTU-1 THRU 3

**RTU-1 AND 2**

| ROOM | SUPPLY AIR | RETURN AIR | EXHAUST AIR | TRANSFER AIR | NOTES |
|---|---|---|---|---|---|
| OR 184 OR 188 | 1325 | 1285 | 0 | 50 | |
| **TOTAL** | **1325** | **1285** | **0** | **50** | 1 |

**RTU-3**

| ROOM | SUPPLY AIR | RETURN AIR | EXHAUST AIR | TRANSFER AIR | NOTES |
|---|---|---|---|---|---|
| OR SUPERVISOR 151 | 65 | 90 | 0 | 0 | |
| PRE/POST OP 155 | 1500 | 1260 | 0 | 50 | 2 |
| CORRIDOR 156 | 200 | 350 | 0 | 0 | |
| ELECTRIC 157 | 200 | 0 | 0 | 200 | 3 |
| TOILET 160 | 110 | 0 | 135 | 0 | |
| NURSES STATION 161 | 145 | 0 | 0 | 0 | |
| TOILET 163 | 100 | 0 | 125 | 0 | |
| VESTIBULE 165 | 100 | 0 | 0 | 100 | 4 |
| STORAGE 172 | 50 | 0 | 0 | 0 | |
| SOILED UTILITY 173 | 50 | 0 | 100 | 0 | |
| BIOHAZARD 174 | 50 | 0 | 100 | 0 | |
| VACUUM 175 | 200 | 0 | 250 | 0 | |
| MEDICINE GAS 176 | 50 | 0 | 75 | 0 | |
| STORAGE 178 | 50 | 50 | 0 | 0 | |
| ANESTHESIA STORAGE 179 | 50 | 0 | 0 | 0 | |
| MEN'S LOCKERS 180 | 110 | 0 | 170 | 0 | |
| WOMEN'S LOCKERS 182 | 180 | 0 | 230 | 0 | |
| STERILE CORRIDOR 183 | 540 | 490 | 0 | 0 | |
| SOILED UTILITY 185 | 200 | 0 | 250 | 0 | |
| STERILE UTILITY 186 | 200 | 0 | 0 | 0 | |
| STERILE STORAGE 187 | 160 | 175 | 0 | 0 | |
| FORMALIN 189 | 50 | 135 | 0 | 0 | |
| EXAM 192 | 100 | 125 | 0 | 0 | |
| **TOTAL** | **4460** | **2675** | **1435** | **350** | |

NOTES:
1. AIR TRANSFERRED TO RTU-3.
2. AIR TRANSFERRED TO ADJACENT SPACES.
3. AIR TRANSFERRED TO CLINIC.
4. AIR TRANSFERRED TO BUILDING EXTERIOR.

## MECHANICAL SYMBOLS

- NEW SHEET METAL DUCTWORK & SIZE.
- NEW SHEET METAL DUCTWORK & SIZE.
- SUPPLY AIR DUCT OR OUTSIDE AIR INTAKE.
- RETURN AIR DUCT OR EXHAUST AIR DUCT.
- DIRECTION OF RETURN AIRFLOW.
- THERMOSTAT OR TEMPERATURE SENSOR.
- CD — CONDENSATE DRAIN.
- ELBOW DOWN.
- ELBOW UP.
- SA — SUPPLY AIR.
- OA — OUTSIDE AIR.
- RA — RETURN AIR.
- EA — EXHAUST AIR.
- CU — CONDENSING UNIT.
- EF — EXHAUST FAN.
- RTU — ROOFTOP UNIT.
- PLAN NOTE DESIGNATION.
- PLAN REVISION DESIGNATION.
- CONNECT TO EXISTING.
- MECHANICAL EQUIPMENT DESIGNATION - TOP PORTION IS EQUIPMENT (RTU, EF, HP, ETC.), BOTTOM PORTION IS NO. OR LETTER (SEE APPROPRIATE SCHEDULE).

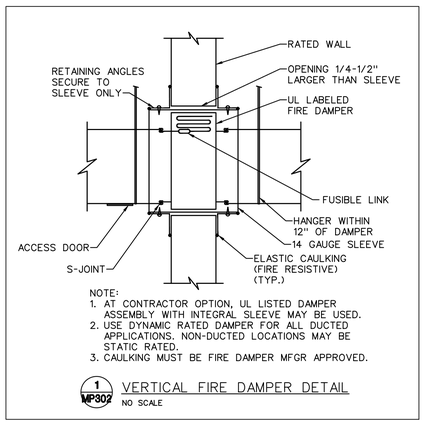
## PLUMBING SYMBOLS

- EXISTING TO REMAIN.
- NEW PIPING WORK.
- DOMESTIC COLD WATER (CW).
- DOMESTIC HOT WATER (HW).
- HOT WATER RECIRCULATION (HWR).
- V — PLUMBING VENT ABOVE FLOOR (V).
- SAN — SANITARY WASTE ABOVE FLOOR (W).
- SANITARY WASTE BELOW FLOOR (W).
- NG — GAS (NATURAL) (NG).
- ELBOW DOWN.
- ELBOW UP.
- TEE DOWN.
- TEE UP.
- CAP.
- PIPE UNION.
- 1/4 TURN SHUT-OFF VALVE.
- CHECK VALVE.
- VTR — VENT THRU ROOF (VTR).
- ETR — EXISTING TO REMAIN.
- PLAN NOTE DESIGNATION.
- PLAN REVISION DESIGNATION.
- CONNECT TO EXISTING.
- PLUMBING EQUIPMENT DESIGNATION - TOP PORTION IS EQUIPMENT (HW, RTU, ETC.), BOTTOM PORTION IS NO. OR LETTER (SEE APPROPRIATE SCHEDULE).

## ROOM PRESSURE RELATIONSHIPS

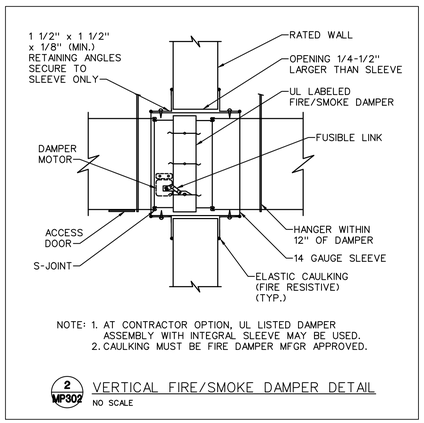
| | SUPPLY CFM | RETURN CFM | EXHAUST CFM | TRANSFER CFM | NOTES |
|---|---|---|---|---|---|
| **RTU-1** | | | | | |
| OPERATORY | 1325 | 1285 | 0 | -50 | 6 |
| TRANSFER TO RTU-3 | | | | 50 | |
| BALANCE | | | | 0 | |
| **RTU-2** | | | | | |
| OPERATORY | 1325 | 1285 | 0 | -50 | 6 |
| TRANSFER TO RTU-3 | | | | 50 | |
| BALANCE | | | | 0 | |
| **RTU-3** | | | | | |
| PRE/POST OP 155 | 1895 | 1595 | | 300 | 1,2,6 |
| STERILE CORRIDOR 183 | 540 | 490 | | 50 | 3,7 |
| SOILED UTILITY 185 | 200 | | 250 | -50 | 4, 8 |
| STERILE UTILITY 186/STORAGE 187 | 360 | 310 | | 50 | 6 |
| TRANSFER TO CLINIC OR OUTDOORS | | | | 0 | |
| | 1895 | 2395 | 250 | 350 | |

NOTES:
1. INCLUDES CORRIDOR 156, NURSES STATION 161 AND STORAGE 172 THAT ARE OPEN TO PRE/POST OP 155.
2. TRANSFER AIR TO ADJACENT SPACES (375 CFM) AND FROM ADJACENT SPACES (75 CFM).
3. TRANSFER AIR TO ADJACENT SPACES (200 CFM) AND FROM ADJACENT SPACES (150 CFM).
4. TRANSFER AIR FROM ADJACENT SPACES (50 CFM).
5. TRANSFER AIR TO ADJACENT SPACES (50 CFM).
6. PRESSURE RELATIONSHIP POSITIVE TO STERILE CORRIDOR 183.
7. PRESSURE RELATIONSHIP POSITIVE TO ADJACENT SPACES.
8. PRESSURE RELATIONSHIP NEGATIVE TO STERILE CORRIDOR 183.




NOTE:
1. AT CONTRACTOR OPTION, UL LISTED DAMPER ASSEMBLY WITH INTEGRAL SLEEVE MAY BE USED.
2. USE DYNAMIC RATED DAMPER FOR ALL DUCTED APPLICATIONS. NON-DUCTED LOCATIONS MAY BE STATIC RATED.
3. CAULKING MUST BE FIRE DAMPER MFGR APPROVED.

1 MP302 VERTICAL FIRE DAMPER DETAIL
NO SCALE




NOTE: 1. AT CONTRACTOR OPTION, UL LISTED DAMPER ASSEMBLY WITH INTEGRAL SLEEVE MAY BE USED.
2. CAULKING MUST BE FIRE DAMPER MFGR APPROVED.

2 MP302 VERTICAL FIRE/SMOKE DAMPER DETAIL
NO SCALE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Dev Anand
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Senior Architect

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A NEW BUILDING FOR:

# ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-2000150421
REGISTERED PROFESSIONAL ENGINEER

12/01/2025

PROJECT NO. 231206

DRAWING ISSUANCE
12/01/2025 PERMIT

SHEET NUMBER

**MP302TI**

DIVISIONS 15 AND 16

GENERAL PROVISIONS:
DIVISIONS 15 & 16 SHALL BE GOVERNED BY ALL APPLICABLE PROVISIONS OF THE CONTRACT DOCUMENTS. ALL REQUIRED LABOR, MATERIALS, EQUIPMENT AND CONTRACTOR'S SERVICES NECESSARY FOR A COMPLETE AND SAFE INSTALLATION OF HEATING, VENTILATING, AND AIR CONDITIONING WORK, PLUMBING WORK, FIRE PROTECTION WORK AND ELECTRICAL WORK IN FULL CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION: ALL AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED OR DESCRIBED. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY LABOR, EQUIPMENT, TOOLS, INSURANCE, TAXES, SERVICES: AND SHALL ASSUME FULL RESPONSIBILITY FOR ALL OBLIGATIONS ASSOCIATED WITH COMPLETION OF MECHANICAL/ELECTRICAL WORK AS PROVIDED BY THE CONTRACT DOCUMENTS.

THIS CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS TO FAMILIARIZE THEMSELVES WITH THE TYPE OF CONSTRUCTION, MATERIALS AND EQUIPMENT TO BE USED FOR ALL WORK AND HOW IT WILL AFFECT THE WORK OF THEIR CONTRACT. THE ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS SHOULD A CONFLICT EXIST. THE DRAWINGS ARE INTENDED TO COVER THE LAYOUT AND DESIGN OF THE WORK AND ARE NOT TO BE SCALED FOR EXACT MEASUREMENT. WHERE SPECIFIC DETAILS AND DIMENSIONS FOR THE WORK IS NOT SHOWN ON THE DRAWINGS, TAKE MEASUREMENTS AND MAKE LAYOUTS AS REQUIRED FOR THE PROPER INSTALLATION.

THE FINAL CONSTRUCTION DOCUMENTS (PLANS AND SPECIFICATIONS) SHALL COVER THE EXTENT AND GENERAL ARRANGEMENT OF THE SYSTEMS SUBJECT TO THE INDIVIDUAL CHARACTERISTICS OF THE PROPOSED EQUIPMENT WITH REGARD TO SIZE, INTERNAL ARRANGEMENT, ETC. SHOULD ANY CHANGES BE CONSIDERED NECESSARY BY THE CONTRACTOR, SUCH CHANGES AND THE SUBSTANTIATING REASONS SHALL BE DETAILED AND SUBMITTED TO THE ARCHITECT AS SOON AS POSSIBLE. NO SUCH CHANGES SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT. THE PLANS SHALL NOT BE CONSTRUED TO GIVE COMPLETE AND ACCURATE DETAILS IN REGARD TO EXACT LOCATIONS OF NEW APPARATUS. EXACT LOCATIONS SHALL BE DETERMINED IN RELATION TO THE AS-BUILT MEASUREMENTS OF THE BUILDING AND PURPOSE OF FUNCTION OF APPARATUS. PROPER PROVISIONS SHALL BE MADE FOR ALL OTHER WORK IN LAYING OUT WORK. OFFSETS SHALL BE MADE WHEREVER IT IS NECESSARY TO CLEAR FINISHED ROOMS, STRUCTURAL MEMBERS OR OTHER OBSTRUCTIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACCURATELY LOCATING OPENINGS FOR PIPING AND ADEQUATE ACCESS FOR NEW MECHANICAL WORK AND FUTURE MAINTENANCE.

ANY QUESTIONS CONCERNING THE PLANS AND SPECIFICATIONS PRIOR TO BIDDING SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER. ANY QUESTIONS OR DISCREPANCIES DISCOVERED AFTER START OF WORK SHALL BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION LIAISON. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL CONDITIONS RELATED TO THE WORK WHICH MAY AFFECT THE COST OF THE WORK OR THE COST OF THE SUBCONTRACTORS WORK AND SHALL MAKE PROPER ALLOWANCES FOR THE SAME IN THEIR BID, NO ADDITIONAL ALLOWANCES WILL BE MADE.
THIS CONTRACTOR SHALL COMPLY WITH DIVISION 1 SECTIONS AND ALL APPLICABLE LAWS, CODES, ORDINANCES OR RULINGS OF ALL GOVERNING BODIES HAVING JURISDICTION, AND SHALL MAINTAIN ALL NECESSARY LIGHTS AND GUARDS FOR PUBLIC SAFETY. WHERE QUANTITIES, SIZES OR OTHER REQUIREMENTS INDICATED ON THE DRAWINGS OR HEREIN SPECIFIED ARE IN EXCESS OF THE STANDARD OR CODE REQUIREMENTS, THE SPECIFICATIONS AND/OR DRAWINGS SHALL GOVERN. IN THE ABSENCE OF OTHER APPLICABLE LOCAL CODES, ACCEPTABLE TO ALL ARCHITECT/ENGINEER, THE NATIONAL ELECTRIC CODE AND THE 2018 INTERNATIONAL FAMILY CODES SHALL APPLY TO THIS WORK. THIS CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED DEVELOPMENT FEES, CONNECTION FEES, PERMITS AND INSPECTIONS FOR THE WORK AND SHALL KEEP ALL RECORDS OF CONTACT WITH THE GOVERNING BODY. THIS CONSTRUCTION COMES UNDER THE LIFE SAFETY CODE AND OSHA. SPECIFICALLY, FOR THE MECHANICAL, PLUMBING AND ELECTRICAL WORK (IN ADDITION TO STANDARDS SPECIFIED IN INDIVIDUAL WORK SECTIONS), THE FOLLOWING STANDARDS ARE IMPOSED, AS APPLICABLE TO THE WORK IN EACH INSTANCE:
NEC, NATIONAL ELECTRICAL CODE (NFPA NO. 70).
NFPA NO. 101, LIFE SAFETY CODE.
NEMA, NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION FOR MATERIALS AND PRODUCTS.
UL, UNDERWRITERS LABORATORIES.

THE MECHANICAL, PLUMBING AND ELECTRICAL CONTRACTORS SHALL BE LICENSED TO PERFORM WORK OF THOSE TRADES IN THE MUNICIPALITY IN WHICH THE PROJECT IS LOCATED.

GUARANTEE: THE CONTRACTOR SHALL GUARANTEE ALL EQUIPMENT, APPARATUS AND SYSTEMS TO OPERATE AND PERFORM AS DESIGNED WITH RESPECT TO EFFICIENCIES, CAPACITIES AND QUIETNESS. FOR ONE YEAR AFTER ACCEPTANCE BY THE OWNER, THIS CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE AT THEIR EXPENSE ANY DEFECTIVE EQUIPMENT, MATERIAL OR WORKMANSHIP.
WORKMANSHIP: ALL WORKMANSHIP SHALL BE FIRST CLASS AND IN ACCORDANCE WITH THE HIGHEST STANDARDS OF THE TRADE. ANY WORKMANSHIP THAT IN THE OPINION OF THE OWNER OR THEIR AGENT IS NOT FIRST CLASS SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER OR THEIR AGENT. LOCAL TRADE PRACTICES WHICH IN THE OPINION OF THE ENGINEER OR THEIR AGENT ARE NOT OF THE HIGHEST STANDARDS OR THE BEST METHOD OF PERFORMING THE WORK SHALL NOT BE USED. THE COMPLETE INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY AND NOISE LEVEL, ETC.

ALL WORK SHALL BE SCHEDULED BY THE CONTRACTOR AND APPROVED BY THE OWNER'S DESIGNATED REPRESENTATIVE.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING, DRILLING AND PATCHING REQUIRED TO PERFORM THE WORK. ANY CUTTING OR DISRUPTION OF EXISTING FINISHES SHALL BE APPROVED BY THE AUTHORIZED OWNER'S REPRESENTATIVE AND REPAIRED TO A CONDITION EQUAL TO OR BETTER THAN BEFORE THE WORK WAS BEGUN. STRUCTURAL MEMBERS SHALL NOT BE DISTURBED WITHOUT PRIOR APPROVAL OF THE ARCHITECT/ENGINEER. REPAIR ANY DAMAGE RESULTING FROM CONSTRUCTION INCLUDING, BUT NOT LIMITED, TO FINISHES AND FIRE PROOFING MEMBRANES. ALL REPAIRS SHALL MATCH EXISTING CONDITIONS.

PROVIDE CUTTING, CHANNELING, CHASING, AND DRILLING OF FLOORS, WALLS, PARTITIONS AND CEILINGS AS NECESSARY FOR INSTALLATION OF THE WORK. ALL CUTTING SHALL BE PERFORMED BY SKILLED MECHANICS OF THE TRADES INVOLVED.

MATERIALS AND EQUIPMENT: THE NAME BRANDS OF ALL EQUIPMENT LISTED HERE-IN ARE FOR THE DETERMINATION OF TYPE, MINIMUM QUALITY AND CONSTRUCTION ARRANGEMENT. FURNISH MATERIALS THAT ARE STANDARD PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE MANUFACTURE OF SUCH PRODUCTS. CONTRACTOR'S BIDS SHALL BE BASED ON THE MATERIAL MENTIONED OR SPECIFIED AND ANY PROPOSALS FOR A SUBSTITUTION SHALL BE MADE IN WRITING TO THE ARCHITECT/ENGINEER ALLOWING ADEQUATE TIME FOR APPROPRIATE ACTION. THE PRODUCTS OF OTHER MANUFACTURER'S MAY BE ACCEPTED, IF IN THE OPINION OF THE ARCHITECT/ENGINEER, THE SUBSTITUTE MATERIAL IS OF A QUALITY AS GOOD OR BETTER THAN THE MATERIAL SPECIFIED AND WILL SERVE WITH EQUAL EFFICIENCY AND DEPENDABILITY FOR THE PURPOSE FOR WHICH THE ITEMS SPECIFIED WERE INTENDED. THE BURDEN OF PROOF OF EQUALITY IS UPON THE PROPOSER. WHEREVER SUBSTITUTIONS ALTER THE DESIGN OR SPACE REQUIREMENTS, THE CONTRACTOR SHALL INCLUDE ALL ITEMS OF COST, INCLUDING THOSE OF OTHER TRADES OF THE REVISED DESIGN AND CONSTRUCTION. ALL MATERIALS AND EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW, FIRST LINE PRODUCTS FREE FROM DEFECTS. ALL CONTRACTORS SHALL COORDINATE ELECTRICAL POWER REQUIREMENTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT AND SHALL ORDER ALL MATERIAL AND EQUIPMENT IMMEDIATELY AFTER NOTICE TO PROCEED IS GIVEN.

DELIVER AND STORE ALL MATERIALS IN MANUFACTURERS ORIGINAL CARTONS UNTIL INSTALLATION. ALL MATERIAL AND EQUIPMENT SHALL BE STORED INDOORS IN A MANNER THAT WILL AFFORD PROTECTION FROM DAMAGE AND FROM THE ENVIRONMENT.

HANDLE, STORE, AND PROTECT MATERIALS AS REQUIRED TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION.

REPAIR OR REPLACE ANY DAMAGED MATERIALS AT NO EXTRA COST TO THE OWNER. REPAIR ALL MARRED OR DAMAGED FACTORY PAINTED FINISHES WITH MATERIALS AND PROCEDURES TO MATCH ORIGINAL FACTORY FINISH.
HOUSEKEEPING AND CLEAN UP: THE CONTRACTOR SHALL AT THE END OF EACH WORKDAY CLEAN UP REFUSE AND DIRT RESULTING FROM THE WORK AND LEAVE ALL AREAS WHERE WORK HAS BEEN DONE BROOM CLEAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING STOCKS OF MATERIAL AND EQUIPMENT STORED ON THE PREMISES IN A NEAT AND ORDERLY MANNER.
REFER TO DIVISION 1 SECTIONS FOR GENERAL COORDINATION REQUIREMENTS APPLICABLE TO THE ENTIRE WORK. IT IS RECOGNIZED THAT THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC IN SHOWING CERTAIN PHYSICAL RELATIONSHIPS THAT MUST BE ESTABLISHED WITHIN THE MECHANICAL WORK, AND IN ITS INTERFACE WITH OTHER WORK INCLUDING UTILITIES AND ELECTRICAL WORK, AND THAT SUCH ESTABLISHMENT IS THE EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR.

ADVISE OTHER TRADES OF OPENINGS REQUIRED IN THEIR WORK FOR THE SUBSEQUENT MOVE-IN OF LARGE UNITS OF MECHANICAL WORK (EQUIPMENT). GIVE RIGHT_OF_WAY TO PIPING THAT MUST SLOPE FOR DRAINAGE. COORDINATE WITH OTHER TRADES AS REQUIRED.

ARRANGE MECHANICAL, PLUMBING AND ELECTRICAL WORK IN A NEAT, WELL ORGANIZED MANNER WITH SIMILAR SERVICES RUNNING PARALLEL WITH PRIMARY LINES OF THE BUILDING CONSTRUCTION AND WITH A MINIMUM OF 9'-6" OVERHEAD CLEARANCE WHERE POSSIBLE. LOCATE OPERATING AND CONTROL EQUIPMENT PROPERLY TO PROVIDE EASY ACCESS, AND ARRANGE ALL WORK WITH ADEQUATE ACCESS FOR OPERATION AND MAINTENANCE.

THE CHECKING OF SHOP DRAWINGS IS A GRATUITOUS ASSISTANCE AND IN NO WAY RELIEVES THE CONTRACTOR FROM RESPONSIBILITY FOR DEVIATIONS FROM THE CONTRACT DOCUMENTS. SEE DIVISION 1 SPECIFICATION FOR REQUIREMENTS RELATED TO SHOP DRAWINGS AND MAINTENANCE MANUALS. BEFORE SUBMITTING SHOP DRAWINGS AND MATERIAL LIST, VERIFY THAT ALL EQUIPMENT SUBMITTED IS MUTUALLY COMPATIBLE AND SUITABLE FOR THE INTENDED USE. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT/ENGINEER, ALL SHOP DRAWINGS AND CATALOG DATA WITHIN 30 CALENDAR DAYS OF NOTICE TO PROCEED. SHOP DRAWINGS AND CATALOG DATA SHALL INCLUDE ILLUSTRATIVE MATERIALS AS MAY BE CONSIDERED NECESSARY BY THE ARCHITECT/ENGINEER. MECHANICAL AND PLUMBING SHOP DRAWINGS SHALL BE SUBMITTED FOR PLUMBING FIXTURES AND EQUIPMENT, TEMPERATURE CONTROLS, ALL MAJOR COMPONENTS OF THE HEATING AND AIR CONDITIONING SYSTEMS, FANS, AIR UNITS, FILTERS, PUMPS AND THE LIKE. ELECTRICAL SHOP DRAWINGS SHALL BE SUBMITTED FOR LIGHT FIXTURES, CONTROLS, ALL MAJOR COMPONENTS OF THE ELECTRICAL DISTRIBUTION SYSTEMS AND THE LIKE. FIRE ALARM SHOP DRAWINGS SHALL BE 1/4" SCALE, ON REPRODUCIBLE MEDIA AND SHALL INDICATE ALL PANELS AND DEVICES. SHOP DRAWINGS, DESCRIPTIVE LITERATURE AND SAMPLES SHALL BE REVIEWED AND ACCEPTED BY THE OWNER'S DESIGNATED REPRESENTATIVE. UNLESS OTHERWISE NOTED IN DIVISION 1, ORIGINAL SUBMISSION OF SHOP DRAWINGS AND LITERATURE SHALL INCLUDE SIX COPIES. THE CONTRACTOR, PRIOR TO FORWARDING SHOP DRAWINGS TO THE ENGINEER, SHALL CHECK ALL CONDITIONS, MAKE ALL CORRECTIONS AND SIGN AND DATE EACH SET. NO SHOP DRAWINGS WILL BE REVIEWED BY THE OWNER'S REPRESENTATIVE WITHOUT THE SIGNATURE OF THE CONTRACTOR. ITEMS SUBMITTED WILL BE CHECKED FOR COMPLIANCE WITH THE PLANS AND SPECIFICATIONS, QUANTITIES WILL NOT BE APPROVED BUT WILL BE REJECTED INSUFFICIENT FOR THE INTENT OF THE PROJECT. FAILURE TO SUBMIT WITHIN THE SPECIFIED TIME MAY RESULT IN SELECTION OF ITEMS BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER OR THE ENGINEER.
MOUNT MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT TO PROVIDE RECOMMENDED WORKING CLEARANCES AND ACCESS TO ALL COMPONENTS. PROVIDE ACCESS TO FILTERS, COMPRESSORS, CONTROLS, MOTORS AND ELECTRICAL EQUIPMENT WITHOUT HAVING TO REMOVE OTHER EQUIPMENT. COORDINATE WITH ALL TRADES SO THAT NO PIPING, CONDUIT, DUCT OR STRUCTURAL MEMBER OBSTRUCTS REQUIRED ACCESS OR IS BENEATH EQUIPMENT SHOULD REMOVAL EVER BE REQUIRED. NOTIFY ARCHITECT/ENGINEER OF ANY ACCESS OR MOUNTING CONFLICTS PRIOR TO INSTALLATION. FAILURE TO COORDINATE WILL NOT BE CONSIDERED A BASIS FOR GRANTING ADDITIONAL COMPENSATION.

VERIFY THAT ALL EQUIPMENT WILL FIT THE AVAILABLE SPACE AND ALLOW AMPLE ROOM FOR MAINTENANCE. IF THE SIZE OF EQUIPMENT FURNISHED MAKES NECESSARY ANY CHANGE IN LOCATION OR CONFIGURATION, SUBMIT A SHOP DRAWING SHOWING THE PROPOSED LAYOUT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MODIFICATIONS, INCLUDING STRUCTURAL MODIFICATIONS, REQUIRED TO ACCOMMODATE THE INSTALLATION OF EQUIPMENT OTHER THAN THAT SPECIFIED.

UNLESS OTHERWISE SPECIFIED, PERFORM ALL MECHANICAL, PLUMBING AND ELECTRICAL WORK REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF EQUIPMENT, FURNISHINGS, APPLIANCES, DEVICES AND SYSTEMS SPECIFIED IN OTHER DIVISIONS.

RECEIVE, UNCRATE, MOUNT, CONNECT, AND ADJUST EQUIPMENT AND APPLIANCES FURNISHED UNDER ALL DIVISIONS OF THE SPECIFICATION.
UNLESS OTHERWISE SPECIFIED, FURNISH AND INSTALL ALL PIPING, SHUT-OFF VALVES, TRAPS, DUCTS, AND ALL OTHER ELEMENTS OF MECHANICAL, PLUMBING OR ELECTRICAL WORK REQUIRED FOR BOTH ROUGH-IN AND FINAL CONNECTION OF EQUIPMENT, FURNISHINGS, APPLIANCES, DEVICES, AND SYSTEMS AS SPECIFIED, INDICATED, OR AS RECOMMENDED BY THE MANUFACTURER OR SUPPLIER.
INSTALL MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. MAKE PIPING, DUCT, MECHANICAL, AND ELECTRICAL CONNECTIONS TO EQUIPMENT AS REQUIRED. CLEAN INTERNAL AND EXTERNAL SURFACES OF ALL EQUIPMENT PRIOR TO OPERATION. STARTUP AND OPERATE ALL EQUIPMENT AFTER INSTALLATION TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH CONTRACT DOCUMENT REQUIREMENTS.

NO PIPING, DUCTWORK OR RACEWAY SHALL BE INSTALLED ABOVE OR IN FRONT OF ELECTRICAL EQUIPMENT (WITHIN CLEAR ACCESS SPACE REQUIRED BY THE NEC). IN ROOMS, WHERE PIPING IS INDICATED OVER ELECTRICAL EQUIPMENT, A SUITABLE GALVANIZED SHEETMETAL PAN OR GUTTER PIPED TO THE DRAINAGE SYSTEM SHALL BE PROVIDED.

DESCRIPTION OF ELECTRICAL WORK:
POWER DISTRIBUTION: COMPLETE SYSTEM OF RACEWAYS AND WIRING TO PROVIDE POWER TO DISTRIBUTION AS SHOWN ON THE PLANS. INCLUDES ALL RELATED TERMINATIONS, SPLICES AND CONNECTIONS.

LIGHTING SYSTEMS: COMPLETE SYSTEM OF LIGHTING FIXTURES AND RELATED HARDWARE, RACEWAYS AND WIRE TO PROVIDE BUILDING ILLUMINATION.
TELEPHONE/DATA SYSTEM: INSTALLATION OF RACEWAYS FOR USE BY LOCAL TELEPHONE COMPANY FOR WIRING AND TERMINATIONS AND TERMINATION POINTS FOR USE BY OWNERS DATA/COMMUNICATIONS CONTRACTOR. PROVIDE OUTLETS, RACEWAYS, DEVICE PLATES, ETC., IN CONFORMANCE WITH THE APPLICABLE SECTIONS OF THIS SPECIFICATION. CONTRACTOR SHALL INSTALL RACEWAY, WITH PULL STRINGS, CONCEALED IN WALL FROM OUTLET BOX TO ACCESSIBLE LOCATION ABOVE CEILING.

FIRE ALARM SYSTEM: COMPLETE CODE COMPLIANT NETWORK OF RACEWAYS, WIRING ACCESSORIES AND RELATED DEVICES FOR REQUIRED ALARM, DETECTION AND ANNUNCIATION OF FIRE CONDITIONS. SYSTEM SHALL INCLUDE DETECTORS, AUDIBLE ALARMS, MANUAL PULL STATIONS AND A CENTRAL CONTROL/ANNUNCIATOR PANEL. WHEN THE SYSTEM IS THE EXTENSION OF AN EXISTING SYSTEM, ALL NEW COMPONENTS SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM. THE FIRE ALARM CONTRACTOR SHALL VERIFY PRIOR TO BID THAT THE EXISTING SYSTEM IS EXPANDABLE TO ACCOMMODATE THE NEW CONSTRUCTION.

DEMOLITION AND REMODELING:
THE DRAWINGS DESCRIBE THE GENERAL NATURE OF REMODELING TO THE EXISTING BUILDING. BEFORE THE REMODELING CAN BE PERFORMED, CERTAIN DEMOLITION WORK MUST BE PERFORMED. THIS SECTION REQUIRES PERFORMANCE OF THAT PART OF THE DEMOLITION WHICH INVOLVES MECHANICAL SYSTEMS, FIXTURES, CONDUIT, DEVICES, EQUIPMENT, EQUIPMENT SUPPORTS OR FOUNDATIONS AND MATERIALS. REMOVE ALL ARTICLES THAT ARE NOT REQUIRED FOR THE REMODELED BUILDING. EXCEPT AS OTHERWISE SPECIFIED OR SHOWN, EACH ITEM REMOVED DURING THIS DEMOLITION SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE PREMISES.

RELOCATE AND RECONNECT ANY EQUIPMENT THAT MUST BE RELOCATED IN ORDER TO ACCOMPLISH THE REMODELING SHOWN IN THE DRAWINGS OR INDICATED IN THE SPECIFICATIONS. THE CONTRACTOR SHALL TAKE CARE TO PREVENT DAMAGE TO THE EQUIPMENT DURING REMOVAL, STORAGE AND RE-INSTALLATION. WHERE FIXTURES OR EQUIPMENT ARE REMOVED, CAP OR PROPERLY TERMINATE ALL UNUSED PIPING, DUCTWORK OR CONDUIT BEYOND THE FLOOR LINE OR WALL LINE TO FACILITATE RESTORATION OF FINISH.

WHERE REMOVAL OF EXISTING PIPING OR DUCTWORK, REMOVAL OR MODIFICATION OF EXISTING POWER SYSTEMS OR INSTALLATION OF NEW EQUIPMENT INTERRUPTS CONTINUITY OF SERVICES WHICH ARE TO REMAIN IN USE, FURNISH AND INSTALL NECESSARY VALVES, CAPS, FITTINGS AND NECESSARY COMPONENTS TO INSURE CONTINUED CONTINUITY.

DEMOLITION SHALL CONSIST OF THE REMOVAL OF EXISTING EQUIPMENT AS SHOWN ON THE PLANS. THIS WORK SHALL INCLUDE THE REMOVAL OF ALL THE ASSOCIATED ITEMS UNLESS OTHERWISE SPECIFIED OR NOTED ON THE DRAWINGS. THE EXISTING CONDITIONS INDICATED ON THE DRAWINGS ARE TAKEN FROM THE BEST INFORMATION AVAILABLE ON THE EXISTING DRAWINGS AND FROM VISUAL INSPECTION, AND ARE NOT TO BE CONSTRUED AS "AS BUILT" CONDITIONS. THE INFORMATION IS SHOWN TO HELP ESTABLISH THE EXTENT OF THE NEW WORK TO BE DONE. VERIFY ALL ACTUAL EXISTING CONDITIONS AT THE PROJECT SITE AND PERFORM THE WORK AS REQUIRED TO MEET THE EXISTING CONDITIONS AND THE INTENT OF THE WORK INDICATED. ALL DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND ACTUAL CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT.

MAINTAIN EXISTING EQUIPMENT TO BE USED FOR THE NEW INSTALLATION IN GOOD WORKING CONDITION. REPAIR ANY DAMAGE TO EXISTING EQUIPMENT TO REMAIN IN SERVICE DURING CONSTRUCTION THAT WAS CAUSED BY INSTALLATION. CHECK ALL EQUIPMENT AND REPORT ANY PRIOR DAMAGE OR IMPROPER OPERATION TO THE CONSTRUCTION LIAISON PRIOR TO COMMENCING THE WORK.

GENERAL ITEMS:
SYMBOLS: EXCEPT AS OTHERWISE INDICATED, REFER TO SYMBOLS LEGENDS ON DRAWINGS FOR DEFINITIONS OF SYMBOLS USED ON THE DRAWINGS TO SHOW MECHANICAL, PLUMBING OR ELECTRICAL WORK. ALL SYMBOLS INDICATED IN THE SYMBOLS LEGENDS ARE NOT NECESSARILY USED ON THE DRAWINGS.
MATERIAL STANDARDS: ASME, ASTM, FM, UL, ANSI, NFPA, AGA, NEMA, NEC, NECA, IPCEA AND FEDERAL SPECIFICATIONS. A REFERENCE TO AN ANSI OR ASTM STANDARD SHALL INDICATE THAT THE ARTICLE SHALL CONFORM TO THAT STANDARD IN ALL RESPECTS (INCLUDING MATERIAL, MANUFACTURE, HANDLING, DIMENSIONS, AND TEST PROCEDURE).

MECHANICAL EQUIPMENT: SUITABLE FOR VOLTAGES AS INDICATED. ALL MECHANICAL EQUIPMENT BUILD IN ACCORDANCE WITH UL, NEMA, NFPA, ANSI, NECA, NEC, NCC, ASA, AND APPLICABLE ELECTRICAL CODES.

ELECTRICAL EQUIPMENT: SUITABLE FOR VOLTAGES AS INDICATED. ALL ELECTRICAL EQUIPMENT BUILT IN ACCORDANCE WITH NEMA, NFPA, ANSI, NECA, NEC AND ALL APPLICABLE ELECTRICAL CODES.
ACCESS DOORS: PROVIDE CONCEALED VALVES, CONTROLS, DAMPERS AND EQUIPMENT REQUIRING ACCESS WITH ADEQUATELY SIZED ACCESS DOORS. PROVIDE MILCOR, TITUS, LAUCO OR APPROVED EQUAL ACCESS DOORS FOR ALL CONCEALED CONTROLS DEVICES, EXCEPT THOSE MOUNTED ABOVE LAY-IN CEILINGS. ACCESS DOORS SHALL BE ADEQUATELY SIZED FOR THE DEVICES SERVED WITH A MINIMUM SIZE OF 24" X 24", UNLESS INDICATED OTHERWISE ON THE DRAWINGS.

ACCESS DOORS MUST BE OF PROPER CONSTRUCTION FOR TYPE OF CONSTRUCTION WHERE INSTALLED, MILCOR TYPE "M", WITH 14 GAUGE BAKED ENAMEL PAN AND SCREWDRIVER OPERATED CAM LOCK. DOOR SHALL BE PRIME COATED FOR PAINTING BY OTHERS.

THE EXACT LOCATION OF ALL ACCESS DOORS SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO INSTALLATION.

VIBRATION ISOLATORS FOR ALL EQUIPMENT: THIS CONTRACTOR SHALL TAKE ALL PRECAUTIONS AGAINST EXCESSIVE NOISE OR VIBRATION BY ISOLATING THE VARIOUS ITEMS OF EQUIPMENT FROM THE BUILDING'S STRUCTURE WITH EITHER SPRING, RUBBER IN SHEAR OR NEOPRENE PAD ISOLATORS AS INDICATED OR AS RECOMMENDED BY THE VIBRATION ISOLATION MANUFACTURER. ISOLATORS SHALL BE SELECTED FOR LOWEST OPERATING SPEED OF EQUIPMENT. FURNISH NECESSARY STRUCTURAL SUPPORTS FOR EQUIPMENT TO DISTRIBUTE WEIGHT EVENLY ON ISOLATORS. PROVIDE FLEXIBLE PIPE OR DUCT CONNECTORS AT CONNECTION TO ALL ROTATING EQUIPMENT OR FOR EQUIPMENT MOUNTED ON VIBRATION ISOLATORS.

ESCUTCHEONS: PROVIDE EXPOSED PIPING, BOTH BARE AND COVERED, WITH CP CAST BRASS (DAMP LOCATIONS) OR CI/STEEL (DRY LOCATIONS) ESCUTCHEONS WHERE PASSING THROUGH CEILINGS, WALLS AND PARTITIONS. PROVIDE ESCUTCHEONS WITH NICKEL OR CHROME FINISH FOR EXTERIOR AND OCCUPIED AREAS, PRIME PAINT FINISH UNOCCUPIED AREAS.
MECHANICAL SYSTEM IDENTIFICATION: PROVIDE IDENTIFICATION FOR MANUFACTURED HVAC AND PLUMBING SYSTEM EQUIPMENT. COMPLY WITH RECOGNIZED INDUSTRY STANDARDS.

ELECTRICAL SYSTEM IDENTIFICATION: PROVIDE IDENTIFICATION FOR DISTRIBUTION SYSTEM EQUIPMENT, CABLE/CONDUCTOR, OPERATIONAL AND WARNING SIGNS AT MAJOR UNITS, AND OPERATIONAL TAGS FOR OPERATION AND MAINTENANCE. COMPLY WITH RECOGNIZED INDUSTRY STANDARDS.

ACCESS, CUTTING AND PATCHING: PROVIDE ACCESS DOORS AND REMOVABLE ACCESS PLATES FOR ACCESS THROUGH OTHER WORK FOR ACCESS TO MECHANICAL WORK. CUT AND PATCH WHERE REQUIRED TO ACCOMMODATE THE INSTALLATION OF MECHANICAL WORK.

PAINTING: PAINT ALL EXPOSED UNINSULATED PIPING ABOVE GRADE (COLOR SELECTED BY ARCHITECT). INTERIOR OF ALL DUCTWORK AS FAR BACK AS VISIBLE FROM OUTSIDE: FLAT BLACK. ALL EXPOSED UNFINISHED STEELWORK, ONE PRIME COAT OF PAINT (COLOR SELECTED BY ARCHITECT). ALL EXPOSED FERROUS METAL NATURAL GAS PIPING SHALL BE PRIMED AND COATED WITH A RUST INHIBITING PAINT.

INSULATION: FURNISH INSULATION FOR ALL PIPING, EQUIPMENT AND DUCTS THAT PERMIT HEAT LOSS OR GAIN OR WILL FORM CONDENSATION INCLUDING HORIZONTAL RUNS OF STORM PIPING, DOMESTIC WATER PIPING, CONDENSATE PIPING, AIR SUPPLY DUCTWORK AND HEATING/COOLING EQUIPMENT.

THERMOMETERS AND GAUGES:
DIFFERENTIAL TYPE DRAFT GAUGE AT EACH FILTER BANK.
WHERE REQUIRED FOR PROPER OPERATION AND MAINTENANCE OF ALL SYSTEMS AND EQUIPMENT

DIVISION 15

DUCTWORK, DIFFUSERS/GRILLES, DAMPERS, DUCT INSULATION AND ASSOCIATED ACCESSORIES:
FABRICATE AND INSTALL DUCTWORK AND DUCTWORK ACCESSORIES IN ACCORDANCE WITH SMACNA STANDARDS. PROVIDE FITTINGS AND TRANSITIONS AS REQUIRED. AFTER COMPLETING SYSTEM INSTALLATION, INSPECT THE SYSTEM AND VACUUM INSIDE OF DUCTWORK TO REMOVE DUST AND DEBRIS.
ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND DUCTWORK CONNECTIONS SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS, MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES. TAPES AND MASTICS USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL181B. CLEAN AND PRETREAT METAL SURFACES BEFORE APPLICATION OF SEALANT.

THROUGH WALL PENETRATIONS OF DUCTWORK SHALL CONFORM TO SECTIONS OF THE BUILDING CODE. ANNULAR SPACE BETWEEN PIPING AND/OR INSULATION SHALL BE FIRESTOPPED IN ACCORDANCE WITH AN APPROVED UL ASSEMBLY WHICH MEETS OR EXCEEDS THE FIRE RESISTIVE RATING OF THE WALL.
DUCT INSULATION, DUCT JOINTS AND FLEXIBLE DUCT SHALL MEET THE REQUIREMENTS OF THE 2018 INTERNATIONAL ENERGY CONSERVATION CODE, OR OTHER ENERGY CODES, IF ADOPTED BY THE MUNICIPALITY.

PROVIDE ROUND BUTTERFLY DAMPER ASSEMBLY OPERABLE FROM A REMOTE POINT, INCLUDING OPERATOR CABLE, RACK AND PINION OPERATOR, DIE CAST MOUNTING CUP, AND 3-INCH DIAMETER PLATED COVER FOR CEILING, YOUNG REGULATOR COMPANY #5020-CC DAMPER SYSTEM, OR EQUAL. PROVIDE FACTORY-FABRICATED AUTOMATIC CONTROL DAMPERS, BUTTERFLY TYPE WITH DOUBLE SKIN (2) 14 GAUGE GALVANIZED STEEL CIRCULAR BLADES MOUNTED TO 1/2-INCH DIAMETER PLATED STEEL AXLE, MAXIMUM 0.15 CFM PER INCH OF BLADE CIRCUMFERENCE LEAKAGE RATING UNDER 4-INCH W.G. PRESSURE DIFFERENTIAL. FRAMES SHALL BE 20 GAUGE GALVANIZED STEEL. PROVIDE BACKDRAFT DAMPER AT DISCHARGE OF ALL EXHAUST FANS AND WHERE REVERSE AIRFLOW IS NOT DESIRED.

PROVIDE FIRE DAMPERS (FD) RATED AT 1-1/2 HOURS CONFORMING TO THE REQUIREMENTS OF NFPA 90A AND UL 555. FIRE DAMPERS SHALL BE CURTAIN TYPE WITH BLADES OUT OF THE AIRSTREAM, PROVIDED WITH 165 F FUSIBLE LINK. DAMPER SHALL HAVE TYPE B FRAME, FABRICATED WITH ROLL-FORMED, 20 GAUGE GALVANIZED STEEL CHANNELS: GALVANIZED STEEL SLEEVE AND 20 GAUGE GALVANIZED STEEL BLADES. INCLUDE BLADE LOCK AND NEGATOR CLOSURE SPRING ON HORIZONT

PLUMBING & HVAC PIPING, VALVES AND ASSOCIATED ACCESSORIES

PIPING: FURNISH ALL PIPES, FITTINGS, EXPANSION JOINTS, ANCHORS, GUIDES, VALVES, FLANGES, STRAINERS, CONTROLS, HANGERS, TRAPS, DRAINS, VENTS, INSULATION AND ITEMS NECESSARY OR REQUIRED TO MAKE SYSTEM COMPLETE. ALL STEEL PIPING UP TO 2-1/2", SCREWED JOINTS AND VALVES: 2-1/2" AND LARGER, WELDED JOINTS AND FLANGED VALVES. PIPING SHALL CONFORM TO APPLICABLE STANDARDS OF CURRENT SPECIFICATIONS ASTM, ASA, AND MSS. ALL HANGERS, BRACKETS, CLAMPS, ETC. SHALL BE OF STANDARD WEIGHT STEEL. PERFORATED STRAPHANGERS SHALL NOT BE USED IN ANY WORK. WHEN TWO OR MORE PIPES OR CONDUITS ARE RUN PARALLEL OR WHERE DUCTS INTERFERE WITH PROPER LOCATION OF HANGERS, THEY MAY BE SUPPORTED ON TRAPEZE HANGERS. OTHER HANGERS SHALL BE HINGED RING MALLEABLE IRON OR APPROVED EQUAL WITH RODS ANSCAD HANGER ADJUSTERS OF ADEQUATE SIZE TO CARRY THE LOADS IMPOSED. ALL PIPING, DUCTWORK AND CONDUIT SHALL BE INDEPENDENTLY SUPPORTED FROM EACH OTHER AND FROM EQUIPMENT.

ADDITIONAL REQUIREMENTS ARE AS FOLLOWS:
SPRING HANGERS AND SUPPORTS FOR PIPING AND DUCTWORK: PROVIDE FOR ALL HORIZONTAL PIPE AND DUCT RUNS IN ALL MECHANICAL EQUIPMENT ROOMS: HANGERS, ANCHORS AND EXPANSION DEVICES/LOOPS TO COMPLY WITH ANSI/MSS SP-58.

PROVIDE PIPE HANGERS AND SUPPORTS MANUFACTURED IN ACCORDANCE WITH MSS SP 58. PROVIDE ELASTOMER INSERTS TO PREVENT DAMAGE TO PIPING FROM VIBRATION OR GALVANIC CORROSION.

HANGERS SHALL BE MANUFACTURED BY GRINNELL, FEE AND MASON OR APPROVED EQUAL.

HANGERS SHALL HAVE RODS OR TURNBUCKLES OF THE REQUIRED LENGTH AND SHALL BE SUSPENDED FROM INSERTS IN CONCRETE OR SUITABLE STEEL SUPPORTS FASTENED TO THE BUILDING CONSTRUCTION SO THAT PIPES ARE PARALLEL AND EVENLY SPACED. EACH HANGER'S HEIGHT DEVICE SHALL BE SO ARRANGED THAT IN NO CIRCUMSTANCES MUST THE SUPPORTING ROD ELEVATION BE CHANGED TO ALTER THE PIPE ELEVATION. ANGERS IN CONTACT WITH COPPER PIPING SHALL BE COPPER PLATED.

THROUGH WALL/FLOOR PENETRATIONS OF PIPING SHALL CONFORM TO SECTIONS OF THE BUILDING CODE. OPENINGS FOR METAL PIPING OR CONDUIT THROUGH FIRE RESISTIVE CONCRETE OR MASONRY WALLS SHALL CONFORM TO BUILDING CODE AND UL STANDARDS. ANNULAR SPACE BETWEEN PIPING AND/OR INSULATION WHICH PENETRATE FIRE RESISTIVE WALLS SHALL BE FIRE-STOPPED IN ACCORDANCE WITH AN APPROVED UL ASSEMBLY WHICH MEETS OR EXCEEDS THE FIRE RESISTIVE RATING OF THE WALL OR FLOOR.

PROVIDE FIRESTOP SYSTEM FOR PVC PIPES PENETRATING FIRE-RATED WALLS AND FLOORS, CONSTRUCTED OF GALVANIZED STEEL COLLAR LINED WITH AN INTUMESCENT MATERIAL SIZED TO THE SPECIFIC DIAMETER OF THE THROUGH PENETRANT, AND SHALL BE INSTALLED AROUND THROUGH PENETRANT IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND UL-GUIDELINES. DEVICES SHALL HAVE ANCHOR TABS FOR SECUREMENT TO BOTTOM SURFACE OF FLOOR OR BOTH SURFACES OF WALL ASSEMBLY BY MEANS OF 1/4"ø X1-1/2" LONG STEEL CONCRETE SCREWS IN CONJUNCTION WITH 1-1/4"ø STEEL FENDER WASHERS.

WATER SYSTEMS SHALL BE ARRANGED SO THAT THE ENTIRE BUILDING CAN BE DRAINED. PROVIDE A 3/4" DRAIN VALVE WITH HOSE END CONNECTION AT EACH LOW POINT.

AT EACH CONNECTION BETWEEN FERROUS PIPING AND NONFERROUS PIPING, AN ISOLATING DIELECTRIC UNION, EPCO OR EQUAL, SHALL BE INSTALLED.

REDUCING FITTINGS SHALL BE INSTALLED AT LINE SIZE CHANGES. THEY SHALL BE ECCENTRIC REDUCERS WHERE APPROPRIATE FOR DRAINAGE.

SWEAT CONNECTIONS INSTALLED UNDER THIS SECTION SHALL MEET THE FOLLOWING STANDARDS: PREPARATION OF SWEAT CONNECTIONS SHALL INCLUDE MAKING CUTS PERPENDICULAR TO TUBING AXIS, USING SPECIAL CARE TO PREVENT FORCING TUBING OUT-OF ROUND; USING EMERY CLOTH OR STEEL WIRE BRUSH TO CLEAN TO BRIGHTNESS SURFACE WHICH IS TO RECEIVE SOLDER, AND CLEANING THE TUBING INTERNALLY WITH A SWAB TO REMOVE ALL FILLINGS AND OTHER FOREIGN MATTER. CONNECTIONS BETWEEN COPPER TUBING AND EACH UNIT OF EQUIPMENT SHALL INCLUDE UNIONS.

ALL CONNECTIONS TO EQUIPMENT AND ALL VALVES SHALL BE INSTALLED WITH UNIONS OR FLANGE CONNECTIONS TO PROVIDE FOR REMOVAL AND REPLACEMENT OF EQUIPMENT OR VALVES. UNIONS 2" AND SMALLER IN STEEL PIPE SHALL BE MALLEABLE IRON WITH SCREWED ENDS AND GROUND JOINT BRASS TO IRON SEAT. UNIONS IN COPPER PIPE SHALL BE ALL BRONZE.

ABOVEGROUND DOMESTIC COLD AND HOT WATER PIPING SHALL BE TYPE 'L' HARD DRAWN COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS. JOINTS SHALL BE SOLDERED WITH 95/5 TIN ANTIMONY OR BRAZED. INSTALL DRAIN VALVE AT LOW POINTS OF DOMESTIC WATER SYSTEM PIPING. TRAP ALL COOLING COIL CONDENSATE DRAINS WITH DEEP SEAL TRAPS. CONDENSATE DRAIN PIPING MAY BE PVC AS LONG AS IT ISN'T INSTALLED IN A CEILING RETURN AIR PLENUM/PATH AND IF OTHERWISE ALLOWED BY THE CODE.

UNDERGROUND DOMESTIC COLD WATER PIPING SHALL BE TYPE 'K' HARD DRAWN COPPER TUBING WITH WROUGHT COPPER FITTINGS. JOINTS SHALL BE SOLDERED WITH 95/5 TIN ANTIMONY. PIPING SHALL NOT BE IN DIRECT CONTACT WITH CONCRETE FLOOR SLAB. DO NOT USE FLANGES OR VALVES UNDERGROUND. ALL UNDERGROUND PIPING SHALL BE PRESSURE-TESTED PRIOR TO BACKFILLING.

DOMESTIC WATER HEATER PRV BLOW-OFF DRAIN PIPING SHALL BE TYPE 'L' HARD DRAWN COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS. JOINTS SHALL BE SOLDERED WITH 95/5 TIN ANTIMONY.

REFRIGERANT SUCTION AND LIQUID LINES SHALL BE TYPE "ACR" HARD DRAWN COPPER TUBING. SOFT COPPER TUBING MAY BE USED IF NECESSARY TO INSTALL LINES AROUND OBSTRUCTIONS. AVOID SHARP BENDS AS TUBING MAY PINCH, CAUSING A RESTRICTION. USE LONG RADIUS ELBOWS EXCEPT USE SHORT RADIUS ELBOWS FOR THE TRAP AT THE BOTTOM OF SUCTION RISERS. BRAZE ALL COPPER-TO-COPPER JOINTS WITH SILFOS- 5 EQUIVALENT BRAZING MATERIAL. DO NOT USE SOFT SOLDER. SUPPORT SUCTION LINES AT A MINIMUM SPACING OF 8 FEET AND SUPPORT LIQUID LINES AT A MINIMUM SPACING OF 6 FEET.

INTERIOR SANITARY SEWER AND VENT PIPING SHALL BE STANDARD WEIGHT PVC PLASTIC PIPE CONFORMING TO ASTM D2729. PIPING SHALL BE CONNECTED USING SOCKET FITTINGS AND SOLVENT CEMENT JOINTS, CONFORMING TO ASTM D2564. INSTALL SANITARY SEWER AND VENT PIPING PITCHED AT MINIMUM SLOPE OF 1/4-INCH PER FOOT (2%) FOR PIPING 3 INCHES AND SMALLER AND 1/8-INCH PER FOOT (1%) FOR PIPING 4 INCHES AND LARGER. INSTALL PIPING OUTSIDE BUILDING LINES AT A DEPTH OF NO LESS THAN 3'-0" BELOW FINISH GRADE. HORIZONTAL RUNS OF PIPING SHALL BE INSTALLED AT THE REQUIRED PITCH WITH HANGERS. ALL CHANGES IN DIRECTION OF SUSPENDED PIPING SHALL BE MADE WITH APPROVED LONG-SWEEP DRAINAGE FITTINGS. ALL OFFSETS SHALL BE MADE WITH 45-DEGREE FITTINGS EXCEPT AS OTHERWISE NOTED. DUE ALLOWANCE FOR EXPANSION SHALL BE MADE IN ALL LINES. VENT PIPING SHALL BE RUN PARALLEL TO THE DRAINAGE SYSTEMS, VENT ALL TRAPS ON FIXTURES, AND CONNECT TO THE MAIN VENT STACKS. ALL HORIZONTAL VENT PIPES SHALL GRADE UP AT THE SPECIFIED PITCH. DO NOT INSTALL PVC PIPING IN HVAC RETURN AIR PLENUMS.

ACCESSIBLE CLEANOUTS SHALL BE INSTALLED IN ALL HORIZONTAL DRAINAGE SYSTEMS AT INTERVALS NOT LESS THAN 100 FEET APART, AT THE END OF BRANCH CONNECTIONS AND/OR CHANGES IN DIRECTION, AT THE BASE OF EACH SOIL OR WASTE STACK, NEAR THE JUNCTION OF THE BUILDING DRAIN AND BUILDING SEWER (INSIDE OR OUTSIDE OF THE BUILDING), WHEREVER REQUIRED FOR CLEANING SYSTEM AND AT OTHER LOCATIONS WHERE SPECIFICALLY REQUIRED BY LOCAL CODE. PLUGS SHALL BE THREADED EXTRA HEAVY CAST BRASS. PROVIDE SCORIATED TOPS IN UNFINISHED AREAS, CARPET MARKERS IN CARPET FLOORS, TILE TOP IN TILE FLOORS, STAINLESS STEEL COVER IN FINISHED WALLS. CLEAN-OUTS SAME SIZE AS PIPE UP TO 4" DIAMETER, 4" CLEAN-OUTS FOR LARGER PIPE UNLESS OTHERWISE NOTED.

NATURAL GAS PIPING (ABOVE GROUND) SHALL BE SCHEDULE 40 BLACK STEEL WITH THREADED JOINTS. CONNECT USING JOINT COMPOUND SUITABLE FOR NATURAL GAS PIPING. ALL EXPOSED BLACK STEEL NATURAL GAS PIPING SHALL BE PROTECTED WITH A RUST INHIBITING COATING IN ACCORDANCE WITH THE PLUMBING CODE.

INSULATE ALL DOMESTIC HOT WATER AND HOT WATER RETURN PIPING WITH 1" THICK MINERAL-FIBER INSULATION, GLASS FIBERS BONDED WITH A THERMOSETTING RESIN COMPLYING WITH ASTM C 547, TYPE 1, WITH FACTORY-APPLIED, ALL-PURPOSE, VAPOR-RETARDER JACKET.

INSULATE ROOF DRAIN BODIES AND HORIZONTAL STORM WATER PIPING (AND ELSEWHERE INDICATED) WITH 2-INCH THICK, 3-POUND DENSITY GLASS FIBER, CELLULAR GLASS OR FLEXIBLE ELASTOMERIC INSULATION.

PROVIDE PIPE COVERING, 3/4-INCH THICK, FLEXIBLE FOAMED PLASTIC WITH VAPOR BARRIER ON REFRIGERATION SUCTION LINES. ALL MATERIAL SHALL HAVE A FLAME SPREAD RATING NOT TO EXCEED 25 AND A SMOKE DEVELOPED RATING NOT TO EXCEED 50 AS DETERMINED BY ASTM 84 TEST. INSULATION ON OUTDOOR PIPING SHALL BE PAINTED WITH UV-RESISTANT PAINT PER RECOMMENDATION OF INSULATION MANUFACTURER.

GENERAL-DUTY VALVE APPLICATIONS: UNLESS OTHERWISE INDICATED, USE THE FOLLOWING VALVE TYPES:

SHUTOFF DUTY: USE GATE, BALL, OR BUTTERFLY VALVES.
THROTTLING DUTY: USE GLOBE OR BUTTERFLY VALVES.

VALVES SHALL BE INSTALLED WHERE SHOWN AND WHERE NECESSARY FOR SHUT-OFF, FOR BALANCING, AND FOR CONTROL. VALVES SHALL BE AS HEREINAFTER SPECIFIED, WITH SIZE MATCHING PIPE SIZE BEING SERVED AND OF THE APPROPRIATE PRESSURE RATING FOR THE APPLICATION. WHERE A MANUFACTURER AND FIGURE NUMBER IS SPECIFIED AS A STANDARD OF QUALITY, AN EQUIVALENT VALVE BY NIBCO, CRANE, LUNKENHEIMER, KITZ, POWELL OR STOCKHAM WILL BE ACCEPTABLE. ALL VALVES ON THE PROJECT SHALL BE BY THE SAME MANUFACTURER WHEREVER POSSIBLE.

THE COMPONENT TYPES OF TESTING, ADJUSTING AND BALANCING SPECIFIED IN THIS SECTION INCLUDES THE FOLLOWING:

FANS
DUCTWORK SYSTEMS
AHU'S
DIFFUSERS

SHUT-OFF VALVES, WITH UNIONS, SHALL BE INSTALLED FOR EACH SERVICE TO EACH UNIT OF EQUIPMENT, TO FACILITATE ISOLATION FOR REPAIR OR REPLACEMENT. UNIONS SHALL BE INSTALLED FOR SERVICING ALL SPECIALTIES.

PROVIDE BALL VALVES, 2 INCHES AND SMALLER: MSS SP-110, CLASS 150, 600-PSI CWP, ASTM B 584 BRONZE BODY AND BONNET, 2-PIECE CONSTRUCTION: STAINLESS STEEL BALL AND STEM: FULL PORT STYLE: BLOWOUT PROOF: TEFLON SEATS: THREADED OR SOLDERED END CONNECTIONS, VINYL-COVERED STEEL LEVER HANDLE, STEM EXTENSION FOR VALVES INSTALLED IN INSULATED PIPING AND LOCKING MEMORY STOP FOR BALANCE VALVE OPERATOR HANDLES.

PROVIDE PLUG VALVES FOR NATURAL GAS SYSTEM SHUTOFF: MSS SP-78, 175-PSI CWP, ASTM A 126 CAST-IRON BODY AND BONNET, CAST-IRON PLUG, BUNA N, VITON, OR TEFLON PACKING, SCREWED, FLANGED OR GROOVED END CONNECTIONS.

PLUMBING EQUIPMENT AND ASSOCIATED ACCESSORIES

FLUSH VALVES SHALL BE CHROME PLATED WITH METAL OSCILLATING NON-HOLD OPEN HANDLE, ANGLE STOP WITH PROTECTIVE CAP, VACUUM BREAKER, SPUD COUPLING, AND WALL/SPUD ESCUTCHEONS. UNLESS OTHERWISE NOTED, URINAL FLUSH VALVES SHALL OPERATE ON A 1.0 GALLON CAPACITY PER FLUSH AND WATER CLOSET FLUSH VALVES ON A 1.6 GALLON CAPACITY PER FLUSH.

DRAINS AND CARRIERS: SEE PLANS FOR SIZE AND TYPE. PROVIDE CARRIERS FOR WALL HUNG WATER CLOSETS, URINALS AND LAVATORIES.

PROVIDE WATER HAMMER ARRESTERS, MANUFACTURED BY SIOUX CHIEF (OR APPROVED EQUAL), SEAMLESS WITH PISTON AND O-RING CONSTRUCTION, FACTORY CHARGED WITH PDI AND ASSE CERTIFICATION. SIZES AS REQUIRED BY PDI STANDARDS. INSTALL IN AN ACCESSIBLE LOCATION.

FIRE PROTECTION SYSTEM PERFORMANCE SPECIFICATIONS

PROVIDE A COMPLETE FIRE PROTECTION SYSTEM FOR THE BUILDING. VISIT THE PROJECT SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS PRIOR TO PREPARING THE BID PROPOSAL. PROVIDE A SYSTEM CONSISTING OF A NFPA 13 WET PIPE SPRINKLER SYSTEM AND ALL RELATED ACCESSORIES, PIPING, VALVES, ALARMS, APPURTENANCES AND DEVICES AS SPECIFIED HEREIN. ALL SYSTEMS SHALL BE IN STRICT COMPLIANCE WITH NFPA 13 AND THE INSTALLATION SHALL CONFORM TO NFPA STANDARD 101 AS WELL AS ALL APPLICABLE LOCAL CODES. ALL EQUIPMENT AND COMPONENTS SHALL BE UL AND FM LISTED. SUBMIT SHOP DRAWINGS TO THE ENGINEER AND LOCAL FIRE MARSHALL FOR REVIEW AND APPROVAL.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, LAYOUT, ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR A COMPLETE, APPROVED AND OPERATIONAL INSTALLATION OF THE FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH THIS SPECIFICATION. THE DESIGN SHALL BE PERFORMED UNDER THE DIRECTION OF A LICENSED FIRE PROTECTION SYSTEM ENGINEER FAMILIAR WITH THE DESIGN OF FIRE PROTECTION SYSTEMS. THE FIRE PROTECTION SYSTEM ENGINEER SHALL CERTIFY THE DESIGN DOCUMENTS PRIOR TO SUBMITTAL TO THE ARCHITECT. SPRINKLER HEADS SHALL BE INSTALLED AS APPROVED BY THE ARCHITECT. CONTRACTOR SHALL LAY OUT HEADS IN AN APPEALING PATTERN WITH THE LIGHTS, CEILING DIFFUSERS, AND CEILING SYSTEM WITH HEADS CENTERED IN CEILING GRID.

OBTAIN FIRE FLOW TEST RESULTS FROM THE LOCAL WATER DEPARTMENT PRIOR TO BIDDING THE PROJECT. NOTIFY THE OWNER'S REPRESENTATIVE OF ANY RESULTS PRIOR TO THE BID THAT MAY RESULT IN THE INSTALLATION OF A FIRE PUMP. INCLUDE IN THE BID A SEPARATE LINE ITEM UNIT COST FOR THE INSTALLATION OF A FIRE PUMP AND ALL ACCESSORIES REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM, INCLUDING ELECTRICAL POWER AND ALL CONTROLS FOR THE PUMP.

INSTALL DRAIN PIPING AT LOW POINTS OF FIRE SPRINKLER PIPING.

REPAIR OR REPLACE PIPING SYSTEM AS REQUIRED TO ELIMINATE LEAKAGE IN ACCORDANCE WITH ANSI/NFPA STANDARDS FOR "LITTLE OR NO LEAKAGE", AND RETEST AS SPECIFIED TO DEMONSTRATE COMPLIANCE.

SPRINKLER PIPING AND FITTINGS SHALL BE OF FERROUS MATERIAL CONFORMING TO NFPA 13. SPRINKLER HEADS SHALL HAVE TEMPERATURE RATING OF 135 DEG F. SPRINKLER HEADS IN SUSPENDED CEILINGS SHALL BE QUICK RESPONSE, SEMI-EXPOSED PENDANT TYPE WITH PIPE AND FITTINGS ABOVE THE CEILING AND PROVIDED WITH A WHITE OR OFF-WHITE ENAMEL PAINTED ESCUTCHEON. SPRINKLER HEADS IN OPEN AREAS SHALL BE QUICK RESPONSE UPRIGHT TYPE.

INSTALL AND HYDROSTATICALLY TEST SPRINKLER PIPING IN ACCORDANCE WITH NFPA 13. TEST SYSTEM FOR FLOW AND ACTUATION OF WATER GONG AND PRESSURE SWITCH.

MECHANICAL START-UP, TEST-ADJUST-BALANCE

THE CONTRACTOR SHALL PLACE THE SYSTEMS IN OPERATION AFTER ACCEPTANCE BY THE OWNER. BEFORE ACCEPTANCE BY THE OWNER THE CONTRACTOR SHALL DEMONSTRATE TO THE ARCHITECT/ENGINEER THE SATISFACTORY OPERATION OF THE SYSTEMS AND EQUIPMENT. THE CONTRACTOR SHALL ALSO COMPLETE ALL PUNCH LIST ITEMS NOTED BY THE ENGINEER BEFORE ACCEPTANCE BY THE OWNER.

ALL EQUIPMENT FURNISHED OR INSTALLED UNDER THIS SECTION SHALL BE ADJUSTED TO OPERATE AS INTENDED BY THE CONTRACT DOCUMENTS. FURNISH ALL EQUIPMENT REQUIRED TO PERFORM THE TESTS AND ADJUSTMENTS.

CLEAN AND LUBRICATE OPERATIONAL EQUIPMENT. INSTRUCT OWNER'S OPERATING PERSONNEL THOROUGHLY IN THE OPERATION, SEQUENCING, MAINTENANCE AND SAFETY/EMERGENCY PROVISIONS OF THE MECHANICAL SYSTEMS. TURN OVER THE OPERATIONS TO THE OWNER'S PERSONNEL AT THE TIME OF SUBSTANTIAL COMPLETION. UNTIL THE TIME OF FINAL ACCEPTANCE OF THE TOTAL WORK OF THE CONTRACT, RESPOND PROMPTLY WITH CONSULTATION AND SERVICES TO ASSIST THE OWNER'S PERSONNEL WITH OPERATION OF MECHANICAL SYSTEMS.

TEST ALL SAFETY DEVICES.

MAKE ALL NECESSARY ADJUSTMENTS TO CONTROL SYSTEMS. REFER TO TEMPERATURE CONTROL SECTION OF THESE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

UPON COMPLETION OF START-UP, INSTRUCT THE OWNER'S REPRESENTATIVE ON THE OPERATION AND MAINTENANCE OF THE SYSTEMS.

FINAL PROVISIONS
THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND OPERATION, SERVICE AND MAINTENANCE
OF ALL NEW EQUIPMENT DURING CONSTRUCTION AND PRIOR TO ACCEPTANCE BY THE OWNER OF THE
COMPLETED PROJECT. DIVISION 1 SHALL DETERMINE START OF WARRANTY PERIODS. WHERE NOT DEFINED
IN DIVISION 1, WARRANTY PERIODS SHALL NOT COMMENCE UNTIL FINAL ACCEPTANCE BY THE OWNER.
STERILIZATION AT COMPLETION OF DOMESTIC WATER SYSTEM INSTALLATION, FLUSH AND STERILIZE IN
CONFORMANCE WITH AWWA C-601 AND ANY LOCAL CODE REQUIREMENTS, TO SATISFACTION OF LOCAL
AUTHORITIES HAVING JURISDICTION.

COORDINATE CLOSEOUT OPERATIONS WITH CLOSEOUT OF ELECTRICAL SYSTEMS AND OTHER POWER
CONSUMING EQUIPMENT. ACCURATELY RECORD LOCATIONS OF UTILITIES THAT ARE UNDERGROUND OR
OTHERWISE CONCEALED. TEST RUN MECHANICAL EQUIPMENT IN CONJUNCTION WITH TEST RUNS OF
ELECTRICAL SYSTEMS.

REFER TO DIVISION 1 SECTIONS FOR GENERAL CLOSEOUT REQUIREMENTS. MAINTAIN A DAILY LOG OF
OPERATION DATA ON MECHANICAL EQUIPMENT AND SYSTEMS THROUGH THE CLOSEOUT PERIOD: RECORD
HOURS OF OPERATION, ASSIGNED PERSONNEL, POWER CONSUMPTION AND SIMILAR INFORMATION: SUBMIT
COPY TO OWNER.

UPON COMPLETION OF START-UP, INSTRUCT THE OWNER'S REPRESENTATIVE ON THE OPERATION AND
MAINTENANCE OF THE SYSTEMS.

THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 3 COMPLETE OPERATING AND MAINTENANCE MANUALS
CONTAINING ALL APPROVED SHOP DRAWINGS, CATALOG DATA, AND MANUFACTURERS INSTRUCTIONS FOR
ALL ITEMS INSTALLED UNDER THIS CONTRACT.

AT PROJECT CLOSEOUT, SUBMIT A MINIMUM OF 3 SETS OF RECORD DRAWINGS OF INSTALLED DOMESTIC
WATER SYSTEMS, PIPING, AND PRODUCTS, IN ACCORDANCE WITH REQUIREMENTS OF DIVISION 1.
PROVIDE GENERAL OPERATING INSTRUCTIONS FOR EACH OPERATIONAL SYSTEM AND EQUIPMENT ITEM OF
MECHANICAL WORK. COORDINATE INSTRUCTIONS WITH INSTRUCTIONS FOR ELECTRICAL WORK AND OTHER
EQUIPMENT WHERE ASSOCIATED WITH ELECTRICAL SYSTEMS OR EQUIPMENT.

DESCRIBE EACH BASIC MECHANICAL SYSTEM EXPLAIN IDENTIFICATION SYSTEM, DISPLAYED DIAGRAMS, SIGNALS, ALARMS, COMMUNICATION SYSTEMS,
AND SIMILAR AUDIOVISUAL PROVISIONS.

DESCRIBE INTERFACES WITH ELECTRICAL EQUIPMENT, INCLUDING INTERLOCKS, SEQUENCING, START-UP,
SHUTDOWN, EMERGENCY, SAFETY, SYSTEM FAILURE, SECURITY AND SIMILAR PROVISIONS.
DISPLAY AND CONDUCT A "THUMB-THROUGH" EXPLANATION OF MAINTENANCE MANUALS, RECORD
DRAWINGS, SPARE PARTS INVENTORY, STORAGE OF EXTRA MATERIALS, METER READINGS AND SIMILAR
SERVICE ITEMS.

AFTER COMPLETION OF PERFORMANCE TESTING AND OWNER'S OPERATING INSTRUCTIONS AND
DEMONSTRATIONS, REMOVE INSTALLER'S TOOLS, TEST FACILITIES, CONSTRUCTION EQUIPMENT AND SIMILAR
DEVICES AND MATERIALS USED IN EXECUTION OF THE WORK BUT NOT INCORPORATED IN THE WORK.
END OF SECTION

ELECTRICAL SPRECIFICATION

TELEPHONE AND CABLE TV SYSTEMS:

TELEPHONE AND CABLE TV SYSTEM
PROVIDE OUTLETS, RACEWAYS, DEVICE PLATES, ETC., IN CONFORMANCE WITH THE APPLICABLE SECTIONS
OF THIS SPECIFICATION. CONSULT THE TELEPHONE COMPANY AND THE CABLE TV COMPANY AND
COMPLY WITH THEIR REQUIREMENTS.
RACEWAYS IN ACCORDANCE WITH "ELECTRICAL RACEWAYS" SECTION AND THE FOLLOWING SPECIAL

CONDITIONS:
MINIMUM SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED.
NO MORE THAN TWO STANDARD FACTORY 90 DEGREE BENDS PER 100' OR THREE 90 DEGREE 24"
RADIUS BENDS.

DO NOT USE SQUARE OR OVAL (CONDULETS) CONDUIT FITTINGS.
MAINTAIN 12" SEPARATION BETWEEN POWER AND TELEPHONE SERVICES.

ELECTRICAL RACEWAYS:

ALL ELECTRICAL CONDUCTORS ARE TO BE INSTALLED IN METAL RACEWAYS, UNLESS SPECIFIED OR NOTED OTHERWISE. CONDUIT MAY BE GALVANIZED STEEL OR RIGID ALUMINUM AS PERMITTED BY THE CODE. NO CONDUIT SMALLER THAN 1/2" TO BE USED. PROVIDE FLEXIBLE CONDUIT CONNECTION TO EACH MOTOR NOT TO EXCEED 12" IN LENGTH. PROVIDE PULL WIRES IN ALL EMPTY CONDUIT SYSTEMS. IDENTIFY TERMINUS OF EACH PULL WIRE. ALL EXPOSED RACEWAYS SHALL BE INSTALLED WITH RUNS PARALLEL AND/OR PERPENDICULAR WITH BUILDING WALLS. FASTEN ALL CONDUIT EVERY 8' AND 2' FROM EACH BOX. CONDUIT MAY BE EMT WHERE NOT SUBJECT TO MECHANICAL DAMAGE AS PERMITTED BY THE NEC.

FOR EACH ELECTRICAL RACEWAY SYSTEM, PROVIDE A COMPLETE ASSEMBLY OF CONDUIT OR TUBING WITH FITTINGS INCLUDING, BUT NOT NECESSARILY LIMITED TO, CONNECTORS, NIPPLES, COUPLINGS, ELBOWS, EXPANSION FITTINGS AND OTHER COMPONENTS AND ACCESSORIES AS NEEDED TO FORM A COMPLETE SYSTEM.

THE EXTENT OF ELECTRICAL RACEWAY WORK IS INDICATED BY DRAWINGS AND SCHEDULES, AND BY REQUIREMENTS OF THIS SECTION.

THE TYPES OF ELECTRICAL RACEWAYS REQUIRED FOR THE PROJECT INCLUDE THE FOLLOWING:

ELECTRICAL METALLIC TUBING.
FLEXIBLE METAL CONDUIT.
MC CABLE

HANDLE CONDUIT AND TUBING CAREFULLY TO PREVENT BENDING AND END-DAMAGE, AND TO AVOID SCORING FINISH. WHEN NECESSARY TO STORE OUTDOORS, ELEVATE WELL ABOVE GRADE AND ENCLOSE WITH DURABLE, WATERTIGHT WRAPPING.

PROVIDE METAL CONDUIT, TUBING AND FITTINGS OF TYPE, GRADE, SIZE AND WEIGHT (WALL THICKNESS) INDICATED FOR EACH SERVICE. WHERE TYPE AND GRADE ARE NOT INDICATED, PROVIDE PROPER SELECTION DETERMINED TO FULFILL WIRING REQUIREMENTS, AND COMPLY WITH NATIONAL ELECTRICAL CODE FOR ELECTRICAL RACEWAYS.

ELECTRICAL METALLIC TUBING (EMT): FS WW-C-563 AND ANSI C80.3.

EMT FITTINGS: FS W-F-408, TYPES AND CLASSES AS INDICATED.

FLEXIBLE METAL CONDUITS: FS WW-C-566, OF THE FOLLOWING TYPE:

TYPE I: ALUMINUM.
TYPE II: ZINC-COATED STEEL.

FLEXIBLE METAL CONDUIT FITTINGS: FS W-F-406, TYPE AS INDICATED.

LIQUID-TIGHT FLEXIBLE METAL CONDUIT: PROVIDE LIQUID-TIGHT FLEXIBLE METAL CONDUIT COMPRISED OF SINGLE STRIP, CONTINUOUS, FLEXIBLE INTERLOCKED, DOUBLE-WRAPPED STEEL, GALVANIZED INSIDE AND OUTSIDE; FORMING SMOOTH INTERNAL WIRING CHANNEL; WITH LIQUID-TIGHT JACKET OF FLEXIBLE POLYVINYL CHLORIDE (PVC).

LIQUID-TIGHT FLEXIBLE METAL CONDUIT FITTINGS: FS W-F-406, TYPE AS INDICATED.

PROVIDE NONMETALLIC CONDUIT AND FITTINGS OF TYPE, SIZE AND WEIGHT (WALL THICKNESS) INDICATED FOR EACH SERVICE. WHERE TYPE AND GRADE ARE NOT INDICATED, PROVIDE PROPER SELECTION DETERMINED TO FULFILL WIRING REQUIREMENTS, AND COMPLY WITH NATIONAL ELECTRICAL CODE FOR ELECTRICAL RACEWAYS, AND WITH TYPE SELECTED IN ACCORDANCE WITH APPLICABLE STANDARDS.

MC CABLE MAY BE USED IN CONCEALED LOCATIONS (ABOVE CEILINGS AND IN WALLS). MC CABLE SHALL INCLUDE A GROUND WIRE AND BE INSTALLED PER THE NEC.

CONDUIT, TUBING AND RACEWAY ACCESSORIES: PROVIDE CONDUIT, TUBING AND RACEWAY ACCESSORIES INCLUDING STRAPS, HANGERS, ANGLES, EXPANSION AND DEFLECTION FITTINGS AS RECOMMENDED BY THE CONDUIT, TUBING AND RACEWAY MANUFACTURERS.

INSTALL CONDUIT AND TUBING PRODUCTS AS INDICATED, IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF NEC AND THE NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE INTENDED FUNCTION.

COMPLETE THE INSTALLATION OF ELECTRICAL RACEWAYS BEFORE STARTING INSTALLATION OF CABLES WITHIN RACEWAYS.

ALL CONDUIT MAY BE ELECTRICAL METALLIC TUBING (E.M.T.), EXCEPT CONDUIT LARGER THAN 4", CONDUIT BELOW CONCRETE SLABS LAID ON GROUND, CONDUIT IN HAZARDOUS LOCATIONS, CONDUIT IN EARTH OR BELOW GRADE OR WHERE OTHERWISE NOTED.

PROVIDE FLEXIBLE CONDUIT FOR MOTOR CONNECTIONS AND FOR OTHER ELECTRICAL EQUIPMENT CONNECTIONS WHERE SUBJECTED TO MOVEMENT VIBRATION.

WHERE CONDUIT IS INSTALLED IN EARTH, IT SHALL BE PVC CONDUIT. WHERE PVC CONDUIT IS TO BE TURNED UP THRU THE FLOOR SLAB, THE ELBOW SHALL BE CONVERTED TO METAL AND METAL CONDUIT SHALL PENETRATE THE SLAB.

PROVIDE LIQUID-TIGHT FLEXIBLE CONDUIT FOR CONNECTION OF MOTORS AND FOR OTHER ELECTRICAL EQUIPMENT WHERE SUBJECT TO MOVEMENT AND VIBRATION, AND ALSO WHERE SUBJECTED TO ONE OR MORE OF THE FOLLOWING CONDITIONS:

EXTERIOR LOCATION. SUBJECTED TO WATER SPRAY.

MINIMUM CONDUIT SIZE FOR CONDUIT INSTALLED BELOW CONCRETE FLOOR SLABS SHALL BE 3/4" UNLESS OTHERWISE NOTED.

AT ANY POINT WHERE A CONDUIT CROSSES AN EXPANSION JOINT, OR WHERE MOVEMENT BETWEEN ADJACENT SECTIONS OF CONDUIT CAN BE EXPECTED, BRONZE OR ALLOY EXPANSION FITTINGS SHALL BE INSTALLED EQUAL TO TYPE AX AS MADE BY THE O.Z. ELECTRICAL MANUFACTURING CO., INC., OR EQUIVALENT BY HOPE OR SPRING CITY.

ESCUTCHEONS: PROVIDE EXPOSED CONDUIT WITH CP CAST BRASS (DAMP LOCATIONS) OR CI/STEEL (DRY LOCATIONS) ESCUTCHEONS WHERE PASSING THROUGH FLOORS, CEILINGS, WALLS AND PARTITIONS. PROVIDE ESCUTCHEONS WITH NICKEL OR CHROME FINISH FOR EXTERIOR AND OCCUPIED AREAS, PRIME PAINT FINISH UNOCCUPIED AREAS.

WIRE AND CONNECTORS:

ELECTRICAL CONDUCTORS, SOFT DRAWN COPPER WITH CONDUCTIVITY 98% OF THAT OF PURE COPPER. WIRE AND CABLE FOR ALL FEEDERS, SUB-FEEDERS, MOTOR CIRCUITS AND HIGH AMBIENT LOCATION TYPE THW. ALL OTHER BRANCH CIRCUIT WIRING, TYPE THW OR THHN. MINIMUM WIRE SIZE FOR POWER AND LIGHTING CIRCUITS SHALL BE 12 GAUGE. CONTRO

BELLEVEILLE TYPE COMPRESSION WASHERS SHALL BE USED WHEN THE AMBIENT TEMPERATURE EXCEEDS 30°C. THEY SHALL BE T&B CATALOG SERIES 60800. INSTALL ELECTRICAL WIRE AND CONNECTORS AS INDICATED, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, THE APPLICABLE REQUIREMENTS OF NEC AND THE NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTIONS.

COORDINATE CABLE AND WIRE INSTALLATION WORK WITH ELECTRICAL RACEWAY AND EQUIPMENT INSTALLATION WORK, AS NECESSARY FOR PROPER INTERFACE. ALL WIRE AND CABLE SHALL BE IN FIRST CLASS CONDITION WHEN THEY ARE INSTALLED. LO-LEAK LUBRICANTS MANUFACTURED FOR THE PURPOSE MAY BE USED AS A PULLING LUBRICANT WHEN NECESSARY.

ALL WIRES SHALL BE CONTINUOUS FROM OUTLET AND THERE SHALL BE NO UNNECESSARY SLACK IN THE CONDUCTORS.

INSTALL SPLICES AND TAPS WHICH HAVE EQUIVALENT-OR-BETTER MECHANICAL STRENGTH AND INSULATION AS THE CONDUCTOR. USE SPLICE AND TAP CONNECTIONS WHICH ARE COMPATIBLE WITH THE CONDUCTOR MATERIAL.

PRIOR TO ENERGIZATION, CHECK WIRE FOR CONTINUITY OF CIRCUITRY, AND FOR SHORT CIRCUITS. CORRECT MALFUNCTION WHEN DETECTED.

SUBSEQUENT TO WIRE HOOK-UPS, ENERGIZE CIRCUITRY AND DEMONSTRATE FUNCTIONING IN ACCORDANCE WITH REQUIREMENTS.

ELECTRICAL BOXES AND FITTINGS:

THE EXTENT OF ELECTRICAL BOX AND ELECTRICAL FITTING WORK IS INDICATED BY THE DRAWINGS AND SCHEDULES, AND THE REQUIREMENTS OF THIS SECTION. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT. GROUNDING PER NEC ARTICLE250 AND ANY LOCAL REQUIREMENTS. PROVIDE AND INSTALL ELECTRICAL BOXES AND FITTINGS IN COMPLIANCE WITH NEC REQUIREMENTS, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT THE BOXES AND FITTINGS SERVE THE INTENDED PURPOSES. DRAWINGS AND SCHEDULE, AND THE REQUIREMENTS OF THIS SECTION INDICATE THE EXTENT OF ELECTRICAL BOX AND ELECTRICAL FITTING WORK. THE TYPES OF ELECTRICAL BOXES AND FITTINGS REQUIRED FOR THE PROJECT INCLUDE THE FOLLOWING:

OUTLET BOXES.
JUNCTION BOXES.
PULL BOXES.
CONDUIT BODIES.
BUSHINGS.
LOCKNUTS.

PROVIDE GALVANIZED STEEL INTERIOR OUTLET WIRING BOXES, OF THE TYPE, SHAPE AND SIZE, INCLUDING DEPTH OF BOX, TO SUIT EACH RESPECTIVE LOCATION AND INSTALLATION: CONSTRUCTED WITH STAMPED KNOCKOUTS IN BACK AND SIDES, AND WITH THREADED HOLES WITH SCREWS FOR SECURING BOX COVERS OR WIRING DEVICES.

INTERIOR OUTLET BOX ACCESSORIES: PROVIDE OUTLET BOX ACCESSORIES AS REQUIRED FOR EACH INSTALLATION, INCLUDING MOUNTING BRACKETS, WALLBOARD HANGERS, EXTENSION RINGS, FIXTURE STUDS, CABLE CLAMPS AND METAL STRAPS FOR SUPPORTING OUTLET BOXES, COMPATIBLE WITH OUTLET BOXES BEING USED AND MEETING REQUIREMENTS OF INDIVIDUAL WIRING SITUATIONS. CHOICE OF ACCESSORIES IS INSTALLER'S OPTION PROVIDE GALVANIZED SHEET STEEL JUNCTION AND PULL BOXES, WITH SCREW-ON COVERS: OF THE TYPE SHAPE AND SIZE, TO SUIT EACH RESPECTIVE LOCATION AND INSTALLATION: WITH WELDED SEAMS AND EQUIPPED WITH STAINLESS STEEL NUTS, BOLTS, SCREWS AND WASHERS. PROVIDE GALVANIZED CAST-METAL CONDUIT BODIES, OF THE TYPE, SHAPE AND SIZE, TO SUIT EACH RESPECTIVE LOCATION AND INSTALLATION, CONSTRUCTED WITH THREADED CONDUIT ENDS, REMOVABLE COVER, AND CORROSION-RESISTANT SCREWS.

PROVIDE CORROSION-RESISTANT PUNCHED-STEEL BOX KNOCKOUT CLOSURES, CONDUIT LOCKNUTS AND MALLEABLE IRON CONDUIT BUSHINGS OF THE TYPE AND SIZE TO SUIT EACH RESPECTIVE USE AND INSTALLATION.

INSTALL ELECTRICAL BOXES AND FITTINGS AS INDICATED, OR IN COMPLIANCE WITH NEC REQUIREMENTS, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT THE BOXES AND FITTINGS SERVE THE INTENDED PURPOSES.

PROVIDE KNOCKOUT CLOSURES TO CAP UNUSED KNOCKOUT HOLES WHERE BLANKS HAVE BEEN REMOVED.

LOCATE BOXES AND CONDUIT BODIES SO AS TO ENSURE ACCESSIBILITY OF ELECTRICAL WIRING.

ALL BOXES SHALL BE RIGIDLY SECURED IN POSITION. ALL FLUSH MOUNTED BOXES SHALL BE SO SET THAT THE FRONT EDGE OF THE BOX SHALL BE FLUSH WITH FINISHED WALL OR CEILING LINE.

WALL SWITCH OUTLETS SHALL BE LOCATED 48 INCHES ABOVE FINISHED FLOOR TO TOP OF OUTLET BOX EXCEPT WHERE INDICATED TO BE OTHERWISE. CONVENIENCE RECEPTACLES AND COMMUNICATIONS OUTLET BOXES SHALL BE LOCATED 18 INCHES ABOVE FINISHED FLOOR TO BOTTOM OF OUTLET BOX EXCEPT WHERE INDICATED ON PLANS TO BE OTHERWISE. ALL WALL SWITCH OUTLETS SHALL BE INSTALLED ON THE LOCK SIDE OF THE DOOR. VERIFY DOOR SWINGS WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN WORK.

WHERE ANY OUTLET IS SHOWN IN SAME LOCATION AS ANY HEATING, AIR CONDITIONING OR PLUMBING EQUIPMENT, VERIFY PHYSICAL DIMENSION OF SUCH EQUIPMENT WITH THE MECHANICAL CONTRACTOR AND INSTALL OUTLET WITH A MINIMUM CLEARANCE OF THREE INCHES FROM ANY SUCH APPARATUS. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING SUCH CONFLICTS. WHERE STANDARD BOXES ARE NOT SUITABLE, PROVIDE BOXES OF SPECIAL DESIGN TO SUIT SPACE AND FUNCTION.

WIRING DEVICES:

PROVIDE AND INSTALL WIRING DEVICES OF TYPE AND RATING REQUIRED FOR THE SERVICE. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF NEC AND NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE INTENDED FUNCTION.

THE EXTENT OF WIRING DEVICE WORK IS INDICATED BY DRAWINGS AND SCHEDULES, AND BY REQUIREMENTS OF THIS SECTION. WIRING DEVICES ARE DEFINED AS SINGLE DISCRETE UNITS OF ELECTRICAL DISTRIBUTION SYSTEMS WHICH ARE INTENDED TO CARRY BUT NOT UTILIZE ELECTRIC ENERGY. PROVIDE FACTORY-FABRICATED WIRING DEVICES, IN TYPE AND ELECTRICAL RATING FOR THE SERVICE INDICATED.

PROVIDE HEAVY-DUTY DUPLEX TYPE OUTLETS, SPEC. GRADE, RECEPTACLES, 2-POLE, 3-WIRE GROUNDING, WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREW, 20-AMPERE, 125-VOLTS, WITH METAL PLASTER EARS, BACK AND SIDE WIRING, PROVISIONS FOR SPLIT FEED SERVICE, IVORY COLOR UNLESS OTHERWISE OUTLETS SHALL BE POLARIZED, PARALLEL BLADE, AND HAVE A NEMA 5-20R CONFIGURATION UNLESS OTHERWISE INDICATED. EXTERIOR OUTLETS AND THOSE WITHIN 6' OF SINKS AND LAVATORIES SHALL BE OF THE GROUND FAULT INTERRUPTER (GFI) TYPE.

PROVIDE GENERAL-DUTY FLUSH TOGGLE SWITCHES, 20A, 120/277 VAC. CONTACTS ARE TO BE OF SLOW MAKE/SLOW BREAK DESIGN FOR QUIET OPERATION, WITH MOUNTING YOKE INSULATED FROM MECHANISM, EQUIPPED WITH PLASTER EARS, IVORY SWITCH HANDLE (UNLESS OTHERWISE NOTED) AND SIDE-WIRED SCREW TERMINALS.

PROVIDE SINGLE SWITCH AND DUPLEX OUTLET WALL PLATES FOR WIRING DEVICES WITH GANGING AND CUTOUTS AS INDICATED. PROVIDE WITH METAL SCREWS FOR SECURING PLATES TO DEVICES WITH SCREW HEADS COLORED TO MATCH PLATE FINISH. WALL COVER PLATES ARE TO BE COMPATIBLE WITH SWITCH COLOR, WALL FINISH AND ROOM DECOR. STAINLESS STEEL COVER PLATES SHALL BE 0.04" THICK, TYPE 430 SATIN-FINISHED.

INSTALL WIRING DEVICES WHERE INDICATED, IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF NEC AND NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE INTENDED FUNCTION. DELAY INSTALLATION OF DEVICES UNTIL WIRING IS COMPLETED.

INSTALL RECEPTACLES AND SWITCHES ONLY IN ELECTRICAL BOXES, WHICH ARE CLEAN, FREE FROM EXCESS BUILDING MATERIALS, DEBRIS, ETC. UPON INSTALLATION OF WALL PLATES AND RECEPTACLES, ADVISE CONTRACTOR REGARDING PROPER AND CAUTIOUS USE OF CONVENIENCE OUTLETS. AT TIME OF COMPLETION, REPLACE THOSE ITEMS, WHICH HAVE BEEN DAMAGED, INCLUDING THOSE BURNED AND SCORED BY FAULTY PLUGS.

TEST WIRING DEVICES TO ENSURE ELECTRICAL CONTINUITY OF GROUNDING CONNECTIONS, AND AFTER ENERGIZING CIRCUITRY, TO DEMONSTRATE COMPLIANCE WITH REQUIREMENTS.

SAFETY AND DISCONNECT SWITCHES:

PROVIDE AND INSTALL NEMA TYPE "HD" SAFETY AND DISCONNECT SWITCHES WHERE INDICATED AND AS REQUIRED, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, THE APPLICABLE REQUIREMENTS OF NEC AND THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTION. COORDINATE SAFETY AND DISCONNECT SWITCH INSTALLATION WORK WITH ELECTRICAL RACEWAY AND CABLE WORK, AS NECESSARY FOR PROPER INTERFACE.

INSTALL DISCONNECT SWITCHES USED WITH MOTOR-DRIVEN APPLIANCES, MOTORS AND CONTROLLERS WITHIN SIGHT OF THE DEVICE OR CONTROLLER POSITION.

UNLESS OTHERWISE INDICATED. SEE PLANS FOR HVAC EQUIPMENT THAT IS PROVIDED WITH INTEGRAL DISCONNECT SWITCHES.

THE EXTENT OF SAFETY SWITCH AND DISCONNECT SWITCH WORK IS INDICATED BY DRAWINGS AND SCHEDULES, AND BY THE REQUIREMENTS OF THIS SECTION. THE TYPES OF SAFETY AND DISCONNECT SWITCHES REQUIRED FOR THE PROJECT INCLUDE THE FOLLOWING:

EQUIPMENT DISCONNECTS

HANDLE SWITCHES CAREFULLY TO AVOID DAMAGE TO MATERIAL COMPONENTS, ENCLOSURE AND FINISH. DO NOT INSTALL DAMAGED SWITCHES: REMOVE FROM PROJECT SIDE.

PROVIDE PRODUCTS PRODUCED BY ONE OF THE FOLLOWING (FOR EACH TYPE OF SWITCH):

CUTLER-HAMMER, INC.
GENERAL ELECTRIC CO.
I-T-E SYSTEMS CORP.
SQUARE D COMPANY

PROVIDE HEAVY-DUTY TYPE (TYPE HD), SHEET STEEL ENCLOSED SAFETY SWITCHES, OF THE TYPE AND SIZE AND ELECTRICAL CHARACTERISTICS INDICATED: SURFACE MOUNTED, INCORPORATING SWITCHES SO CONSTRUCTED THAT THE SWITCH BLADES ARE VISIBLE IN "OFF" POSITION WITH DOOR OPEN:
EQUIPPED WITH OPERATING HANDLE WHICH IS AN INTEGRAL PART OF THE ENCLOSURE BASE AND WHOSE POSITION IS EASILY RECOGNIZABLE, AND IS PADLOCKABLE IN THE "OFF" POSITION: WITH CURRENT CARRYING PARTS CONSTRUCTED OF HIGH-CONDUCTIVITY COPPER, AND SILVER TUNGSTEN TYPE SWITCH CONTACTS: AND CONSTRUCTED WITH STAMPED ENCLOSURE KNOCKOUTS. LUGS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CONDUCTORS. FUSED UNITS SHALL BE PROVIDED WITH REJECTION KITS. NEMA TYPE 1 ENCLOSURE WHERE INSTALLED INDOORS AND NEMA TYPE 3R WHERE INSTALLED OUTDOORS.

FUSES:

THE EXTENT OF FUSE WORK IS INDICATED BY THE DRAWINGS AND SCHEDULES, AND BY THE REQUIREMENTS OF THIS SECTION. PROVIDE FUSES FOR SAFETY SWITCHES OF CLASS, TYPE AND RATING AS INDICATED ON DRAWINGS. FUSES SHALL BE A BUSSMANN TYPE OF SIZES AND TYPES SCHEDULED.
THE TYPES OF FUSES REQUIRED FOR THE PROJECT INCLUDE THE FOLLOWING:

CLASS RK1
CLASS RK5
CLASS L

ALL FUSES SHALL BE LABELED WITH THE INTERRUPTING CURRENT: CLASS AND TIME DELAY (IF APPLICABLE). HANDLE FUSES CAREFULLY TO AVOID DAMAGE TO MATERIAL COMPONENTS. DO NOT INSTALL DAMAGED FUSES: REMOVE FROM PROJECT SITE. PROVIDE PRODUCTS PRODUCED BY ONE OF THE FOLLOWING (FOR EACH TYPE OF SWITCH):

FERRAZ SHAWMUT
BUSSMANN
LITTLEFUSE

INSTALL FUSES WHERE INDICATED, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, THE APPLICABLE REQUIREMENTS OF NEC AND THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTION. FUSES FOR LIGHTING AND GENERAL POWER LOADS SHALL BE CLASS RK5 FOR 600 AMP OR LESS.

FURNISH (3) THREE SPARE FUSES OF EACH SIZE AND TYPE USED ON THE PROJECTS. FURNISH "SPARE FUSE CABINET" WITH HINGED AND LOCKED DOOR OF SIZE REQUIRED FOR NUMBER OF FUSES FURNISHED. INSTALL AS INDICATED OR DIRECTED. CABINET SHALL HAVE NAMEPLATE AS NOTED IN OTHER SECTIONS OF THIS SPECIFICATION.

LIGHTING FIXTURES, LAMPS, AND BALLASTS:

PROVIDE AND INSTALL LIGHTING FIXTURES, OF THE SIZE, TYPE AND RATING INDICATED ON SUBSEQUENT SCHEDULES AND DRAWINGS: COMPLETE WITH BUT NOT NECESSARILY LIMITED TO, LAMPS, LAMPHOLDERS, REFLECTORS, BALLASTS, STARTERS AND WIRING.

THE EXTENT OF LIGHTING FIXTURE WORK IS INDICATED ON THE DRAWINGS AND IN SCHEDULES, AND BY THE REQUIREMENTS OF THIS SECTION. UNLESS SHOWN OR SPECIFIED OTHERWISE, LETTER SHOWN ON DRAWINGS ADJACENT TO FIXTURE IDENTIFIES FIXTURES.

PROVIDE BALLASTS, WHICH COMPLY WITH CERTIFIED BALLASTS MANUFACTURER'S ASSOCIATION STANDARDS AND CARRY THE CBM MARK ON THE LABEL. DELIVER LIGHTING FIXTURES INDIVIDUALLY WRAPPED IN FACTORY-FABRICATED FIBERBOARD TYPE CONTAINERS. HANDLE LIGHTING FIXTURES CAREFULLY TO PREVENT BREAKAGE, DENTING AND SCORING THE FIXTURE FINISH. DO NOT INSTALL DAMAGED LIGHTING FIXTURES: REPLACE AND RETURN DAMAGED UNITS TO EQUIPMENT MANUFACTURER.

PROVIDE TRIM TO FIT EACH CEILING CONDITION ACTUALLY ENCOUNTERED. ELECTRICAL CONTRACTOR SHALL VERIFY ACTUAL CEILING CONSTRUCTION PRIOR TO ORDERING FIXTURES.

INSTALL LIGHTING FIXTURES OF THE TYPES INDICATED WHERE SHOWN AND AT THE INDICATED HEIGHTS: IN ACCORDANCE WITH THE FIXTURE MANUFACTURER'S WRITTEN INSTRUCTIONS AND WITH RECOGNIZED INDUSTRY PRACTICES: TO ENSURE THAT THE FIXTURES COMPLY WITH THE REQUIREMENTS AND SERVE THE INTENDED PURPOSES. COMPLY WITH NEMA STANDARDS AND REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE PERTAINING TO INSTALLATION OF LIGHTING FIXTURES AND WITH APPLICABLE PORTIONS OF NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS". FASTEN FIXTURES SECURELY TO THE INDICATED STRUCTURAL SUPPORT MEMBERS OF THE BUILDING: AND CHECK TO ENSURE THAT SOLID PENDANT FIXTURES ARE PLUMB.

CLEAN LIGHTING FIXTURES OF DIRT AND DEBRIS UPON COMPLETION OF INSTALLATION. PROTECT INSTALLED FIXTURES FROM DAMAGE DURING THE REMAINDER OF THE CONSTRUCTION PERIOD. UPON COMPLETION OF INSTALLATION OF LIGHTING FIXTURES, AND AFTER BUILDING CIRCUITRY HAS BEEN ENERGIZED, APPLY ELECTRICAL ENERGY TO DEMONSTRATE CAPABILITY AND COMPLIANCE WITH REQUIREMENTS. WHEN POSSIBLE, CORRECT MALFUNCTIONING UNITS AT THE SITE, THEN RETEST TO DEMONSTRATE COMPLIANCE: OTHERWISE, REMOVE AND REPLACE WITH NEW UNITS, AND PROCEED WITH RETESTING.

LIGHTING FIXTURES AS HEREINAFTER SPECIFIED ARE IDENTIFIED BY TYPE AS NOTED ON DRAWINGS. FIXTURE SPECIFICATIONS ARE BASED ON CONSTRUCTION AND PERFORMANCE. MANUFACTURERS CATALOG NUMBERS ARE OF GENERAL NATURE AND DO NOT NECESSARILY REFLECT COMPLETE OPTIONS AS SPECIFIED. APPROVAL SHALL BE BASED ON SPECIFICATIONS OF FIXTURE AND NOT ON CATALOG NUMBER INDICATED.

GROUNDING AND GROUND FAULT PROTECTION:

GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE. USE SOLDERLESS PRESSURE TYPE CONNECTORS, NO PERFORATED STRAP. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT. GROUNDING PER NEC ARTICLE 250, AND ANY LOCAL REQUIREMENTS.

FURNISH LABOR AND MATERIALS TO PROVIDE GROUNDING FACILITIES FOR THE ENTIRE ELECTRICAL INSTALLATION AS REQUIRED BY ALL INSPECTING AND JURISDICTIONAL AUTHORITIES AS HEREIN SPECIFIED. THE FOLLOWING ARE INCLUDED, BUT NOT LIMITED TO, AS ITEMS REQUIRING GROUNDING:

CONDUITS, BOXES AND OTHER CONDUCTOR ENCLOSURES.
NEUTRAL OR IDENTIFIED CONDUCTOR OF INTERIOR WIRING SYSTEMS.
DISTRIBUTION PANELS, POWER AND LIGHTING PANELBOARDS.
NON-CURRENT - CARRYING PARTS OF FIXED EQUIPMENT, SUCH AS TRANSFORMERS, MOTORS, STARTERS, CONTROL CABINETS, DISCONNECTS, LIGHTING FIXTURES, STAND-BY GENERATOR, ETC.
TELEPHONE CABINETS AND AUXILIARY SYSTEMS CABINETS.

FURNISH AND INSTALL ALL BOXES AND/OR ACCESS PLATES REQUIRED FOR INSTALLATION AND INSPECTION OF GROUNDING CONNECTIONS TO COLD WATER PIPING SYSTEM, BUILDING STEEL OR OTHER MADE ELECTRODES.
PROVIDE BRASS IDENTIFYING TAGS ON ALL GROUND CLAMPS.

ALL GROUNDING BUSHINGS WITHIN ALL ENCLOSURES, INCLUDING EQUIPMENT ENCLOSURES, SHALL BE WIRED TOGETHER AND CONNECTED INTERNALLY TO THE ENCLOSURE GROUNDING LUG OR GROUNDING BUS WITH BARE COPPER CONDUCTOR. GROUNDING CONDUCTORS SIZED IN ACCORDANCE WITH NEC SHALL BE USED WITH ALL GROUNDING BUSHINGS.

ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED. EQUIPMENT SUCH AS DISTRIBUTION PANELS, PANELBOARDS, METAL-CLAD OR METAL-ENCLOSED SWITCHGEAR WILL BE FURNISHED WITH A GROUNDING BUS. MOST OTHER EQUIPMENT WILL BE FURNISHED WITH GROUNDING PADS OR GROUNDING LUGS.

ALL GROUND CONNECTIONS SHALL BE CLEANED IMMEDIATELY PRIOR TO CONNECTION. CONTRACTOR SHALL PROVIDE ALL GROUNDING MATERIALS REQUIRED BUT NOT FURNISHED WITH THE EQUIPMENT.
NO GROUNDING CONDUCTOR SHALL BE SMALLER IN SIZE THAN 12 AWG UNLESS IT IS A PART OF AN ACCEPTABLE CABLE ASSEMBLY.

DISTRIBUTION PANELS, POWER AND LIGHTING PANELBOARDS:

GENERAL: LOAD CENTERS AND PANELBOARDS ARE AS INDICATED ON THE DRAWINGS. MAIN LUGS ONLY UNLESS NOTED OR SPECIFIED OTHERWISE. PROVIDE WITH LOCKING HINGED DOOR. ALL CIRCUIT BREAKERS TO HAVE POSITIVE "TRIP" INDICATION AND SHALL BE BOLT-ON TYPE UNLESS OTHERWISE NOTED OR REQUIRED. BREAKERS USED ON EXISTING PANELS SHALL BE LABELED TO HAVE POSITIVE "TRIP" INDICATION. BREAKERS USED ON NEW AND EXISTING PANELS SHALL BE LABELED TO INDICATE USE OR AREA SERVED. PROVIDE AND

INSTALL PANELBOARDS AND ENCLOSURES, INCLUDING ELECTRICAL CONNECTIONS, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTION.

THE EXTENT OF PANELBOARDS AND ENCLOSURES WORK, INCLUDING CABINETS, IS INDICATED BY THE DRAWINGS AND SCHEDULES, AND THE REQUIREMENTS OF THIS SECTION.

THE TYPES OF PANELBOARDS AND ENCLOSURES REQUIRED FOR THE PROJECT INCLUDE THE FOLLOWING:

LIGHTING AND POWER PANELBOARDS.
DISTRIBUTION PANELBOARDS (I-LINE FUSIBLE).
CABINET ENCLOSURES.

HANDLE PANELBOARDS AND ENCLOSURES CAREFULLY TO PREVENT BREAKAGE, DENTING AND SCORING THE FINISH.
STORE PANELBOARDS AND ENCLOSURES INSIDE AND PROTECT FROM WEATHER. WHEN NECESSARY TO STORE OUTDOORS, ELEVATE WELL ABOVE GRADE AND ENCLOSE WITH DURABLE, WATERPROOF WRAPPING.
PROVIDE PRODUCTS PRODUCED BY ONE OF THE FOLLOWING (FOR EACH TYPE OF PANELBOARD AND ENCLOSURES):

CUTLER-HAMMER, INC.
GENERAL ELECTRIC CO.
I-T-E SYSTEMS CORP.
SQUARE D COMPANY

PROVIDE DEAD-FRONT SAFETY TYPE LIGHTING AND APPLIANCE PANELBOARDS WHERE INDICATED, WITH SWITCHING CONTACTOR CONTROL AND PROTECTIVE DEVICES IN THE NUMBER, RATING, TYPE AND ARRANGEMENT REQUIRED: WITH ANTI-BURN SOLDERLESS PRESSURE TYPE LUG CONNECTORS APPROVED FOR COPPER CONDUCTORS, FOR CONNECTING FEEDER TO PANEL: EQUIPPED WITH COPPER OR ALUMINUM BUS BARS, FULL-SIZED NEUTRAL BAR, WITH BOLT-IN TYPE HEAVY-DUTY, QUICK-MAKE, QUICK-BREAK, CIRCUIT BREAKERS. PROVIDE SUITABLE LUGS ON NEUTRAL BUS OR EACH OUTGOING FEEDER REQUIRED: INSTALL A BARE UNINSULATED GROUNDING BAR BOLTED TO THE ENCLOSURE. ALL COPPER PARTS SHALL BE PLATED TO PREVENT CORROSION.

PROVIDE SHEET STEEL ENCLOSURES, NEMA TYPE AS INDICATED, CODE GAGE, MINIMUM 16 GAGE THICKNESS, WITH MULTIPLE KNOCKOUTS: PROVIDE DOORS WITH FLUSH LOCK AND KEY, ALL PANELBOARD ENCLOSURES KEYED ALIKE, WITH CONCEALED HINGES AND DOOR SWING AS INDICATED: EQUIPPED WITH INTERIOR CIRCUIT DIRECTORY FRAME, CARD AND CLEAR PLASTIC COVERING: NAMEPLATE: PROVIDE PAINTED GRAY ENAMEL FINISH OVER A RUST INHIBITOR.

PROVIDE THERMAL MAGNETIC TYPE CIRCUIT BREAKERS OF BOLT-ON, SINGLE UNIT CONSTRUCTION. MULTI-POLE CIRCUIT BREAKERS SHALL HAVE TRIP ELEMENTS IN EACH POLE WITH COMMON TRIP BAR. FRAME SIZE 225 AMP AND LARGER SHALL HAVE ADJUSTABLE MAGNETIC INSTANTANEOUS TRIP. FRAME SIZE 400 AMP AND LARGER SHALL HAVE INTERCHANGEABLE THERMAL MAGNETIC TRIP UNITS. ALL VALUES ARE MINIMUM RATED VOLTAGE.

SHUNT TRIP SHALL BE INSTALLED IN CIRCUIT BREAKERS WHERE REQUIRED BY DRAWINGS OR SPECIFICATIONS.

ALL CIRCUIT BREAKERS SHALL BE INSTALLED IN PANELBOARDS AS INDICATED IN THE PANEL SCHEDULES.

ALL CIRCUIT BREAKERS SERVING HVAC EQUIPMENT SHALL BE HACR RATED OR SUITABLE FOR USE WITH HVAC EQUIPMENT.
ALL CIRCUIT BREAKERS USED FOR LIGHTING CIRCUITS SHALL BE 'SWITCH DUTY RATED'.
HANDLE LOCKS SHALL BE PROVIDED ON CIRCUIT BREAKERS SERVING LIFE SAFETY EQUIPMENT.

GROUND FAULT INTERRUPTER TYPE CIRCUIT BREAKERS SHALL BE INSTALLED WHERE REQUIRED BY CODE OR AS INDICATED BY DRAWINGS OR SPECIFICATIONS.
MINIMUM INTERRUPTING RATINGS SHALL BE AS FOLLOWS:

| FRAME SIZE | 240V | 277V | 480V |
|---|---|---|---|
| 100 AMP | 10,000 | 10,000 | 18,000 |
| 225 AMP | 25,000 | --22,000 | |
| 400 AMP | 42,000 | --30,000 | |
| 800 AMP | 42,000 | --30,000 | |
| 1200 AMP | 42,000 | --30,000 | |

INSTALL PANELBOARDS AND ENCLOSURES, INCLUDING ELECTRICAL CONNECTIONS, IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, APPLICABLE REQUIREMENTS OF THE NATIONAL ELECTRICAL CONTRACTOR ASSOCIATION'S "NATIONAL ELECTRICAL INSTALLATION STANDARDS", AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS SERVE THE INTENDED FUNCTION.

COORDINATE INSTALLATION OF PANELBOARDS AND ENCLOSURES WITH CABLE AND RACEWAY INSTALLATION WORK.

HVAC SAFETY CONTROLS:

ANCHOR ENCLOSURES FIRMLY TO WALLS AND STRUCTURAL SURFACES, ENSURING THAT THEY ARE PERMANENTLY AND MECHANICALLY SECURED.

FILL OUT ENCLOSURE'S CIRCUIT DIRECTORY CARD UPON COMPLETION OF WORK. DIRECTORY SHALL BE TYPEWRITTEN.

PROVIDE IONIZATION DUCT SMOKE DETECTOR TO MECHANICAL CONTRACTOR FOR INSTALLATION IN RETURN AIR DUCTWORK FOR ALL AHU SYSTEMS HAVING A CAPACITY IN EXCESS OF 2000 CFM AND/OR WHERE SHOWN ON THE MECHANICAL PLANS OR WHERE REQUIRED BY THE CODE. ELECTRICAL CONTRACTOR SHALL WIRE DETECTOR TO DISABLE HVAC UNIT SUPPLY FAN UPON DETECTION OF SMOKE.

DUCT SMOKE DETECTORS MAY BE DELETED IF A COMPLETE CENTRAL SMOKE DETECTION SYSTEM IS INSTALLED IN THE BUILDING AND HVAC SYSTEM FANS ARE WIRED TO SHUT DOWN UPON DETECTION OF SMOKE. WHEN A FIRE ALARM SYSTEM IS INCLUDED AS PART OF THE CONSTRUCTION, THE DUCT SMOKE DETECTORS SHALL BE PROVIDED BY THE FIRE ALARM CONTRACTOR OR SHALL BE COMPATIBLE WITH THE FIRE ALARM SYSTEM. THE DETECTORS SHALL BE AUTOMATICALLY RESETTABLE FROM THE MAIN FIRE ALARM PANEL.

FIRE ALARM SYSTEM:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, LAYOUT, ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR A COMPLETE, APPROVED AND OPERATIONAL INSTALLATION OF THE FIRE ALARM SYSTEMS IN ACCORDANCE WITH THIS SPECIFICATION, THE ADA AND ALL APPLICABLE CODES. PROVIDE FIRE ALARM SYSTEM PRODUCTS IN SIZES AND CAPACITIES REQUIRED, COMPLYING WITH MANUFACTURER'S PUBLISHED PRODUCT INFORMATION ON STANDARD MATERIALS AND COMPONENTS DESIGNED AND CONSTRUCTED FOR APPLICATIONS INDICATED. THE EXTENT OF FIRE ALARM SYSTEM WORK IS HEREBY DEFINED TO INCLUDE (BUT NOT BY WAY OF LIMITATION) FURNISHING AND INSTALLING OF A COMPLETE LIFE SAFETY SYSTEM FOR FIRE DETECTION. THE SYSTEM SHALL BE ZONED, ELECTRICALLY SUPERVISED, CONNECTED, TESTED AND LEFT IN FIRST-CLASS OPERATING CONDITION.

THE BUILDING IS CURRENTLY EQUIPPED WITH A ZONED, NON-CODED, AUTOMATIC FIRE DETECTION AND ALARM SYSTEM COMBINED WITH MANUAL PULL STATIONS, SMOKE DETECTORS, FLOW SWITCHES, DAMPER SWITCHES, VISUAL/AUDIBLE ALARMS, ETC. A MAIN ANNUNCIATOR PANEL LOCATED IN THE ELECTRICAL ROOM PROVIDES ZONE BY ZONE INDICATION AND AUDIBLE ALARM CONTROL, REQUIRED DELAYS AND A BATTERY UNIT WITH 72 HOURS AUTONOMY. THIS CONTRACTOR SHALL VERIFY COMPATIBILITY WITH NEW FIRE ALARM REQUIREMENTS AND RE-USE THE EXISTING PANEL IF ADEQUATE OR EXPAND OR REPLACE AS NECESSARY.

THE SYSTEM SHALL PROVIDE MANUAL ALARM STATIONS AT EACH EXIT FROM FIRE-RATED AREAS AND BUILDING EXITS. AUTOMATIC THERMAL HEAT DETECTORS WILL BE INSTALLED IN THE MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS AND OTHER LOCATIONS NOT SUITABLE FOR SMOKE DETECTORS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE IONIZATION SMOKE DETECTORS TO THE MECHANICAL CONTRACTOR FOR INSTALLATION IN THE RETURN AIR DUCTS OF ALL VENTILATION SYSTEM EQUIPMENT WHERE REQUIRED BY THE CODE IF NOT CURRENTLY IN PLACE. THE DUCT SMOKE DETECTORS SHALL SIGNAL THE FIRE ALARM SYSTEM TO CLOSE THE SMOKE DAMPERS AND DISABLE THE AIR HANDLING UNIT FANS UPON DETECTION OF SMOKE.

THE CORRIDOR SMOKE DETECTORS SHALL CONTROL THE OPERATION OF DUCT FIRE/SMOKE DAMPERS INSTALLED IN THE FIRE RATED CORRIDOR WALLS.

ELECTRICAL START-UP AND SYSTEM TESTING:

THE CONTRAC

# MEDICAL GAS SYSTEM SPECIFICATION

1. INSTALLATION SHALL COMPLY WITH NFPA 99 (HEALTH CARE FACILITIES), THE MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES (DIVISION 30-DIVISION OF REGULATION AND LICENSURE, CHAPTER 30 - AMBULATORY SURGICAL CENTERS AND ABORTION FACILITIES), ALL LOCAL BUILDING CODES AND AUTHORITY HAVING JURISDICTION.

2. PROVIDE ALL LABOR, EQUIPMENT AND SERVICES NECESSARY FOR AND INCIDENTAL TO THE INSTALLATION OF PIPED MEDICAL GAS AND VACUUM SYSTEMS INCLUDING OXYGEN, MEDICAL AIR AND MEDICAL VACUUM.

3. THE OWNER SHALL FURNISH THE INITIAL SUPPLY OF LIQUID OXYGEN.

4. ALL MATERIALS USED SHALL BE NEW AND OF THE BEST GRADE AND QUALITY OBTAINABLE AND WORKMANSHIP SHALL BE FIRST CLASS IN EVERY RESPECT. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH NFPA 99 AND ALL LOCAL, STATE OR FEDERAL CODES.

5. PERFORM INSTALLER PRESSURE TESTING, CROSS CONNECTION TESTING AND FINAL TESTING PER NFPA 99 MOST RECENT EDITION AND USING PROCEDURES AS SPECIFIED

6. COORDINATE WITH OWNER TO ENSURE MEDICAL GAS OUTLETS IN WALLS, CEILING AND ALL EQUIPMENT IS PROVIDED BY THE SAME MEDICAL GAS EQUIPMENT MANUFACTURER SATISFACTORY TO THE OWNER.

7. MEDICAL GAS CONTRACTOR SHALL SUPPLY AND INSTALL THE MASTER ALARM SYSTEM, INCLUDING THE SIGNAL WIRING. THE ELECTRICAL CONTRACTOR SHALL PROVIDE POWER WIRING TO EACH ALARM PANEL. MEDICAL GAS CONTRACTOR IS RESPONSIBLE FOR PROPER TERMINATION, TESTING AND MARKING OF ALARM PANELS. TERMINATION SHALL BE DONE BY OR UNDER SUPERVISION OF MANUFACTURER OF ALARM PANELS.

8. COORDINATE WITH MEDICAL GAS VERIFIER TO DELIVER A COMPLETE, TESTED MEDICAL GAS INSTALLATION READY FOR OWNER'S USE.

9. ELECTRICAL CONTROL SYSTEMS AND MEDICAL GAS ALARMS ARE TO BE UL LISTED AS ASSEMBLIES WITH LABEL AFFIXED.

10. MEDICAL OXYGEN, MEDICAL VACUUM AND WAGD CONTROLS ARE TO BE WIRED IN ACCORDANCE WITH NEC.

11. MGEM WILL INCLUDE WITH SUBMITTALS AN AFFIDAVIT ATTESTING TO COMPLIANCE WITH ALL RELEVANT PARAGRAPHS OF NFPA 99 MOST RECENT EDITION.

12. MGEM PERSONNEL ASSEMBLING MEDICAL OXYGEN, VACUUM AND WAGD PLANT SHALL MEET NFPA 99 5.1.10.10.11 "QUALIFICATION OF INSTALLERS" AND HOLD MEDICAL GAS ENDORSEMENTS AS UNDER ASSE 6010.

13. THE CONTRACTOR SHALL FURNISH DOCUMENTATION ATTESTING THAT ALL INSTALLED PIPING MATERIALS WERE PURCHASED CLEANED AND COMPLIED WITH THE REQUIREMENTS OF NFPA 99 5.1.10.1 AND 5.1.10.2.

14. THE CONTRACTOR SHALL FURNISH COPIES OF ASSE 6010 QUALIFICATIONS FOR ALL WORKERS INSTALLING MEDICAL GAS PIPING.

15. ALL MEDICAL GAS PIPELINE COMPONENTS SHALL BE WARRANTED BY THE MGEM OF RECORD FOR A MINIMUM OF TWELVE MONTHS FROM START-UP.

16. VERIFICATION: MEDICAL GAS CONTRACTOR SHALL DELIVER TO THE OWNER A COMPLETE SYSTEM CERTIFICATION WITHOUT QUALIFICATIONS.

17. ALL OXYGEN PIPING SHALL BE SEAMLESS ASTM B-819, TYPE K OR L HARD DRAWN SEAMLESS MEDICAL GAS COPPER TUBING, IDENTIFIED BY THE MARKINGS "OXY" "MED" "OXY/MED" "OXY/ACR" , OR "ACR/MED" IN GREEN (TYPE K) OR BLUE (TYPE L).

18. FITTINGS FOR OXYGEN PIPING SHALL BE WROUGHT COPPER, BRASS OR BRONZE DESIGNED EXPRESSLY FOR BRAZED CONNECTION, COMPLIANT WITH ANSI B16.22.

19. PIPE (TUBE), FITTINGS, VALVES, AND OTHER COMPONENTS SHALL BE SPECIALLY CLEANED FOR OXYGEN SERVICE IN A FACILITY EQUIPPED TO CLEAN, RINSE, AND PURGE THE MATERIAL IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 99, 5.1.10.1.1, AND RECEIVED ON JOB SITE CLEANED AND CAPPED. ON SITE CLEANING OF THE INTERIOR SURFACES OF TUBES, VALVES, FITTINGS, AND OTHER COMPONENTS IS NOT ALLOWED.

20. BRAZING ALLOY SHALL BE BCUP-5 BRAZING ALLOY OR EQUIVALENT ALLOY WITH AT LEAST 1000- DEGREE F MELTING POINT.

21. VACUUM PIPING SHALL BE: TYPE 'L', 'M', OR ASTM B-280 ACR COPPER.

22. VACUUM PIPING SHALL BE: BRAZED WITH BCUP-5 BRAZING ALLOY OR EQUIVALENT ALLOY WITH AT LEAST 1000 DEGREE F MELTING POINT.

23. ISOLATION OF COPPER TUBING FROM DISSIMILAR METAL SHALL BE ACCOMPLISHED EITHER THROUGH USE OF COPPER OR COPPER PLATED HANGERS OR HANGERS WITH PLASTIC ISOLATORS.

24. MEDICAL GAS WALL OUTLET STATIONS SHALL BE MODULAR, QUICK-DISCONNECT RECESSED TYPE, OR DISS SCREW THREAD RECESSED TYPE AS APPROVED BY THE OWNER. THREADED DISS CONNECTOR SHALL BE PER CGA STANDARDS.

25. OUTLETS SHALL BE FIELD ASSEMBLED WITH SEQUENCES AND SERVICES INDICATED. CENTERLINE SPACING OF MULTIPLE OUTLETS SHALL BE 5 INCHES MINIMUM.

26. OUTLET STATIONS SHALL HAVE A NON-METALLIC TRIM PLATE. FURNISH INDEXED ROUGH IN AND GAS SPECIFIC LATCH VALVE WITH NON-INTERCHANGEABLE SAFETY KEYING AND WITH COLOR CODED GAS SERVICE IDENTIFICATION. THE SAFETY KEYING INDEX PINS SHALL BE PERMANENTLY CAPTURED IN THE LATCH ASSEMBLY AND NON-REMOVABLE WITHOUT DESTROYING THE OUTLET. DESIGNS WITH INDEX PINS MOLDED IN PLASTIC ARE NOT ACCEPTABLE.

27. THE LATCH MECHANISMS SHALL BE DESIGNED FOR ONE HANDED, SINGLE THRUST MOUNTING AND ONE- HANDED FINGERTIP RELEASE OF SECONDARY EQUIPMENT.

28. THE COMPLETE OUTLET SHALL BE MADE, CLEANED AND PACKAGED TO NFPA 99 STANDARDS, UL LISTED AND CSA CERTIFIED. MEDICAL GAS OUTLETS SHALL BE CLEANED FOR OXYGEN SERVICE IN ACCORDANCE WITH CGA PAMPHLET G-4.1. THE ROUGH IN AND LATCH ASSEMBLY SHALL BE POLY BAGGED FOR SHIPMENT.

29. THE ROUGH IN ASSEMBLY SHALL BE OF MODULAR DESIGN AND INCLUDE A GAS SPECIFIC 16 GAUGE STEEL MOUNTING PLATE DESIGNED TO PERMIT ON-SITE GANGING OF MULTIPLE OUTLETS, ON 5 INCH CENTER LINE SPACING. A MACHINED BRASS OUTLET BLOCK SHALL BE PERMANENTLY ATTACHED TO THE MOUNTING BRACKET TO PERMIT THE 1/2" OD, TYPE-K COPPER INLET TO SWIVEL 360 DEGREES FOR ATTACHMENT TO THE PIPING SYSTEM. THE ROUGH IN ASSEMBLY SHALL CONTAIN A DOUBLE SEAL TO PREVENT GAS LEAKAGE BETWEEN THE ROUGH IN AND LATCH-VALVE ASSEMBLIES AFTER THE WALL IS FINISHED. THE ROUGH IN SHALL HAVE TWO FEATURES TO PREVENT DEBRIS FROM ENTERING OUTLET, ONE SHALL BE THE DUST COVER AND THE OTHER WILL BE A CAP OVER THE INTER SEAL.

30. THE LATCH-VALVE ASSEMBLY SHALL TELESCOPE UP TO 3/4" TO ALLOW FOR VARIATION IN FINISHED WALL THICKNESS FROM 1/2" TO 3/4".

31. ALL VACUUM OUTLETS SHALL HAVE A PRESSURE PLUG FOR TESTING PURPOSES.

32. ALL MEDICAL GAS VALVES SHALL BE SPECIALLY PREPARED FOR OXYGEN SERVICE AND SHALL CONFORM TO NFPA 99. VALVES SHALL BE BALL-TYPE, WITH TEFLON SEATS AND ADJUSTING STEM PACKING GLAND WITH TEFLON STEM SEAL.

33. BALL VALVES SHALL BE RATED 600 WOG, ACTUATE FROM FULL "ON" TO FULL "OFF" BY 90 DEGREE TURN OF VINYL GRIPPED VALVE HANDLE.

34. FURNISH AND INSTALL ONLY VALVES WITH FACTORY INSTALLED TYPE K COPPER TUBING EXTENSIONS.

35. BALL VALVES SHALL HAVE DUAL PORTS.

36. ALL VALVES SHALL BE CLEANED FOR OXYGEN, CAPPED AND SEALED IN A POLYETHYLENE BAG FOR SHIPPING AND STORAGE.

37. ZONE VALVE BOXES SHALL BE CONSTRUCTED OF 18 GAUGE STEEL WITH WHITE ENAMEL FINISH. THE VALVE BOX SHALL HAVE A PULL OUT, OPAQUE DOOR WITH PULL RING AND CLEAR GAUGE WINDOW. THE REMOVABLE WINDOW CANNOT BE REPLACED WHEN ANY VALVE IS CLOSED. THE FRAME ASSEMBLY SHALL BE CAPABLE OF ADJUSTING FOR VARIANCES IN WALL THICKNESS UP TO 1-3/16". THE WINDOW SHALL CONCEAL PIPING AND MOUNTING SCREWS. WINDOW SHALL BE LABELED "CAUTION - MEDICAL GAS SHUT - OFF VALVES - CLOSE ONLY IN EMERGENCY." PROVIDE CLEAR VIEWING SPACE IN THE WINDOW TO DISPLAY THE GAS SERVICE, THE PRESSURE GAUGES AND THE LABEL FOR AREAS CONTROLLED BY THE VALVE.

38. PROVIDE COLOR CODED SELF-ADHESIVE GAS LABELS FOR COMPLIANCE WITH NFPA 99 LABELING REQUIREMENTS. APPLY LABELS TO EACH VALVE IN THE ASSEMBLY FOR GAS SERVICE IDENTIFICATION ACCORDING TO MANUFACTURES RECOMMENDATIONS.

39. ZONE VALVES SHALL INCLUDE A 1 1/2 INCH PRESSURE GAUGE READING 0 TO 100 PSIG FOR OXYGEN AND 0 TO 30 HG FOR VACUUM. THE GAUGE PORT SHALL BE EQUIPPED WITH REMOVABLE PLUG FOR PRESSURE TESTING BEFORE FINAL ASSEMBLY OF GAUGE.

40. ALL ZONE VALVE BOXES ASSEMBLIES SHALL READ PRESSURE DOWNSTREAM AND VACUUM UPSTREAM OF THE VALVE PER NFPA 99. VALVES SHALL BE PIPED LEFT TO RIGHT WITH RIGHT BEING ON PATIENT SIDE.

41. ALL MAIN LINE, RISER, SERVICE, AND FUTURE VALVES AS NOTED ON THE DRAWINGS SHALL INCLUDE PLUGGED 1/8 NPTF PORTS ON INLET AND OUTLET.

42. ZONE VALVE BOXES WITH SENSOR FOR REMOTE ALARM SHALL BE CONSTRUCTED OF 18 GAUGE STEEL WITH WHITE ENAMEL FINISH. THE VALVE BOX SHALL HAVE A PULL OUT, OPAQUE DOOR WITH PULL RING AND CLEAR GAUGE WINDOW. THE REMOVABLE WINDOW CANNOT BE REPLACED WHEN ANY VALVE IS CLOSED. THE FRAME ASSEMBLY SHALL BE CAPABLE OF ADJUSTING FOR VARIANCES IN WALL THICKNESS UP TO 1-3/16". THE WINDOW SHALL CONCEAL PIPING AND MOUNTING SCREWS. WINDOW SHALL BE LABELED "CAUTION - MEDICAL GAS SHUT - OFF VALVES - CLOSE ONLY IN EMERGENCY." PROVIDE CLEAR VIEWING SPACE IN THE WINDOW TO DISPLAY THE GAS SERVICE, THE PRESSURE GAUGES AND THE LABEL FOR AREAS CONTROLLED BY THE VALVE.

43. PROVIDE COLOR CODED SELF-ADHESIVE GAS LABELS FOR COMPLIANCE WITH NFPA 99 LABELING REQUIREMENTS. APPLY LABELS TO EACH VALVE IN THE ASSEMBLY FOR GAS SERVICE IDENTIFICATION ACCORDING TO MANUFACTURES RECOMMENDATIONS.

44. ZONE VALVES SHALL INCLUDE A 1-1/2 INCH PRESSURE GAUGE READING 0 TO 100 PSIG FOR OXYGEN, AIR, NITROUS OXIDE; 0 TO 300 PSIG FOR NITROGEN; AND 0 TO 30 HG FOR VACUUM AND WAGD. THE GAUGE PORT SHALL BE EQUIPPED WITH REMOVABLE PLUG FOR PRESSURE TESTING BEFORE FINAL ASSEMBLY OF GAUGE.

45. ALL ZONE VALVE BOXES ASSEMBLIES SHALL READ PRESSURE DOWNSTREAM AND VACUUM UPSTREAM OF THE VALVE PER NFPA 99. VALVES SHALL BE PIPED LEFT TO RIGHT WITH RIGHT BEING ON PATIENT SIDE.

46. EACH VALVE SHALL HAVE A GAS SPECIFIC DISS DEMAND CHECK VALVE FOR INSTALLATION OF A DISS GAS SPECIFIC SENSOR. LOW VOLTAGE WIRING TO REMOTE ALARM BY THIS CONTRACTOR.

47. AREA ALARM WILL NOT REQUIRE SENSORS.

48. ALL MEDICAL GAS ALARM PANELS SHALL BE UL LISTED AS AN ASSEMBLY AND SHALL INCLUDE FACTORY WIRING, TRANSFORMERS, AND CIRCUITRY REQUIRING ONLY 115 OR 230 VOLT PRIMARY POWER.

49. ALARM PANELS SHALL MEET THE FCC PART 15, SUBPART B AND ICES-003 TO REDUCE POSSIBILITY OF MAGNETIC RADIATION INTERFERENCE WITH OTHER EQUIPMENT.

50. THE ALARM SHALL ARRIVE ON THE JOB SITE PRE-CONFIGURED AS SHOWN ON THE DRAWINGS AND SCHEDULES OR SHALL BE CONFIGURED BY MGEM PERSONNEL AT NO ADDITIONAL CHARGE.

51. ALARM SHALL SUPERVISE ITS WIRING TO SENSORS AND SWITCHES, INDICATING AT THE RELEVANT PANEL(S) IF ANY WIRE IS CUT, DISCONNECTED OR OPEN.

52. EACH SIGNAL SHALL INCLUDE AN INDICATOR LIGHT TO SIGNIFY THE CONDITION MONITORED. ACTIVATION OF ANY SWITCH WILL LIGHT ITS LED OR LCD "TAG NAME" AND ACTUATE THE AUDIBLE ALARM.

53. EACH PANEL SHALL INCLUDE A POWER ON INDICATOR AND TEST FUNCTION FOR TESTING ALL MODULES ELECTRICALLY.

54. ALARMS SHALL INCLUDE FEATURES PERMITTING FIELD ADJUSTMENT OF ALARM VOLUME AND DISPLAY INTENSITY.

55. TERMINATION OF ALARM WIRING TO BE DONE BY OR UNDER SUPERVISION OF MANUFACTURER OF ALARM.

56. PROVIDE MASTER ALARM PANELS AT THE NURSES STATION AND SURGERY CORRIDOR AND/OR WHERE INDICATED ON THE DRAWINGS.

57. WIRE THE MASTER ALARM PANEL'S ALARMS DIRECTLY TO THE INDIVIDUAL SENSORS/SWITCHES, FURNISHING DUPLICATE SENSORS/SWITCHES AS REQUIRED FOR COMPLIANCE WITH NFPA 99 5.1.9.2.4. LOW VOLTAGE SHIELDED WIRE SHALL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR.

58. ALARMS SHALL BE TESTED, LABELED AND FULLY OPERATIONAL FOR OWNER. WHERE ALARM CONFIGURATION IN SOFTWARE IS NECESSARY, IT SHALL BE PROVIDED BY MGEM REPRESENTATIVE AT NO ADDITIONAL CHARGE.

59. PROVIDE ALARM POINTS AS INDICATED IN NFPA 99 TABLE A.5.1.9.2. AND/OR AS DETAILED ON DRAWINGS.

60. ALARM SHALL HAVE A REPEAT ALARM FUNCTION.

61. ALARM SHALL HAVE CAPABILITY OF COMBINATION MASTER/AREA

62. ALARM MANUFACTURING SHALL PROVIDE A WIRING DIAGRAM WITH SUBMITTALS.

63. EACH AREA ALARM SHALL INCLUDE A ROUGH IN INCLUDING POWER SUPPLY, A SENSOR FOR EACH SPECIFIC GAS, AND ONE DIGITAL DISPLAY FOR EACH SPECIFIC GAS.

64. THE POWER SUPPLY FOR AREA ALARMS SHALL BE OF THE UNIVERSAL SWITCHING TYPE (100-250VAC, 50/60/440HZ,120-300VDC). POWER SUPPLY SHALL BE FUSED TO PROTECT THE SYSTEM FROM VOLTAGE AND AMPERAGE SURGES. ALARM SHALL CLEARLY INDICATE WHEN POWER IS ON.

65. THE AREA ALARM SHALL PROVIDE AN AUDIBLE AND VISUAL SIGNAL WHEN AN ADVISORY OR A FAULT SIGNAL IS RECEIVED. SIGNAL LIMITS SHALL BE FACTORY SET, WITH THE ABILITY TO BE FIELD ADJUSTED WITHOUT THE USE OF TOOLS.

66. EACH PANEL SHALL PROVIDE CONTINUOUS DIGITAL DISPLAY OF THE VACUUM OR PRESSURE, HIGH PRESSURE LED INDICATOR, LOW PRESSURE (OR VACUUM) LED INDICATOR AND A NORMAL LED INDICATOR.

67. THE SENSOR SHALL CONTAIN A TRANSDUCER TO DRIVE THE DIGITAL MODULE. SENSORS SHALL BE GAS SPECIFIC, PROVIDED WITH INTEGRAL DEMAND CHECKS AND CAPABLE OF MOUNTING DIRECTLY IN THE GAS PIPELINE SYSTEM ABOVE THE CEILING. CONNECTORS SHALL BE PROVIDED FOR ATTACHING FIELD WIRING.

68. COORDINATE THE POWER WIRING WITH THE ELECTRICAL CONTRACTOR. LOW VOLTAGE SHIELDED SIGNAL WIRING WILL BE PROVIDED AND INSTALLED BY THIS CONTRACTOR.

69. TERMINATION OF SIGNAL WIRING AT ALARM LOCATION WILL BE DONE BY OR UNDER SUPERVISION OF MANUFACTURER OF ALARM.

70. PIPING INSTALLATION

    A. ALL INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH NFPA 99 5.1.10. BRAZING PROCEDURES SHALL BE AS DETAILED IN NFPA 99 5.1.10.5. BRAZING SHALL BE PERFORMED ONLY BY BRAZIERS QUALIFIED UNDER NFPA 99 5.1.10.10.11.

    B. WHERE PIPING RUNS UNDERGROUND, INSTALL IN ACCORDANCE WITH NFPA 99 5.1.10.10.5.

    C. COPPER, TUBING, VALVES AND FITTINGS SHALL BE PRE CLEANED AND PREPARED FOR OXYGEN SERVICE BY THE MANUFACTURER AND RECEIVED SEALED ON THE JOB. CERTIFICATES OF ORIGIN AND OF PROPER PREPARATION SHALL BE MAINTAINED ON THE JOB SITE ATTESTING THE ABOVE.

    D. THE USE OF FLUX IS PROHIBITED WHEN MAKING OF JOINTS BETWEEN COPPER TO COPPER PIPES AND FITTINGS.

    E. DURING ANY BRAZING OPERATION, THE INTERIOR OF THE PIPE SHALL BE PURGED CONTINUOUSLY WITH OIL FREE, DRY NITROGEN NF, FOLLOWING THE PROCEDURE IN NFPA 99 5.1.10.5.5. AT THE COMPLETION OF ANY SECTION, ALL OPEN PIPE ENDS SHALL BE CAPPED USING AN EXTERNAL CAP.

    F. THREADED JOINTS IN PIPING SYSTEMS SHALL BE AVOIDED WHENEVER POSSIBLE. WHERE UNAVOIDABLE, MAKE UP THE MALE THREADS WITH POLYTETRAFLUOROFETHYLENE (SUCH AS TEFLON) TAPE OR OTHER THREAD SEALANT RECOMMENDED FOR OXYGEN SERVICE, WITH THE SEALANT APPLIED TO THE MALE THREADS ONLY.

    G. PIPING SHALL BE SUPPORTED WITH PIPE TRAYS OR HANGERS AT INTERVALS AS SHOWN ON THE DRAWINGS OR AS DEFINED IN NFPA 99 TABLE 5.1.10.10.4.5. PIPING SHALL NOT BE SUPPORTED BY OTHER PIPING. ISOLATION OF COPPER PIPING FROM DISSIMILAR METALS SHALL BE OF A FIRM, POSITIVE NATURE. DUCT TAPE IS NOT ACCEPTABLE AS AN ISOLATION MATERIAL.

    H. AFTER INSTALLATION OF THE PIPING, BUT BEFORE INSTALLATION OF THE OUTLET VALVES, BLOW LINES CLEAR USING NITROGEN NF.

    I. PIPING EXPOSED TO PHYSICAL DAMAGE SHALL BE PROTECTED.

    J. LABEL PIPING WITH NAME OF GAS SERVICE, IDENTIFICATION COLOR AND DIRECTION OF FLOW. WHERE NON-STANDARD PRESSURES ARE PIPED, LABEL FOR PRESSURE. LABELS SHALL BE PLACED AT LEAST ONCE EVERY 20 FEET OF LINEAR RUN OR ONCE IN EACH STORY (WHICHEVER IS MORE FREQUENT). A LABEL SHALL ADDITIONALLY BE PLACED IMMEDIATELY ON EACH SIDE OF EACH WALL OR FLOOR PENETRATION. PIPE LABELS SHALL BE SELF ADHESIVE VINYL OR OTHER WATER RESISTANT MATERIAL WITH PERMANENT ADHESIVE COLORED IN ACCORDANCE WITH NFPA 99 TABLE 5.1.11 AND SHALL BE VISIBLE ON ALL SIDES OF THE PIPE. PIPE LABELS SHALL BE PATTON' MEDICAL #25-04-0XX SERIES OF PIPING LABELS.

    K. ALARMS AND VALVES SHALL BE LABELED FOR GAS SERVICE AND AREAS MONITORED OR CONTROLLED. COORDINATE WITH OWNER FOR FINAL ROOM OR AREA DESIGNATIONS. LABEL VALVES WITH NAME AND IDENTIFICATION COLOR OF THE GAS AND DIRECTION OF FLOW.

    L. PIPING PENETRATING AN ELECTROMAGNETIC SHIELD SHALL HAVE AN ISOLATION DEVICE ON EACH SIDE OF SHIELD.

71. LABELING - LABEL THE MEDICAL GAS PIPELINES PER NFPA 99 5.1.11 AND AS FOLLOWS:

    A. LABEL EACH MASTER ALARM SIGNAL FOR FUNCTION AFTER RING OUT.

    B. LABEL EACH ZONE VALVE AND AREA ALARM FOR THE AREA OF CONTROL OR SURVEILLANCE AFTER TEST.

    C. LABELS SHALL BE PERMANENT AND OF A TYPE APPROVED BY THE OWNER.

72. INSTALLER TESTING - PRIOR TO DECLARING THE LINES READY FOR FINAL VERIFICATION, THE INSTALLING CONTRACTOR SHALL FOLLOW STRICTLY THE PROCEDURES FOR VERIFICATION AS DESCRIBED IN NFPA 99 5.1.12.2 AND ATTEST IN WRITING OVER THE NOTARIZED SIGNATURE OF AN OFFICER OF THE INSTALLING COMPANY THE FOLLOWING:

    A. THAT ALL BRAZING WAS CONDUCTED BY BRAZERS QUALIFIED TO ASSE 6010 AND HOLDING CURRENT MEDICAL GAS ENDORSEMENTS.

    B. THAT ALL BRAZING WAS CONDUCTED WITH NITROGEN PURGING. (PROCEDURE PER NFPA 99 5.1.10.5.5).

    C. THAT THE LINES HAVE BEEN BLOWN CLEAR OF ANY CONSTRUCTION DEBRIS USING OIL FREE DRY NITROGEN OR AIR AND ARE CLEAN AND READY FOR USE. (PROCEDURE PER NFPA 99 5.1.12.2.2).

    D. THAT THE ASSEMBLED PIPING, PRIOR TO THE INSTALLATION OF ANY DEVICES, MAINTAINED A TEST PRESSURE 1-1/2 TIMES THE STANDARD PRESSURES LISTED IN NFPA 99 TABLE 5.1.11 WITHOUT LEAKS. (PROCEDURE PER NFPA 99 5.1.12.2.3).

    E. THAT AFTER INSTALLATION OF ALL DEVICES, THE PIPELINE WAS PROVEN LEAK FREE FOR A PERIOD OF 24 HOURS AT A PRESSURE 20% ABOVE THE STANDARD PRESSURES LISTED IN NFPA 99 TABLE 5.1.11. (PROCEDURE PER NFPA 995.1.12.2.2.6)

    F. THAT THE SYSTEMS HAVE BEEN CHECKED FOR CROSS CONNECTIONS AND NONE WERE FOUND. (PROCEDURE PER (NFPA 99 5.1.12.2.4)

    G. THAT THE MANUFACTURER HAS STARTED UP ALL MEDICAL VACUUM PUMPS, WAGD PRODUCERS, LIQUID OXYGEN SYSTEM(S) AND MANIFOLDS, AND THAT THEY ARE IN OPERATING ORDER.

    H. PROVIDE FOUR ORIGINALS OF THE AFFIDAVIT, DISTRIBUTED: (1) TO THE ENGINEER, (1) TO THE OWNERS REPRESENTATIVE, (1) TO THE GENERAL CONTRACTOR AND (1) TO THE VERIFIER.

73. VERIFIER TESTING - PRIOR TO HANDING OVER THE SYSTEMS TO THE OWNER, CONTRACTOR SHALL RETAIN A VERIFIER ACCEPTABLE TO THE ENGINEER AND OWNER WHO SHALL FOLLOW STRICTLY THE PROCEDURES FOR VERIFICATION AS DESCRIBED IN NFPA 995.1.12.3 AND PROVIDE A WRITTEN REPORT AND CERTIFICATE BEARING THE NOTARIZED SIGNATURE OF AN OFFICER OF THE VERIFICATION COMPANY WHICH CONTAINS AT LEAST THE FOLLOWING:

    A. A CURRENT ACCORD INSURANCE CERTIFICATE INDICATING PROFESSIONAL LIABILITY COVERAGE IN THE MINIMUM AMOUNT OF $2 MILLION PER OCCURRENCE, AND GENERAL AGGREGATE LIABILITY IN THE MINIMUM AMOUNT OF $2 MILLION, VALID AND IN FORCE WHEN THE PROJECT IS TO BE VERIFIED. GENERAL LIABILITY INSURANCE IS NOT ALONE ACCEPTABLE.

    B. AN AFFIDAVIT BEARING THE NOTARIZED SIGNATURE OF AN OFFICER OF THE VERIFICATION COMPANY STATING THAT THE VERIFICATION COMPANY IS NOT THE SUPPLIER OF ANY EQUIPMENT USED ON THIS PROJECT OR TESTED IN THIS REPORT AND THAT THE VERIFICATION CONTRACTOR HAS NO RELATIONSHIP TO, OR PECUNIARY INTEREST IN, THE MANUFACTURER, SELLER, OR INSTALLER OF ANY EQUIPMENT USED ON THIS PROJECT OR TESTED IN THIS REPORT

    C. A LISTING OF ALL TESTS PERFORMED, LISTING EACH SOURCE, OUTLET, VALVE AND ALARM INCLUDED IN THE TESTING.

    D. AN ASSERTION THAT ALL TESTS WERE PERFORMED BY A MGPHO CERTIFIED MEDICAL GAS VERIFIER (CMGV) OR BY INDIVIDUALS QUALIFIED TO PERFORM THE WORK AND HOLDING VALID QUALIFICATIONS TO ASSE 6030 AND UNDER THE IMMEDIATE SUPERVISION A CMGV VERIFIER. INCLUDE THE NAMES, CREDENTIAL NUMBERS AND EXPIRATION DATES FOR ALL INDIVIDUALS WORKING ON THE PROJECT.

    E. A STATEMENT THAT EQUIPMENT USED WAS CALIBRATED AT LEAST WITHIN THE LAST SIX MONTHS BY A METHOD TRACEABLE TO A NATIONAL BUREAU OF STANDARD REFERENCE AND ENCLOSING CERTIFICATES OR OTHER EVIDENCE OF SUCH CALIBRATION(S). WHERE OUTSIDE LABORATORIES ARE USED IN LIEU OF ONSITE EQUIPMENT, THOSE LABORATORIES SHALL BE NAMED AND THEIR ORIGINAL REPORTS ENCLOSED.

    F. A STATEMENT THAT WHERE AND WHEN NEEDED, EQUIPMENT WAS RE-CALIBRATED DURING THE VERIFICATION PROCESS AND DESCRIBING THE METHOD(S) USED.

    G. A STATEMENT THAT THE SYSTEMS WERE TESTED AND FOUND TO BE FREE OF DEBRIS TO A PROCEDURE PER NFPA 99 5.1.12.3.7.

    H. THE FLOW FROM EACH OUTLET WHEN TESTED TO A PROCEDURE PER NFPA 99-5.1.12.3.10.

    I. A STATEMENT THAT THE SYSTEMS WERE TESTED AND FOUND TO HAVE NO CROSS-CONNECTIONS TO A PROCEDURE PER NFPA 99 5.1.12.3.3.

    J. A STATEMENT THAT THE SYSTEMS WERE TESTED AND FOUND TO BE FREE OF CONTAMINANTS TO A PROCEDURE PER NFPA 99 5.1.12.3.8 EXCEPT THAT THE PURITY STANDARD SHALL BE 2 PPM DIFFERENCE FOR HALOGENATED HYDROCARBONS AND 1 PPM TOTAL HYDROCARBONS (AS METHANE).

    K. A STATEMENT THAT ALL LOCAL SIGNALS FUNCTION AS REQUIRED UNDER NFPA 99 5.1.3.4.7 AND AS PER THE RELEVANT NFPA 99 SECTIONS RELATING TO THE SOURCES.

    L. A LISTING OF LOCAL ALARMS, THEIR FUNCTION AND ACTIVATION PER NFPA 99 5.1.12.3.14.13.

    M. A LISTING OF MASTER ALARMS, THEIR FUNCTION AND ACTIVATION, INCLUDING PRESSURES FOR HIGH AND LOW ALARMS PER NFPA 99 5.1.12.3.5.2.

    N. A LISTING OF AREA ALARMS, THEIR FUNCTION AND ACTIVATION PRESSURES PER NFPA 99 5.1.12.3.5.3.

    O. A STATEMENT THAT THE SOURCES INCLUDE ALL ALARMS REQUIRED BY NFPA 99 TABLE A.5.1.9.5.

    P. THE CONCENTRATION OF EACH GAS AT EACH OUTLET AS SPECIFIED IN NFPA 99 5.1.12.3.11.

    Q. A STATEMENT THAT ALL VALVES AND ALARMS ARE ACCURATELY LABELED AS TO ZONE OF CONTROL.

DEV INC

Dev Anand
President & CEO

Kevin Campbell
Senior Architect

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A NEW BUILDING FOR:

ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEE'S SUMMIT, MISSOURI

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-2000150421
REGISTERED PROFESSIONAL ENGINEER

12/01/2025

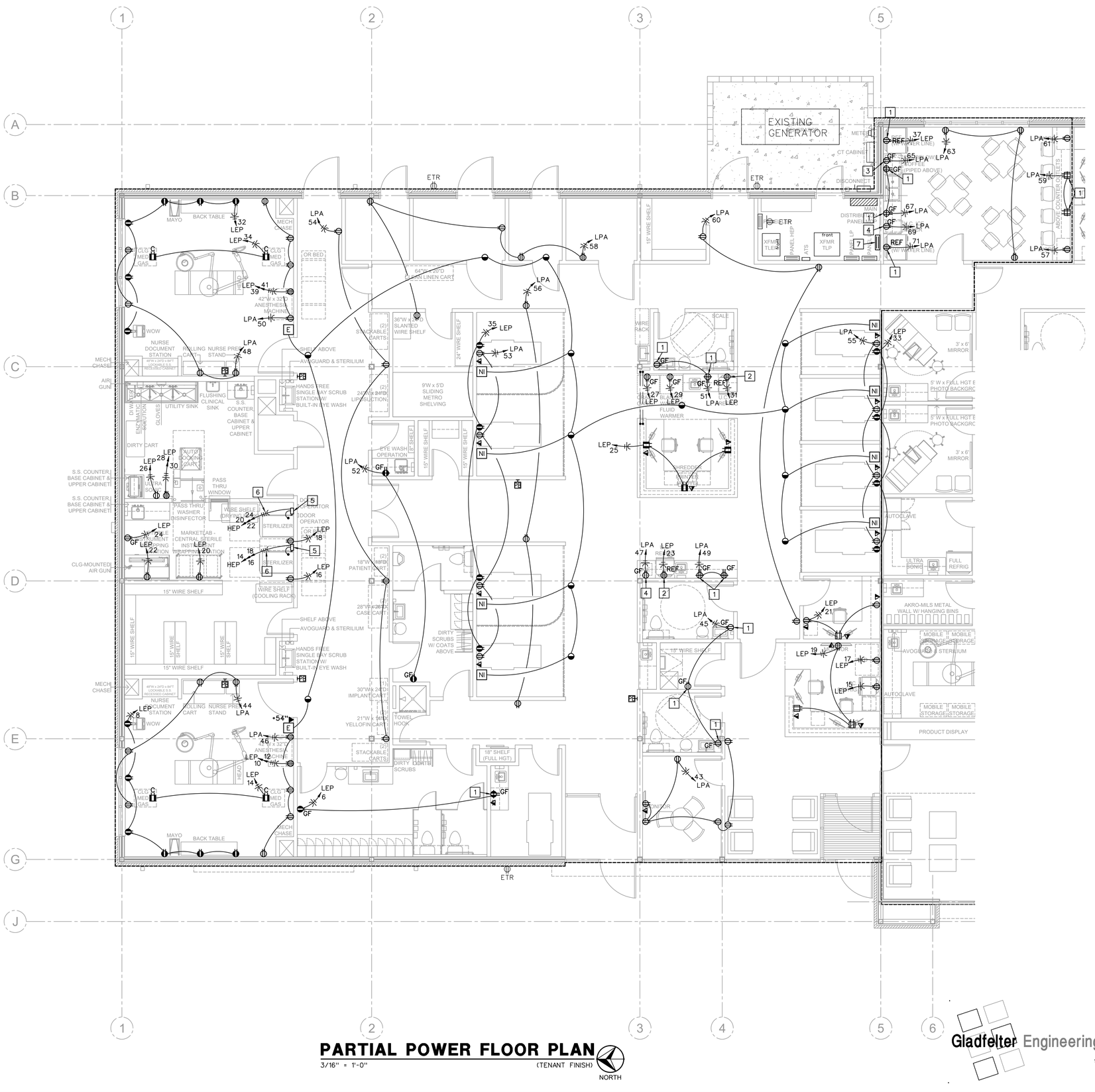
PROJECT NO: 231206

DRAWING ISSUANCE

12/01/2025 PERMIT

SHEET NUMBER

MP403TI




## POWER FLOOR PLAN NOTES

1. INSTALL OUTLET BOX FOR WIRING DEVICE AT 42" AFF.
2. RECEPTACLE INSTALLED BELOW COUNTERTOP FOR UC REFRIGERATOR. INSTALL RECEPTACLE IN AN ACCESSIBLE MANNER.
3. RECEPTACLE INSTALLED BELOW COUNTERTOP FOR DISHWASHER. INSTALL RECEPTACLE IN AN ACCESSIBLE MANNER.
4. RECEPTACLE INSTALLED BELOW COUNTERTOP FOR ICE MACHINE. INSTALL RECEPTACLE IN AN ACCESSIBLE MANNER.
5. 60A/3P, NON-FUSED, NEMA 1 DISCONNECT SWITCH INSTALLED ON WALL FOR DISCONNECING MEANS. VERIFY EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.
6. 1" CONDUIT WITH 3-#8 (CU) AND 1-#10 (CU) EQUIPMENT GROUNDING CONDUCTOR.
7. INSTALL NEW PANEL SECTION 3 TO EXISTING 2-SECTION PANEL 'LP'.

## ELECTRICAL GENERAL NOTES

A) SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.

B) COORDINATE NEMA RATING OF APPLIANCE PLUGS WITH THE EQUIPMENT SPECIFICATIONS.

C) ALL RECEPTACLES WITHIN 6' OF WATER BEARING FIXTURES, EXTERIOR OUTLETS AND ALL OUTLETS IN KITCHEN AREAS SHALL BE GFI STYLE OR THE CIRCUIT SERVING THOSE DEVICES SHALL BE PROTECTED BY MEANS OF A GFI CIRCUIT BREAKER.

D) OUTLET AND SWITCH BOXES INSTALLED IN RATED WALLS SHALL BE PROVIDED WITH UL LISTED PUTTY PADS TO PROTECT THE RATING OF THE WALL.

E) CONNECT ALL NIGHT LIGHT, EXIT LIGHT AND EMERGENCY LIGHT FIXTURES TO UNSWITCHED HOT-LEG OF NEAREST 120V LIGHTING CIRCUIT IN SAME AREA.

F) CONDUIT INSTALLED IN AREAS OF BUILDINGS OR PORTIONS OF BUILDINGS WHERE MEDICAL CARE IS PROVIDED SHALL BE MEDICAL GRADE CONDUIT AND THE INSTALLATION SHALL CONFORM WITH CHAPTER 517 OF THE NEC (HEALTH CARE FACILITIES).

G) THE ELECTRICAL CONTRACTOR SHALL CONSULT WITH OTHER SUB-CONTRACTORS PROVIDING ENERGIZED EQUIPMENT TO ASSURE THAT ASSOCIATED ELECTRICAL EQUIPMENT MATCHES THE CHARACTERISTICS OF THE EQUIPMENT BEING PROVIDED.

## PARTIAL POWER FLOOR PLAN

3/16" = 1'-0" (TENANT FINISH)

NORTH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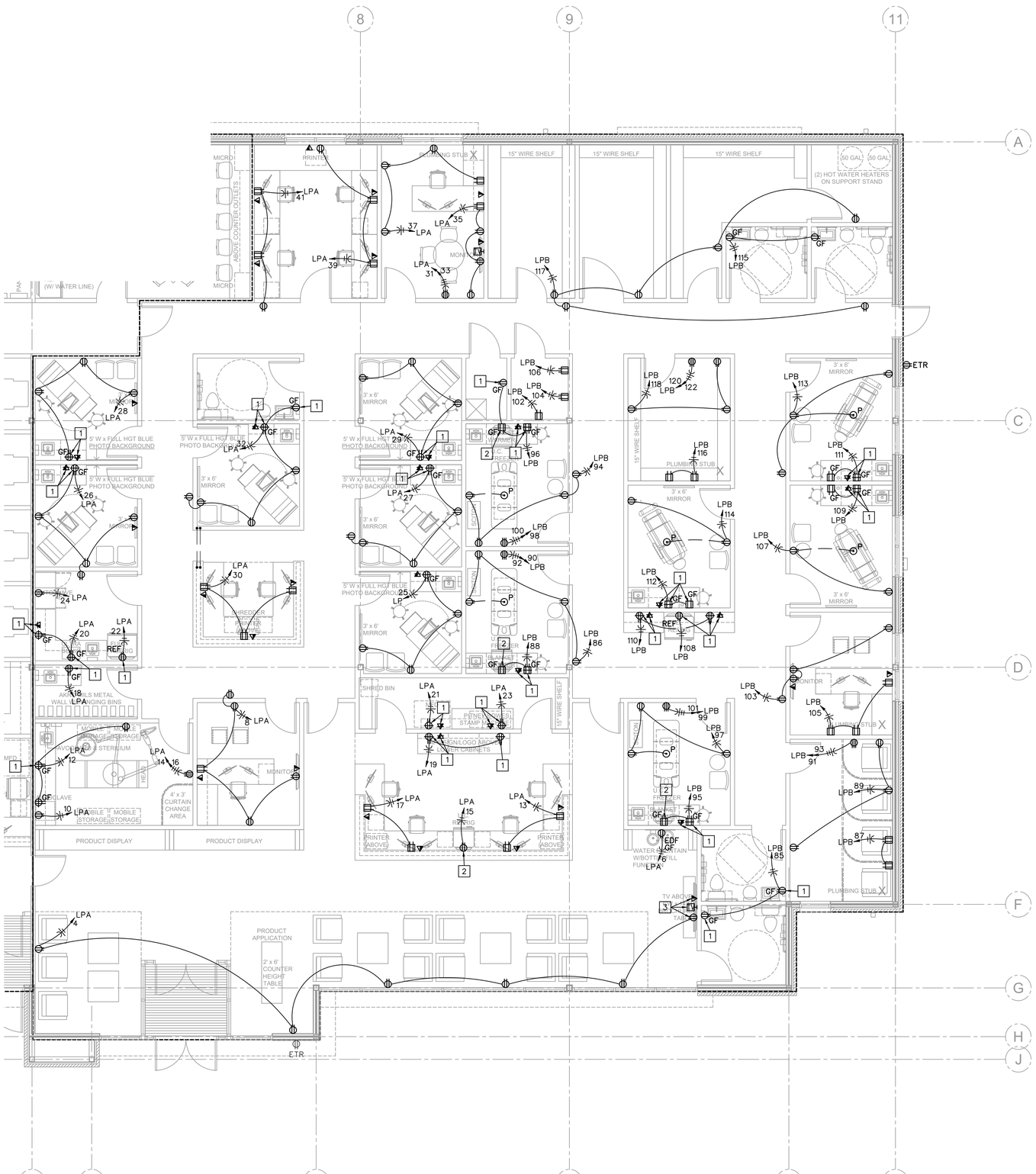


# POWER FLOOR PLAN NOTES

1. INSTALL OUTLET BOX FOR WIRING DEVICE AT 42" AFF.
2. RECEPTACLE INSTALLED BELOW COUNTERTOP.
3. INSTALL OUTLET BOX FOR TELEVISION AT 60" AFF.

## ELECTRICAL GENERAL NOTES

A) SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.

B) COORDINATE NEMA RATING OF APPLIANCE PLUGS WITH THE EQUIPMENT SPECIFICATIONS.

C) ALL RECEPTACLES WITHIN 6' OF WATER BEARING FIXTURES, EXTERIOR OUTLETS AND ALL OUTLETS IN KITCHEN AREAS SHALL BE GFI STYLE OR THE CIRCUIT SERVING THOSE DEVICES SHALL BE PROTECTED BY MEANS OF A GFI CIRCUIT BREAKER.

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## PARTIAL POWER FLOOR PLAN

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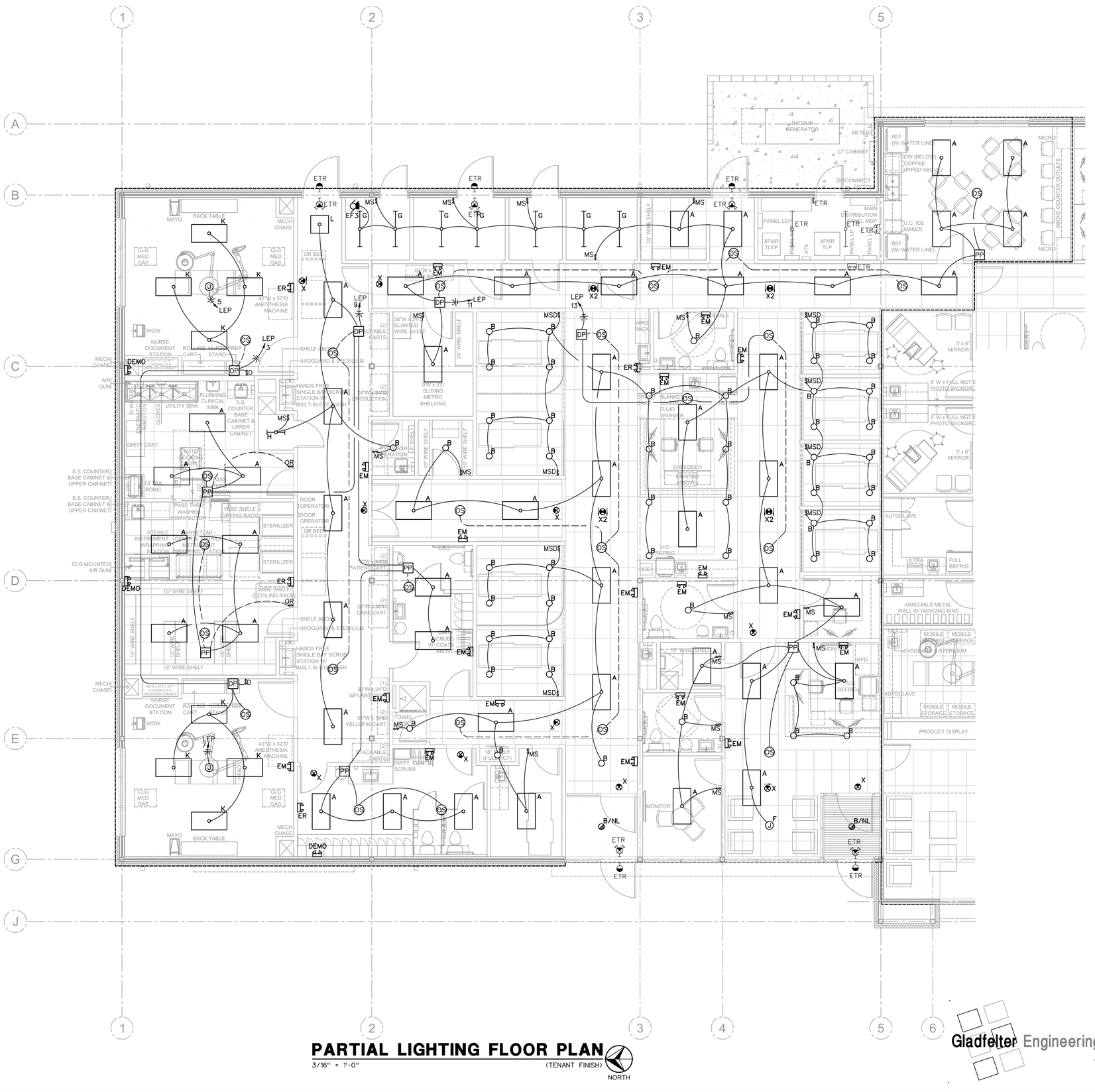


## LIGHTING FLOOR PLAN NOTES #

1. NOTE...

## ELECTRICAL GENERAL NOTES

A) SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.

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## PARTIAL LIGHTING FLOOR PLAN

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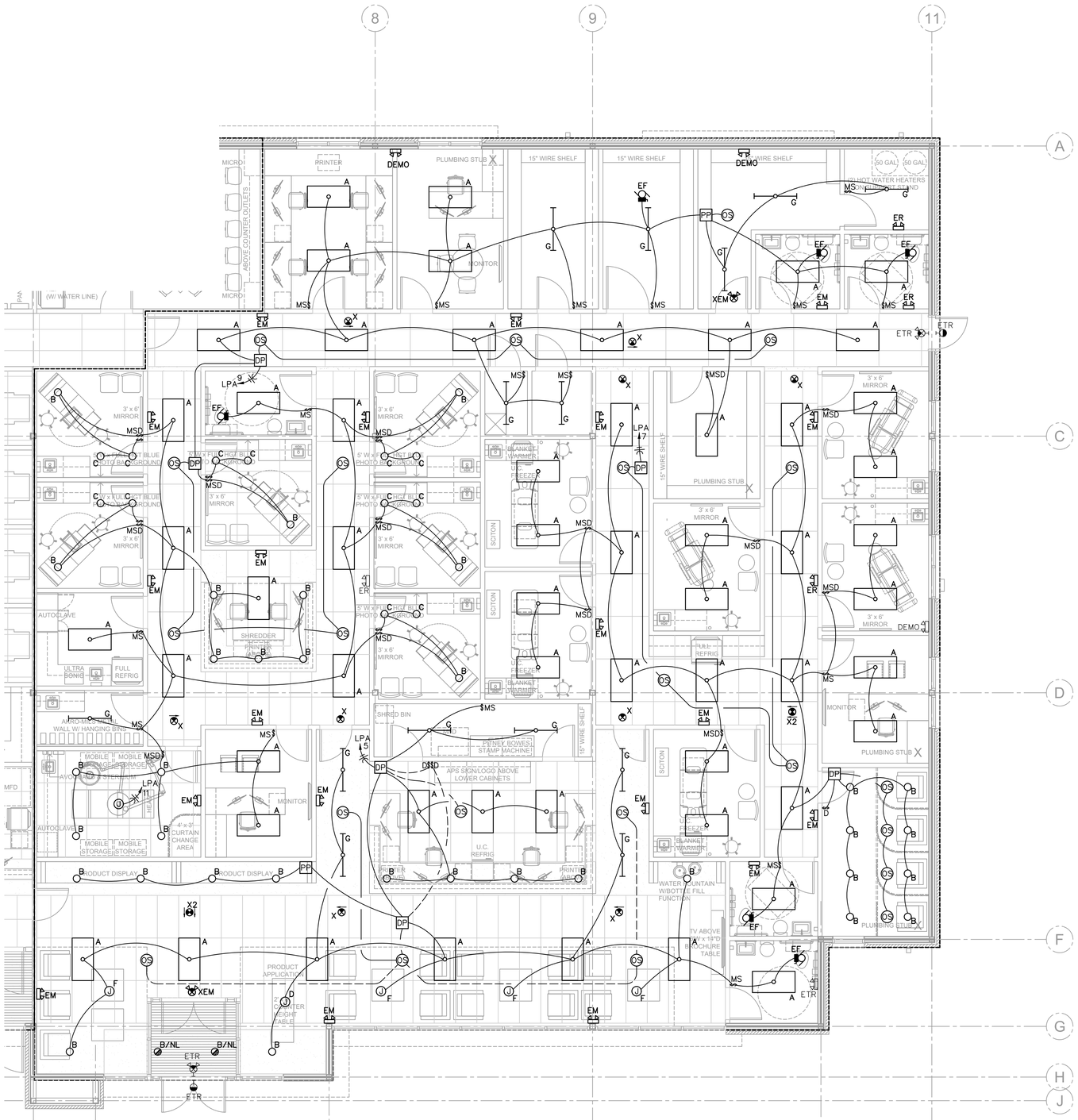


## PARTIAL LIGHTING FLOOR PLAN

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NORTH

## LIGHTING FLOOR PLAN NOTES

1. NOTE...

## ELECTRICAL GENERAL NOTES

A) SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.

B) COORDINATE NEMA RATING OF APPLIANCE PLUGS WITH THE EQUIPMENT SPECIFICATIONS.

C) ALL RECEPTACLES WITHIN 6' OF WATER BEARING FIXTURES, EXTERIOR OUTLETS AND ALL OUTLETS IN KITCHEN AREAS SHALL BE GFI STYLE OR THE CIRCUIT SERVING THOSE DEVICES SHALL BE PROTECTED BY MEANS OF A GFI CIRCUIT BREAKER.

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FLOOR PLAN


## PARTIAL SYSTEMS POWER FLOOR PLAN

3/16" = 1'-0" (TENANT FINISH)

NORTH

## SYSTEMS POWER FLOOR PLAN NOTES

1. 30A/3P, NON-FUSED, NEMA 1 DISCONNECT SWITCH. VERIFY EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT SUPPLIER PRIOR TO INSTALLATION.

## ELECTRICAL GENERAL NOTES

A) SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.

B) COORDINATE NEMA RATING OF APPLIANCE PLUGS WITH THE EQUIPMENT SPECIFICATIONS.

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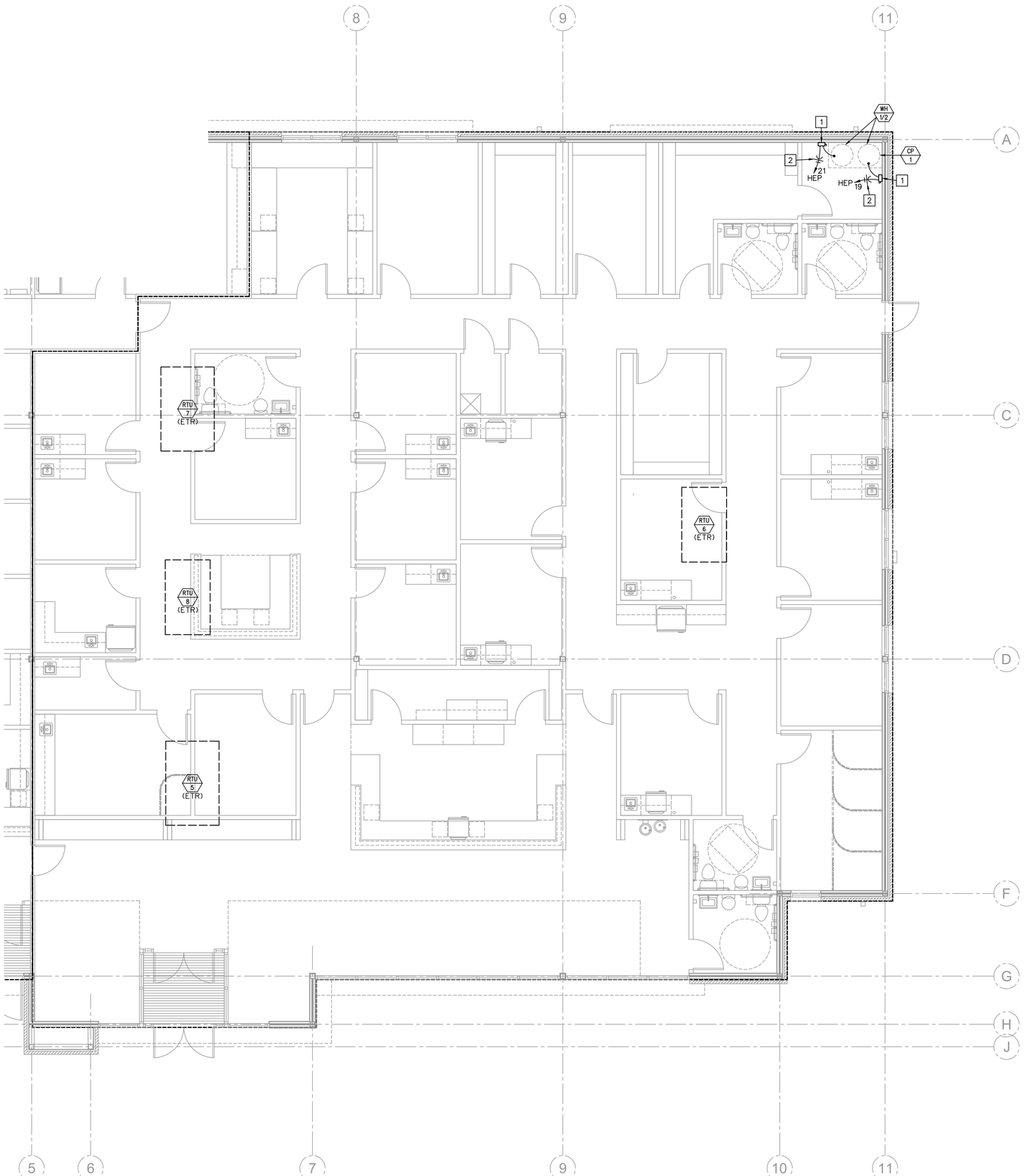


## PARTIAL SYSTEMS POWER FLOOR PLAN

3/16" = 1'-0" (TENANT FINISH)

NORTH

## SYSTEMS POWER FLOOR PLAN NOTES

1. 60A, 2-POLE, 3-WIRE, NON-FUSED NEMA 1 DISCONNECT SWITCH. INSTALL WIRE FOR A 277V, SINGLE PHASE CONFIGURATION AND LABEL AS SUCH.
2. 3/4" CONDUIT WITH 2-#8 (CU) AND 1-#10 (CU) EQUIPMENT GROUNDING CONDUCTOR.

## ELECTRICAL GENERAL NOTES

A) SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LIGHT FIXTURES.

B) COORDINATE NEMA RATING OF APPLIANCE PLUGS WITH THE EQUIPMENT SPECIFICATIONS.

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FLOOR PLAN

# ELECTRICAL SYMBOLS

| | |
|---|---|
| | BRANCH CIRCUIT CONCEALED IN CEILING OR WALL. ARROWS INDICATE HOMERUNS TO PANEL. ALL CONDUCTORS ARE #12 EXCEPT AS NOTED. |
| | CONDUIT RUN UNDERGROUND OR BENEATH FLOOR SLAB. |
| | GROUNDING CONDUCTOR #12 EXCEPT AS NOTED. |
| | WALL MOUNTED JUNCTION BOX. |
| | CEILING MOUNTED JUNCTION BOX. |
| | PANELBOARD (SURFACE MOUNTED). INSTALL W/TOP 6'-0" AFF. |
| | DISTRIBUTION PANEL (SURFACE MOUNTED). |
| | DISCONNECT SWITCH. SIZED AS NOTED. |
| | DISCONNECT SWITCH FURNISHED WITH EQUIPMENT. |
| | COMBINATION EXIT/EMERGENCY LIGHT FIXTURE WITH (2) HEADS |
| | CEILING OR WALL MOUNTED EMERGENCY LIGHTING UNIT WITH (2) HEADS. |
| | LED STRIP FIXTURE. |
| | WALL MOUNTED LIGHT FIXTURE. |
| | REMOTE WEATHERPROOF EMERGENCY LIGHT FIXTURE. |
| $ | SINGLE POLE SWITCH. +3'-10" AFF. |
| $3 | THREE-WAY SWITCH +3'-10" AFF. |
| $MS | OCCUPANCY SENSOR. +3'-10" AFF. |
| | DUPLEX RECEPTACLE. +1'-6" AFF OR AS NOTED. |
| | DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP. |
| WP | DUPLEX RECEPTACLE WITH WEATHERPROOF PLATE. HEIGHT AS NOTED. |
| GF | DUPLEX RECEPTACLE W/GROUND FAULT PROTECTION. +1'-6" AFF OR AS NOTED. |
| | FOURLEX RECEPTACLE. +1'-6" AFF OR AS NOTED. |
| | COMBINATION VOICE/DATA OUTLET WITH 3/4" CONDUIT STUBBED UP OUT OF BOX TO ABOVE ACCESSIBLE CEILING. +1'-6" AFF OR AS NOTED. |
| | COMBINATION VOICE/DATA OUTLET WITH 3/4" CONDUIT STUBBED UP OUT OF BOX TO ABOVE ACCESSIBLE CEILING. INSTALLED ABOVE COUNTERTOP. |
| +3'-10" | HEIGHT TO CENTERLINE OF OUTLET BOX ABOVE FINISHED FLOOR. |
| RTU-1 | ROOF TOP UNIT AND NUMBER. |
| AFF | ABOVE FINISH FLOOR. |
| EC | ELECTRICAL CONTRACTOR. |
| TTB | TELEPHONE TERMINAL BOARD |
| AFC | AVAILABLE FAULT CURRENT |
| EGC | EQUIPMENT GROUNDING CONDUCTOR (EQUIPMENT GROUNDS) |
| GEC | GROUNDING ELECTRODE CONDUCTOR (SERVICE GROUNDS) |
| MBJ | MAIN BONDING JUMPER |

# ELECTRICAL GENERAL NOTES

A) CONTRACTOR SHALL COORDINATE INSTALLATION REQUIREMENTS AND SCHEDULING OF ALL WORK WITH ARCHITECT AND GENERAL CONTRACTOR.

B) INSTALLATION SHALL COMPLY WITH LATEST EDITION OF N.E.C. AND LOCAL AUTHORITY HAVING JURISDICTION.

C) CONTRACTOR SHALL BE LICENSED TO PERFORM WORK IN MUNICIPALITY WHERE PROJECT IS LOCATED.

D) ALL WIRING SHALL BE INSTALLED IN CONDUIT. EMT CONDUIT WITH SET SCREW FITTINGS MAY BE UTILIZED WHERE PERMITTED BY CODE. MINIMUM CONDUIT SIZE SHALL BE 1/2".

E) ALL WIRING SHALL BE COPPER WITH 600 VOLT INSULATION AND COLOR CODED, UNLESS NOTED OTHERWISE.

F) ALUMINUM WIRING SHALL ONLY BE USED FOR FEEDERS FROM TRANSFORMER TO MAIN DISTRIBUTION PANEL. ALUMINUM CONDUCTORS SHALL BE ALCAN STABILOY AA-8000 SERIES, 600 VOLT INSULATION.

G) CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMIT AND INSPECTION FEES.

H) MC CABLE MAY BE INSTALLED WHERE PERMITTED BY CODE. CONDUCTORS SHALL BE MINIMUM #12 GAUGE AND COPPER.

I) INSTALL BLANK COVER PLATE ON ALL PULL BOXES AND JUNCTION BOXES.

J) TYPEWRITTEN PANELBOARD DIRECTORY SHALL BE PROVIDED FOR PANELBOARD AND CORRECTLY FILLED OUT.

K) CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL WORK WITH ALL OTHER TRADES INVOLVED WITH CONSTRUCTION OF PROJECT.

L) ALL WIRING DEVICES SHALL BE RATED 20 AMP, OR AS NOTED ON DRAWINGS. COORDINATE LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.

M) CONTRACTOR SHALL FIELD VERIFY EXACT ROUTING OF ALL CONDUITS TO NEW EQUIPMENT.

N) FURNISH MATERIALS AND LABOR FOR A COMPLETE AND OPERATIONAL ELECTRICAL INSTALLATION.

O) MATERIAL AND EQUIPMENT SHALL BE NEW AND SHALL BEAR THE 'UL' LABELS AS REQUIRED.

P) CONTRACTOR SHALL COORDINATE INSTALLATION OF EQUIPMENT FURNISHED BY OTHERS.

Q) PANELBOARD, TRANSFORMERS, MAIN DISTRIBUTION PANEL AND DISCONNECT SWITCHES SHALL BE MANUFACTURED BY ITE/SIEMENS OR EQUAL.

R) ALL CONCRETE PADS AND POLE BASES ARE PROVIDED AND INSTALLED BY OTHERS.

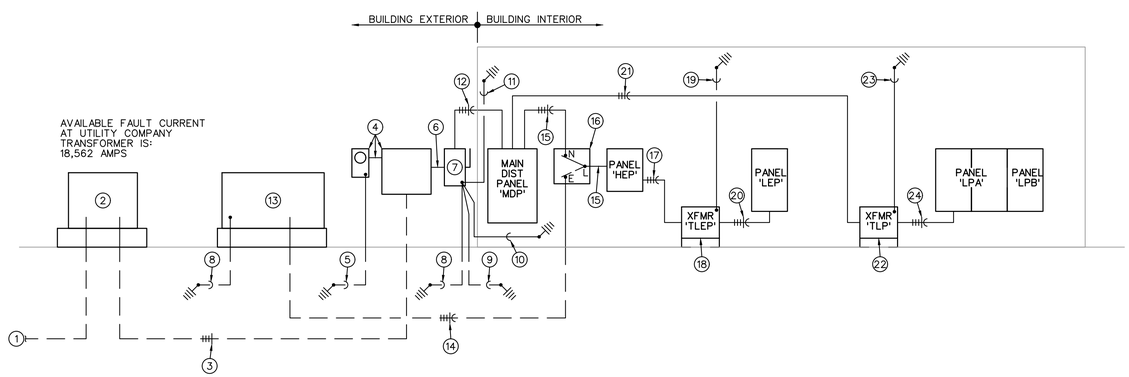
S) PVC (SCHEDULE 40) CONDUIT MAY BE USED FOR CONDUITS INSTALLED BELOW FINISHED GRADE OR CONCRETE FLOOR SLAB. PROVIDE WITH APPROVED FITTINGS.

T) DISCONNECT SWITCHES SHALL BE MANUFACTURED BY ITE/SIEMENS OR EQUAL. NEMA 1 FOR INDOOR INSTALLATION AND NEMA 3R FOR OUTDOOR INSTALLATION.

U) ALL LIGHT FIXTURES AND DEVICES MOUNTED IN CEILING SHALL BE BRACED TO RESIST SEISMIC FORCES IN ACCORDANCE WITH IBC, NEC, AND LOCAL AUTHORITY HAVING JURISDICTION.

V) THERMOSTAT OUTLET BOXES SHALL BE PROVIDED AND INSTALLED WITH 3/4" CONDUIT STUBBED UP OUT TOP OF BOX TO ABOVE ACCESSIBLE CEILING. PROVIDE BUSHING ON END OF CONDUIT.

W) EMERGENCY AND EXIT LIGHT FIXTURES SHALL BE PROVIDED WITH BATTERY BACK-UP FOR MINIMUM OF (90) MINUTES. EMERGENCY AND EXIT LIGHT FIXTURES SHALL BE CONNECTED TO HOT LEG OF CIRCUIT, NOT SWITCHED.




## ELECTRICAL RISER DIAGRAM (EXISTING)

NO SCALE

## ELECTRICAL RISER DIAGRAM NOTES (EXISTING)

1. TWO (2) 4" PVC CONDUITS FOR PRIMARY SERVICE CABLES. TERMINATE AT PROPERTY LINE. INSTALL CONDUITS WITH TOP MINIMUM OF 3'-6" BELOW FINISHED GRADE.
2. UTILITY COMPANY PAD MOUNT TRANSFORMER WITH 480Y/277V PRIMARY. INSTALL CONCRETE PAD PER UTILITY COMPANY STANDARDS.
3. THREE (3) SETS OF 3" PVC CONDUIT WITH 4-#400KCMIL (AL) IN EACH. INSTALL CONDUITS WITH TOP MINIMUM OF 3'-6" BELOW FINISHED GRADE.
4. UTILITY COMPANY CT CABINET, METER CAN/SOCKET AND 1-1/4" CONDUIT FOR METERING CABLES. INSTALL PER UTILITY COMPANY REQUIREMENTS.
5. 3/4" CONDUIT WITH 1-#6 (CU) GROUNDING ELECTRODE CONDUCTOR. CONNECT TO 5/8" ROUND x 10'-0" LONG COPPER CLAD STEEL DRIVEN GROUND ROD.
6. THREE (3) SETS OF 3" CONDUIT WITH 4-#400KCMIL (AL) IN EACH.
7. 800A/3P, FUSED, NEMA 3R DISCONNECT SWITCH WITH (3) 800A FUSES.
8. 3/4" CONDUIT WITH 1-#6 (CU) GROUNDING ELECTRODE CONDUCTOR. CONNECT TO 3/4" ROUND x 12'-0" LONG COPPER CLAD STEEL DRIVEN GROUND ROD.
9. 3/4" CONDUIT WITH 1-#4 (CU) GROUNDING ELECTRODE CONDUCTOR. CONNECT TO 20'-0" LONG COPPER CLAD STEEL CONDUCTOR IN CONCRETE BUILDING FOOTING.
10. 3/4" CONDUIT WITH 1-#2/0 (CU) GROUND WIRE. CONNECT TO COLD WATER SERVICE PIPE, AHEAD OF MAIN SHUT-OFF
11. 3/4" CONDUIT WITH 1-#2/0 (CU) GROUND WIRE. CONNECT TO BUILDING STEEL.
12. THREE (3) SETS OF 3" CONDUIT WITH 4-#400KCMIL (AL) AND 1-#1/0 (CU) EQUIPMENT GROUNDING CONDCUTOR IN EACH.
13. 100KW/125KVA, 277/480V, 3-PHASE, 4-WIRE EMERGENCY GENERATOR WITH 150A/3P OUTPUT CIRCUIT BREAKER. NEMA 3R ENCLOSURE.
14. 2" PVC CONDUIT WITH 4-#1/0 (CU) AND 1-#6 (CU) EQUIPMENT GROUNDING CONDUCTOR IN EACH.
15. 2" CONDUIT WITH 4-#1/0 (CU) AND 1-#6 (CU) EQUIPMENT GROUNDING CONDUCTOR IN EACH.
16. 150A/3P/SN AUTOMATIC TRANSFER SWITCH. NEMA 1 ENCLOSURE.
17. 1-1/4" CONDUIT WITH 3-#3 (CU) AND 1-#8 (CU) EQUIPMENT GROUNDING CONDUCTOR.
18. 75KVA TRANSFORMER WITH 480VOLT DELTA PRIMARY - 208Y/120V, 3-PHASE, 4W SECONDARY. INSTALL ON VIBRATION ISOLATION PAD.
19. 3/4" CONDUIT WITH 1-#2 (CU) GROUNDING ELECTRODE CONDUCTOR. CONNECT TO BUILDING STEEL.
20. 2" CONDUIT WITH 4-#3/0 (CU) AND 1-#6 (CU) EQUIPMENT GROUNDING CONDUCTOR.
21. 2-1/2" CONDUIT WITH 3-#250KCMIL (CU) AND 1-#4 (CU) EQUIPMENT GROUNDING CONDUCTOR.
22. 150KVA TRANSFORMER WITH 480VOLT DELTA PRIMARY - 208Y/120V, 3-PHASE, 4W SECONDARY. INSTALL ON VIBRATION ISOLATION PAD.
23. 3/4" CONDUIT WITH 1-#2 (CU) GROUNDING ELECTRODE CONDUCTOR. CONNECT TO BUILDING STEEL.
24. TWO (2) SETS OF 2" CONDUITS WITH 4-#3/0 (CU) AND 1-#3 (CU) EQUIPMENT GROUNDING CONDUCTOR IN EACH.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A NEW BUILDING FOR:

ASSOCIATED PLASTIC SURGEONS

I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEAWOOD, KANSAS

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-2000150421
REGISTERED PROFESSIONAL ENGINEER

12/01/2025

PROJECT NO. 231206

DRAWING ISSUANCE
12/01/2025 PERMIT

SHEET NUMBER
E3.0T
RISER/NOTES

SCHEDULE OF 'MDP'
22kAIC
(EXISTING)

277/480 VOLTS | 3 PHASE | 4 WIRE | SERVICE ENTRANCE LABEL | 100% NEUTRAL BUS, GROUND BUS | SURFACE MOUNTED, NEMA 1 | 800A MAINS

| CIR. NO. | DESCRIPTION | BREAKER FRAME | BREAKER POLE | BREAKER TRIP | DEMAND AMPS |
|---|---|---|---|---|---|
| M | MAIN CIRCUIT BREAKER | 800 | 3 | 800 | 427.3 |
| 1 | PANEL 'HEP' | 200 | 3 | 200 | 193.7 |
| 2 | XFMR 'TLP' | 250 | 3 | 250 | 114.6 |
| 3 | RTU-4 | 100 | 3 | 15 | 11.0 |
| 4 | RTU-5 | 100 | 3 | 45 | 33.0 |
| 5 | RTU-6 | 100 | 3 | 20 | 16.0 |
| 6 | RTU-7 | 100 | 3 | 45 | 33.0 |
| 7 | RTU-8 | 100 | 3 | 35 | 26.0 |
| 8 | SPARE | 100 | 3 | - | - |

PANEL LPA (EXISTING) | 120/208 VOLTS | 3 PHASE | 4 WIRE | 10kAIC | SECTION 1 OF 3 | ■ 400 A. BUS | ■ 400 A. MAIN BREAKER | ☐ MAIN LUGS ONLY | ☐ SERVICE ENTRANCE | ■ FEED THRU LUGS | ☐ SUBFEED LUGS

| CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA | Ø | CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LTS - EXTERIOR BLDG | 20 | 1 | 358 | A | 2 | WP/GF REC - RTU | 20 | 1 | 900 |
| 3 | SITE LIGHTING | 20 | 1 | 408 | B | 4 | REC - LOBBY | 20 | 1 | 1080 |
| 5 | LIGHTS | 20 | 1 | 1104 | C | 6 | GF REC - EDF | 20 | 1 | 600 |
| 7 | LIGHTS | 20 | 1 | 1199 | A | 8 | REC - OFFICE | 20 | 1 | 1080 |
| 9 | LIGHTS | 20 | 1 | 1900 | B | 10 | AUTOCLAVE | 20 | 1 | 1000 |
| 11 | SCIALYTIC LIGHT | 20 | 1 | 1200 | C | 12 | REC - PROCEDURE | 20 | 1 | 800 |
| 13 | 4-PLEX - CHECK-IN | 20 | 1 | 1500 | A | 14 | 220V RECEPTACLE | 20 | 2 | 1250 |
| 15 | UC REFRIG | 20 | 1 | 600 | B | 16 | | | | 1250 |
| 17 | 4-PLEX - CHECK-IN | 20 | 1 | 1500 | C | 18 | GF RECEPTACLE | 20 | 1 | 500 |
| 19 | REC - COUNTER | 20 | 1 | 800 | A | 20 | GF RECEPTACLES | 20 | 1 | 800 |
| 21 | REC - MFD | 20 | 1 | 1500 | B | 22 | REFRIGERATOR | 20 | 1 | 800 |
| 23 | REC - STAMP | 20 | 1 | 1000 | C | 24 | AUTOCLAVE | 20 | 1 | 1000 |
| 25 | REC - EXAM | 20 | 1 | 720 | A | 26 | REC - EXAM | 20 | 1 | 900 |
| 27 | REC - EXAM | 20 | 1 | 900 | B | 28 | REC - EXAM | 20 | 1 | 720 |
| 29 | REC - EXAM | 20 | 1 | 720 | C | 30 | SPARE | 20 | 1 | - |
| 31 | 220V RECEPTACLE | 20 | 2 | 1250 | A | 32 | SPARE | 20 | 1 | - |
| 33 | | | | 1250 | B | 34 | SPARE | 20 | 1 | - |
| 35 | REC - OFFICE | 20 | 1 | 900 | C | 36 | SPARE | 20 | 1 | - |
| 37 | REC - OFFICE | 20 | 1 | 900 | A | 38 | SPARE | 20 | 1 | - |
| 39 | 4-PLEX - OFFICE | 20 | 1 | 1500 | B | 40 | SPARE | 20 | 1 | - |
| 41 | 4-PLEX - OFFICE | 20 | 1 | 1500 | C | 42 | SPARE | 20 | 1 | - |

TOTAL CONNECTED LOAD 95385 VA | ■ SURFACE MOUNTED | ☐ FLUSH MOUNTED

DEMAND FACTORS:
LIGHTS @ 125 % = 7711 VA
RECEPTS @ 100 % = 10000 VA
RECEPTS @ 50 % = 29358 VA
OTHER @ 100 % = 20500 VA
TOTAL DEMAND LOAD = 67569 VA

NEUTRAL BUS 100 %
POWER FACTOR 100 %
DEMAND CURRENT 187.7 AMPS

PANEL LPA (EXISTING) | 120/208 VOLTS | 3 PHASE | 4 WIRE | SECTION 2 OF 3 | ■ 400 A. BUS | ☐ - A. MAIN BREAKER | ■ MAIN LUGS ONLY | ☐ SERVICE ENTRANCE | ☐ FEED THRU LUGS | ☐ SUBFEED LUGS

| CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA | Ø | CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA |
|---|---|---|---|---|---|---|---|---|---|---|
| 43 | REC - MEETING | 20 | 1 | 900 | A | 44 | REC - OR | 20 | 1 | 1000 |
| 45 | GF RECEPTALCES | 20 | 1 | 540 | B | 46 | REC - OR | 20 | 1 | 1000 |
| 47 | GF REC - ICE | 20 | 1 | 800 | C | 48 | REC - OR | 20 | 1 | 1000 |
| 49 | GF RECEPTACLES | 20 | 1 | 1000 | A | 50 | REC - OR | 20 | 1 | 1000 |
| 51 | GF RECEPTACLES | 20 | 1 | 500 | B | 52 | GF RECEPTS | 20 | 1 | 360 |
| 53 | REC - BEDS | 20 | 1 | 720 | C | 54 | REC - HALL | 20 | 1 | 720 |
| 55 | REC - BEDS | 20 | 1 | 720 | A | 56 | REC - HALL | 20 | 1 | 540 |
| 57 | REC - MICROWAVE | 20 | 1 | 1500 | B | 58 | RECEPTACLES | 20 | 1 | 900 |
| 59 | 4-PLEX RECEPTS | 20 | 1 | 1000 | C | 60 | REC - HALLWAY | 20 | 1 | 540 |
| 61 | REC - MICROWAVE | 20 | 1 | 1500 | A | 62 | SPARE | 20 | 1 | - |
| 63 | RECEPTACLES | 20 | 1 | 540 | B | 64 | SPARE | 20 | 1 | - |
| 65 | GF REC - DISHWASHER | 20 | 1 | 1175 | C | 66 | SPARE | 20 | 1 | - |
| 67 | GF RECEPTS | 20 | 1 | 1500 | A | 68 | SPARE | 20 | 1 | - |
| 69 | GF REC - ICE | 20 | 1 | 800 | B | 70 | SPARE | 20 | 1 | - |
| 71 | REFRIGERATOR | 20 | 1 | 800 | C | 72 | SPARE | 20 | 1 | - |
| 73 | SPARE | 20 | 1 | - | A | 74 | SPARE | 20 | 1 | - |
| 75 | SPARE | 20 | 1 | - | B | 76 | SPARE | 20 | 1 | - |
| 77 | SPARE | 20 | 1 | - | C | 78 | SPARE | 20 | 1 | - |
| 79 | SPARE | 20 | 1 | - | A | 80 | SPARE | 20 | 1 | - |
| 81 | SPARE | 20 | 1 | - | B | 82 | SPARE | 20 | 1 | - |
| 83 | SPARE | 20 | 1 | - | C | 84 | SPARE | 20 | 1 | - |

SEE SECTION 1 FOR
LOAD CALCULATIONS

PANEL LPB (NEW) | 120/208 VOLTS | 3 PHASE | 4 WIRE | SECTION 3 OF 3 | ■ 400 A. BUS | ☐ - A. MAIN BREAKER | ■ MAIN LUGS ONLY | ☐ SERVICE ENTRANCE | ☐ FEED THRU LUGS | ☐ SUBFEED LUGS

| CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA | Ø | CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA |
|---|---|---|---|---|---|---|---|---|---|---|
| 85 | GF RECEPTACLES | 20 | 1 | 360 | A | 86 | REC - EXAM | 20 | 1 | 900 |
| 87 | 4-PLEX RECEPTS | 20 | 1 | 1000 | B | 88 | GF REC - EXAM | 20 | 1 | 1500 |
| 89 | RECEPTACLES | 20 | 1 | 1000 | C | 90 | 220V RECEPTACLE | 20 | 2 | 1250 |
| 91 | 220V RECEPTACLE | 20 | 2 | 1250 | A | 92 | | | | 1250 |
| 93 | | | | 1250 | B | 94 | REC - EXAM | 20 | 1 | 900 |
| 95 | GF REC - EXAM | 20 | 1 | 1500 | C | 96 | GF REC - EXAM | 20 | 1 | 1500 |
| 97 | REC - EXAM | 20 | 1 | 720 | A | 98 | 220V RECEPTACLE | 20 | 2 | 1250 |
| 99 | 220V RECEPTACLE | 20 | 2 | 1250 | B | 100 | | | | 1250 |
| 101 | | | | 1250 | C | 102 | 4-PLEX REC - DATA | 20 | 1 | 1000 |
| 103 | REC - OFFICE | 20 | 1 | 720 | A | 104 | 4-PLEX REC - DATA | 20 | 1 | 1000 |
| 105 | 4-PLEX - OFFICE | 20 | 1 | 1500 | B | 106 | 4-PLEX REC - DATA | 20 | 1 | 1000 |
| 107 | REC - EXAM | 20 | 1 | 540 | C | 108 | REFRIGERATOR | 20 | 1 | 800 |
| 109 | GF REC - EXAM | 20 | 1 | 1500 | A | 110 | REC - COUNTER | 20 | 1 | 1000 |
| 111 | GF REC - EXAM | 20 | 1 | 1500 | B | 112 | GF REC - EXAM | 20 | 1 | 1500 |
| 113 | REC - EXAM | 20 | 1 | 720 | C | 114 | REC - EXAM | 20 | 1 | 540 |
| 115 | GF REC - RR | 20 | 1 | 360 | A | 116 | 4-PLEX RECEPTS | 20 | 1 | 1500 |
| 117 | REC - GENERAL | 20 | 1 | 1080 | B | 118 | RECEPTACLES | 20 | 1 | 800 |
| 119 | SPARE | 20 | 1 | - | C | 120 | 220V RECEPTACLE | 20 | 2 | 1250 |
| 121 | SPARE | 20 | 1 | - | A | 122 | | | | 1250 |
| 123 | SPARE | 20 | 1 | - | B | 124 | SPARE | 20 | 1 | - |
| 125 | SPARE | 20 | 1 | - | C | 126 | SPARE | 20 | 1 | - |

TOTAL CONNECTED LOAD 38940 VA | ■ SURFACE MOUNTED | ☐ FLUSH MOUNTED

DEMAND FACTORS:
LIGHTS @ 125 % = - VA
RECEPTS @ 100 % = 10000 VA
RECEPTS @ 50 % = 6720 VA
OTHER @ 100 % = 15500 VA
TOTAL DEMAND LOAD = 32220 VA

NEUTRAL BUS 100 %
POWER FACTOR 100 %
DEMAND CURRENT 89.5 AMPS

PANEL HEP (EXISTING) | 277/480 VOLTS | 3 PHASE | 4 WIRE | 10kAIC | SECTION 1 OF 1 | ■ 200 A. BUS | ☐ - A. MAIN BREAKER | ■ MAIN LUGS ONLY | ☐ SERVICE ENTRANCE | ☐ FEED THRU LUGS | ☐ SUBFEED LUGS

| CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA | Ø | CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | RTU-1 | 15 | 3 | 3051 | A | 2 | RTU-2 | 15 | 3 | 3050 |
| 3 | | | | 3050 | B | 4 | | | | 3051 |
| 5 | | | | 3051 | C | 6 | | | | 3051 |
| 7 | RTU-3 | 40 | 3 | 8320 | A | 8 | XFMR 'TLEP' | 100 | 3 | 14637 |
| 9 | | | | 8320 | B | 10 | | | | 14637 |
| 11 | | | | 8320 | C | 12 | | | | 14637 |
| 13 | VP-1 | 20 | 3 | 4133 | A | 14 | STERILIZER | 50 | 3 | 10261 |
| 15 | | | | 4133 | B | 16 | | | | 10261 |
| 17 | | | | 4133 | C | 18 | | | | 10261 |
| 19 | WH-1 | 50 | 1 | 12200 | A | 20 | STERILIZER | 50 | 3 | 10261 |
| 21 | WH-2 | 50 | 1 | 12200 | B | 22 | | | | 10261 |
| 23 | - | 20 | 1 | - | C | 24 | | | | 10261 |

TOTAL CONNECTED LOAD 156149 VA | ■ SURFACE MOUNTED | ☐ FLUSH MOUNTED

DEMAND FACTORS:
LARGEST MTR @ 125 % = 24960 VA
RECEPTS @ - % = - VA
RECEPTS @ - % = - VA
OTHER @ 100 % = 136181 VA
TOTAL DEMAND LOAD = 161141 VA

NEUTRAL BUS 100 %
POWER FACTOR 100 %
DEMAND CURRENT 193.7 AMPS

PANEL LEP (EXISTING) | 120/208 VOLTS | 3 PHASE | 4 WIRE | 10kAIC | SECTION 1 OF 1 | ■ 200 A. BUS | ■ 200 A. MAIN BREAKER | ☐ MAIN LUGS ONLY | ☐ SERVICE ENTRANCE | ■ FEED THRU LUGS | ☐ SUBFEED LUGS

| CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA | Ø | CIRC. NO. | CIRCUIT DESCRIPTION | CIRC. BRKR. AMPS | CIRC. BRKR. POLES | VA |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LTS - MECH/ELEC | 20 | 1 | 150 | A | 2 | REC - ELEC RM | 20 | 1 | 180 |
| 3 | LTS - OPERATING | 20 | 1 | 1006 | B | 4 | REC - WATER/EXTERI | 20 | 1 | 1080 |
| 5 | OPERATING LIGHTS | 20 | 1 | 1500 | C | 6 | GF RECEPTACLES | 20 | 1 | 360 |
| 7 | OPERATING LIGHTS | 20 | 1 | 1500 | A | 8 | REC - OR | 20 | 1 | 1500 |
| 9 | LTS - OPERATE AREA | 20 | 1 | 684 | B | 10 | 220V REC - OR | 20 | 2 | 1250 |
| 11 | LIGHTS | 20 | 1 | 893 | C | 12 | | | | 1250 |
| 13 | LIGHTS | 20 | 1 | 1888 | A | 14 | 4-PLEX REC - CEILING | 20 | 1 | 1500 |
| 15 | REFRIGERATOR | 20 | 1 | 600 | B | 16 | REC - CONTROLS | 20 | 1 | 1140 |
| 17 | REC - MFD | 20 | 1 | 1500 | C | 18 | REC - CONTROLS | 20 | 1 | 1140 |
| 19 | REC - OFFICE | 20 | 1 | 1500 | A | 20 | REC - WRAPPER | 20 | 1 | 1000 |
| 21 | REC - OFFICE | 20 | 1 | 1500 | B | 22 | REC - WRAPPER | 20 | 1 | 1000 |
| 23 | REFRIGERATOR | 20 | 1 | 600 | C | 24 | GF RECEPTACLE | 20 | 1 | 500 |
| 25 | REC - NURSE | 20 | 1 | 1500 | A | 26 | REC - EQUIPMENT | 20 | 1 | 1000 |
| 27 | GF REC - CRASH CART | 20 | 1 | 1000 | B | 28 | REC - DISINFECT | 20 | 2 | 1560 |
| 29 | GF REC - BLANKET | 20 | 1 | 1800 | C | 30 | | | | 1560 |
| 31 | REFRIGERATOR | 20 | 1 | 600 | A | 32 | REC - OR | 20 | 1 | 1500 |
| 33 | REC - BEDS | 20 | 1 | 720 | B | 34 | 4-PLEX REC - CEILING | 20 | 1 | 1500 |
| 35 | REC - BEDS | 20 | 1 | 720 | C | 36 | - | 20 | 1 | - |
| 37 | REFRIGERATOR | 20 | 1 | 800 | A | 38 | EF-2 | 15 | 2 | 718 |
| 39 | 220V REC - OR | 20 | 2 | 1250 | B | 40 | | | | 718 |
| 41 | | | | 1250 | C | 42 | CUH-1 | 20 | 1 | 1500 |

TOTAL CONNECTED LOAD 43912 VA | ■ SURFACE MOUNTED | ☐ FLUSH MOUNTED

DEMAND FACTORS:
LIGHTS @ 125 % = 9520 VA
RECEPTS @ 100 % = 10000 VA
RECEPTS @ 50 % = 6480 VA
OTHER @ 100 % = 13336 VA
TOTAL DEMAND LOAD = 39336 VA

NEUTRAL BUS 100 %
POWER FACTOR 100 %
DEMAND CURRENT 109.3 AMPS

## LIGHT FIXTURE SCHEDULE

| TYPE | MANUFACTURER | LAMP | VOLTS / WATTS |
|---|---|---|---|
| A | LITHONIA LTG #STAKS 2X4 ALO6 SWW7 | LED | 120 / 35 |
| B | LITHONIA LTG #LDN4 35/15 LO4AR LSS MVOLT EZ1 | LED | 120 / 18 |
| C | SPECIALTY PHOTO LIGHTING PER TENANT/ARCHITECT | LED | 120 / 20 |
| D | PENDANT/CHANDELIER PER TENANT/ARCHITECT | LED | 120 / 20 |
| F | PENDANT/CHANDELIER PER TENANT/ARCHITECT | LED | 120 / 20 |
| G | LITHONIA LTG #CSS L48 4000LM MVOLT 35K 80CRI | LED | 120 / 35 |
| H | LITHONIA LTG #CSS L24 4000LM MVOLT 35K 80CRI | LED | 120 / 28 |
| K | HEALTHCARE LTG #HSTL 2X4 G 120 ASD PCM250 15000LM 40K 80CRI ZT MINT IAW TRS GWAM | LED | 120 / 122 |
| L | LITHONIA LTG #STAKS 2X2 ALO3 SWW7 | LED | 120 / 28 |
| EM | EXITRONIX #LED90 | (2) LED HEADS WITH UNIT | 120 / 10 |
| EEM | EXITRONIX #MLED | WEATHERPROOF LED REMOTE | 6 / 8 |
| X | EXITRONIX #VEX-U-BP-WB-WH-120-R | RED LED WITH UNIT | 120 / 10 |
| X2 | EXITRONIX #VEX-U/2-BP-WB-WH-120 | RED LED WITH UNIT | 120 / 10 |
| XEM | EXITRONIX #VLED-1-WH-EL90-R | RED LED AND (2) LED HEADS WITH UNIT | 120 / 15 |

NOTES:
1. TYPE 'X' AND/OR 'XEM' FIXTURES SHALL HAVE 12 WATTS OF REMOTE CAPACITY AND POWER TYPE 'EEM'.
2. TYPE 'X2' SHALL BE DOUBLE-FACE.
3. TYPES 'A' AND 'L' SHALL HAVE DRYWALL GRID ADAPTERS (DGA) WHERE INSTALLED RECESSED IN GYP BOARD CEILING.

## MINIMUM SIZE OF EQUIPMENT GROUNDING CONDUCTORS FOR GRD'G RACEWAY & EQUIPMENT

(NEC TABLE 250-122)

| RATING OR SETTING OF AUTOMATIC OVER CURRENT PROTECTION DEVICE IN CIRCUIT AHEAD OF EQUIPMENT, CONDUIT, ETC, NOT EXCEEDING THE FOLLOWING. | SIZE (AWG OR KCMILL) COPPER | ALUMINUM OR COPPER CLAD ALUMINUM |
|---|---|---|
| 15 AMPERES | 14 | 12 |
| 20 AMPERES | 12 | 10 |
| 30 AMPERES | 10 | 8 |
| 40 AMPERES | 10 | 8 |
| 60 AMPERES | 10 | 8 |
| 100 AMPERES | 8 | 6 |
| 200 AMPERES | 6 | 4 |
| 300 AMPERES | 4 | 2 |
| 400 AMPERES | 3 | 1 |
| 500 AMPERES | 2 | 1/0 |
| 600 AMPERES | 1 | 2/0 |
| 800 AMPERES | 1/0 | 3/0 |

NOTE:
EQUIPMENT AND RACE WAY GROUNDING SHALL COMPLY, AS A MINIMUM, WITH THE CONDUCTOR SIZES REPRESENTED IN THIS TABLE AND WITH OTHER REQUIREMENTS AND ALLOWANCES SET FORTH IN THE NATIONAL ELECTRICAL CODE (NFPA 70).

## MAXIMUM CIRCUIT LENGTH SCHEDULE

| CIRCUIT AMPERES | WIRE SIZE | MAXIMUM CIRCUIT LENGTH IN FEET 2 WIRE, 1 PHASE 120 V | 240 V | 277 V | 3 WIRE, 3 PHASE 208 V | 480 V |
|---|---|---|---|---|---|---|
| 20 | #12 | 60 | 125 | 145 | 125 | 285 |
| 25 | #10 | 80 | 160 | 180 | 160 | 365 |
| 30 | #10 | 65 | 130 | 150 | 130 | 305 |
| 50 | #6 | 95 | 195 | 225 | 195 | 450 |
| 60 | #6 | 80 | 160 | 185 | 160 | 375 |
| 100 | #3 | 95 | 195 | 225 | 195 | 450 |
| 125 | #1 | 125 | 250 | 285 | 250 | 575 |
| 200 | 3/0 | 155 | 310 | 360 | 310 | 725 |

NOTES:
1. ALL CONDUCTORS ARE SOLID COPPER. APPLICATION OF CONDUCTOR SIZE IS LIMITED TO CONDUCTORS WITH THE FOLLOWING INSULATION TYPES: FEPW, RH, RHW, THHW, THW, THWN, XHHW, AND USE.
2. CIRCUIT LENGTH IS THE ONE WAY DISTANCE FROM THE OVER CURRENT PROTECTION DEVICE TO THE POINT OF USE.
3. IF THE INSTALLED CIRCUIT LENGTH EXCEEDS THE INDICATED MAXIMUM CIRCUIT LENGTH INDICATED, THEN THE CONDUCTORS SHALL BE INCREASED ONE NOMINAL WIRE SIZE.


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Gladfelter Engineering Group assumes design responsibility for this project for only the mechanical, plumbing and electrical disciplines with drawing sheet number beginning with M, P and E. All other drawings should be considered the work of others. Further, drawings in this project set may contain drawing information, including but not limited to: architectural plans, sections and elevations, site plans and surveys and other information pertinent to showing the mechanical, plumbing and electrical work which is furnished by others, generally indicated by screened or light type. Gladfelter Engineering Group assumes no responsibility or liability for the accuracy or regulatory compliance for work prepared by others even though shown on MPE drawings. Gladfelter Engineering Group assumes responsibility only for the design of mechanical, plumbing and electrical disciplines contained herein, generally indicated in bold type.


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A NEW BUILDING FOR:
ASSOCIATED PLASTIC SURGEONS
I-470 BUSINESS & TECHNOLOGY CENTER
NE McBAIN DRIVE
LEAWOOD, KANSAS

STATE OF MISSOURI
GREGORY P. GLADFELTER
NUMBER E-2000150421
REGISTERED PROFESSIONAL ENGINEER
12/01/2025

PROJECT NO. 231206
DRAWING ISSUANCE
12/01/2025 PERMIT

SHEET NUMBER
E3.1T
SCHEDULES

ELECTRICAL SPECIFICATIONS

1.COMMON WORK RESULTS FOR ELECTRICAL

COORDINATION
COORDINATE ARRANGEMENT, MOUNTING, AND SUPPORT OF ELECTRICAL EQUIPMENT:
TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS THAT REDUCE HEADROOM ARE INDICATED.
TO PROVIDE FOR EASE OF DISCONNECTING THE EQUIPMENT WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS.
TO ALLOW RIGHT OF WAY FOR PIPING AND CONDUIT INSTALLED AT REQUIRED SLOPE.
SO CONNECTING RACEWAYS, CABLES, WIREWAYS, CABLE TRAYS, AND BUSWAYS WILL BE CLEAR OF OBSTRUCTIONS AND OF THE WORKING AND ACCESS SPACE OF OTHER EQUIPMENT.
COORDINATE LOCATION OF ACCESS PANELS AND DOORS FOR ELECTRICAL ITEMS THAT ARE BEHIND FINISHED SURFACES OR OTHERWISE CONCEALED.

PRODUCTS

SLEEVE SEALS
DESCRIPTION: MODULAR SEALING DEVICE, DESIGNED FOR FIELD ASSEMBLY, TO FILL ANNULAR SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE.
MANUFACTURERS:
ADVANCE PRODUCTS & SYSTEMS, INC.
CALPICO, INC.
METRAFLEX CO.
PIPELINE SEAL AND INSULATOR, INC.
SEALING ELEMENTS: EPDM INTERLOCKING LINKS SHAPED TO FIT SURFACE OF CABLE OR CONDUIT. INCLUDE TYPE AND NUMBER REQUIRED FOR MATERIAL AND SIZE OF RACEWAY OR CABLE.
PRESSURE PLATES: PLASTIC. INCLUDE TWO FOR EACH SEALING ELEMENT.
CONNECTING BOLTS AND NUTS: STAINLESS STEEL OF LENGTH REQUIRED TO SECURE PRESSURE PLATES TO SEALING ELEMENTS. INCLUDE ONE FOR EACH SEALING ELEMENT.

EXECUTION

COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION
COMPLY WITH NECA 1.
SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS
ELECTRICAL PENETRATIONS OCCUR WHEN RACEWAYS, CABLES, WIREWAYS, CABLE TRAYS, OR BUSWAYS PENETRATE CONCRETE SLABS, CONCRETE OR MASONRY WALLS, OR FIRE-RATED FLOOR AND WALL ASSEMBLIES.
CONCRETE SLABS AND WALLS: INSTALL SLEEVES FOR PENETRATIONS UNLESS CORE-DRILLED HOLES OR FORMED OPENINGS ARE USED. INSTALL SLEEVES DURING ERECTION OF SLABS AND WALLS.
USE PIPE SLEEVES UNLESS PENETRATION ARRANGEMENT REQUIRES RECTANGULAR SLEEVED OPENING.
FIRE-RATED ASSEMBLIES: INSTALL SLEEVES FOR PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES UNLESS OPENINGS COMPATIBLE WITH FIRESTOP SYSTEM USED ARE FABRICATED DURING CONSTRUCTION OF FLOOR OR WALL.
CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES OF WALLS.
INTERIOR PENETRATIONS OF NON-FIRE-RATED WALLS AND FLOORS: SEAL ANNULAR SPACE BETWEEN SLEEVE AND RACEWAY OR CABLE, USING JOINT SEALANT APPROPRIATE FOR SIZE, DEPTH, AND LOCATION OF JOINT.
FIRE-RATED-ASSEMBLY PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT RACEWAY AND CABLE PENETRATIONS. INSTALL SLEEVES AND SEAL RACEWAY AND CABLE PENETRATION SLEEVES WITH FIRESTOP MATERIALS.
ROOF-PENETRATION SLEEVES: SEAL PENETRATION OF INDIVIDUAL RACEWAYS AND CABLES WITH FLEXIBLE BOOT-TYPE FLASHING UNITS APPLIED IN COORDINATION WITH ROOFING WORK.
ABOVEGROUND, EXTERIOR-WALL PENETRATIONS: SEAL PENETRATIONS USING STEEL PIPE SLEEVES AND MECHANICAL SLEEVE SEALS. SELECT SLEEVE SIZE TO ALLOW FOR 1-INCH (25-MM) ANNULAR CLEAR SPACE BETWEEN PIPE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS.
UNDERGROUND, EXTERIOR-WALL PENETRATIONS: INSTALL CAST-IRON PIPE SLEEVES. SIZE SLEEVES TO ALLOW FOR 1-INCH (25-MM) ANNULAR CLEAR SPACE BETWEEN RACEWAY OR CABLE AND SLEEVE FOR INSTALLING MECHANICAL SLEEVE SEALS.
SLEEVE-SEAL INSTALLATION
INSTALL TO SEAL EXTERIOR WALL PENETRATIONS.
FIRESTOPPING
APPLY FIRESTOPPING TO PENETRATIONS OF FIRE-RATED FLOOR AND WALL ASSEMBLIES FOR ELECTRICAL INSTALLATIONS TO RESTORE ORIGINAL FIRE-RESISTANCE RATING OF ASSEMBLY.

2.GROUNDING AND BONDING

QUALITY ASSURANCE
ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
COMPLY WITH UL 467 FOR GROUNDING AND BONDING MATERIALS AND EQUIPMENT.

PRODUCTS

CONDUCTORS
INSULATED CONDUCTORS: COPPER WIRE OR CABLE INSULATED FOR 600 V UNLESS OTHERWISE REQUIRED BY APPLICABLE CODE OR AUTHORITIES HAVING JURISDICTION.
BARE COPPER CONDUCTORS:
SOLID CONDUCTORS: ASTM B 3.
STRANDED CONDUCTORS: ASTM B 8.
GROUNDING ELECTRODES
GROUND RODS: COPPER-CLAD; 3/4 INCH BY10 FEET (19 MM BY 3 M) IN DIAMETER.

EXECUTION

APPLICATIONS
CONDUCTORS: INSTALL SOLID CONDUCTOR FOR NO. 8 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR NO. 6 AWG AND LARGER, UNLESS OTHERWISE INDICATED.
GROUNDING BUS: INSTALL IN ELECTRICAL AND TELEPHONE EQUIPMENT ROOMS, IN ROOMS HOUSING SERVICE EQUIPMENT, AND ELSEWHERE AS INDICATED. INSTALL BUS ON INSULATED SPACERS 1 INCH (25 MM), MINIMUM, FROM WALL 6 INCHES (150 MM) ABOVE FINISHED FLOOR, UNLESS OTHERWISE INDICATED.
EQUIPMENT GROUNDING
INSTALL INSULATED EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS AND BRANCH CIRCUITS.
METAL POLES SUPPORTING OUTDOOR LIGHTING FIXTURES: INSTALL GROUNDING ELECTRODE AND A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO GROUNDING CONDUCTOR INSTALLED WITH BRANCH-CIRCUIT CONDUCTORS.
INSTALLATION
BONDING STRAPS AND JUMPERS: INSTALL IN LOCATIONS ACCESSIBLE FOR INSPECTION AND MAINTENANCE, EXCEPT WHERE ROUTED THROUGH SHORT LENGTHS OF CONDUIT.
BONDING TO STRUCTURE: BOND STRAPS DIRECTLY TO BASIC STRUCTURE, TAKING CARE NOT TO PENETRATE ANY ADJACENT PARTS.
BONDING TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS: INSTALL SO VIBRATION IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT.
USE EXOTHERMIC-WELDED CONNECTORS FOR OUTDOOR LOCATIONS, BUT IF A DISCONNECT-TYPE CONNECTION IS REQUIRED, USE A BOLTED CLAMP.
GROUNDING AND BONDING FOR PIPING:
METAL WATER SERVICE PIPE: INSTALL INSULATED COPPER GROUNDING CONDUCTORS, IN CONDUIT, FROM BUILDING'S MAIN SERVICE EQUIPMENT, OR GROUNDING BUS, TO MAIN METAL WATER SERVICE ENTRANCE TO BUILDING. CONNECT GROUNDING CONDUCTORS TO MAIN METAL WATER SERVICE PIPES, USING A BOLTED CLAMP CONNECTOR OR BY BOLTING A LUG-TYPE CONNECTOR TO A PIPE FLANGE, USING ONE OF THE LUG BOLTS OF THE FLANGE. WHERE A DIELECTRIC MAIN WATER FITTING IS INSTALLED, CONNECT GROUNDING CONDUCTOR ON STREET SIDE OF FITTING. BOND METAL GROUNDING CONDUCTOR CONDUIT OR SLEEVE TO CONDUCTOR AT EACH END.
WATER METER PIPING: USE BRAIDED-TYPE BONDING JUMPERS TO ELECTRICALLY BYPASS WATER METERS. CONNECT TO PIPE WITH A BOLTED CONNECTOR.
BOND EACH ABOVEGROUND PORTION OF GAS PIPING SYSTEM DOWNSTREAM FROM EQUIPMENT SHUTOFF VALVE.
GROUNDING FOR STEEL BUILDING STRUCTURE: INSTALL A DRIVEN GROUND ROD AT BASE OF EACH CORNER COLUMN AND AT INTERMEDIATE EXTERIOR COLUMNS AT DISTANCES NOT MORE THAN 60 FEET (18 M) APART.

3.HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

QUALITY ASSURANCE
COMPLY WITH NFPA 70.

PRODUCTS

SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS
RACEWAY AND CABLE SUPPORTS: AS DESCRIBED IN NECA 1 AND NECA 101.
CONDUIT AND CABLE SUPPORT DEVICES: STEEL AND MALLEABLE-IRON HANGERS, CLAMPS, AND ASSOCIATED FITTINGS, DESIGNED FOR TYPES AND SIZES OF RACEWAY OR CABLE TO BE SUPPORTED.
SUPPORT FOR CONDUCTORS IN VERTICAL CONDUIT: FACTORY-FABRICATED ASSEMBLY CONSISTING OF THREADED BODY AND INSULATING WEDGING PLUG OR PLUGS FOR NON-ARMORED ELECTRICAL CONDUCTORS OR CABLES IN RISER CONDUITS. PLUGS SHALL HAVE NUMBER, SIZE, AND SHAPE OF CONDUCTOR GRIPPING PIECES AS REQUIRED TO SUIT INDIVIDUAL CONDUCTORS OR CABLES SUPPORTED. BODY SHALL BE MALLEABLE IRON.

EXECUTION

APPLICATION
COMPLY WITH NECA 1 AND NECA 101 FOR APPLICATION OF HANGERS AND SUPPORTS FOR ELECTRICAL EQUIPMENT AND SYSTEMS EXCEPT IF REQUIREMENTS IN THIS SECTION ARE STRICTER.
MAXIMUM SUPPORT SPACING AND MINIMUM HANGER ROD SIZE FOR RACEWAY: SPACE SUPPORTS FOR EMT, IMC, AND RMC AS REQUIRED BY NFPA 70. MINIMUM ROD SIZE SHALL BE 1/4 INCH (6 MM) IN DIAMETER.
MULTIPLE RACEWAYS OR CABLES: INSTALL TRAPEZE-TYPE SUPPORTS FABRICATED WITH STEEL SLOTTED SUPPORT SYSTEM, SIZED SO CAPACITY CAN BE INCREASED BY AT LEAST 25 PERCENT IN FUTURE WITHOUT EXCEEDING SPECIFIED DESIGN LOAD LIMITS. SECURE RACEWAYS AND CABLES TO THESE SUPPORTS WITH TWO-BOLT CONDUIT CLAMPS.
SUPPORT INSTALLATION
COMPLY WITH NECA 1 AND NECA 101 FOR INSTALLATION REQUIREMENTS EXCEPT AS SPECIFIED IN THIS ARTICLE.
RACEWAY SUPPORT METHODS: IN ADDITION TO METHODS DESCRIBED IN NECA 1, EMT, IMC, AND RMC MAY BE SUPPORTED BY OPENINGS THROUGH STRUCTURE MEMBERS, AS PERMITTED IN NFPA 70.
MOUNTING AND ANCHORAGE OF SURFACE-MOUNTED EQUIPMENT AND COMPONENTS: ANCHOR AND FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTS TO BUILDING STRUCTURAL ELEMENTS BY THE FOLLOWING METHODS UNLESS OTHERWISE INDICATED BY CODE:
TO WOOD: FASTEN WITH LAG SCREWS OR THROUGH BOLTS.
TO NEW CONCRETE: BOLT TO CONCRETE INSERTS.
TO MASONRY: APPROVED TOGGLE-TYPE BOLTS ON HOLLOW MASONRY UNITS AND EXPANSION ANCHOR FASTENERS ON SOLID MASONRY UNITS.
TO EXISTING CONCRETE: EXPANSION ANCHOR FASTENERS.
INSTEAD OF EXPANSION ANCHORS, POWDER-ACTUATED DRIVEN THREADED STUDS PROVIDED WITH LOCK WASHERS AND NUTS MAY BE USED IN EXISTING STANDARD-WEIGHT CONCRETE 4 INCHES (100 MM) THICK OR GREATER. DO NOT USE FOR ANCHORAGE TO LIGHTWEIGHT-AGGREGATE CONCRETE OR FOR SLABS LESS THAN 4 INCHES (100 MM) THICK.
TO STEEL: BEAM CLAMPS (MSS TYPE 19, 21, 23, 25, OR 27) COMPLYING WITH MSS SP-69.
TO LIGHT STEEL: SHEET METAL SCREWS.
ITEMS MOUNTED ON HOLLOW WALLS AND NONSTRUCTURAL BUILDING SURFACES:
MOUNT
CABINETS, PANELBOARDS, DISCONNECT SWITCHES, CONTROL ENCLOSURES, PULL AND JUNCTION BOXES, TRANSFORMERS, AND OTHER DEVICES ON SLOTTED-CHANNEL RACKS ATTACHED TO SUBSTRATE.

4. CONDUCTORS AND CABLES

QUALITY ASSURANCE
ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
COMPLY WITH NFPA 70.

PRODUCTS

CONDUCTORS AND CABLES
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
ALCAN PRODUCTS CORPORATION; ALCAN CABLE DIVISION.
AMERICAN INSULATED WIRE CORP.; A LEVITON COMPANY.
GENERAL CABLE CORPORATION.
SENATOR WIRE & CABLE COMPANY.
SOUTHWIRE COMPANY.
COPPER CONDUCTORS: COMPLY WITH NEMA WC 70.
CONDUCTOR INSULATION: COMPLY WITH NEMA WC 70 FOR TYPE THHN-THWN.
MULTICONDUCTOR CABLE: COMPLY WITH NEMA WC 70 FOR METAL-CLAD CABLE, TYPE MC WITH GROUND WIRE.
CONNECTORS AND SPLICES
AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
AFC CABLE SYSTEMS, INC.
HUBBELL POWER SYSTEMS, INC.
O-Z/GEDNEY; EGS ELECTRICAL GROUP LLC.
3M; ELECTRICAL PRODUCTS DIVISION.
TYCO ELECTRONICS CORP.
DESCRIPTION: FACTORY-FABRICATED CONNECTORS AND SPLICES OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED.

EXECUTION

CONDUCTOR MATERIAL APPLICATIONS
FEEDERS: COPPER. SOLID FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND LARGER.
BRANCH CIRCUITS: COPPER. SOLID FOR NO. 10 AWG AND SMALLER; STRANDED FOR NO. 8 AWG AND LARGER.
CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS
SERVICE ENTRANCE, FEEDERS: TYPE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY.
BRANCH CIRCUITS CONCEALED IN CONCRETE, BELOW SLABS-ON-GRADE, AND UNDERGROUND: TYPE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY.
BRANCH CIRCUITS NOT CONCEALED IN CONCRETE: TYPE THHN-THWN, SINGLE CONDUCTORS IN RACEWAY OR METAL-CLAD CABLE, TYPE MC].
INSTALLATION OF CONDUCTORS AND CABLES
CONCEAL CABLES IN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
INSTALL EXPOSED CABLES PARALLEL AND PERPENDICULAR TO SURFACES OF EXPOSED STRUCTURAL MEMBERS, AND FOLLOW SURFACE CONTOURS WHERE POSSIBLE.
IDENTIFY AND COLOR-CODE CONDUCTORS AND CABLES ACCORDING TO SECTION "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS."

5.RACEWAYS AND BOXES

QUALITY ASSURANCE
ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
COMPLY WITH NFPA 70.

PRODUCTS

METAL CONDUIT AND TUBING
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
ALLIED TUBE & CONDUIT; A TYCO INTERNATIONAL LTD. CO.
O-Z GEDNEY; A UNIT OF GENERAL SIGNAL.
WHEATLAND TUBE COMPANY.
FITTINGS FOR CONDUIT (INCLUDING ALL TYPES AND FLEXIBLE AND LIQUIDTIGHT), EMT, AND CABLE: NEMA FB 1; LISTED FOR TYPE AND SIZE RACEWAY WITH WHICH USED, AND FOR APPLICATION AND ENVIRONMENT IN WHICH INSTALLED.
CONDUIT FITTINGS FOR HAZARDOUS (CLASSIFIED) LOCATIONS: COMPLY WITH UL 886.
FITTINGS FOR EMT: STEEL OR DIE-CAST, SET-SCREW OR COMPRESSION TYPE FOR CONCEALED LOCATIONS. STEEL OR DIE-CAST, COMPRESSION TYPE FOR EXPOSED LOCATIONS.
NONMETALLIC CONDUIT AND TUBING
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
CANTEX INC.
CERTAINTEED CORP.; PIPE & PLASTICS GROUP.
RACO; A HUBBELL COMPANY.
THOMAS & BETTS CORPORATION.
BOXES, ENCLOSURES, AND CABINETS
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
HOFFMAN.
HUBBELL INCORPORATED; KILLARK ELECTRIC MANUFACTURING CO. DIVISION.
O-Z/GEDNEY; A UNIT OF GENERAL SIGNAL.
RACO; A HUBBELL COMPANY.
THOMAS & BETTS CORPORATION.
WALKER SYSTEMS, INC.; WIREMOLD COMPANY (THE).

EXECUTION

RACEWAY APPLICATION
OUTDOORS: APPLY RACEWAY PRODUCTS AS SPECIFIED BELOW, UNLESS OTHERWISE INDICATED:
EXPOSED AND CONCEALED CONDUIT: RIGID STEEL CONDUIT.
UNDERGROUND CONDUIT: RNC; TYPE EPC-40-PVC, DIRECT BURIED.
CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): LFNC.
BOXES AND ENCLOSURES, ABOVEGROUND: NEMA 250, TYPE 3R.
COMPLY WITH THE FOLLOWING INDOOR APPLICATIONS, UNLESS OTHERWISE INDICATED:
EXPOSED: EMT.
CONCEALED IN CEILINGS AND INTERIOR WALLS AND PARTITIONS: EMT, UNLESS MC ALLOWED PER "CONDUCTORS AND CABLES" SECTION.
CONNECTION TO VIBRATING EQUIPMENT (INCLUDING TRANSFORMERS AND HYDRAULIC, PNEUMATIC, ELECTRIC SOLENOID, OR MOTOR-DRIVEN EQUIPMENT): FMC, EXCEPT USE LFMC IN DAMP OR WET LOCATIONS.
DAMP OR WET LOCATIONS: RIGID STEEL CONDUIT.
RACEWAYS FOR OPTICAL FIBER OR COMMUNICATIONS CABLE: EMT.
BOXES AND ENCLOSURES: NEMA 250, TYPE 1, EXCEPT USE NEMA 250, TYPE 4, NONMETALLIC IN DAMP OR WET LOCATIONS.
MINIMUM RACEWAY SIZE: 1/2-INCH (16-MM) TRADE SIZE.
DO NOT INSTALL ALUMINUM CONDUITS IN CONTACT WITH CONCRETE.
INSTALLATION
COMPLY WITH NECA 1 FOR INSTALLATION REQUIREMENTS APPLICABLE TO PRODUCTS SPECIFIED IN PART 2 EXCEPT WHERE REQUIREMENTS ON DRAWINGS OR IN THIS ARTICLE ARE STRICTER.
KEEP RACEWAYS AT LEAST 6 INCHES (150 MM) AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.
SUPPORT RACEWAYS AS SPECIFIED IN "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS."
ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE THE FINISHED SLAB.
INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN EXCEPT FOR COMMUNICATIONS CONDUITS, FOR WHICH FEWER BENDS ARE ALLOWED.
CONCEAL CONDUIT AND EMT WITHIN FINISHED WALLS, CEILINGS, AND FLOORS, UNLESS OTHERWISE INDICATED.
RACEWAYS EMBEDDED IN SLABS:
RUN CONDUIT LARGER THAN 1-INCH (27-MM) TRADE SIZE, PARALLEL OR AT RIGHT ANGLES TO MAIN REINFORCEMENT. WHERE AT RIGHT ANGLES TO REINFORCEMENT, PLACE CONDUIT CLOSE TO SLAB SUPPORT.
ARRANGE RACEWAYS TO CROSS BUILDING EXPANSION JOINTS AT RIGHT ANGLES WITH EXPANSION FITTINGS.
CHANGE FROM ENT TO RNC, TYPE EPC-40-PVC, RIGID STEEL CONDUIT, OR IMC BEFORE RISING ABOVE THE FLOOR.
RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE INSULATING BUSHINGS TO PROTECT CONDUCTORS, INCLUDING CONDUCTORS SMALLER THAN NO. 4 AWG.
INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB (90-KG) TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES (300 MM) OF SLACK AT EACH END OF PULL WIRE.
RACEWAYS FOR OPTICAL FIBER AND COMMUNICATIONS CABLE: INSTALL RACEWAYS, METALLIC AND NONMETALLIC, RIGID AND FLEXIBLE, WITH A MAXIMUM OF TWO 90-DEGREE BENDS OR EQUIVALENT FOR EACH LENGTH OF RACEWAY UNLESS DRAWINGS SHOW STRICTER REQUIREMENTS. SEPARATE LENGTHS WITH PULL OR JUNCTION BOXES OR TERMINATIONS AT DISTRIBUTION FRAMES OR CABINETS WHERE NECESSARY TO COMPLY WITH THESE REQUIREMENTS.
FLEXIBLE CONDUIT CONNECTIONS: USE MAXIMUM OF 72 INCHES (1830 MM) OF FLEXIBLE CONDUIT FOR RECESSED AND SEMIRECESSED LIGHTING FIXTURES, EQUIPMENT SUBJECT TO VIBRATION, NOISE TRANSMISSION, OR MOVEMENT; AND FOR TRANSFORMERS AND MOTORS.
USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE.
USE LFMC OR LFNC IN DAMP OR WET LOCATIONS NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CENTER OF CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL.

6.WIRING DEVICES

QUALITY ASSURANCE
ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
COMPLY WITH NFPA 70.
COORDINATION
RECEPTACLES FOR OWNER-FURNISHED EQUIPMENT: MATCH PLUG CONFIGURATIONS.
CORD AND PLUG SETS: MATCH EQUIPMENT REQUIREMENTS.

PRODUCTS

STRAIGHT BLADE RECEPTACLES
CONVENIENCE RECEPTACLES, 125 V, 20 A: COMPLY WITH NEMA WD 1, NEMA WD 6
CONFIGURATION 5-20R, AND UL 498.
PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
COOPER; 5351 (SINGLE), 5352 (DUPLEX).
PASS & SEYMOUR; 5381 (SINGLE), 5352 (DUPLEX).
LEVITON; 5891 (SINGLE), 5352 (DUPLEX).
HUBBELL; HBL5351 (SINGLE), CR5352 (DUPLEX).
GFCI RECEPTACLES
DUPLEX GFCI CONVENIENCE RECEPTACLES, 125 V, 20 A:
PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:
COOPER; GF20.
PASS & SEYMOUR; 2084.
HUBBELL EQUAL.
LEVITON EQUAL.
WALL PLATES
SINGLE AND COMBINATION TYPES TO MATCH CORRESPONDING WIRING DEVICES.
PLATE-SECURING SCREWS: METAL WITH HEAD COLOR TO MATCH PLATE FINISH.
MATERIAL FOR DAMP LOCATIONS: CAST ALUMINUM WITH SPRING-LOADED LIFT COVER, AND LISTED AND LABELED FOR USE IN "WET LOCATIONS."
WET-LOCATION, WEATHERPROOF COVER PLATES: NEMA 250, COMPLYING WITH TYPE 3R WEATHER-RESISTANT, DIE-CAST ALUMINUM WITH LOCKABLE COVER.

7.LIGHTING CONTROL DEVICES

QUALITY ASSURANCE
ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
COORDINATION
COORDINATE LAYOUT AND INSTALLATION OF CEILING-MOUNTED DEVICES WITH OTHER CONSTRUCTION THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES, HVAC EQUIPMENT, SMOKE DETECTORS, FIRE-SUPPRESSION SYSTEM, AND PARTITION ASSEMBLIES.

PRODUCTS

TIME SWITCHES
BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED ON DRAWINGS OR A COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
INTERMATIC, INC.
SQUARE D; SCHNEIDER ELECTRIC.
TORK.
WATT STOPPER (THE).
ELECTRONIC TIME SWITCHES: ELECTRONIC, SOLID-STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL 917.
CONTACT CONFIGURATION: SPST.
CONTACT RATING: 20-A BALLAST LOAD, 120/240-V AC.
PROGRAM: 2 ON-OFF SET POINTS ON A 24-HOUR SCHEDULE, ALLOWING DIFFERENT SET POINTS FOR EACH DAY OF THE WEEK.
CIRCUITRY: ALLOW CONNECTION OF A PHOTOELECTRIC RELAY AS SUBSTITUTE FOR ON-OFF FUNCTION OF A PROGRAM.
ASTRONOMIC TIME: ALL CHANNELS.
BATTERY BACKUP: FOR SCHEDULES AND TIME CLOCK.
OUTDOOR PHOTOELECTRIC SWITCHES
BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE A PRODUCT BY ONE OF THE FOLLOWING:
INTERMATIC, INC.
SQUARE D; SCHNEIDER ELECTRIC.
TORK.
WATT STOPPER (THE).
DESCRIPTION: SOLID STATE, WITH SPST DRY CONTACTS RATED FOR 1800 VA TO OPERATE CONNECTED LOAD, RELAY, OR CONTACTOR COILS; COMPLYING WITH UL 773.
LIGHT-LEVEL MONITORING RANGE: 1.5 TO 10 FC (16.14 TO 108 LX), WITH AN ADJUSTMENT FOR TURN-ON AND TURN-OFF LEVELS WITHIN THAT RANGE.
TIME DELAY: 30-SECOND MINIMUM, TO PREVENT FALSE OPERATION.
LIGHTNING ARRESTER: AIR-GAP TYPE.
MOUNTING: TWIST LOCK COMPLYING WITH IEEE C136.10, WITH BASE.
LIGHTING CONTACTORS
BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE A PRODUCT BY ONE OF THE FOLLOWING:
EATON ELECTRICAL INC.; CUTLER-HAMMER PRODUCTS.
GE INDUSTRIAL SYSTEMS; TOTAL LIGHTING CONTROL.
SQUARE D; SCHNEIDER ELECTRIC.
DESCRIPTION: ELECTRICALLY OPERATED AND ELECTRICALLY HELD, COMPLYING WITH NEMA ICS 2 AND UL 508.
CURRENT RATING FOR SWITCHING: LISTING OR RATING CONSISTENT WITH TYPE OF LOAD SERVED, INCLUDING TUNGSTEN FILAMENT, INDUCTIVE, AND HIGH-INRUSH BALLAST (BALLAST WITH 15 PERCENT OR LESS TOTAL HARMONIC DISTORTION OF NORMAL LOAD CURRENT).
FAULT CURRENT WITHSTAND RATING: EQUAL TO OR EXCEEDING THE AVAILABLE FAULT CURRENT AT THE POINT OF INSTALLATION.
ENCLOSURE: COMPLY WITH NEMA 250.
PROVIDE WITH CONTROL AND PILOT DEVICES AS INDICATED ON DRAWINGS, MATCHING THE NEMA TYPE SPECIFIED FOR THE ENCLOSURE.

EXECUTION

FIELD QUALITY CONTROL
OPERATIONAL TEST: VERIFY OPERATION OF EACH LIGHTING CONTROL DEVICE, AND ADJUST TIME DELAYS.

8.ENCLOSED SWITCHES

SUBMITTALS
PRODUCT DATA: FOR EACH TYPE OF ENCLOSED SWITCH. INCLUDE DIMENSIONED ELEVATIONS, SECTIONS, WEIGHTS, AND MANUFACTURERS' TECHNICAL DATA ON FEATURES, PERFORMANCE, ELECTRICAL CHARACTERISTICS, RATINGS, ACCESSORIES, AND FINISHES.
QUALITY ASSURANCE
PRODUCT SELECTION FOR RESTRICTED SPACE: DRAWINGS INDICATE MAXIMUM DIMENSIONS FOR ENCLOSED SWITCHES AND CIRCUIT BREAKERS, INCLUDING CLEARANCES BETWEEN ENCLOSURES, AND ADJACENT SURFACES AND OTHER ITEMS. COMPLY WITH INDICATED MAXIMUM DIMENSIONS.
ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.
COMPLY WITH NFPA 70.
COORDINATION
COORDINATE LAYOUT AND INSTALLATION OF SWITCHES AND COMPONENTS WITH EQUIPMENT SERVED AND ADJACENT SURFACES. MAINTAIN REQUIRED WORKSPACE CLEARANCES AND REQUIRED CLEARANCES FOR EQUIPMENT ACCESS DOORS AND PANELS.

PRODUCTS

FUSIBLE AND NONFUSIBLE SWITCHES
MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
EATON ELECTRICAL INC.; CUTLER-HAMMER BUSINESS UNIT.
GENERAL ELECTRIC COMPANY; GE CONSUMER & INDUSTRIAL - ELECTRICAL DISTRIBUTION.
SIEMENS ENERGY & AUTOMATION, INC.
SQUARE D; A BRAND OF SCHNEIDER ELECTRIC.
TYPE GD, GENERAL DUTY, SINGLE THROW, 240-V AC, 800 A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, WITH CARTRIDGE FUSE INTERIORS TO ACCOMMODATE INDICATED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
TYPE HD, HEAVY DUTY, SINGLE THROW, [240] [600]-V AC, 1200 A AND SMALLER: UL 98 AND NEMA KS 1, HORSEPOWER RATED, WITH CLIPS OR BOLT PADS TO ACCOMMODATE [SPECIFIED] [INDICATED] FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT THREE PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
ACCESSORIES:
EQUIPMENT GROUND KIT: INTERNALLY MOUNTED AND LABELED FOR COPPER AND ALUMINUM GROUNDING CONDUCTORS.
NEUTRAL KIT: INTERNALLY MOUNTED; INSULATED, CAPABLE OF BEING GROUNDED AND BONDED; LABELED FOR COPPER AND ALUMINUM NEUTRAL CONDUCTORS.
LUGS: MECHANICAL TYPE, SUITABLE FOR NUMBER, SIZE, AND CONDUCTOR MATERIAL