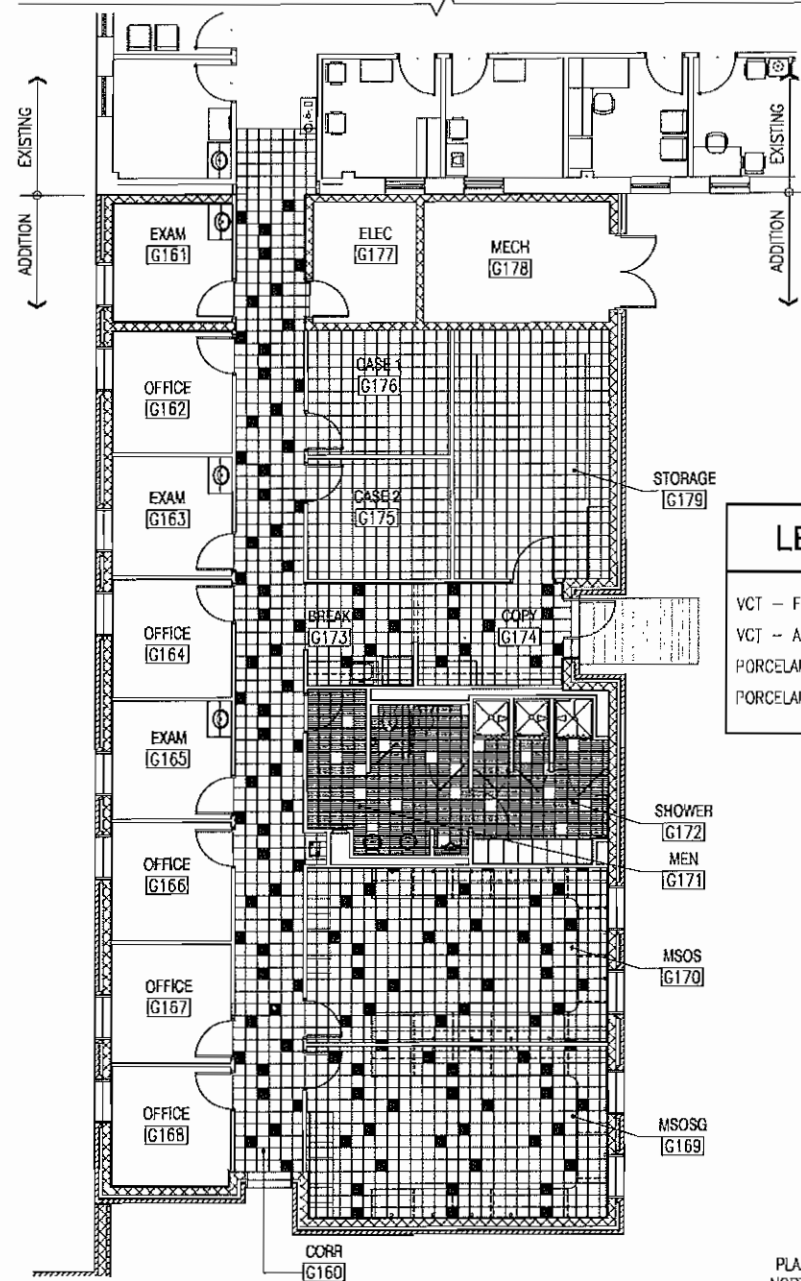


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C

B

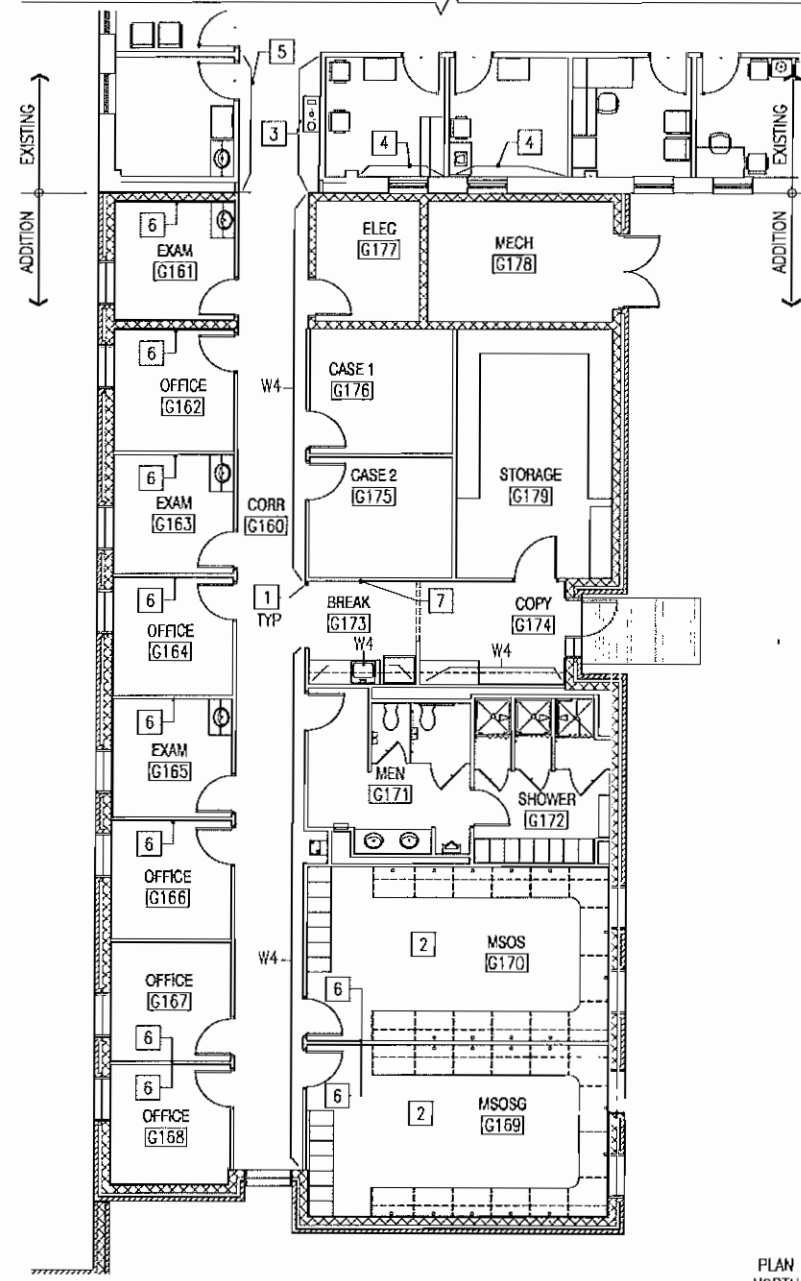
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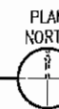
**FLOOR PATTERN PLAN**  
1/8" = 1'-0"



LEGEND	
VCT - FIELD	□
VCT - ACCENT	■
PORCELAIN - FIELD	▨
PORCELAIN - ACCENT	□



**WALL FINISHES PLAN**  
1/8" = 1'-0"



**GENERAL NOTES**

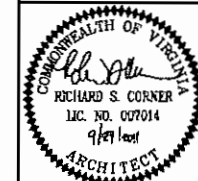
1. PATCH AND REPLACE ALL FINISHES DAMAGED DURING CONSTRUCTION

**WORK NOTES**

THIS SHEET ONLY

1. W6 - WALL CORNER GUARD, SEE FINISH SCHEDULE SHFET A-602, TYPICAL ALL CORNERS
2. WALL PAINT - W3 THIS AREA
3. PAINT EXISTING WALL W4
4. PAINT EXISTING WALL TO MATCH EXISTING COLOR, CORNER TO CORNER AND TOP OF BASE TO CEILING
5. PAINT EXISTING WALL COLOR TO MATCH EXISTING
6. 48" X 48" MARKERBOARD - ALIGN TOP OF BOARD WITH TOP OF ADJACENT DOOR FRAME
7. 48" X 72" CORK TACKBOARD - ALIGN TOP OF BOARD WITH TOP OF ADJACENT DOOR FRAME

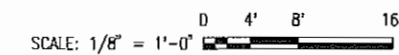
DATE	DESCRIPTION	BY	APPR



APPROD	
FOR COMMANDER NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC	
SECRET	
DESIGNED BY	HBA
DRAWN BY	DPW HBA
CHECKED BY	CHK HBA
DATE	
SCALE	
PROJECT NO.	
CONTRACT NO.	

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC  
NAVAL STATION  
MARINE CORPS BASE  
MARSOC COMPLEX - BUILDING RR440  
HM2 CHARLES "LUKE" MILAM AID STATION  
CAMP LEJELINE, NC  
FINISHES - FLOOR PLAN

SCALE	AS NOTED
PROJECT NO.	1132805
CONTRACT NO.	
NAITIC DRAWING NO.	12605637
SHEET	38 OF 74
<b>AF101</b>	



1

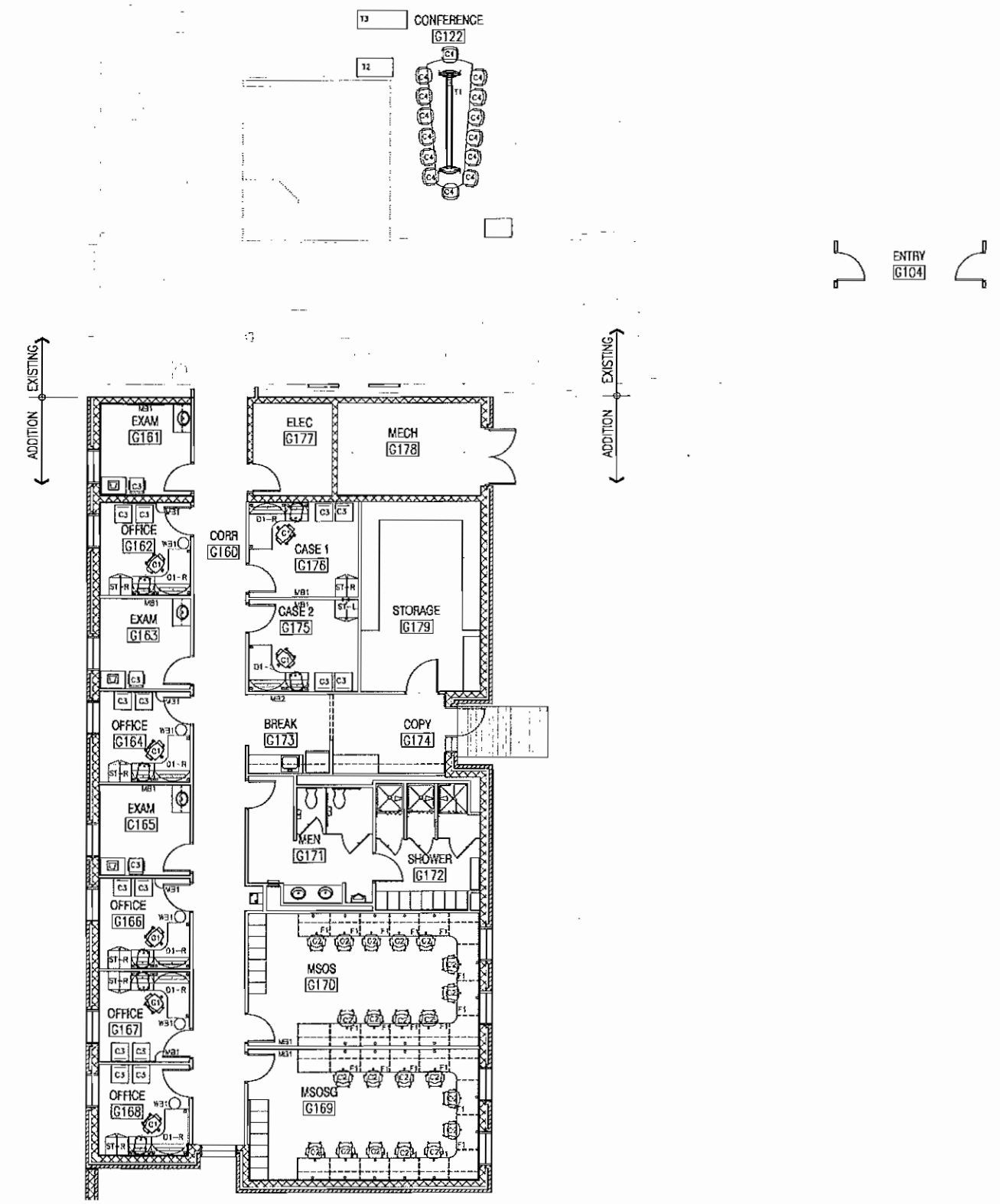
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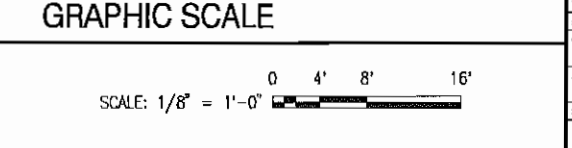
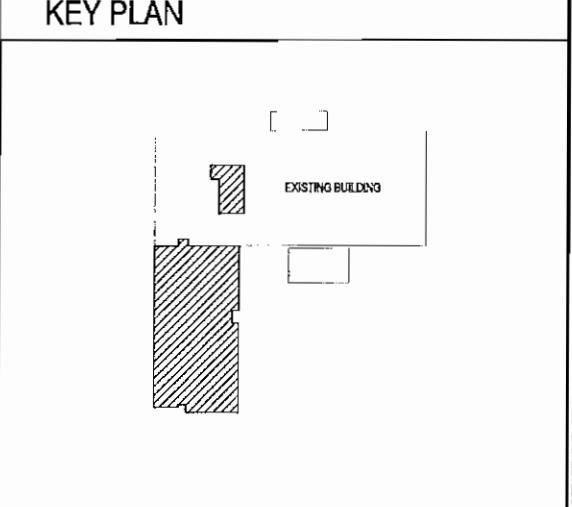


**FURNITURE - FLOOR PLAN**  
1/8" = 1'-0"

**GENERAL NOTES**

1. FURNITURE SHOWN IS FOR COORDINATION OF OTHER DISCIPLINES ONLY. FF&E SHALL BE PROCURED BY OPTION TO OR MODIFICATION OF THIS CONTRACT. FF&E TO BE COORDINATED BY NAVFAC AND BASE PROPERTY.

- FURNITURE LEGEND**
- C1 TASK CHAIR, MESH BACK, FABRIC SEAT KNOLL KORA INDIGO HIGH PERFORMANCE ARMS
  - C2 TASK CHAIR, FABRIC SEAT & BACK KNOLL KORA INDIGO HIGH PERFORMANCE ARMS
  - C3 ARMLESS SIDE CHAIR SLED BASE, FABRIC KNOLL KORA INDIGO
  - C4 CONFERENCE CHAIR
  - D1-L CORNER DESK UNIT LEFT 24X78, RT 2460 78" OVERHEAD HUTCH W/ TASKLIGHT
  - D1-R CORNER DESK UNIT LEFT 24X48, RT 2478 78" OVERHEAD HUTCH W/ TASKLIGHT
  - ST-L WARDROBE UNIT, BBF & STORAGE ON RT WARDROBE ON LEFT
  - ST-R WARDROBE UNIT, BBF & STORAGE ON LEFT WARDROBE ON RIGHT
  - F-1 MOBILE BOX FILE PED
  - F-2 TIMES-2 FILC, LETTER SIZE, 7 TIER W. 12 ADJ SHELVES
  - WB1 WASTE BASKET FOR DESKS
  - WB2 WASTE BASKET FOR COPY AREA, 35 GAL
  - M1 MAIL SORTER UNIT
  - T1 EASY VIEW CONFERENCE TABLE
  - T2 24 X 48 TABLE
  - T3 24 X 66 AV CRENDENZA
  - MB1 48 X 48 MARKERBOARD - ALIGN TOP OF BOARD WITH TOP OF ADJACENT DOOR FRAME
  - MB2 48 X 72 CORK TACKBOARD - ALIGN TOP OF BOARD WITH TOP OF ADJACENT DOOR FRAME



APPROVED	DATE
FOR COMMAND NAVFAC	
ACOMET	
DESIGNED BY DATE	
DES: HBA DPM: HBA CHK: HBA	
DATE: 10/20/06	
DRAWN BY	
CHK: DGM/WH	
DATE: 10/20/06	
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND	MID-ATLANTIC DISTRICT, VA
MARINE CORPS BASE	CAMP LEJUNE, NC
MARSOC COMPLEX - BUILDING RR440	
HM2 CHARLES "LUKE" MILAM AID STATION	
FURNITURE - FLOOR PLAN	
SCALE: AS NOTED	
PROJECT NO. 1137806	
CONTR. CONTR. NO.	
NAVFAC DRAWING NO. 12605638	
SHEET 39 OF 74	
<b>A1101</b>	
DRAWING REVISION 8 AUG 2007	

1 2 3 4 5

# LIFE SAFETY CODE ANALYSIS - 2009 EDITION

## APPLICABLE CODES

- 2009 EDITION OF THE INTERNATIONAL BUILDING CODE
- NFPA 1, UNIFORM FIRE CODE - 2009 EDITION
- NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS-2010 EDITION
- NFPA 13, STANDARD FOR THE INSTALLATION OF SPRINKLERS SYSTEMS - 2010 EDITION
- NFPA 70, NATIONAL ELECTRIC CODE - 2010 EDITION
- NFPA 72, NATIONAL FIRE ALARM CODE - 2010 EDITION
- NFPA 101, LIFE SAFETY CODE - 2009 EDITION
- UNFED FACILITIES CRITERIA (UFC)
- UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS)
- ACCESSIBILITY GUIDELINES FOR ADA COMPLIANCE (ADAAG)

## FIRE PROTECTION SYSTEMS-NFPA 13 AND UFC 3-600-01

- FIRE SPRINKLER SYSTEM - GENERAL
  - EXTEND THE EXISTING FIRE SPRINKLER SYSTEM TO PROVIDE COVERAGE THROUGHOUT THE BUILDING ADDITION.
  - AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE SUPERVISED BY THE EXISTING FIRE ALARM/MASS NOTIFICATION SYSTEM.
  - ACTIVATION OF THE FIRE SPRINKLER SYSTEM SHALL CAUSE THE BUILDING FIRE ALARM SYSTEM TO ACTIVATE.
- FIRE SPRINKLER SYSTEM REQUIREMENTS
  - HAZARD CLASSIFICATIONS
    - LIGHT HAZARD: OFFICES, CORRIDORS, RESTROOMS, CONFERENCE/CLASSROOMS ROOMS AND SIMILAR.
    - ORDINARY HAZARD - GROUP I: MECHANICAL ROOMS, ELECTRICAL ROOMS AND SIMILAR. STORAGE ROOMS SHALL BE ORDINARY GROUP 2.
  - EXISTING FIRE SPRINKLER SYSTEM SHALL BE EXTENDED TO SERVE THE NEW AREAS.
  - EXISTING SPRINKLER SYSTEM IS WET PIPE.
  - FIRE SPRINKLER COVERAGE
    - LIGHT HAZARD: 225 SF
    - ORDINARY HAZARD - GROUP I: 130 SF
  - FIRE SPRINKLER DESIGN DENSITY
    - LIGHT HAZARD: 0.1 GPM/SF
    - ORDINARY HAZARD - GROUP I: 0.15 GPM/SF
  - FIRE SPRINKLER SYSTEM MINIMUM HYDRAULIC REMOTE AREA
    - LIGHT HAZARD: 3,000 SF (REDUCTIONS PER NFPA 13 FOR USE OF QUICK RESPONSE SPRINKLERS IS ALLOWED).
    - ORDINARY HAZARD - GROUP I: 3,000 SF
  - FIRE SPRINKLER SYSTEM HOSE STREAM ALLOWANCE
    - LIGHT HAZARD: 250 GPM
    - ORDINARY HAZARD - GROUP I: 500 GPM
- STANDPIPE SYSTEM - GENERAL
  - STANDPIPES ARE NOT REQUIRED FOR THIS BUILDING.
- PORTABLE FIRE EXTINGUISHERS - GENERAL
  - PORTABLE FIRE EXTINGUISHERS SHALL BE PROVIDED THROUGHOUT THE BUILDING. REFER TO ARCHITECTURAL SHEETS FOR LOCATIONS OF EXTINGUISHERS AND DETAILS.
  - PORTABLE FIRE EXTINGUISHERS SHALL BE INSTALLED PER NFPA 10.
- PORTABLE FIRE EXTINGUISHER REQUIREMENTS-NFPA 10
  - GENERAL TYPE: 2A10BC MINIMUM (HIGHER RATING FOR HAZARDOUS AREAS)
  - SPACING: 75 FEET MAXIMUM (THROUGHOUT ENTIRE BUILDING)

## FIRE DETECTION/ALARM/ SYSTEMS-NFPA 72 AND UFC 4-021-01

- FIRE DETECTION/ALARM SYSTEMS - GENERAL
  - EXTEND THE EXISTING FIRE ALARM/MASS NOTIFICATION SYSTEM TO COVER ALL AREAS OF THE ADDITION.
  - FIRE ALARM SYSTEM SHALL BE INSTALLED PER NFPA 72 AND UFC 3-600-01. THE MASS NOTIFICATION SYSTEM SHALL BE IN ACCORDANCE WITH UFC 4-021-01.
  - FIRE ALARM/MASS SYSTEM SHALL INCLUDE VISIBLE ALARM INDICATING APPLIANCES IN PUBLIC AND COMMON AREAS. SPEAKER COVERAGE SHALL BE THROUGHOUT ALL OCCUPIED SPACES.
- PROVIDE VISIBLE ALARM INDICATING APPLIANCES AS REQUIRED BY NFPA 72.
- AUDIBLE ALARM INDICATING APPLIANCES SHALL PROVIDE A DISTINCTIVE SOUND WHICH SHALL NOT BE USED FOR ANY PURPOSE OTHER THAN THAT OF FIRE ALARM AND MASS NOTIFICATION.
- THE MINIMUM SOUND PRESSURE LEVELS SHALL BE 70 dBA IN MECHANICAL OR EQUIPMENT ROOMS AND 60 dBA IN ALL OTHER AREAS.
- THE MAXIMUM SOUND PRESSURE LEVEL FOR AUDIBLE INDICATION APPLIANCES SHALL NOT EXCEED 120 dBA AT THE MINIMUM HEARING DISTANCE FROM THE APPLIANCE.
- DETECTION
  - PROVIDE A DUCT SMOKE DETECTOR. REFER TO SHEET F-101 FOR LOCATION
- MANUAL FIRE ALARM ACTIVATION
  - PROVIDE MANUAL FIRE ALARM PULL STATION WITHIN 5 FEET OF ALL DOORS TO THE EXTERIOR.

## INTERIOR FINISH (NFPA 101 CHAPTER 10):

(MINIMUM CLASS OF INTERIOR FINISH ON WALLS AND CEILINGS - SEE BELOW FOR CLASSIFICATION DESCRIPTION)

- VERTICAL EXITS AND EXIT PASSAGEWAYS
  - BUSINESS OCCUPANCY - CLASS A OR B /AUTOMATIC FIRE SPRINKLER PROTECTION.
  - EXIT ACCESS CORRIDORS AND OTHER EXIT WAYS
    - CLASS C/AUTOMATIC FIRE SPRINKLER PROTECTION.
  - ROOMS AND ENCLOSED SPACES
    - CLASS C/AUTOMATIC FIRE SPRINKLER PROTECTION
  - FLOOR FINISH
    - CLASS II FINISH WITH A CRITICAL RADIANT FLUX RATING BETWEEN .22 AND .45 WATTS/SQUARE CENTIMETER.
- CLASSIFICATIONS DEFINITIONS
  - INTERIOR WALL FINISH - FLAME SPREAD INDEX
    - CLASS A: 0 - 25
    - CLASS B: 26 - 75
    - CLASS C: 76 - 200
  - INTERIOR WALL FINISH - SMOKE DEVELOPED INDEX
    - CLASS A: 0 - 450
    - CLASS B: 0 - 450
    - CLASS C: 0 - 450

## MEANS OF EGRESS-NFPA 101 CHAPTER 7

- EGRESS COMPONENTS-EGRESS COMPONENTS SHALL BE IN ACCORDANCE WITH NFPA 101 2009 EDITION.
  - DOORS
    - MINIMUM CLEAR WIDTH: 32 INCHES
    - SWING IN DIRECTION OF EGRESS TRAVEL WHEN SERVING AN OCCUPANT LOAD GREATER THAN 50 PERSONS
    - SWING IN DIRECTION OF EGRESS TRAVEL WHEN USED IN AN EXIT ENCLOSURE OR WHERE SERVING A HIGH HAZARD CONTENTS AREA.
    - LOCKS, IF PROVIDED, ARE NOT TO REQUIRE THE USE OF A KEY, A TOOL, OR SPECIAL KNOWLEDGE OR EFFORT FOR OPERATION FROM THE EGRESS SIDE
    - WHEN USED, THE PANIC HARDWARE OR FIRE EXIT HARDWARE IS TO CONSIST OF CROSS BARS OR PUSH PADS LOCATED NOT LESS THAN 34 INCHES OR MORE THAN 48 INCHES ABOVE THE FLOOR, THE ACTUATING PORTION OF THE CROSS BAR OR PUSH PADS IS NOT TO EXTEND ACROSS LESS THAN ONE-HALF THE WIDTH OF THE DOOR.
  - MARKING OF MEANS OF EGRESS
    - SIGNAGE
      - EXITS SHALL BE MARKED BY AN APPROVED SIGN READILY VISIBLE FROM ANY DIRECTION OF EXITS ACCESS.
      - SIGN PLACEMENT SHALL BE SUCH THAT NO POINT IN THE EXIT ACCESS CORRIDOR IS MORE THAN 100 FEET FROM THE NEAREST EXTERNALLY ILLUMINATED SIGN AND IS NOT IN EXCESS OF THE MARKED RATING FOR INTERNALLY ILLUMINATED SIGNS.
      - A DIRECTIONAL SIGN READING "EXIT" WITH A DIRECTIONAL INDICATOR SHOWING THE DIRECTION OF TRAVEL SHALL BE PLACED IN EVERY LOCATION WHERE THE DIRECTION OF TRAVEL TO REACH THE NEAREST EXIT IS NOT APPARENT.
      - AT EACH DOOR INTO AN EXIT STAIR ENCLOSURE OR EXIT, TACTILE SIGNAGE STATING "EXIT" AND COMPLYING WITH ICC/ANSI A117.1 SHALL BE INSTALLED.
    - ILLUMINATION
      - EVERY EXIT SIGN SHALL BE ILLUMINATED AT ALL TIMES. THE ILLUMINATION SHALL BE FOR 90 MINUTES IN THE CASE OF PRIMARY POWER LOSS.
      - EXIT SIGNS THAT ARE EXTERNALLY ILLUMINATED SHALL HAVE AN INTENSITY NOT LESS THAN 5 FT-CANDLES.
  - EMERGENCY POWER AND LIGHTING
    - EMERGENCY POWER
    - EMERGENCY LIGHTING
      - ILLUMINATION OF MEANS OF EGRESS SHALL BE FOR A POWER SHALL BE FROM BATTERIES, UNTIL EQUIPMENT OR GENERATOR.
      - REQUIRED ILLUMINATION SHALL BE ARRANGED SO THAT INITIAL ILLUMINATION IS AT LEAST AN AVERAGE OF 1 FT-CANDLE AND A MINIMUM AT ANY POINT OF 0.1 FT-CANDLE.
      - A DECLINE TO 0.6 FT-CANDLE AVERAGE ILLUMINATION AT THE FLOORS WITH A MINIMUM 0.06 FT-CANDLE AT ANY POINT IS PERMITTED AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM TO MINIMUM ILLUMINATION UNIFORMITY OF 40:1 SHALL NOT BE EXCEEDED)
  - OCCUPANT LOAD FACTORS
    - CONFERENCE ROOMS AND CLASSROOMS: 20 NET SQ FT PER OCCUPANT (TABLE 7.3.1.2.)
    - OFFICES: 100 SQ. FT. PER OCCUPANT (TABLE 7.3.1.2.)
    - STORAGE AND MECHANICAL SPACE: 300 SQ. FT. PER OCCUPANT (TABLE 7.3.1.2.)
    - WAITING AREAS (CONCENTRATED USE WITHOUT FIXED SEATING: 7 SQ. FT. PER OCCUPANT (TABLE 7.3.1.2.)
  - CAPACITY OF MEANS OF EGRESS
    - EGRESS WIDTH REQUIRED PER PERSON
      - HORIZONTAL EGRESS TRAVEL: 0.2 INCHES/PERSON (TABLE 7.3.3.1)
    - MINIMUM EGRESS WIDTH REQUIRED (SAME REQUIREMENTS APPLICABLE TO ALL OCCUPANCY TYPE)
      - CORRIDORS: 44 INCHES

- CLEAR EXIT DOOR OPENING: 32 INCHES
- TRAVEL DISTANCE-BUSINESS OCCUPANCY IN A SPRINKLERED BUILDING FROM TABLE A.7.6
  - MAXIMUM TRAVEL DISTANCE: 300 FEET
  - MAXIMUM COMMON PATH OF TRAVEL: 100 FEET
  - MAXIMUM DEAD END CORRIDOR: 50 FEET
- NUMBER AND ARRANGEMENT OF MEANS OF EGRESS, INCLUDING EXIT DISCHARGE
  - NUMBER OF EXITS REQUIRED
    - MINIMUM: 2
  - ARRANGEMENT OF EXITS
    - WHERE 2 OR MORE EXITS ARE REQUIRED, THEY MUST BE SPACED APART A MINIMUM OF 1/2 THE LENGTH OF THE MAXIMUM DIAGONAL OF THE BUILDING OF AREA BEING SERVED
    - WHERE MORE THAN TWO EXITS OR EXIT ACCESS DOORS ARE REQUIRED, AT LEAST TWO OF THE REQUIRED EXITS OR EXIT ACCESS DOORS ARE TO BE ARRANGED TO COMPLY WITH THE MINIMUM SEPARATION DISTANCE REQUIREMENTS DEFINED ABOVE. THE OTHER EXITS OR EXIT ACCESS DOORS ARE TO BE LOCATED SO THAT IF ONE BECOMES BLOCKED, THE OTHERS REMAIN AVAILABLE
  - EXIT DISCHARGE
    - EXITS SHALL DISCHARGE DIRECTLY TO THE BUILDING EXTERIOR
    - THE EXIT DISCHARGE SHALL PROVIDE DIRECT AND UNOBSTRUCTED ACCESS TO A PUBLIC WAY
  - EGRESS THROUGHOUT INTERVENING SPACES
    - EGRESS FROM A ROOM OR SPACE IS NOT TO PASS THROUGH ADJOINING OR INTERVENING ROOMS, EXCEPT WHERE SUCH ADJOINING ROOMS OR AREAS ARE ACCESSORY TO THE AREA SERVED; ARE NOT A HIGH-HAZARD OCCUPANCY; AND PROVIDE A DISCERNIBLE PATH OF EGRESS TRAVEL TO AN EXIT
    - ACCESS TO AN EXIT IS NOT TO BE THROUGH KITCHENS, STOREROOMS, RESTROOMS, WORKROOMS, CLOSETS OR OTHER ROOMS OR SPACES SUBJECT TO LOCKING

# IBC-INTERNATIONAL BUILDING CODE 2009

## BASIC BUILDING DESCRIPTION AND IBC ALLOWANCES

- THE BUILDING IS EXISTING (8,600 SQUARE FEET). THE NEW ADDITION (APPROXIMATELY 3,700 SQUARE FEET) WILL PROVIDE A TOTAL BUILDING AREA OF APPROXIMATELY 12,300 SQUARE FEET
- ALLOWABLE: 23,000 SQUARE FEET + 69,000 SQUARE FEET (300% INCREASE FOR SPRINKLERS THROUGHOUT AND ONE STORY) = 92,000 SQUARE FEET ALLOWABLE
- BUILDING HEIGHT - APPROX. 13'6", ALLOWABLE 55'
- TYPE IIB CONSTRUCTION EXISTING AND NEW CONSTRUCTION
- THE BUILDING USE IS A BUSINESS OCCUPANCY AND WILL BE FULLY SPRINKLERED.

## OCCUPANCY CLASSIFICATION

- NEW BUSINESS WITH INCIDENTAL AREAS (MECHANICAL, ELECTRICAL, ETC).
- CONFERENCE ROOMS ARE NOT CONSIDERED ASSEMBLY SINCE THE OCCUPANT LOAD DOES NOT EXCEED 50. CLASSROOMS AND OTHER MEETING ROOMS ARE CONSIDERED BUSINESS OCCUPANCIES.
- THIS BUILDING IS DESIGNED AS A MIXED OCCUPANCY.

## TYPE OF CONSTRUCTION

- TYPE IIB

## OCCUPANCY SEPARATION

- NO SEPARATIONS REQUIRED.

## STRUCTURAL FIRE RESISTIVE RATINGS-ASSUMED EXISTING CONSTRUCTION TYPE IIB PER TABLE 601

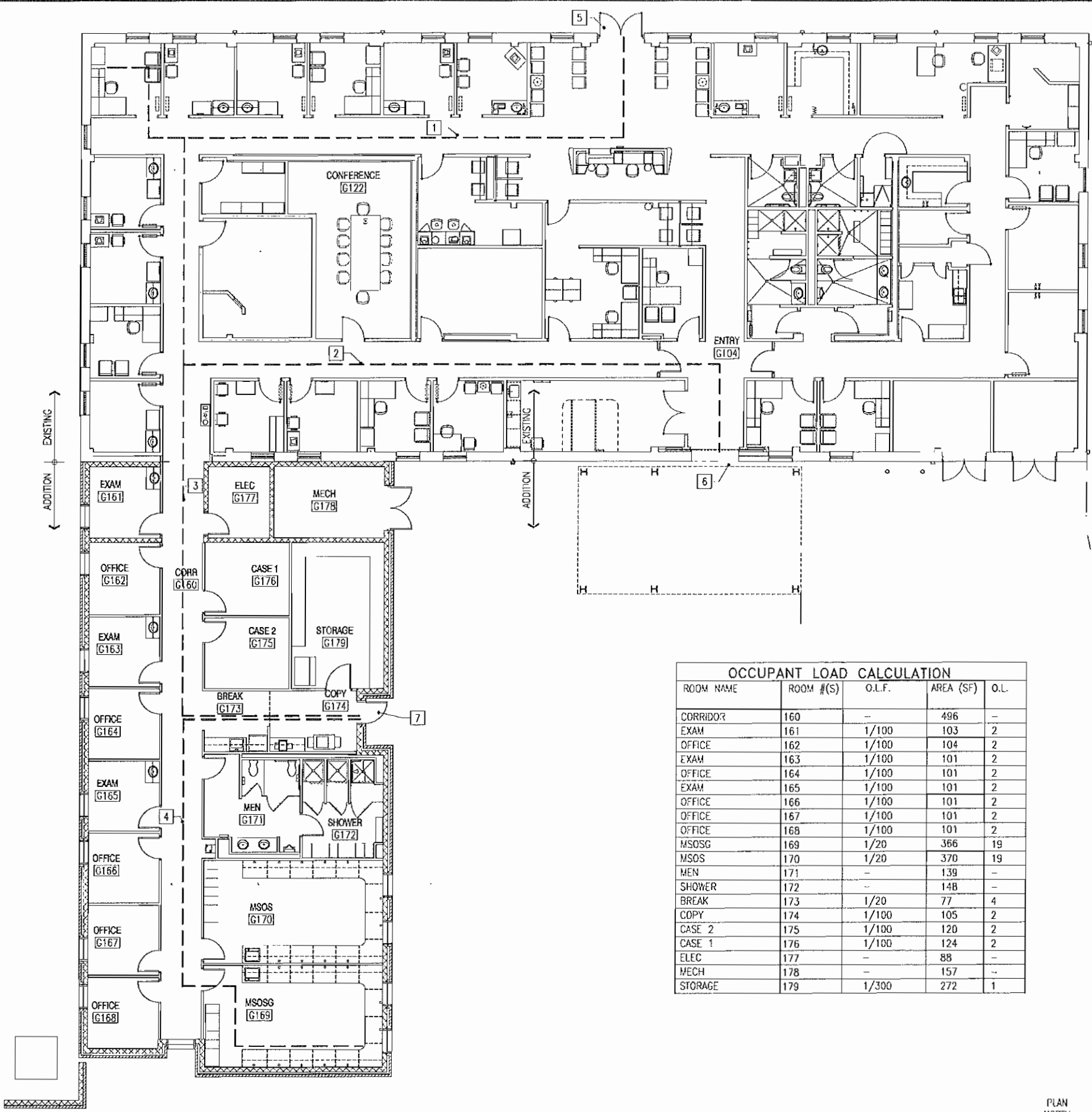
- PRIMARY STRUCTURAL FRAME: 0 HOURS
- BEARING WALLS - EXTERIOR: 0 HOURS
- BEARING WALLS - INTERIOR: 0 HOURS
- NONBEARING WALLS, PARTITIONS, FLOOR CONSTRUCTION, SECONDARY MEMBERS, AND ROOF CONSTRUCTION: 0 HOURS

## OTHER FIRE RESISTANCE RATED SEPARATION

- CORRIDOR WALLS
  - 0-HOUR -NO FIRE SEPARATION REQUIREMENTS FOR EXIT ACCESS CORRIDORS IN BUILDINGS PROTECTED THROUGHOUT BY AN APPROVED, SUPERVISED AUTOMATIC FIRE SPRINKLER SYSTEM

DATE	
DESCRIPTION	
REV	
	
	
	
APPEND	
FOR OWNER MARK	
ACRPT	
DATE	
LES LSH DFW SLP JOK	
BRANCH NUMBER	SULCRAD
CHIEF ENGINEER	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC DISTRICT, VA MARINE CORPS BASE MARSOC COMPLEX - BUILDING RR440 HM2 CHARLES "LUKE" MILAM AID STATION	LIFE SAFETY AND BUILDING CODE ANALYSIS
SCALE	AS NOTED
PROJECT NO.	1132606
CONTR. CENTER NO.	
NAFAC DRAWING NO.	12605639
SHEET	40 OF 74
LS001	

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OCCUPANT LOAD CALCULATION				
ROOM NAME	ROOM #(S)	O.L.F.	AREA (SF)	O.L.
CORRIDOR	160	-	496	-
EXAM	161	1/100	103	2
OFFICE	162	1/100	104	2
EXAM	163	1/100	101	2
OFFICE	164	1/100	101	2
EXAM	165	1/100	101	2
OFFICE	166	1/100	101	2
OFFICE	167	1/100	101	2
OFFICE	168	1/100	101	2
MSOSG	169	1/20	366	19
MSOS	170	1/20	370	19
MEN	171	-	139	-
SHOWER	172	-	148	-
BREAK	173	1/20	77	4
COPY	174	1/100	105	2
CASE 2	175	1/100	120	2
CASE 1	176	1/100	124	2
ELEC	177	-	88	-
MECH	178	-	157	-
STORAGE	179	1/300	272	1

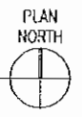
**GENERAL NOTES**

- TOTAL TRAVEL DISTANCE, COMMON PATH OF TRAVEL AND DEAD END CORRIDORS ARE WITHIN THE LIMITS OF NFPA 101 FOR BUSINESS OCCUPANCIES.
- THE FLOOR LAYOUT INCLUDES ALL EXISTING AREAS AND NEW AREAS.
- TOTAL OCCUPANT LOAD 85 PERSONS (NEW ADDITION) + 85 (EXISTING BUILDING FROM PREVIOUS DESIGN) = 150 PERSONS. SEE CALCULATION TABLE THIS SHEET FOR THE NEW ADDITION OCCUPANT LOAD CALCULATION.

**WORK NOTES**

- TOTAL TRAVEL DISTANCE TO CLOSEST EXIT - 96'6" (300 FEET ALLOWED)
- TOTAL TRAVEL DISTANCE TO ALTERNATE EXIT IS 141' (300 FEET ALLOWED)
- TOTAL TRAVEL DISTANCE TO CLOSEST EXIT IS 126' 10" (300 FEET ALLOWED)
- COMMON PATH OF TRAVEL 71' (100 FEET ALLOWED), TOTAL TRAVEL DISTANCE 97' (300 FEET ALLOWED) AND DEAD END CORRIDOR 45' (50 FEET ALLOWED).
- EXIT HAS A CAPACITY OF 355 OCCUPANTS
- EXIT HAS A CAPACITY OF 400 OCCUPANTS
- EXIT HAS A CAPACITY OF 160 OCCUPANTS

**LIFE SAFETY PLAN OVERALL**  
1/8" = 1'-0"

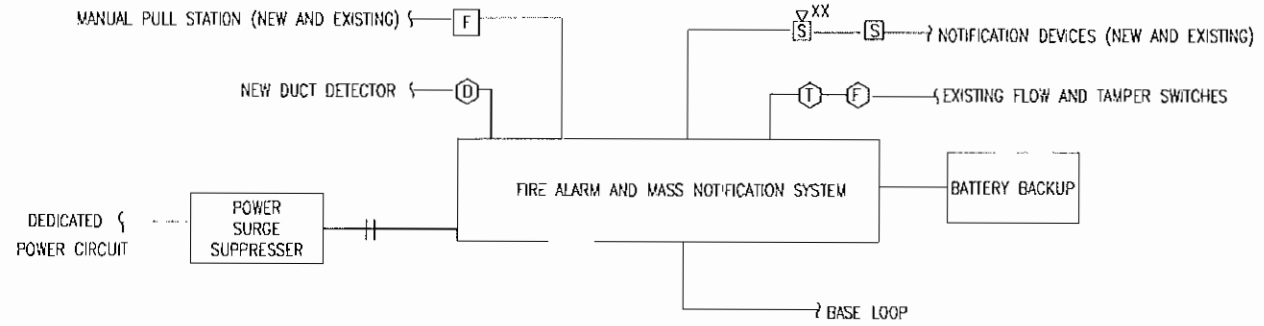


SCALE: 1/8" = 1'-0"

DATE	APPROVAL
DESCRIPTION	DATE
 <b>NATC</b>	
 <b>Lori S. Syle</b> LOUI S. HARRIS No. 037344 <b>PROFESSIONAL ENGINEER</b>	
 <b>IBNA</b>	
PROJECT NO. _____ FOR OWNER NAME _____ OWNER _____ SPECIFIED BY _____ DES. I/S/1 [ ] DES. SLP [ ] DES. [ ] DRAWN BY _____ DES. NO. _____ SHEET NO. _____	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC DISTRICT, IN MARINE CORPS BASE <b>MARSOC COMPLEX - BUILDING RR440</b> <b>HM2 CHARLES "LUKE" MILAM AID STATION</b> LIFE SAFETY FLOOR PLAN	
SCALE AS NOTED PROJECT NO. 1132806 CONSTR. CONTR. NO. _____ NAFC DRAWING NO. 12605640 SHEET 41 OF 74 <b>LS101</b> <small>STANDARD REVISION 8 AUG 2007</small>	

**FIRE ALARM LEGEND:**

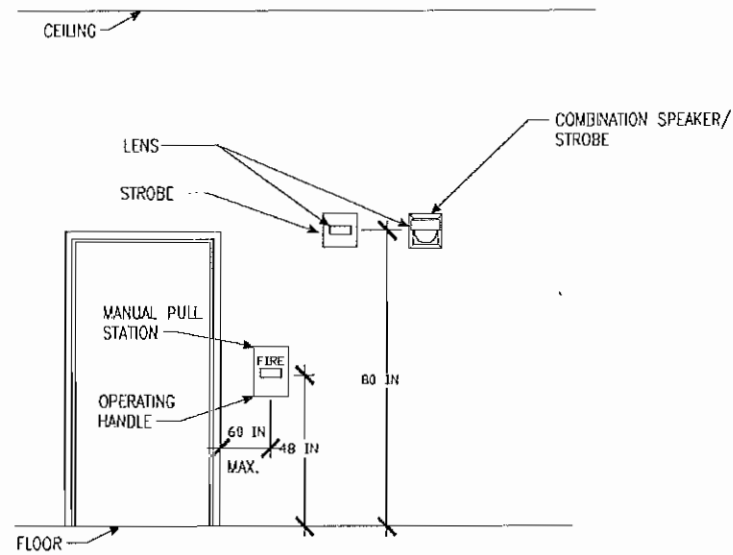
- [F] MANUAL ALARM PULL STATION
- [S] <sup>XX</sup> SPEAKER STROBE
- [S] SPEAKER ONLY
- [FACP] FIRE ALARM CONTROL PANEL-EXISTING TO REMAIN
- [D] DUCT DETECTOR
- [T] TAMPER SWITCH-EXISTING TO REMAIN
- [F] FLOW SWITCH-EXISTING TO REMAIN
- [MNS] MASS NOTIFICATION PANEL-EXISTING TO REMAIN



**FIRE ALARM RISER DIAGRAM**

NTS

NOTE: ALL DEVICES ARE EXISTING EXCEPT WHERE NOTED. NEW DEVICES CONSIST OF SPEAKER STROBES, DUCT DETECTOR AND MANUAL PULL INDICATED ON SHEET F101.



**TYPICAL MOUNTING HEIGHTS FOR WALL MOUNTED DEVICES**

SCALE = N.T.S.

SYSTEM INPUTS	SYSTEM OUTPUTS											
	ANNUNCIATION AT CONTROL PANEL			SYSTEM RESPONSE				FIRE DEPARTMENT NOTIFICATION		EVACUATION SIGNALS		
	1	2	3	4	5	6	7	8	9	10	11	
AUDIO-VISUAL FIRE ALARM INDICATION BY ZONE OR POINT												
AUDIO-VISUAL TROUBLE/SUPERVISORY INDICATION BY ZONE OR POINT												
AUDIO-VISUAL COMMON TROUBLE INDICATION												
SHUT DOWN RESPECTIVE HVAC UNIT												
SHUT DOWN HVAC UNITS THROUGHOUT												
FIRE ALARM												
COMMON TROUBLE CONDITION												
COMMON SUPERVISORY CONDITION												
FIRE EVACUATION AUDIO-VISUAL SIGNALS (THROUGH MAIN FACP)												
MANUAL PULL STATION	X											X
DUCT DETECTOR	X			X								X
AC POWER FAILURE		X	X									
LOW BATTERY VOLTAGE		X	X									
CIRCUIT FAULT		X	X									
SPRINKLER CONTROL VALVE SUPERVISORY SWITCHES		X	X									
MAIN WATER SUPPLY SUPERVISORY SWITCHES		X	X									

**FIRE ALARM MATRIX**

NTS

APPROVED: \_\_\_\_\_ DATE: \_\_\_\_\_

FOR CONTROL PANEL: \_\_\_\_\_

SECRETARY TO DATE: \_\_\_\_\_

DES: LSH [OR] SLP [OR] \_\_\_\_\_

DESIGN NUMBER: **SULCAD**

DATE ENG'D: \_\_\_\_\_

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 MARINE CORPS BASE  
 MARSOC COMPLEX - BUILDING RR440  
 HM2 CHARLES "LUKE" MILAM AID STATION  
 FIRE PROTECTION LEGEND AND MATRIX

SCALE: AS NOTED  
 PROJECT NO. 1132806  
 CONSTR. DATE: N/A

NAVFAC DESIGN NO. 12605641  
 SHEET 42 OF 74  
**F-001**

DATE: 8 AUG 2007



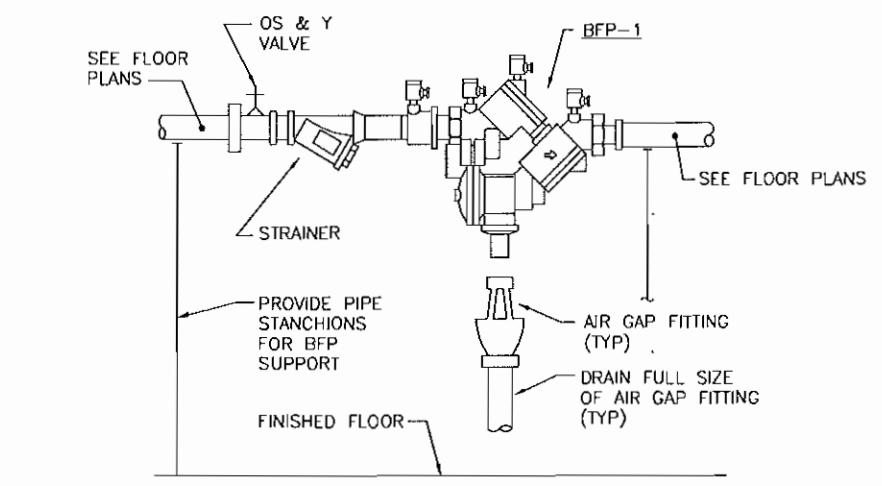
NOTE:  
 LIGHT LINEWEIGHT SYMBOLS INDICATE EXISTING DEVICES, EQUIPMENT, PIPING, ETC. TO REMAIN. HEAVY LINEWEIGHT SYMBOLS INDICATES NEW DEVICES, EQUIPMENT, TO BE PROVIDED AND OR INSTALLED. HEAVY & DASHED LINEWEIGHT SYMBOLS INDICATE DEVICES, EQUIPMENT, PIPING, ETC. TO BE REMOVED.

- D— CONDENSATE DRAIN PIPING
- Z— CHECK VALVE
- S— STRAINER WITH BLOWDOWN VALVE
- G— PRESSURE GAUGE SHUT-OFF COCK
- R— REDUCING FITTING
- V— RELIEF VALVE
- P— PRESSURE REDUCING VALVE
- B— BACKFLOW PREVENTER
- T— THERMOMETER
- WP— SANITARY SEWER OR WASTE PIPE (WP)
- VP— SANITARY VENT PIPE (VP)
- CW— DOMESTIC COLD WATER (CW)
- HW— DOMESTIC HOT WATER (HW)
- POINT OF CONNECTION
- X— BALL VALVE
- B— BACKFLOW PREVENTER
- +— EXTERIOR WALL HYDRANT
- FD— FLOOR DRAIN (FD)
- FCO— FLOOR CLEANOUT (FCO)
- VTR— VENT THRU ROOF
- A— WATER RISER DESIGNATION
- B— WASTE RISER DESIGNATION

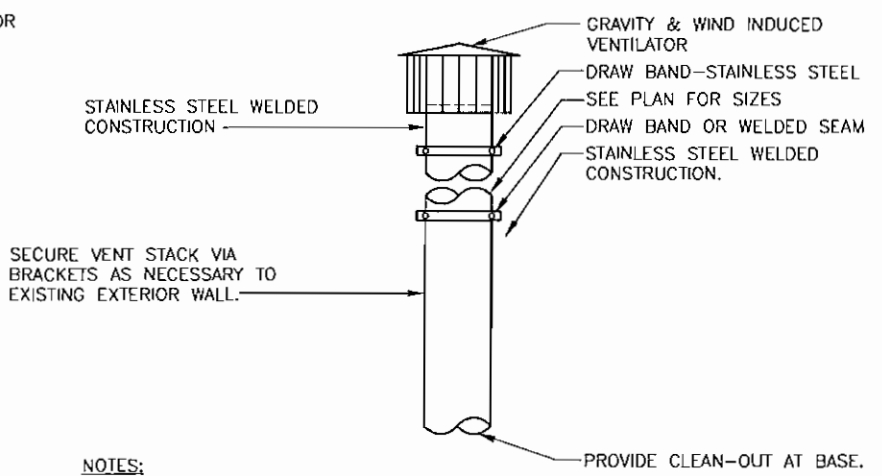
- APPROX APPROXIMATELY
- DET-1 DIAPHRAGM EXPANSION TANK
- EA EACH
- EXIST EXISTING
- FD FLOOR DRAIN
- GAL GALLON
- GPM GALLONS PER MINUTE
- PSIG POUNDS PER SQUARE INCH GAGE
- SV SOLENOID VALVE
- W WATTS
- GWH-1 GAS FIRED WATER HEATER
- 208V/3φ/60HZ VOLTS/PHASE/HERTZ
- VTR VENT THRU ROOF
- WHA WATER HAMMER ARRESTOR

MARK	DESCRIPTION	DETAIL	MOUNTING	PIPE SIZE			REMARKS
				CW	HW	W	
P-1	WALL HUNG WATER CLOSET	FLUSH VALVE 1.28 GPF. (HANDICAP)	WALL	1"	—	4"	①
P-2	COUNTER TOP LAVATORY	STAINLESS STEEL RIM, AT 0.5 GPM.	COUNTER TOP	1/2"	1/2"	1 1/2"	
P-3	SHOWER	1.5 GALLONS PER MINUTE...	WALL	1/2"	1/2"	2"	
P-4	DRINKING WATER COOLER	SELF CONTAINED. ELECTRIC, REFRIGERATED. (HANDICAP)	WALL	1/2"	—	1 1/2"	②
P-5	URINAL	0.125 GPF	WALL	3/4"	—	2"	
P-6	COUNTER TOP LAVATORY	WHITE VITREOUS CHINA AT 0.5 GPM.	COUNTER TOP	1/2"	1/2"	1 1/2"	
P-7	ICE MACHINE OUTLET BOX	1/4 TURN VALVE- 1/2" SWEAT WITH WATER HAMMER ARRESTER	WALL	1/2"	—	—	③
P-8	FLOOR DRAIN	FLOOR DRAIN WITH 5" ROUND STRAINER.	FLOOR	—	—	3"	

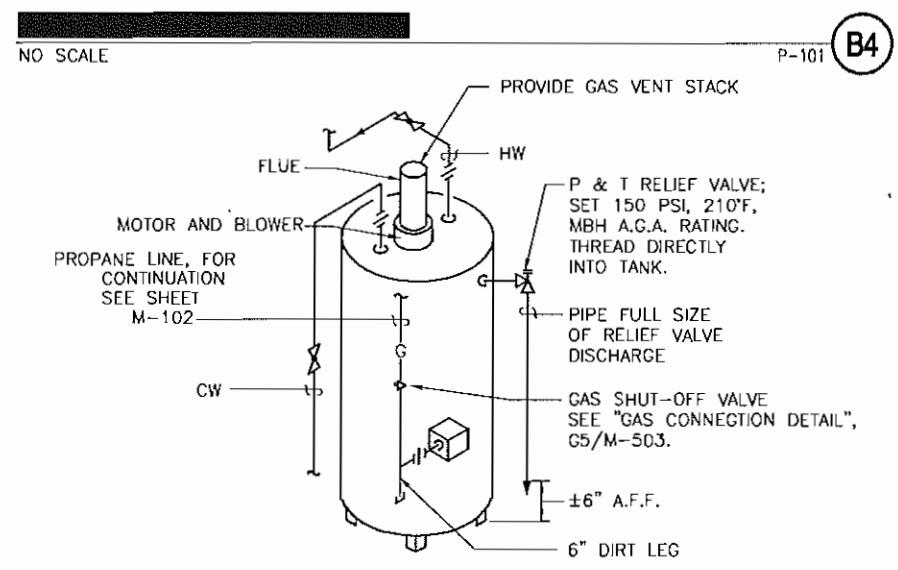
- NOTES:
- ① PROVIDE CARRIER FOR WALL MOUNT APPLICATION.
  - ② WATER COOLER SHALL USE HFC REFRIGERANTS.
  - ③ PROVIDE IN PLASTIC BOX WITH 1/4 TURN ISOLATION VALVE. VALVE SHALL MEET AB1953.



NO SCALE P-001, P-101 **A2**



- NOTES:
1. PROVIDE FOR GWH-1. INSTALL BOILER STACK PER MANUFACTURER'S RECOMMENDATIONS.



NO SCALE P 101 **A4**

**GWH-1**

PROVIDE 74 GALLON PROPANE WATER HEATER. HEATER SHALL BE SIZED TO RECOVER 38 GPH WITH AN 81 DEG F TEMPERATURE RISE. GWH-1 SHALL PROVIDE REQUIRED SUPPLY OF 140°F TO BE MIXED DOWN TO 110°F. PROVIDE THERMOSTATIC, PRESSURE-BALANCED, OR COMBINATION THERMOSTATIC AND PRESSURE-BALANCED TYPE MIXING VALVES TO OBTAIN ABOVE WATER TEMPERATURE. PROVIDE WITH POWER VENT THAT IS FACTORY MOUNTED AND PRE-WIRED.

**BFP-1**

PROVIDE REDUCED PRESSURE ZONE BACKFLOW PREVENTER. BFP-1 SHALL BE 2" NOMINAL WITH A PRESSURE DROP OF 13 PSI AT 57 GPM. TYPICAL MAXIMUM VELOCITY FOR THIS DEVICE SHALL BE 7.5 FPS. SEE "BACKFLOW PREVENTION ASSEMBLY DETAIL" A2/P-001.

**BFP-2**

PROVIDE REDUCED PRESSURE ZONE BACKFLOW PREVENTER. BFP-2 SHALL BE 3/4" NOMINAL WITH A PRESSURE DROP OF 13 PSI AT 13 GPM. TYPICAL MAXIMUM FLOW RATE FOR THIS DEVICE SHALL BE 7.5 FPS. SEE "BACKFLOW PREVENTION ASSEMBLY DETAIL" A2/P-001.

**DET-1**

PROVIDE DIAPHRAGM TYPE EXPANSION TANK FOR POTABLE WATER SYSTEMS WITH A TANK SIZE OF 4.4 GALLONS AND 3.2 GALLONS OF ACCEPTANCE, MAXIMUM WORKING PRESSURE OF 100 PSIG AND MAXIMUM OPERATING TEMPERATURE OF 240 DEGREES FAHRENHEIT.

**WHA-1**

PROVIDE 1/2" FACTORY CHARGED COMMERCIAL PISTON TYPE WATER ARRESTOR. DESIGNED FOR MAX OPERATING PRESSURE OF 150 PSI AND MAX TEMPERATURE RANGE OF 30-180 DEG F.

**TG-1**

MECHANICAL ROOM G-178 FLOOR DRAIN SHALL BE PROTECTED BY USE OF A TRAP GUARD. THE TRAP GUARD SHALL SIT WATERTIGHT INSIDE THE DRAIN AND STAYS OPEN WHEN WATER IS FLOWING BUT CLOSSES WHEN THE WATER STOPS. WHEN THE TRAP GUARD IS CLOSED, TRAP GUARD SUCCESSFULLY RESISTS ANY EMISSION OF SEWER GAS, EVEN IF THAT GAS IS UNDER SIGNIFICANT PRESSURE. IT USES A FLEXIBLE TUBE MADE OF AN ELASTOMERIC TM MATERIAL THAT IS TREATED TO ROLL UP WHEN WATER IS NOT PASSING. TRAP GUARD IS FLEXIBLE ENOUGH TO OPEN AND PERMIT WATER FLOW, FROM AN INTERMITTENT DRIP TO FIRE-HOSE TYPE FLOWS.

**POSITIVE DISPLACEMENT WATER METER AND REMOTE READER**

WATER METER SHALL BE POSITIVE DISPLACEMENT TYPE CONFORMING TO AWWA C700 AND SHALL BE CONNECTED TO THE DDC CONTROL SYSTEM TO BE MONITORED REMOTELY.

**BFA**  
 BONMAN, FOSTER & ASSOC.  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26th ROAD SOUTH  
 ARLINGTON, VA 22206

NAVFAC  
 COMMANDER  
 JERRY D. HOLANDS  
 Lic. No. 48854  
 9-27-11  
 PROFESSIONAL ENGINEER  
 HBA  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NAVFAC  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC  
 SCALE: AS NOTED  
 PROJECT NO. 1132806  
 CONSTR. CONTR. NO.  
 NAVFAC DRAWING NO. 12605643  
 SHEET 44 OF 74  
 DESIGN REASON 1.4.6.7.67

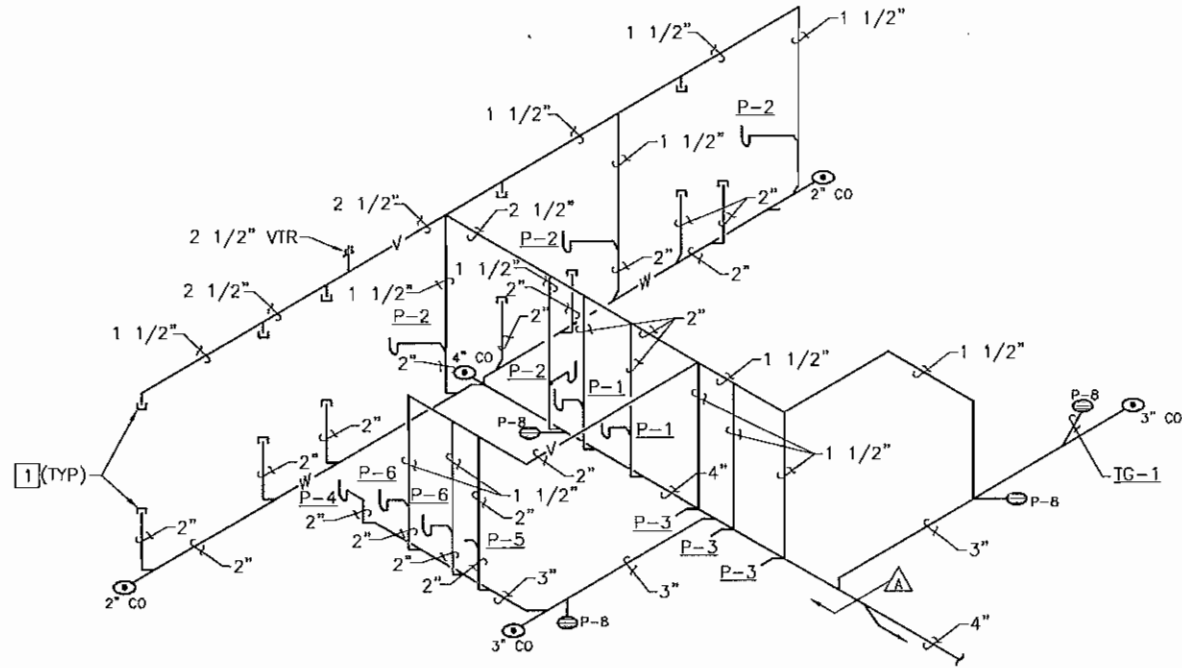


D

C

B

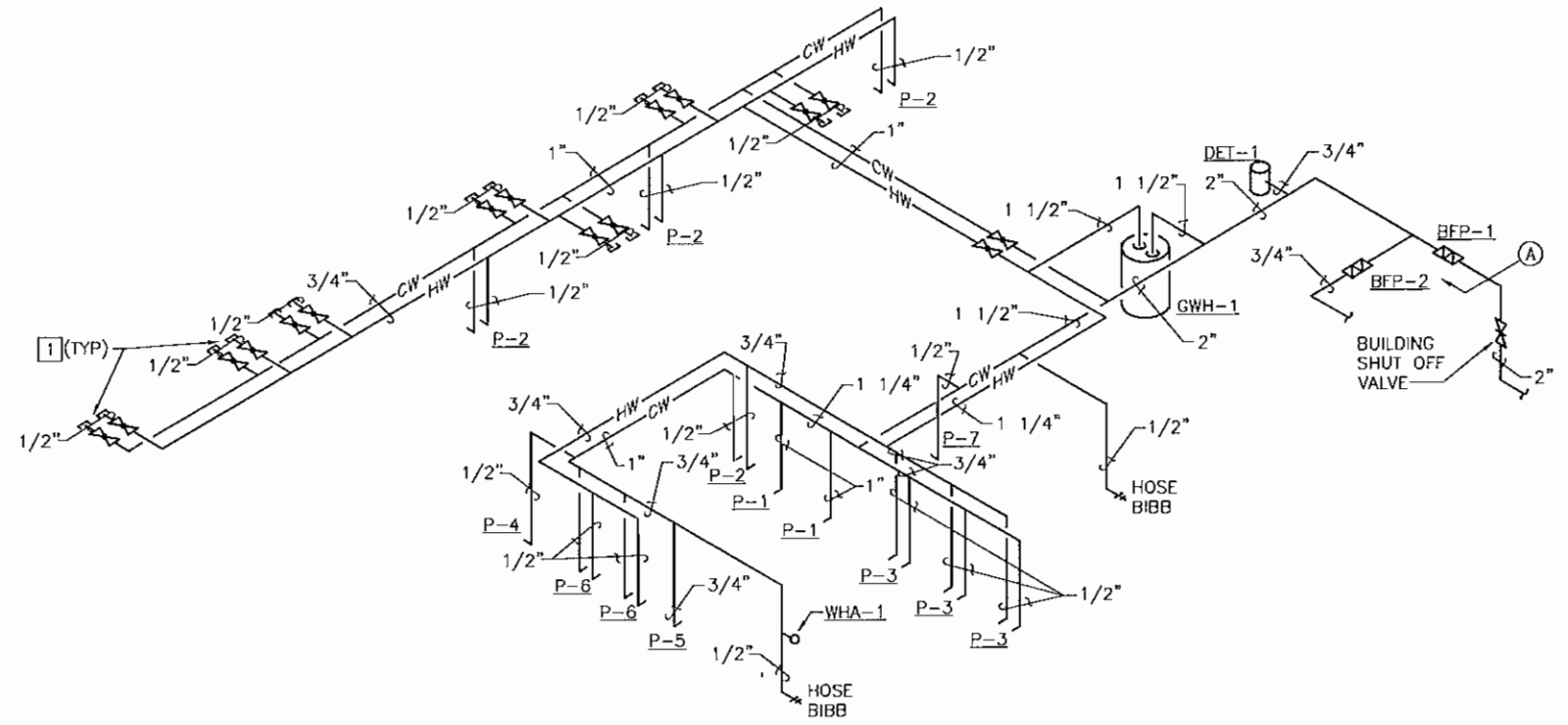
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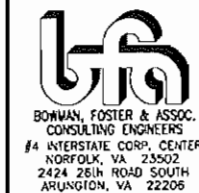
NO SCALE

(THIS SHEET ONLY)

1 CAP FOR FUTURE USE.



NO SCALE



**BOWMAN, FOSTER & ASSOC.**  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26th ROAD SOUTH  
 ARLINGTON, VA 22206

DATE	APP'D
DESCRIPTION	REV
PROJECT	
TOP DRAWER W/FAC	
ACTY	
DESIGNER	DATE
DES CML	DPK/LB
CHK/SGR	
BRANCH MANAGER	
CHK ENG/ACT	
CD	
DEPARTMENT OF THE NAVY	
NAVAL FACILITIES ENGINEERING COMMAND	
INDIVIDUAL	
CAMP LEJEUNE, NC	
MARINE CORPS BASE	
WATER AND WASTE RISER	
SCALE:	AS NOTED
PROJECT NO.	1132806
CONSTR. CONTR. NO.	
NAVAC DRAWING NO.	12605645
SHEET	46 OF 74
DRAWING REVISION & A/E LOG	

D

C

B

A

1


2

3

4


5


**NOTE:**  
 LIGHT LINEWEIGHT SYMBOLS INDICATE EXISTING DEVICES, EQUIPMENT, PIPING, ETC. TO REMAIN. HEAVY LINEWEIGHT SYMBOLS INDICATES NEW DEVICES, EQUIPMENT, TO BE PROVIDED AND OR INSTALLED. HEAVY & DASHED LINEWEIGHT SYMBOLS INDICATE DEVICES, EQUIPMENT, PIPING, ETC. TO BE REMOVED.

 MANUAL BALANCING DAMPER WITH LOCKING QUADRANT

 LINED DUCTWORK

 DUCT TURNS UP IN DIRECTION OF ARROW

 ELBOW WITH TURNING VANES


 NEW WORK NOTE MARK


 DEMOLITION NOTE MARK


 GRILLE OR DIFFUSER MARK - SEE SCHEDULE SHEET M-601


 POINT OF CONNECTION-NEW TO EXISTING AND POINT OF DEMOLITION TERMINATION

 SUPPLY DUCT SECTION


 RETURN OR EXHAUST DUCT SECTION

 THERMOSTAT/SENSOR MOUNT 60" ABOVE FLOOR  
 SUBSCRIPT INDICATES EQUIPMENT BEING CONTROLLED

 EMERGENCY SHUTDOWN SWITCH MOUNT 60" ABOVE FLOOR  
 SUBSCRIPT INDICATES EQUIPMENT BEING CONTROLLED

 CARBON DIOXIDE SENSOR MOUNT 60" ABOVE FLOOR

 SMOKE DETECTOR

 DUCT TURNING DOWN

 BALANCING DAMPER

AC-1 AIR CURTAIN FAN - SEE SCHEDULE SHEET M-602

AS-1 AIR SEPARATOR - SEE SCHEDULE SHEET M-602

B-1 CONDENSING GAS FIRED BOILER - SEE SCHEDULE SHEET M-601

CSF-1 CHEMICAL SHOT FEEDER -SEE SCHEDULE SHEET M-602

EF-1 ROOFTOP POWER VENTILATOR - SEE SCHEDULE SHEET M-601

ET-1 EXPANSION TANK- SEE SCHEDULE SHEET M-602

L-1 LOUVER - SEE SCHEDULE SHEET M-602

P-1 CIRCULATING PUMP MARK - SEE SCHEDULE SHEET M-601

RTU-1 ROOFTOP UNIT AIR HANDLING UNIT - SEE SCHEDULE SHEET M-601

UH-1 HOT WATER UNIT HEATER - SEE SCHEDULE SHEET M-601

VAV-1 SHUT OFF TYPE VAV BOX - SEE SCHEDULE SHEET M-602

—CHS— CHILLED WATER SUPPLY

—CHR— CHILLED WATER RETURN

—HWS— HOT WATER SUPPLY

—HWR— HOT WATER RETURN

—G— PROPANE

ATFP ANTITERRORISM/FORCE PROTECTION

AFF ABOVE FINISHED FLOOR

AFUE ANNUAL FUEL UTILIZATION EFFICIENCY

APD AIR PRESSURE DROP

APPROX APPROXIMATELY

BD BALANCING DAMPER

BTUH BRITISH THERMAL UNIT PER HOUR

CFH CUBIC FEET PER HOUR

CFM CUBIC FEET PER MINUTE

DN DOWN

EAT ENTERING AIR TEMPERATURE

EDB ENTERING DRY BULB

EMD END OF MAIN DRIP

EWB ENTERING WET BULB

EWT ENTERING WATER TEMPERATURE

ESP EXTERNAL STATIO PRESSURE

EXIST EXISTING

FDB DEGREE FAHRENHEIT DRY BULB

FPM FEET PER MINUTE

FT FEET

FWB DEGREE FAHRENHEIT WET BULB

GPH GALLONS PER HOUR

GPM GALLONS PER MINUTE

"HG INCHES OF MERCURY

HP HORSE POWER

KW KILOWATT

LAT LEAVING AIR TEMPERATURE

LDB LEAVING DRY BULB

LWB LEAVING WET BULB

LWT LEAVING WATER TEMPERATURE

MAX MAXIMUM

MIN MINIMUM

MBH THOUSAND BTU/HR

MCA MINIMUM CIRCUIT AMPS

MFS MAXIMUM FUSE SIZE

OA OUTSIDE AIR

PD PRESSURE DROP

PSIG POUNDS PER SQUARE INCH GAGE

%RH PERCENT RELATIVE HUMIDITY

PRV PRESSURE RELIEF VALVE

RA RETURN AIR

RLA RATED LOAD AMPS

RPM REVOLUTIONS PER MINUTE

SA SUPPLY AIR

SP STATIC PRESSURE

SST SATURATED SUCTION TEMPERATURE

TS TIP SPEED

T\*STAT THERMOSTAT

TYP TYPICAL

"WC INCHES WATER COLUMN

WPD WATER PRESSURE DROP

PH PHASE

(THIS SHEET ONLY)

SUSPENDED PIPE AND DUCT

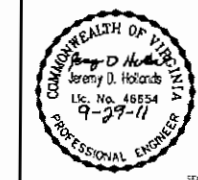
1. SUSPENDED PIPE AND DUCT WHICH IMPOSE A LOAD OF 31 POUNDS OR MORE ON THEIR SUPPORTS SHALL BE INSTALLED TO RESIST FORCES OF 0.5 TIMES THE PIPE/DUCT WEIGHT IN ANY DIRECTION AND 1.5 TIMES THE PIPE/DUCT WEIGHT IN THE DOWNWARD DIRECTION.

FLOOR MOUNTED EQUIPMENT

2. ALL FLOOR MOUNTED MECHANICAL EQUIPMENT WITHOUT VIBRATION ISOLATION SHALL BE BOLTED TO THE FLOOR OR A CONCRETE PAD.

SUSPENDED EQUIPMENT

3. ALL SUSPENDED MECHANICAL EQUIPMENT WEIGHING 31 POUNDS OR MORE SHALL BE INSTALLED TO RESIST FORCES OF 0.5 TIMES THE EQUIPMENT WEIGHT IN ANY DIRECTION AND 1.5 TIMES THE EQUIPMENT WEIGHT IN THE DOWNWARD DIRECTION. SEE "ANTITERRORISM/FORCE PROTECTION DETAILS" SHEET A5 / M-504 FOR DETAILS ON THE SUPPORT OF SUSPENDED MECHANICAL EQUIPMENT WEIGHING 31 POUNDS OR MORE.



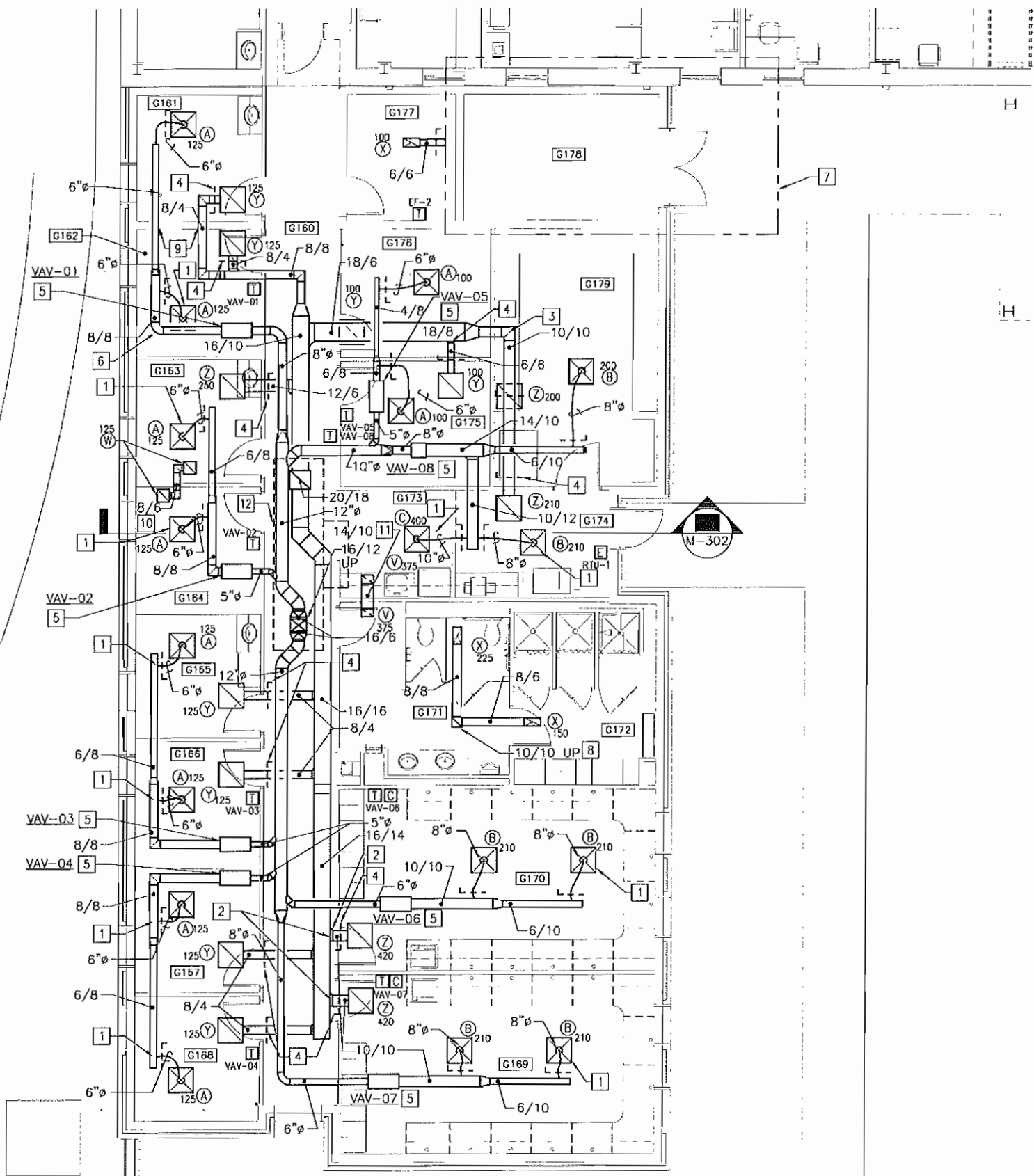
APPROVED	DATE
FOR CHECKER/DATE	
FOR DATE	
DESIGNER	
BRANCH MANAGER	PRW
DRFT ENG./NO.	
DATE	

DEPARTMENT OF THE NAVY  
 NAVAL STATION  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NORFOLK, VA  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC

SCALE	AS NOTED
PROJECT NO.	1132808
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12605646
SHEET	47 OF 74

**BF&A**  
 BOWMAN, FOSTER & ASSOC.  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26th ROAD SOUTH  
 ARLINGTON, VA 22206

D  
C  
B  
A



- (THIS SHEET ONLY)
- 1 SEE "CEILING DIFFUSER DUCTWORK TAKE-OFFS", C4/M-501.
  - 2 SEE "RETURN BRANCH DUCTWORK", C5/M-501.
  - 3 SEE "DUCTWORK SQUARE VANED ELBOWS", A5/M-501.
  - 4 SEE "VOLUME DAMPER DETAIL", C4/M-502.
  - 5 SEE "VAV TERMINAL UNIT DETAIL", C2/M-502. SUSPEND UNITS ABOVE CEILING SPACE. SEE "ANTITERRORISM/FORCE PROTECTION DETAILS", A5/M-504 FOR EQUIPMENT BRACING DETAILS.
  - 6 SEE "DUCTWORK RADIUS ELBOWS", C5/M-502.
  - 7 SEE ENLARGED PLAN, SHEET M-401.
  - 8 ROUTE DUCTWORK UP THROUGH ROOF.
  - 9 SLEEVE DUCTWORK THROUGH MASONRY BLOCK. SEE "DUCTWORK WALL SLEEVE DETAIL", B5/M-502.
  - 10 PROVIDE TRANSFER DUCT. SEE "TRANSFER DUCT DETAIL", B2/M-503.
  - 11 SEE "MAKE UP AIR DUCT DETAIL" A4/M-503.
  - 12 OUTLINE OF RTU-1.

SCALE: 3/16" = 1'-0"

NOTE: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED.

GRAPHIC SCALE:  
 3/16"=1'-0" 0' 5' 10' 20'

**BOWMAN, FOSTER & ASSOC.**  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26th ROAD SOUTH  
 ARLINGTON, VA 22206

NO. _____	DATE _____	APPR. _____
NO. _____	DATE _____	DESIGNER _____
NO. _____	DATE _____	CHECKER _____
NO. _____	DATE _____	DATE _____

**NAVSTA**

COMMONWEALTH OF VIRGINIA  
 Jerry D. Holands  
 Lic. No. 46854  
 9-29-11  
 PROFESSIONAL ENGINEER

**HBA**

NAVAL FACILITIES ENGINEERING COMMAND  
 NAVAL STATION  
 NORFOLK, VA  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC

DUCTWORK PLAN

SCALE: AS NOTED  
 PROJECT NO. 1132806  
 DRAWING NO. 12605647  
 SHEET 48 OF 74

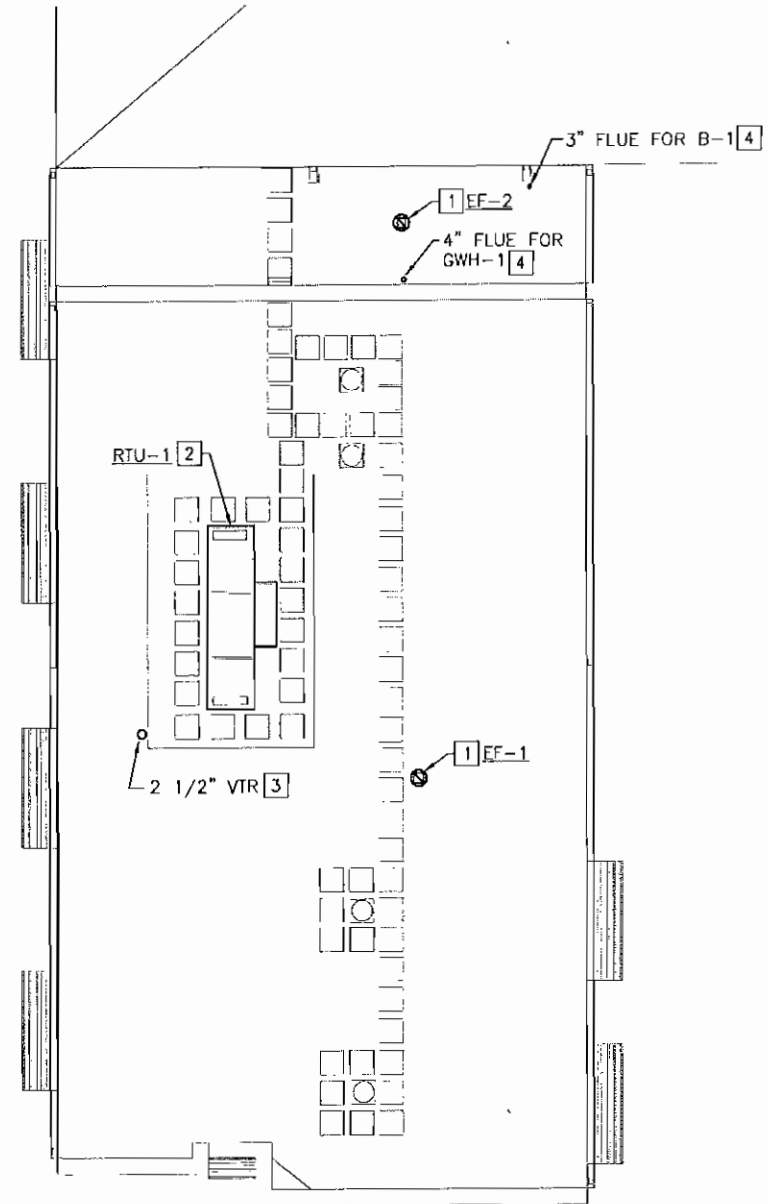
DEPARTMENT OF THE NAVY  
 NAVAL STATION  
 NORFOLK, VA  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC

DATE: 8 AUG 2007

1 2 3 4 5



D  
C  
B  
A



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

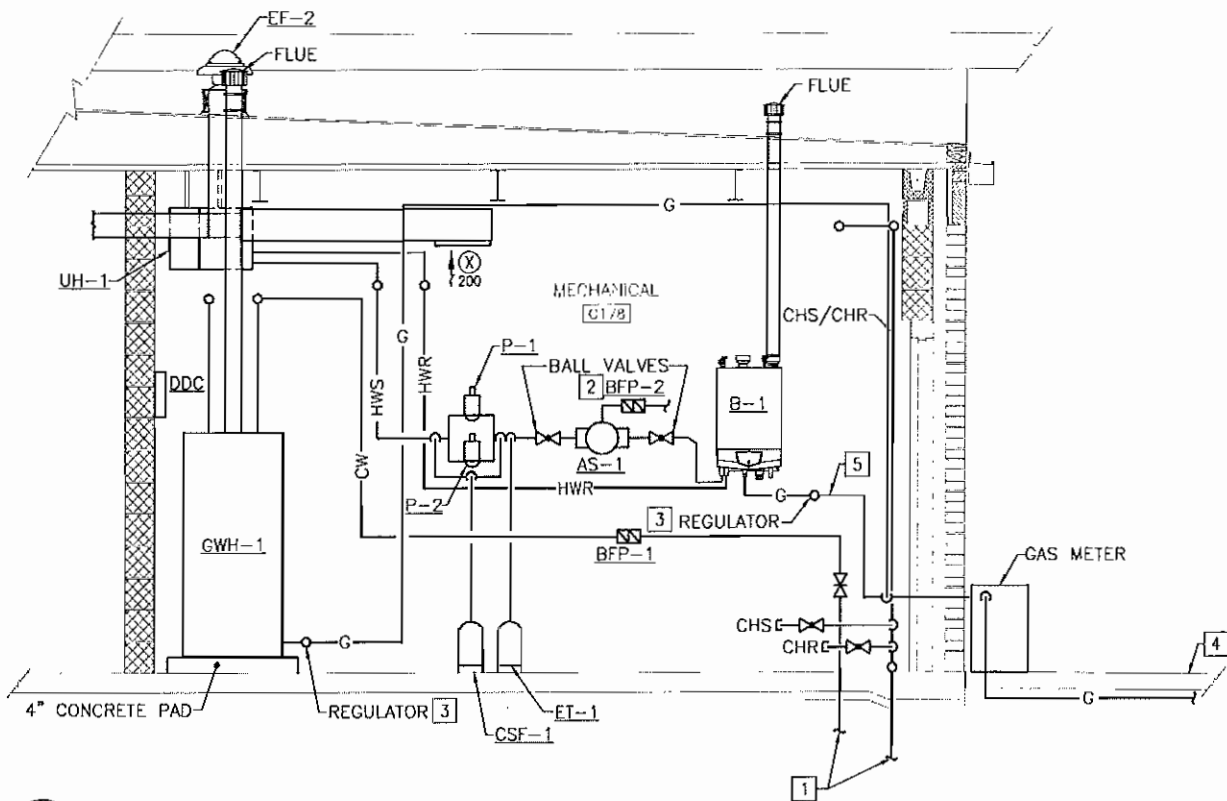
- (THIS SHEET ONLY)
- [1] SEE "ROOFTOP POWER VENTILATOR DETAIL", B3/M--502.
  - [2] SEE "ROOFTOP AIR HANDLING UNIT DETAIL", A4/M--502. PROVIDE WITH MANUFACTURE SUPPLIED ROOF CURB. PROVIDE WITH PIPING CHASE AS SHOWN.
  - [3] SEE SHEET P-301 FOR CONTINUATION.
  - [4] SEE SHEET M-401 FOR CONTINUATION.

NOTE: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED.

GRAPHIC SCALE:  
 1/8"=1'-0" 0' 5' 10' 20' 30'

**BOWMAN, FOSTER & ASSOC.**  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26th ROAD SOUTH  
 ARLINGTON, VA 22206

DATE	APPROVED
DESCRIPTION	
SYN	
 NAVFAC	
 COMMONWEALTH OF VIRGINIA Jeremy D. Holcomb Lic. No. 45654 9-29-11 PROFESSIONAL ENGINEER	
 HBA	
PROJECT	
FOR COMMAND WORK	
ACCOM	
DESIGNER TO DATE	
DESIGNER	DES: CML    DR: KLB    DR: JDH
PROJECT MANAGER	
DEPARTMENT OF THE NAVY	
NAVAL STATION	
NATIONAL FACILITIES ENGINEERING COMMAND	
NORFOLK, VA	
MARINE CORPS BASE	
CAMP LEJEUNE, NC	
ROOF PLAN	
SCALE:	AS NOTED
PROJECT NO.	1132806
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12605649
SHEET	50 OF 74



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

M-401 B3

(THIS SHEET ONLY)

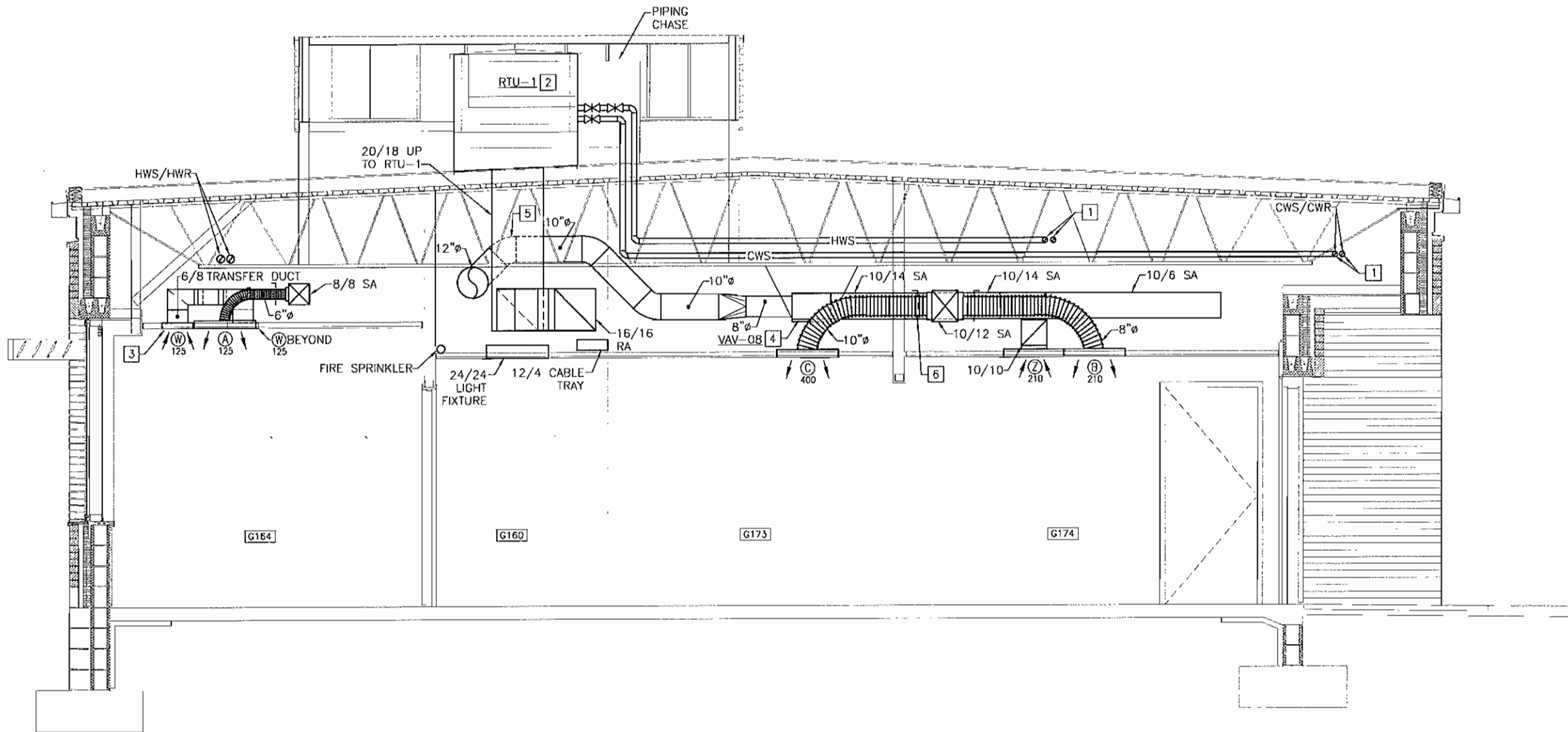
- 1 SLEEVE CHILLED WATER SUPPLY AND RETURN PIPING THROUGH SLAB.
- 2 PROVIDE MAKE-UP WATER PIPING TO AS-1, SEE SHEET P-101 FOR CONTINUATION.
- 3 SEE "GAS CONNECTION DETAIL", C5/M-503.
- 4 SEE CIVIL DRAWINGS FOR CONTINUATION.
- 5 SEE "PROFANE RISER DETAIL" A2/M-503.

NOTE: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED.

GRAPHIC SCALE:  
 1/2" = 1'-0" 1' 0' 1' 2' 3' 4' 5'

**BONMAN, FOSTER & ASSOC.**  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26th ROAD SOUTH  
 ARLINGTON, VA 22206

DATE	APPR
DESCRIPTION	SYN
PROJECT	4E LOCC
TOP DRAWING NAME	
ACTIVITY	
WORKSHOP TO DATE	
DESIGNED BY	WLF
CHECKED BY	SGR
BRANCH MANAGER	
DEPT. ENG. ADR	
DEPARTMENT OF THE NAVY NAVAL STATION MARINE CORPS BASE CAMP LEJEUNE, NC	
SCALE:	AS NOTED
PROJECT NO.	1132806
CONSTR. CONTR. NO.	
NAVIC DRAWING NO.	12605650
SHEET	51 OF 74



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

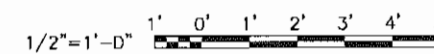
M-101 B5

(THIS SHEET ONLY)

- 1 SEE "PIPING HANGER DETAIL", A2/M-502.
- 2 SEE ROOF TOP AIR HANDLING UNIT DETAIL", A4/M-502.
- 3 SEE TRANSFER DUCT DETAIL", B2/M-503.
- 4 SEE "VAV TERMINAL UNIT DETAIL", C2/M-502. FOR EQUIPMENT BRACING, SEE "ANITERRORISM/FORCE PROTECTION DETAILS", A5/M-504.
- 5 COORDINATE WITH CEILING JOISTS.
- 6 SEE "CEILING DIFFUSER DUCTWORK TAKE OFFS", C4/M-501.

NOTE: IF THIS DRAWING IS A REDUCTION,  
GRAPHIC SCALE MUST BE USED.

GRAPHIC SCALE:



BOWMAN, FOSTER & ASSOC.  
CONSULTING ENGINEERS  
44 INTERSTATE CORP. CENTER  
NORFOLK, VA 23502  
2424 26th ROAD SOUTH  
ARLINGTON, VA 22206

NO.	DATE	DESCRIPTION

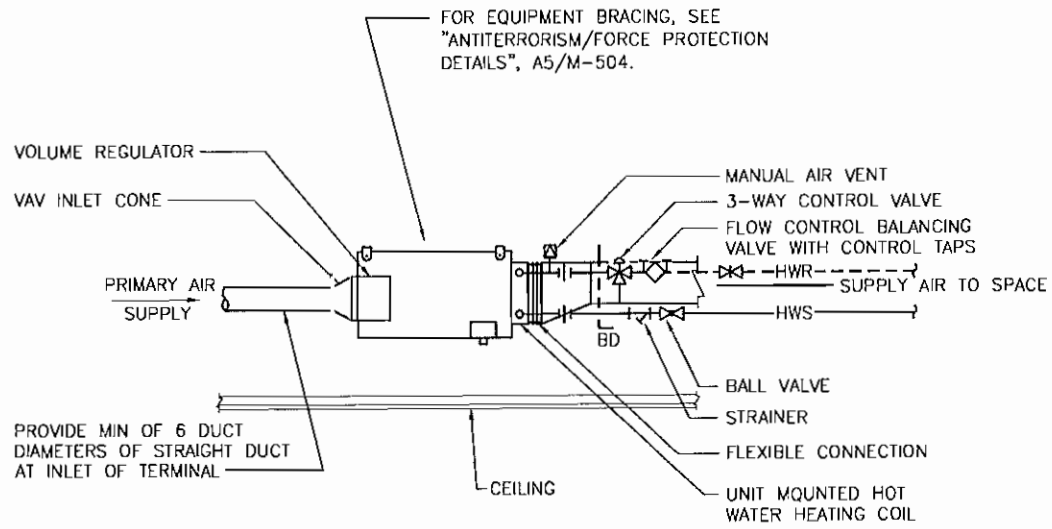


APPROVALS
DESIGNED BY
CHECKED BY
DATE
PROJECT NO.
PROJECT NAME
PROJECT LOCATION
PROJECT DESCRIPTION

DEPARTMENT OF THE NAVY	SECTION
NAVAL FACILITIES ENGINEERING COMMAND	
NORFOLK, VA	
MARINE CORPS BASE	
CAMP LEJEUNE, NC	
SCALE: AS NOTED	
PROJECT NO. 1132806	
CONTRACT NO.	
NAVFAC DRAWING NO. 12605651	
SHEET 52 OF 74	







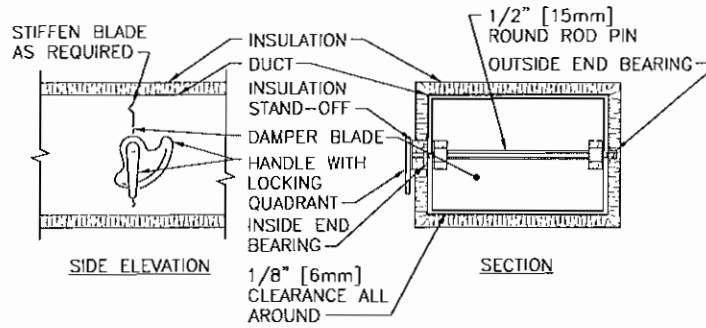
NOTE: VAV TERMINALS SHALL NOT BE MORE THAN 12" FROM THE ACOUSTICAL TILE FOR MAINTENANCE.

**VAV TERMINAL UNIT DETAIL**

NO SCALE

M-101, M-302

C2



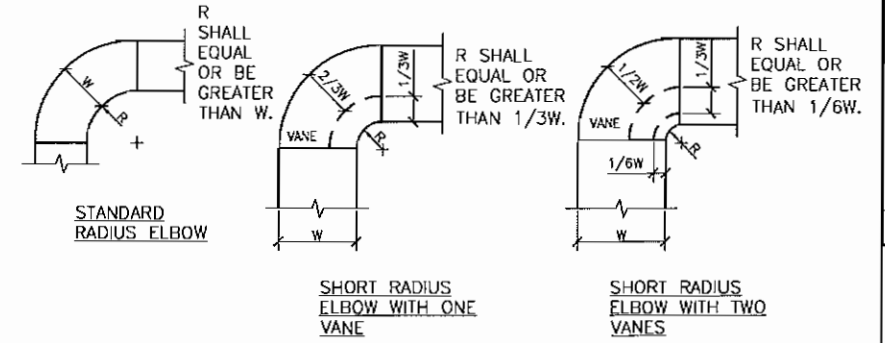
NOTE:

- DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
- DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

NO SCALE

M-101

C4



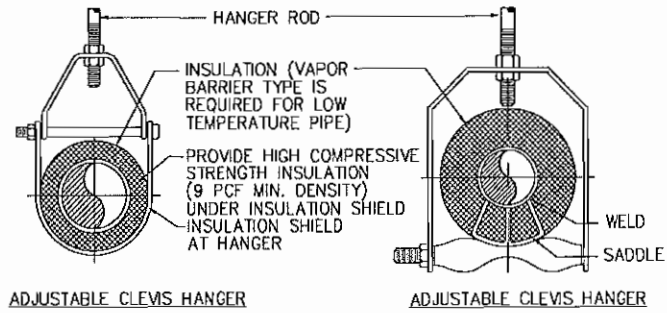
NOTE:

- THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
- ALL STANDARD RADIUS ELBOWS SHOWN ON FLOOR PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

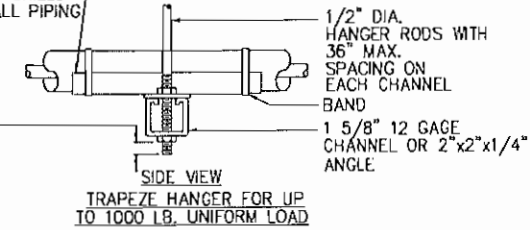
NO SCALE

M-101

C5



PROVIDE INSULATION SHIELD AND INSERT FOR ALL PIPING (8" MIN.)



**TYPICAL PIPE HANGERS**

MAXIMUM PIPE/TUBING SUPPORT SPACING											
NOM. SIZE IN.	THRU 3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8
PIPE FT.	7	7	7	9	10	11	12	14	16	17	19
TUBING FT.	5 FT	6	7	8	8	9	10	12	13	14	16

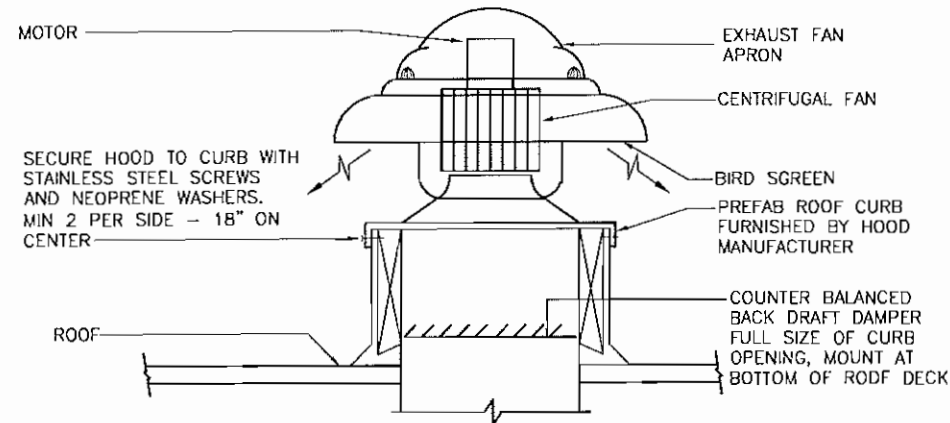
NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

**PIPING HANGER DETAIL**

NO SCALE

M-102

A2

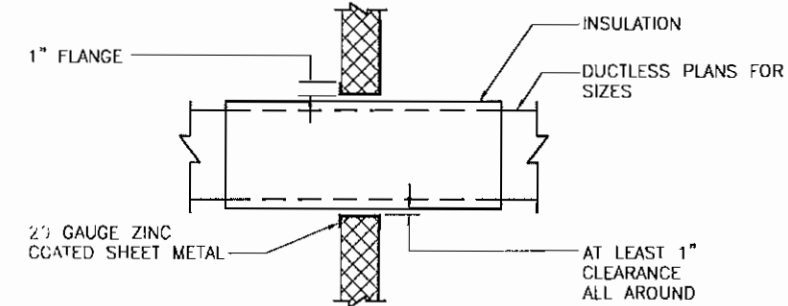


**ROOF TOP POWER VENTILATOR DETAIL**

NO SCALE

M-103, M-401

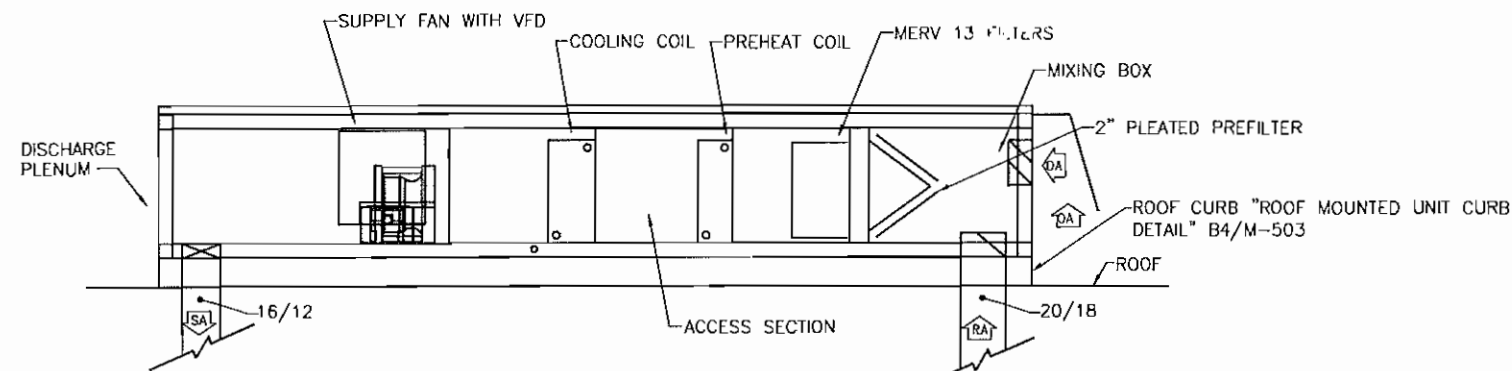
B3



NO SCALE

M-101

B5



NOTE:

- VFD PROVIDED BY ROOF TOP AIR HANDLING MANUFACTURER.

**ROOF TOP AIR HANDLING UNIT DETAIL**

NO SCALE

M-103, M-302

A4

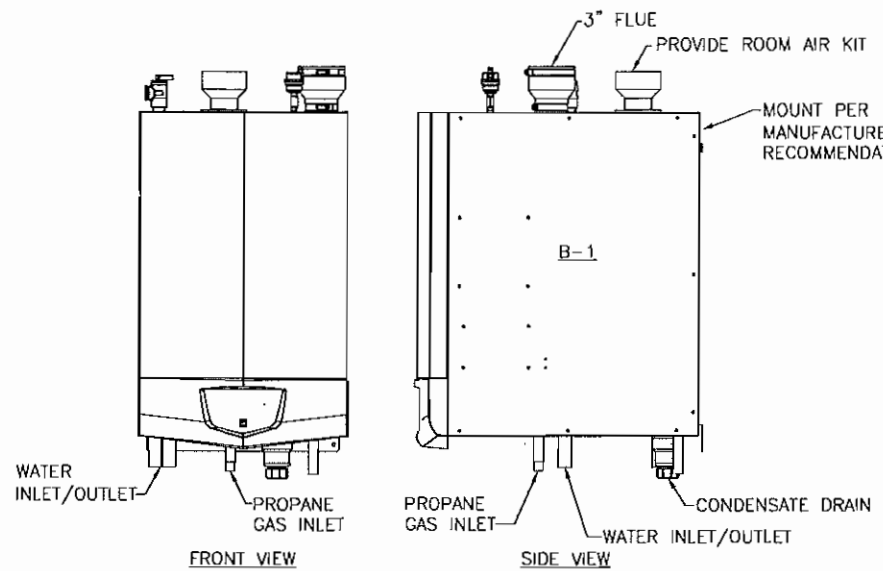
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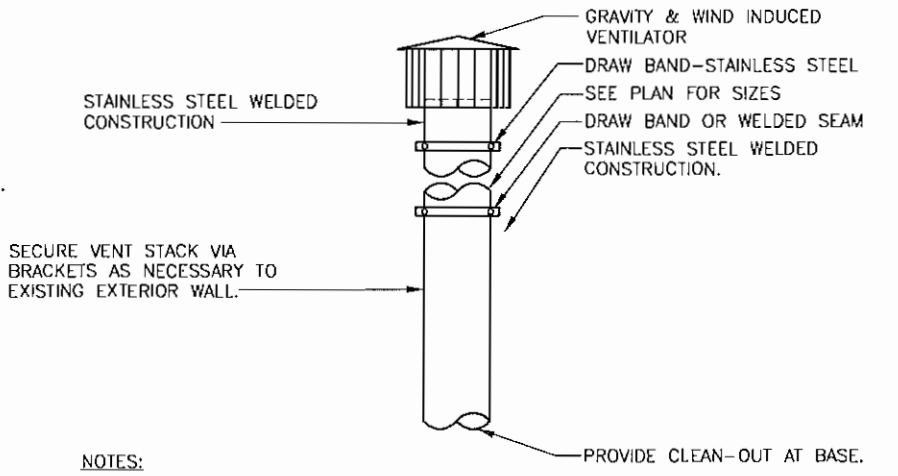
PROJECT NO.	1132805
DESIGNER	DESIGNER
DATE	DATE
SCALE	SCALE
PROJECT NO.	PROJECT NO.
DESIGNER	DESIGNER
DATE	DATE
SCALE	SCALE

DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
MARINE CORPS BASE  
CAMP LEJEUNE, NC

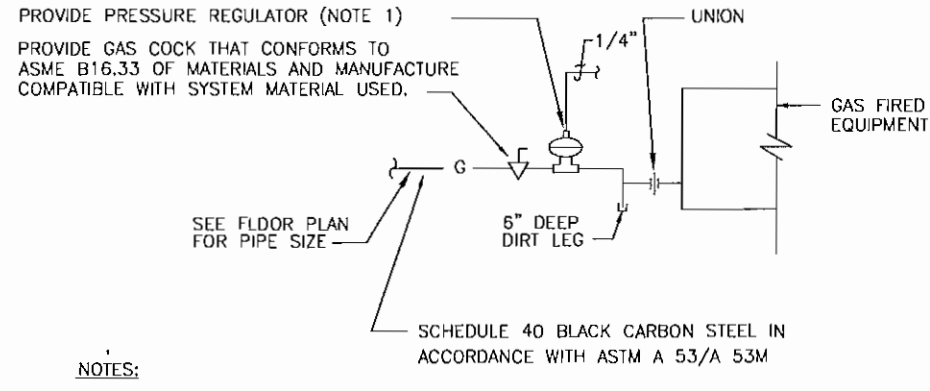
SCALE	AS NOTED
PROJECT NO.	1132805
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12605654
SHEET	55 OF 74



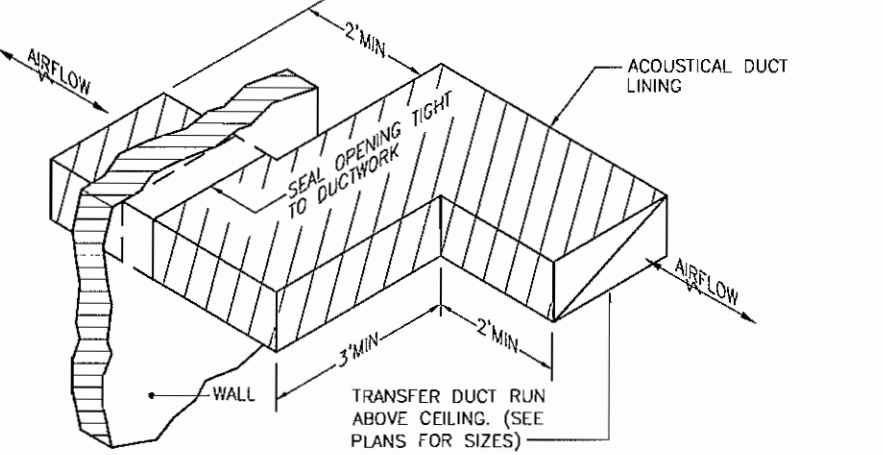
**BOILER INSTALLATION DETAIL**  
NO SCALE M-401 (C2)



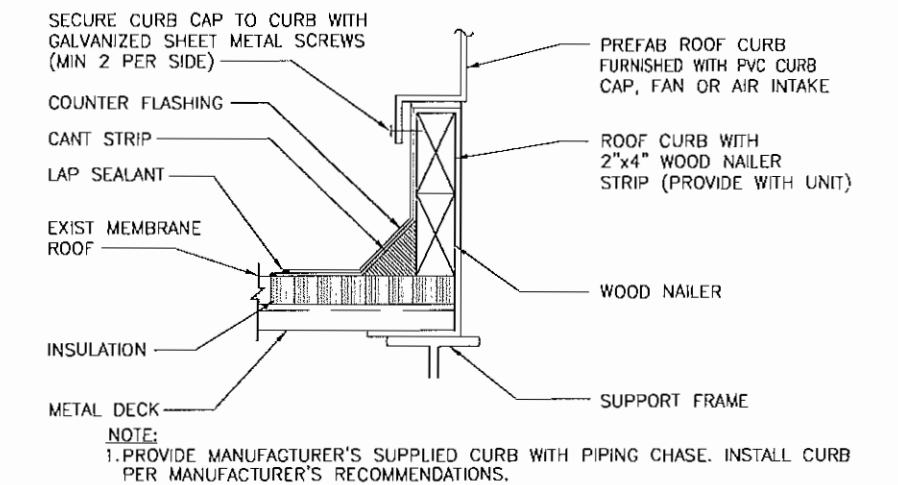
**BOILER STACK DETAIL**  
NO SCALE M-401 (C3)



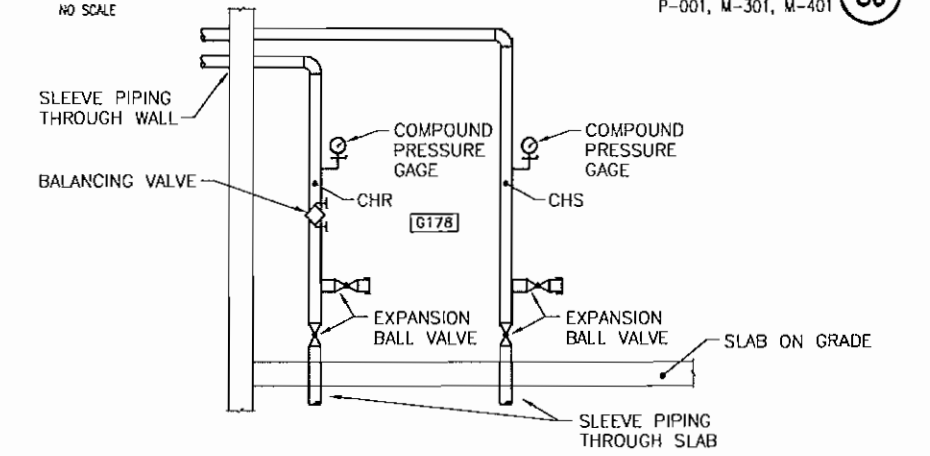
**GAS CONNECTION DETAIL**  
NO SCALE P-001, M-301, M-401 (C5)



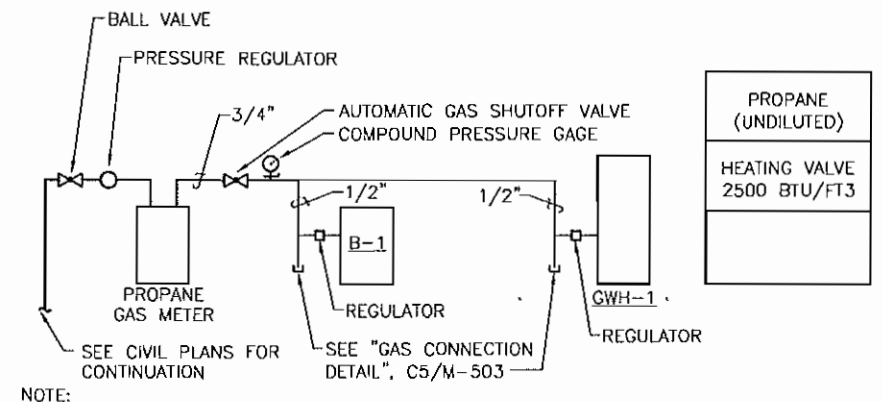
**ACOUSTICAL DUCT LINING**  
NO SCALE M-101, M-302 (B2)



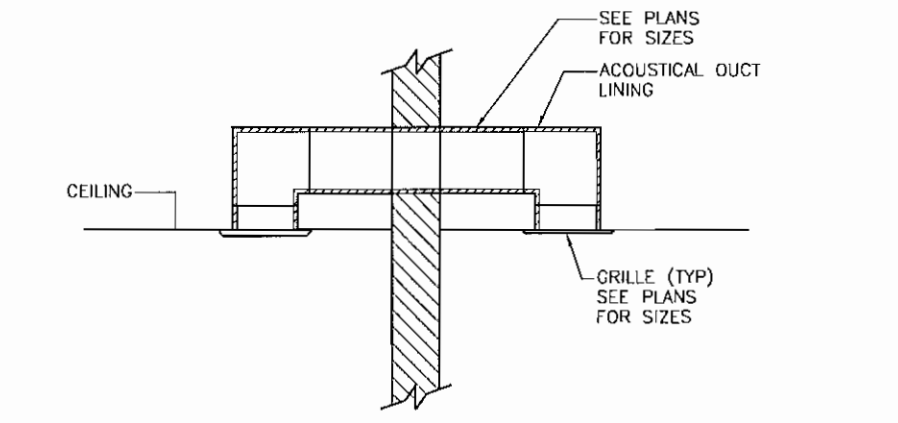
**PREFAB ROOF CURB**  
NO SCALE M-502 (B4)



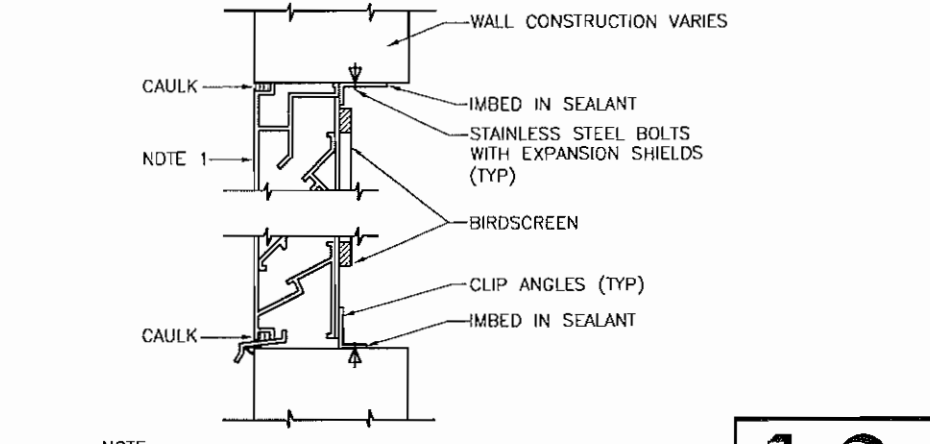
**CHILLED WATER LOOP CONNECTION**  
NO SCALE M-401 (B5)



**PROpane GAS PIPING**  
NO SCALE M-301, M-401 (A2)

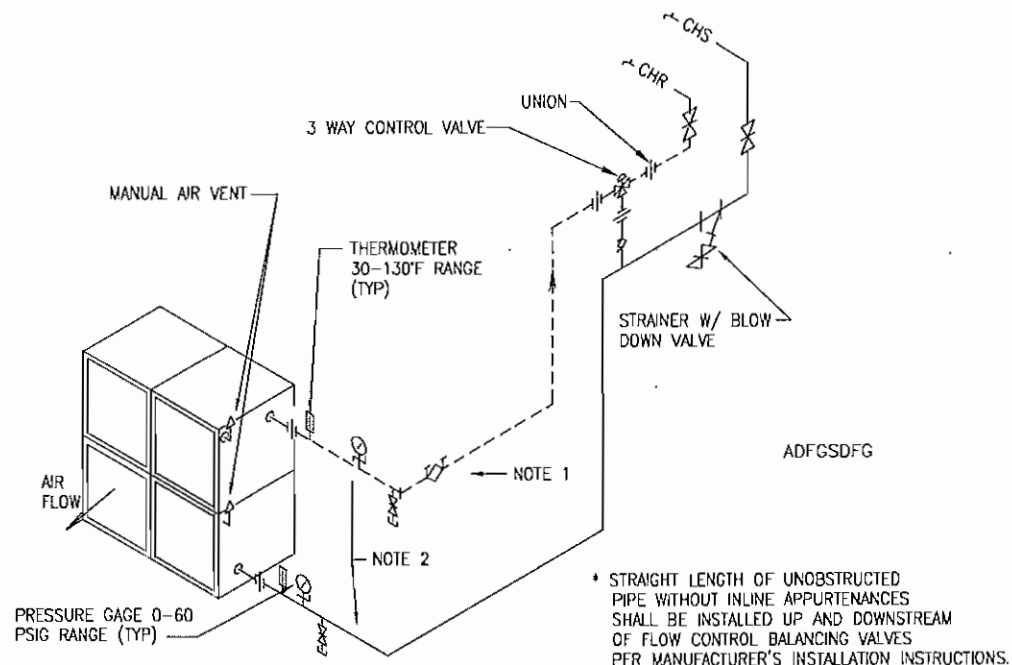


**GRILLE DETAIL**  
NO SCALE M-101 (A4)



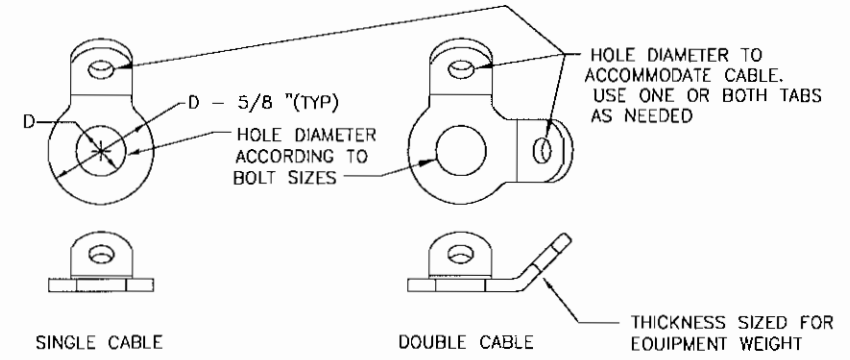
**WEATHERPROOF LOUVER**  
NO SCALE M-401 (A5)

DATE	APPROVED
DESCRIPTION	DATE
SYN	DATE
PROJECT NO.	SCALE
DESIGNER	DATE
CHECKED	DATE
APPROVED	DATE
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAME, STATION MARINE CORPS BASE CAMP LEJEUNE, NC	
SCALE	AS NOTED
PROJECT NO.	1132805
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12605655
SHEET	56 OF 74
BOWMAN, FOSTER & ASSOC. CONSULTING ENGINEERS #4 INTERSTATE CORP. CENTER NORFOLK, VA 23502 2424 26th ROAD SOUTH ARLINGTON, VA 22206	

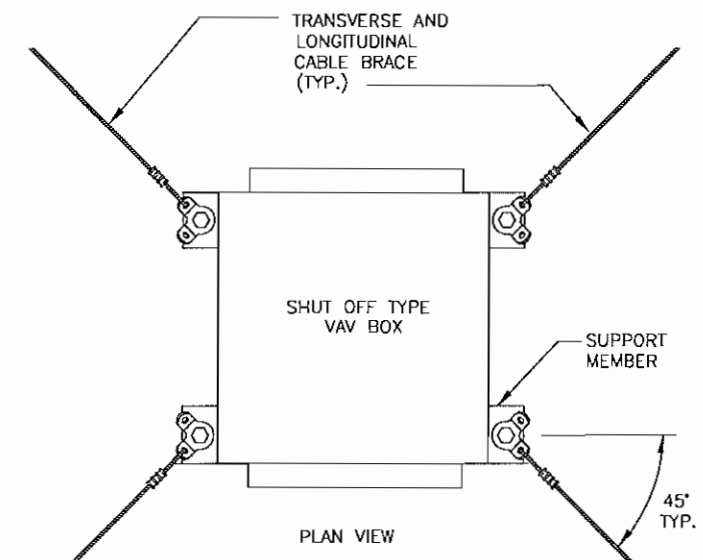
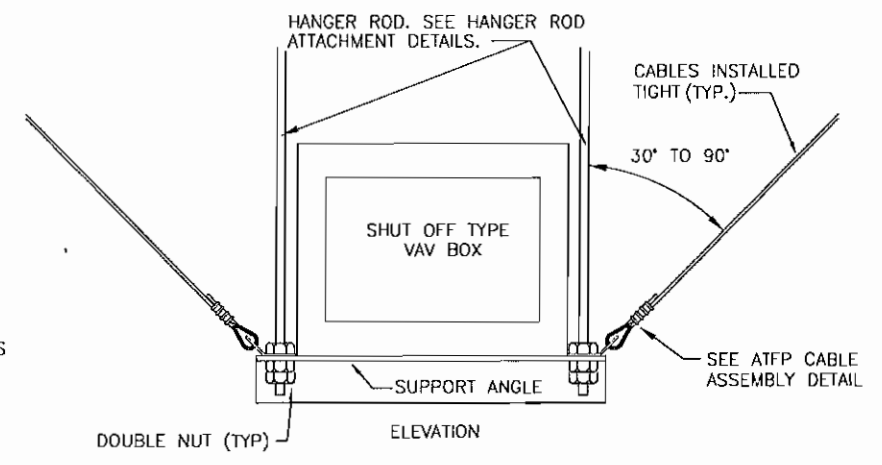


NOTES:  
 1. PROVIDE IDENTICAL VALVE ARRANGEMENT FOR PREHEAT COIL.  
 2. FLOW CONTROL BALANCING VALVE (TYP) SIZED PER MANUFACTURER'S RECOMMENDATIONS

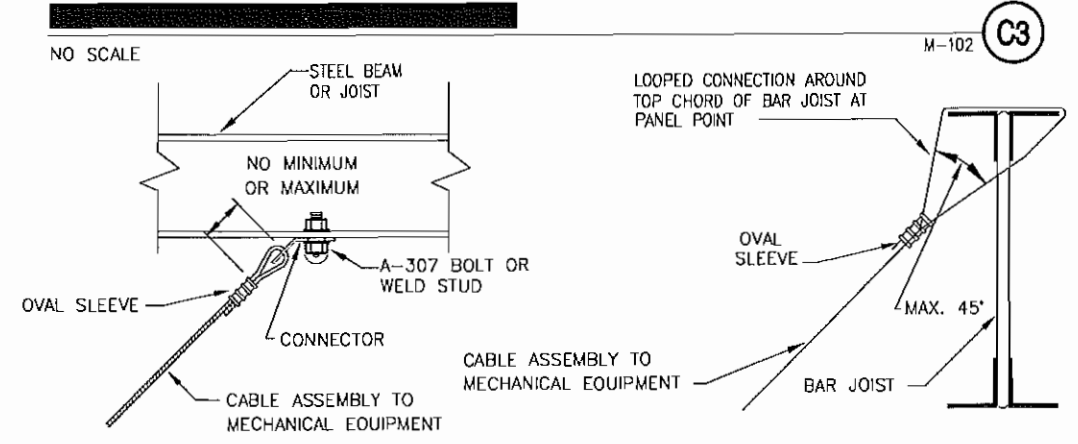
\* STRAIGHT LENGTH OF UNOBSTRUCTED PIPE WITHOUT INLINE APPURTENANCES SHALL BE INSTALLED UP AND DOWNSTREAM OF FLOW CONTROL BALANCING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.



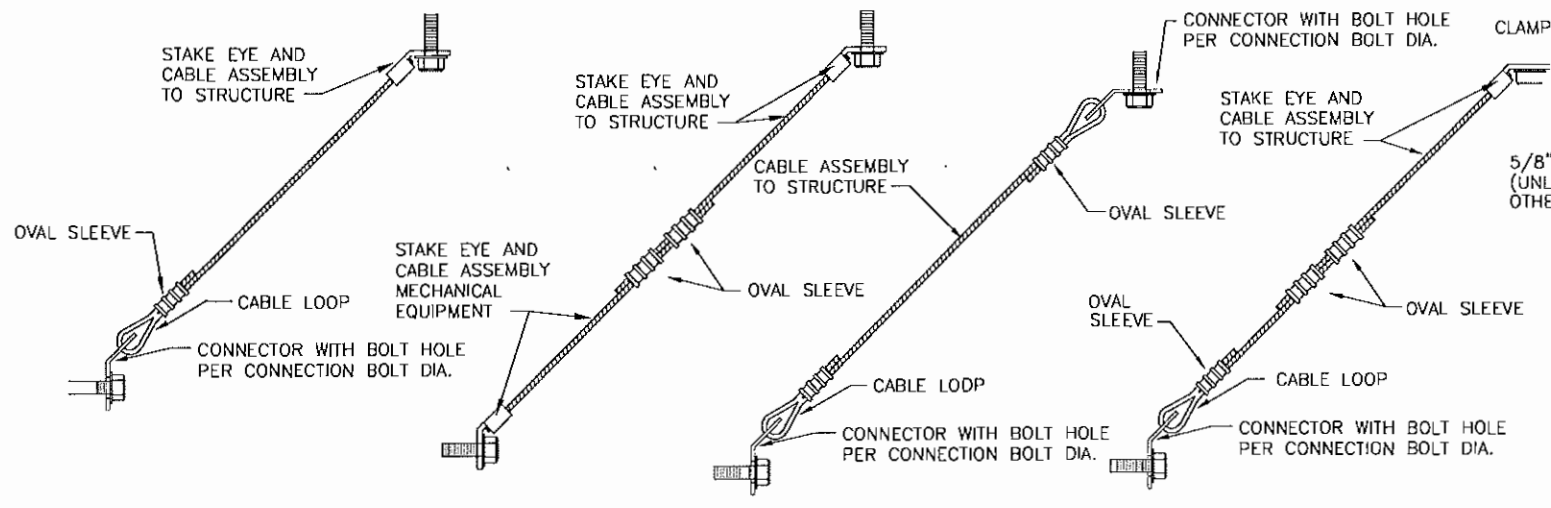
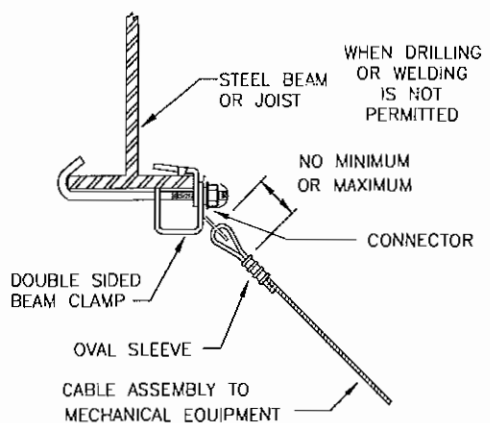
ATFP BRACING CONNECTOR DETAIL



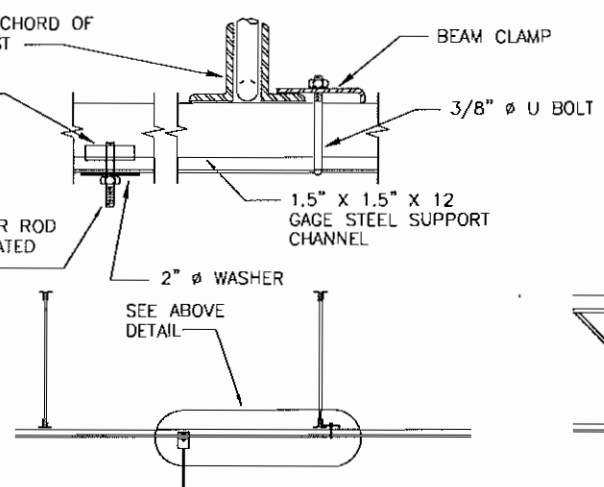
ATFP BRACING DETAIL FOR SUSPENDED MECHANICAL EQUIPMENT



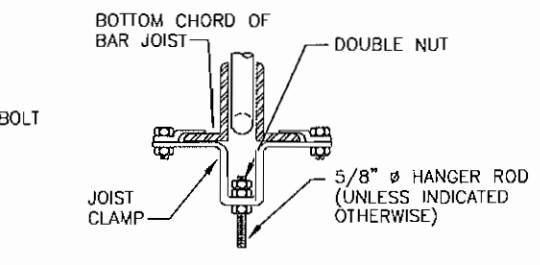
ATFP CABLE BRACING ATTACHMENT TO STRUCTURE DETAIL



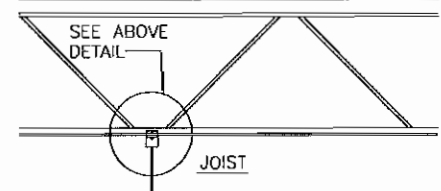
ATFP CABLE BRACING ASSEMBLY DETAIL



HANGER ROD ATTACHMENT DETAIL



NOTE: USE DETAIL FOR PIPE SUPPORT



JOIST CENTERLINE PARALLEL TO UNIT

APP'D	DATE
DESCRIPTION	DATE
BY	DATE
PROJECT	DATE
DESIGNED BY	DATE
CHECKED BY	DATE
SCALE	DATE
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NORFOLK, VA MARINE CORPS BASE CAMP LEJEUNE, NC	
SCALE: AS NOTED	PROJECT NO. 1132806
CONTR. CONT. NO.	CONTR. CONT. NO.
NAVFAC DRAWING NO. 12605656	SHEET 57 OF 74
BOWMAN, FOSTER & ASSOC. CONSULTING ENGINEERS #4 INTERSTATE CORP. CENTER NORFOLK, VA 23502 2424 26th ROAD SOUTH ARLINGTON, VA 22206	

NO SCALE

M-101, M-302, M-502

A5

1 2 3 4 5



MARK	VOLUME REGULATOR DATA				HEATING COIL DATA - 180 DEG F.						ACOUSTICAL PERFORMANCE (MAX NC)		REMARKS
	INLET DIA INCHES	MAX COOLING AIRFLOW CFM	MIN COOLING / HEATING AIRFLOW CFM	MIN PD AT MAX COOLING AIRFLOW (°WC)	TOTAL MBH	E.A.T. (DEG.F.)	L.A.T. (DEG.F.)	WATER FLOW (GPM)	MAX PD HEAT	WPD (FT)	DISCHARGE	RADIATED	
VAV-01	5	250	125	0.08	5.4	55	95	0.5	0.05	0.1	22	22	1, 2
VAV-02	5	250	125	0.08	5.4	55	95	0.5	0.05	0.1	22	22	1, 2
VAV-03	5	250	125	0.08	5.4	55	95	0.5	0.05	0.1	22	22	1, 2
VAV-04	5	250	125	0.08	5.4	55	95	0.5	0.05	0.1	22	22	1, 2
VAV-05	5	200	100	0.05	4.3	55	95	0.4	0.03	0.1	18	19	1, 2
VAV-06	6	420	210	0.27	9.1	55	95	0.9	0.13	0.1	24	21	1, 2
VAV-07	6	420	210	0.27	9.1	55	95	0.9	0.13	0.1	24	21	1, 2
VAV-08	8	810	405	0.49	17.6	55	95	1.8	0.47	0.2	24	21	1, 2

NOTES:  
 1. ROUTE 24 VOLT POWER SUPPLY FROM DDC CONTROL PANEL LOCATED IN ROOM G17B.  
 2. SOUND DATA SHALL BE OBTAINED FROM TESTS CONDUCTED IN ACCORDANCE WITH ARI STANDARD 88D-98.

MARK	AIR SEPARATOR			DIAPHRAGM EXPANSION TANK		REMARKS
	PIPE SIZE (IN)	MAX CAPACITY (GPM)	MAX WORKING PRESSURE (PSI)	TYPE	MIN SIZE / ACCEPTANCE VOLUME (GAL)	
AS-1	1 1/4	35	150	INLINE	4.4 / 2.5	①

NOTES:  
 ① AS-1 SERVES B-1. PROVIDE WITH INTEGRAL AIR VENT.

MARK	TYPE	OVERALL LENGTH (IN)	MAX FPM AT NOZZLE	NUMBER OF MOTORS	MOTOR HP	ELECTRIC SERVICE		REMARKS
						VOLTS	PH	
AC-1	VARIABLE SPEED LOW PROFILE	72	1800	1	1/6	115	1	①②③④

NOTES:  
 ① PROVIDE DIRECT DRIVE, CONTINUOUS DUTY, VARIABLE SPEED MOTORS WITH SPEED CONTROLLER.  
 ② COLOR TO MATCH EXISTING DOOR. AC-1 TO BE MOUNTED AT LEAST 7' ABOVE FINISHED FLOOR.  
 ③ PROVIDE LIMIT SWITCH ON DOOR.  
 ④ INSTALL PER MANUFACTURERS RECOMMENDATIONS. MOUNT TO FACE BRICK ON EXTERIOR WALL BELOW CANOPY.

MARK	CAPACITY GAL	MAX PRESSURE PSI	REMARKS
CSF-1	5	125	

MARK	SIZE		MINIMUM FREE AREA SF	TYPE	MATERIAL	REMARKS
	WIDTH INCHES	HEIGHT INCHES				
L-1	24	12	0.53	OUTSIDE AIR	ALUMINUM	①

NOTES:  
 ① PROVIDE WEATHERPROOF LOUVER.



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NAVY FACILITIES ENGINEERING COMMAND  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC

SCALE: AS NOTED  
 PROJECT NO. 1132806  
 DRAWING NO. 12605658  
 SHEET 59 OF 74

DEPARTMENT OF THE NAVY  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC

PROFESSIONAL ENGINEER  
 JERRY D. HARRIS  
 Lic. No. 46554  
 9-29-11

HBA

SCHEDULES







**NOTE:** LIGHT LINEWEIGHT SYMBOLS INDICATE EXISTING DEVICES, EQUIPMENT, CONDUIT, ETC. TO REMAIN. HEAVY LINEWEIGHT SYMBOLS INDICATES NEW DEVICES, EQUIPMENT, TO BE SUPPLIED AND OR INSTALLED. HEAVY & DASHED LINEWEIGHT SYMBOLS INDICATE DEVICES, EQUIPMENT, CONDUIT, ETC. TO BE REMOVED.

- LIGHTING FIXTURE TYPE SYMBOL. SEE "LIGHTING FIXTURE SCHEDULE" ON THIS SHEET.
- CONSTRUCTION NOTE SYMBOL.
- DEMOLITION NOTE SYMBOL.
- LIGHTING FIXTURE AND/OR PANELBOARD, SWITCHBOARD SCHEDULE NOTE SYMBOL.
- FLUORESCENT LIGHTING FIXTURE.
- FLUORESCENT EMERGENCY LIGHTING FIXTURE.
- EXIT LIGHTING FIXTURE. ARROW, WHEN USED INDICATES DIRECTION (SHADING INDICATES FACE OF SIGN ORIENTATION).
- DUPLEX CONVENIENCE RECEPTACLE. 20A, 125VAC, NEMA5-20R, FLUSH MOUNT 18" AFF UON.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE. (2)20A, 125VAC, NEMA 5-20R, FLUSH MOUNT 18" AFF UON.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE WITH AN INTERNAL GROUND FAULT CIRCUIT INTERRUPTER. (2)20A, 125VAC, NEMA 5-20R, FLUSH MOUNT 18" AFF UON.
- DUPLEX CONVENIENCE RECEPTACLE WITH INTERNAL GROUND FAULT PROTECTION. 20A, 125VAC, NEMA 5-20R, FLUSH MOUNT 18" AFF UON.
- DUPLEX WEATHERPROOF GFI CONVENIENCE RECEPTACLE. 20A, 125VAC, NEMA 5-20R, SURFACE MOUNT HORIZONTALLY 6" ABOVE FLOOR IN CAST BOX UON.
- SINGLE POLE SWITCH. 20A, 120/277V, FLUSH MOUNT 48" AFF UON.
- THREE-WAY SWITCH. 20A, 120/277V, FLUSH MOUNT 48" AFF UON.
- OCCUPANCY SENSOR SWITCH. 20A, 120/277V, FLUSH MOUNT 48" AFF UON.
- MOTOR RATED SWITCH WITH OVERLOADS. SURFACE MOUNT 48" AFF UON.
- EQUIPMENT CONNECTION AS NOTED.
- DISCONNECT SWITCH. 600V IN NEMA 1 ENCLOSURE UON. 3P = NO. OF POLES, 60 = SWITCH RATING, 40 = FUSE RATING (NF INDICATES NON-FUSIBLE).
- ELECTRICAL PANELBOARD (208Y/120V).
- ELECTRICAL PANELBOARD (480Y/277V).
- EXISTING ELECTRICAL PANELBOARD (208Y/120V) AND/OR (480Y/277V).
- HOMERUNS TO PANEL. PANEL AND CIRCUIT DESIGNATIONS AS INDICATED. CIRCUIT DESIGNATION SHALL APPLY CIRCUIT TO LOAD.
- COMBINATION WALL TELEPHONE/DATA QUADRUPLEX OUTLET. FLUSH MOUNT 18" AFF UON.
- JUNCTION BOX (JB) SURFACE MOUNTED 4"SO x DEPTH REQUIRED UON.
- JUNCTION BOX (JB) FLUSH MOUNTED 4"SO x DEPTH REQUIRED UON.
- PDS SYSTEM LOCK BOX FOR SIPRNET. COORDINATE MOUNTING HEIGHT AND LOCATION WITH THE GOVERNMENT.
- TELEVISION SYSTEM OUTLET. MOUNT 18" AFF UON.
- BRANCH CIRCUIT OR FEEDER WIRING IN CONDUIT. NO TICK MARKS INDICATE TWO #12 CONDUCTORS AND ONE #12 GND IN 3/4" UON. TICK MARKS, WHEN SHOWN, INDICATE NO. OF #12 CONDUCTORS IF OTHER THAN THREE; (-+-) INDICATES GND. CONDUIT LARGER THAN 3/4" AND WIRE LARGER THAN #12 SHALL BE AS INDICATED.
- HANDHOLE, AS NOTED.
- UNDERGROUND SECONDARY CONDUIT.
- FLEXIBLE CONDUIT.
- CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR.

- Ø, PH PHASE
- A, AMP AMPERE
- AFF ABOVE FINISHED FLOOR
- AHU AIR HANDLING UNIT
- C CONDUIT
- EF EXHAUST FAN
- EXIST EXISTING
- F FUSE
- GFI GROUND FAULT INTERRUPTER
- GND GROUND
- HP HORSE POWER
- MLO MAIN LUGS ONLY
- MCB MAIN CIRCUIT BREAKER
- NF NONFUSIBLE
- P POLE
- RECPT RECEPTACLE
- TYP TYPICAL
- UON UNLESS OTHERWISE NOTED
- V VOLT, VOLTAGE
- VAC VOLTS ALTERNATING CURRENT
- W WIRE
- WP WEATHERPROOF

FIXTURE SYMBOL	SKETCH NO. & TYPE	NUMBER AND TYPE OF LAMPS	VOLTAGE	MOUNTING	NOTES
	SEE DETAIL SHEET E-501	(2) F32/T8	277	RECESSED	
	SEE DETAIL SHEET E-501	(3) F32/T8	277	RECESSED	
	SEE DETAIL SHEET E-501	(3) F17/T8	277	RECESSED	
	NL-11	(2) F32/T8	277	SURFACE	
	NL-13	(2) F32/T8	277	CHAIN HUNG	(2)(5)
	NL-14, TYPE C	(2) F32/T8	277	SURFACE	
	NL-38	42 TRT	277	RECESSED	
	SEE DETAIL SHEET E-501	LED	277	SURFACE	(1)(3)(4)(8)
	NL-63	LED	277	SURFACE CEILING	
	NL-67	(2) 5W	277	SURFACE	(1)(9)
	SEE DETAIL SHEET E-502	LED	277	POLE MOUNTED	(3)(4)(6)(7)

**NOTES:**

- ① PROVIDE LIGHTING FIXTURE WITH 90 MINUTE EMERGENCY BALLAST.
- ② PROVIDE LIGHTING FIXTURE WITH WIRE GUARD.
- ③ PROVIDE LIGHTING FIXTURE IN BRONZE COLOR.
- ④ PROVIDE LIGHTING FIXTURE WITH AN INTEGRAL PHOTOCELL.
- ⑤ MOUNT LIGHTING FIXTURE 9'-0" ABOVE FINISHED FLOOR TO BOTTOM OF FIXTURE.
- ⑥ LIGHTING FIXTURE SHALL BE MOUNTED ON A XL-20 D TAPERED POLE, SINGLE ARM MOUNTING "A". SEE SHEET E-502 DETAIL XL-20 AND XL-25 FOR POLE TYPE AND MOUNTING ARMS. SEE SHEET E-502 DETAIL XL-26 FOR POLE MOUNTING.
- ⑦ PROVIDE LIGHTING FIXTURE WITH FULL CUT-OFF AND DISTRIBUTION TYPE IV.
- ⑧ MOUNT LIGHTING FIXTURE 10'-0" ABOVE FINISHED GRADE TO BOTTOM OF FIXTURE.
- ⑨ WALL MOUNT LIGHTING FIXTURE SO THAT THE TOP OF THE FIXTURE IS 6" BELOW THE CEILING.



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44 INTERSTATE CORP. CENTER  
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2424 26TH ROAD SOUTH  
ARLINGTON, VA 22206

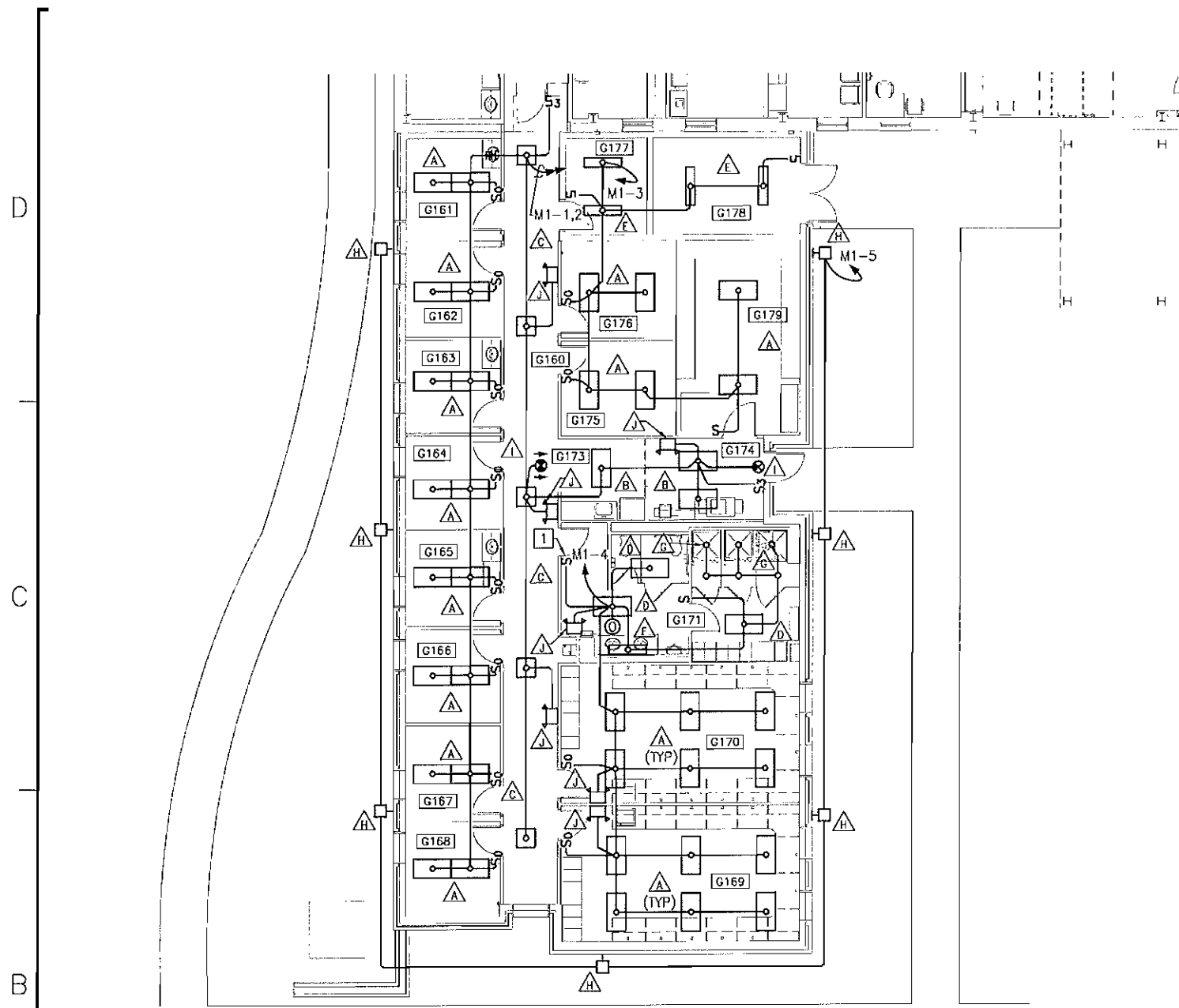
SCALE: AS NOTED  
PROJECT NO. 1132806  
CONSTR. CONTRACT NO.


NATAC EXAMING NO. 12605662  
SHEET 63 OF 74



DEPARTMENT OF THE NAVY  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
MARINE CORPS BASE  
CAMP LEJEUNE, NC  
LEGEND ABBREVIATIONS AND SCHEDULES






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

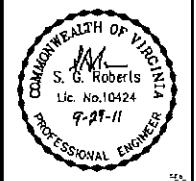
██████████ (THIS SHEET ONLY)

1. RUN NEW CONDUITS INSIDE OF EXTERIOR WALLS FOR EXTERIOR WALL MOUNTED LIGHTING FIXTURES.

██████████ (THIS SHEET ONLY)

1 PROVIDE A SINGLE POLE LIGHT KEY SWITCH TO MANUALLY OVERRIDE THE LIGHTING WITHIN THE RESTROOM.

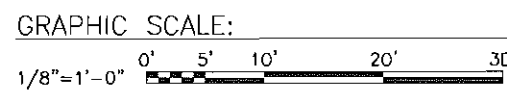
NO.	DESCRIPTION	DATE	APP'D.



APPROVED
FOR COMMANDER NAVFAC
ACTIVITY
DESIGNED BY
DATE
DESIGNED BY
DATE
BRAND/MAKE
DATE ENG. PROJ.
DATE

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NAVAL STATION  
 NORFOLK, VA  
 MARINE CORPS BASE  
 CAMP LEJEUNE, NC  
 LIGHTING PLAN

NOTE: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED.

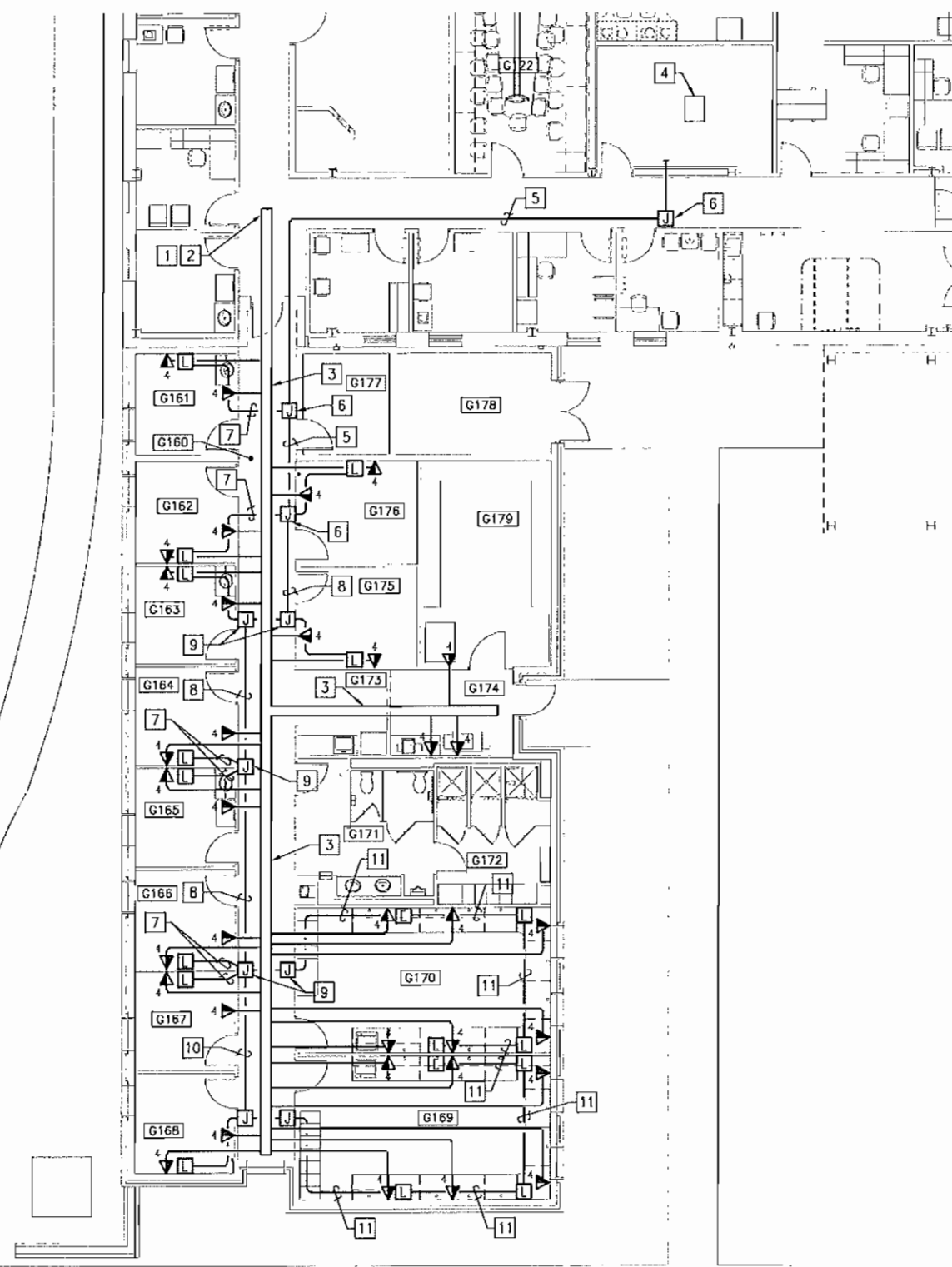



**BONUAN, FOSTER & ASSOC.**  
 CONSULTING ENGINEERS  
 #4 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 26TH ROAD SOUTH  
 ARLINGTON, VA 22206

SCALE:	AS NOTED
PROJECT NO.	1132806
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	126056E4
SHEET	65 OF 74



D  
C  
B  
A



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

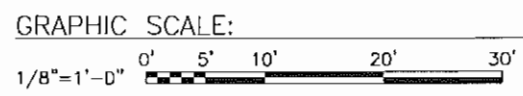
**(THIS SHEET ONLY)**

1. ALL COMMUNICATION WIRING WILL ORIGINATE FROM THE EXISTING COMMUNICATIONS ROOM LOCATED IN EXISTING BUILDING Q-419.
2. ALL TELECOMMUNICATION DROPS WILL BE WITHIN 1" CONDUITS FROM THE OUTLET DEVICE UP TO ABOVE CEILING AND TERMINATING INTO THE PROPOSED CABLE TRAY SYSTEM. PROVIDE THE END OF THE CONDUITS WITH BUSHINGS ONCE THEY TERMINATE IN THE CABLE TRAY.
3. FOR TELE/DATA OUTLET CONFIGURATION, SEE "TELE/DATA OUTLET DETAIL", SHEET E-5D3 FOR MORE INFORMATION.  
  
BOND ALL CONDUIT DROPS TO THE CABLE TRAY. SEE "CONDUIT AND CABLE TRAY BONDING DETAIL" ON SHEET E-5D3.
4. RUN ALL PDS CONDUIT EXPOSED BELOW CEILING TO MATCH EXISTING MOUNTING HEIGHTS IN BUILDING Q-419 AND TO ALLOW FOR VISIBLE INSPECTION. DEFCON ALL CONDUIT JOINTS AND PROVIDE LOCKABLE BOXES FOR ENTIRE SYSTEM.
6. CABLE TRAY SYSTEM LAYOUT IS DIAGRAMATIC. SEE SHEET M-302 FOR COORDINATION OF MECHANICAL, FIRE PROTECTION AND CABLE TRAY ARRANGMENT.

**(THIS SHEET ONLY)**

1. ROUTE CABLE TRAY TO LOCATION OF THE EXISTING CABLE TRAY SYSTEM IN BUILDING Q-419.
2. ROUTE TELECOMMUNICATIONS WIRING TO THE EXISTING CABLE TRAY SYSTEM IN BUILDING Q-419.
3. PROVIDE 12"W X 4"D CABLE TRAY.
4. EXISTING COMMUNICATIONS ROOM IN BUILDING Q-419. PROVIDE (2) ADDITIONAL SIEMENS PATCH PANELS TO ACCOMMODATE THE NEW COMMUNICATIONS REQUIREMENTS FOR THE EXPANSION.
5. PROVIDE 3" CONDUIT FOR PDS SYSTEM.
6. PROVIDE A 6"Wx6"Hx4"D PULL BOX FOR THE PDS SYSTEM.
7. PROVIDE 1" CONDUIT FOR PDS SYSTEM TO LOCK BOX.
8. PROVIDE 2-1/2" CONDUIT FOR PDS SYSTEM.
9. PROVIDE A 5"Wx5"Hx4"D PULL BOX FOR THE PDS SYSTEM.
10. PROVIDE 2" CONDUIT FOR PDS SYSTEM.
11. PROVIDE 1-1/4" CONDUIT FOR PDS SYSTEM TO LOCK BOXES.

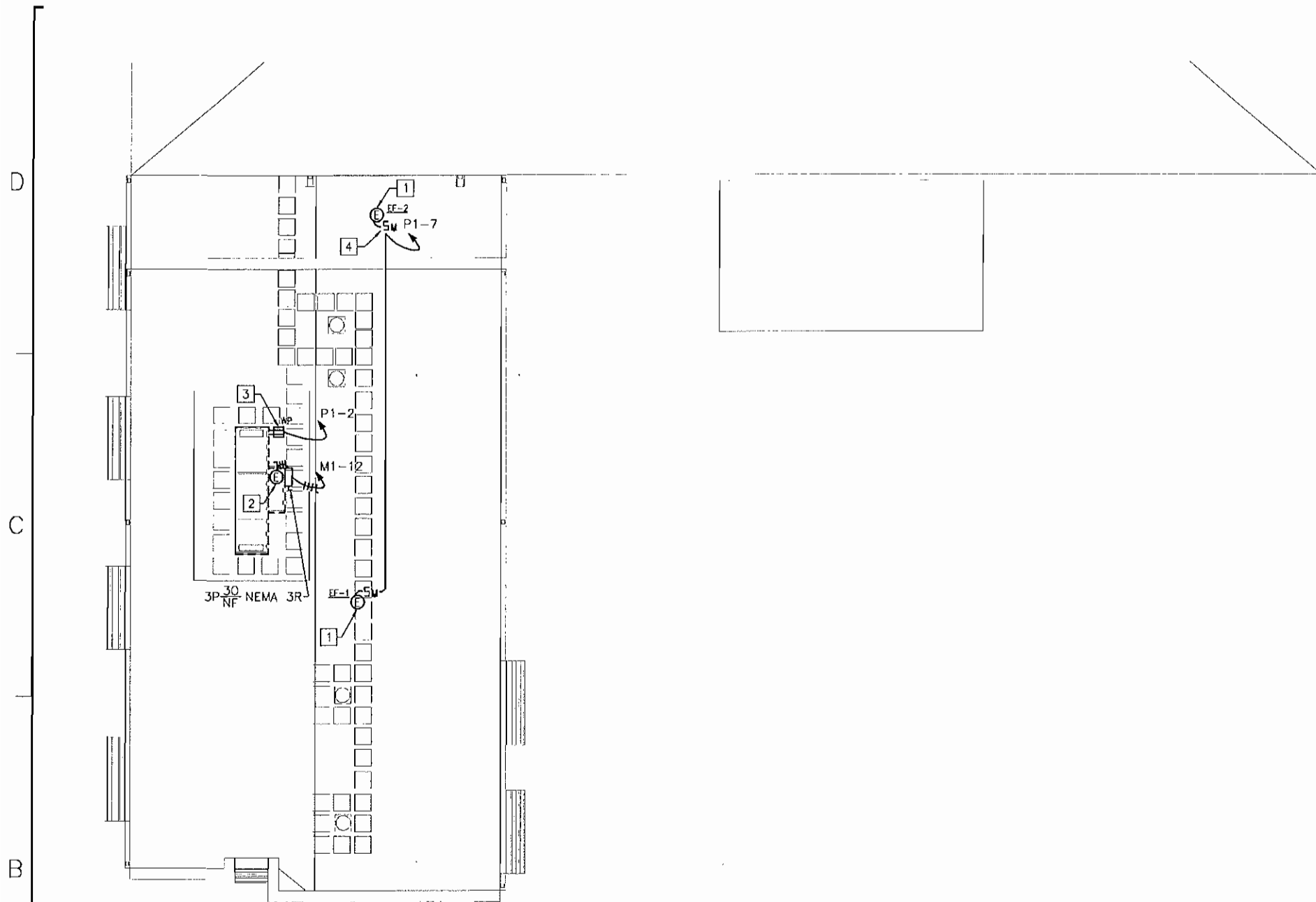
NOTE: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED.



**BOWMAN, FOSTER & ASSOC.**  
CONSULTING ENGINEERS  
#4 INTERSTATE CORP. CENTER  
NORFOLK, VA 23502  
2424 26th ROAD SOUTH  
ARLINGTON, VA 22206

DATE	APPR
DESCRIPTION	DATE
DATE	APPR
PROJECT NO. 1132806 SHEET 67 OF 74	
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MARINE CORPS BASE CAMP LEJEUNE, NC TELECOMMUNICATIONS PLAN	

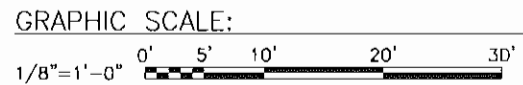




- (THIS SHEET ONLY)
- 1 EXHAUST FAN, 1/8 HP, 115V, 1φ.
  - 2 ROOF TOP AIR HANDLING UNIT RTU-1, 5 HP, 460V, 3φ.
  - 3 MOUNT RECEPTACLE ON ROOF TOP AIR HANDLING UNIT HOUSING.
  - 4 PROVIDE MOTOR RATED SWITCH IN A NEMA 3R ENCLOSURE.

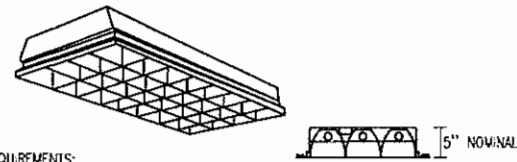
SCALE: 1/8" = 1'-0"

NOTE: IF THIS DRAWING IS A REDUCTION, GRAPHIC SCALE MUST BE USED.



**BOWMAN, FOSTER & ASSOC.**  
 CONSULTING ENGINEERS  
 INTERSTATE CORP. CENTER  
 NORFOLK, VA 23502  
 2424 28th ROAD SOUTH  
 ARLINGTON, VA 22205

DATE	APR
DESCRIPTION	
BY	
APPROVED	
FOR COMMANDER NAFC	
ACTY	
SECTION NO.	DET
DESIGNER	DRW/REP
CHKR/DRWR	CHK/DGW
BY/NO NUMBER	
DATE ENG'G/CHK	
DEPARTMENT OF THE NAVY NAVAL STATION MARINE CORPS BASE CAMP LEJEUNE, NC	
<b>ROOF PLAN</b>	
SCALE:	AS NOTED
PROJECT NO.	1132806
CONTR. CONTR. NO.	
NAVFAC DRAWING NO.	12605688
SHEET	69 OF 74



**LUMINAIRE REQUIREMENTS:**

- HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER. INSIDE EDGE OF HOUSING SHALL HAVE FULL FLAT BLACK REVEAL FOR "FLOATING" EFFECT.
- FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH.
- LOUVERS - LOW-IRIDESCENT, SEMI-SPECULAR, SILVER ANODIZED ALUMINUM. 3" MINIMUM DEPTH UNLESS MANUFACTURED SPECIFICALLY FOR USE WITH T8 FLUORESCENT LAMPS.
- LAMPS - LINEAR FLUORESCENT T8, TYPICALLY WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR ( $\geq .95$ ), ELECTRONIC TYPE WITH SOUND RATING A. SEE SPECIFICATION OR LIGHTING FIXTURE SCHEDULE FOR BALLAST OPTIONS AND SPECIFICS.
- CERTIFICATION - UL LISTED AND LABELED.
- PHOTOMETRICS - MINIMUM VALUE OF COEFFICIENT OF UTILIZATION (CU) AND EFFICIENCY, GIVEN INTERIOR CAVITY REFLECTANCES OF 80-50-20:

RCR	CU
1	82
2	72
3	64
4	57

EFFICIENCY - 75%

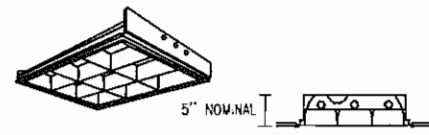
RCR	CU
1	81
2	72
3	65
4	58

EFFICIENCY - 76%

RCR	CU
1	72
2	65
3	58
4	52

EFFICIENCY - 65%

PARABOLIC RECESSED 2' X 4' FLUORESCENT TROFFER



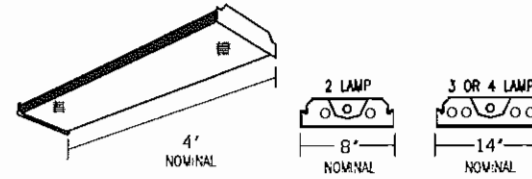
**LUMINAIRE REQUIREMENTS:**

- HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER. INSIDE EDGE OF HOUSING SHALL HAVE FULL FLAT BLACK REVEAL FOR "FLOATING" EFFECT.
- FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH.
- LOUVERS - LOW-IRIDESCENT, SEMI-SPECULAR, SILVER ANODIZED ALUMINUM. 0.02" THICKNESS; 3" MINIMUM DEPTH UNLESS MANUFACTURED SPECIFICALLY FOR USE WITH T8 FLUORESCENT LAMPS.
- LAMPS - LINEAR FLUORESCENT T8, OR COMPACT T15, TYPICALLY WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR ( $\geq .95$ ), ELECTRONIC TYPE WITH SOUND RATING A. SEE SPECIFICATION OR LIGHTING FIXTURE SCHEDULE FOR BALLAST OPTIONS AND SPECIFICS.
- CERTIFICATION - UL LISTED AND LABELED.
- PHOTOMETRICS - MINIMUM VALUE OF COEFFICIENT OF UTILIZATION (CU) AND EFFICIENCY, GIVEN INTERIOR CAVITY REFLECTANCES OF 80-50-20:

RCR	CU
1	73
2	65
3	58
4	52

EFFICIENCY - 75%

PARABOLIC RECESSED 2' X 2' FLUORESCENT TROFFER



**LUMINAIRE REQUIREMENTS:**

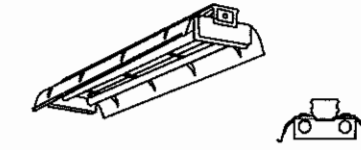
- HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SHALL BE SAME MATERIAL AS HOUSING, SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER.
- FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH.
- LENS - 100% ACRYLIC, CLEAR PRISMATIC, LINEAR SIDE PRISMS AND PYRAMIDAL BOTTOM PRISMS FOR BRIGHTNESS CONTROL AND MINIMAL LAMP IMAGING, RESPECTFULLY. LENS SHALL BE CAPABLE OF BEING HINGED FROM EITHER SIDE.
- LAMPS - LINEAR FLUORESCENT T8, TYPICALLY WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR ( $\geq .95$ ), ELECTRONIC TYPE WITH SOUND RATING A. SEE SPECIFICATION OR LIGHTING FIXTURE SCHEDULE FOR BALLAST OPTIONS AND SPECIFICS.
- CERTIFICATION - UL LISTED AND LABELED.
- PHOTOMETRICS - MINIMUM VALUE OF COEFFICIENT OF UTILIZATION (CU) AND EFFICIENCY, GIVEN INTERIOR CAVITY REFLECTANCES OF 80-50-20:

RCR	CU
1	76
2	67
3	60
4	54

EFFICIENCY - 76%

FLUORESCENT WRAPAROUND - UTILITY AREAS

REVISED: AUGUST 2004 LIGHTING PLATE: NL-11



**LUMINAIRE REQUIREMENTS:**

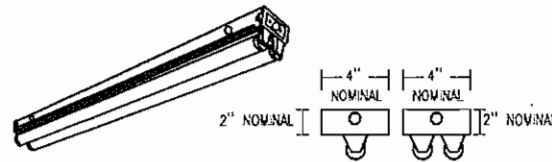
- HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SECURED WITH TABS, SCREWS OR RIVETS. FIXTURE SHALL NOT PERMANENTLY DEFORM OUT OF "SQUARE" WHEN PICKED UP FROM ANY CORNER.
- FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH.
- LAMP HOLDERS - PRESSURE-LOCKED TYPE ENCLOSED IN TURRET HOUSING.
- REFLECTOR - DIE-FORMED, COLD-ROLLED STEEL WITH TRANSVERSE RIBS FOR RIGIDITY. SOLID, 10% UPLIGHT APERTURE OR 20% UPLIGHT APERTURE AS INDICATED IN LIGHTING FIXTURE SCHEDULE.
- LAMPS - LINEAR FLUORESCENT T8, TYPICALLY WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR ( $\geq .95$ ), ELECTRONIC TYPE WITH SOUND RATING A. SEE SPECIFICATION OR LIGHTING FIXTURE SCHEDULE FOR BALLAST OPTIONS AND SPECIFICS.
- CERTIFICATION - UL LISTED AND LABELED.
- OPTIONS - CHAIN HANGER AND PLATED STEEL WIRE GUARD.
- PHOTOMETRICS - MINIMUM VALUE OF COEFFICIENT OF UTILIZATION (CU) AND EFFICIENCY, GIVEN INTERIOR CAVITY REFLECTANCES OF 80-50-20:

RCR	CU
1	90
2	79
3	69
4	61

EFFICIENCY - 90%

INDUSTRIAL FLUORESCENT

REVISED: AUGUST 2004 LIGHTING PLATE: NL-13

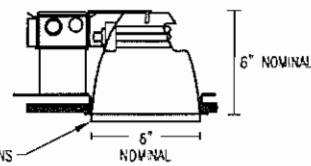


**LUMINAIRE REQUIREMENTS:**

- HOUSING - DIE-FORMED, COLD-ROLLED STEEL, WITH REINFORCEMENT RIBS FOR RIGIDITY. ENDCAPS SECURED WITH TABS, SCREWS OR RIVETS AND USED FOR JOINERS WHEN CONNECTING FIXTURES IN ROWS.
- FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH REFLECTANCE (MINIMUM 85%), BAKED WHITE ENAMEL FINISH.
- CHANNEL COVER - DIE-FORMED, COLD-ROLLED STEEL; SECURED WITH QUARTER-TURN LATCH.
- LAMPS - LINEAR FLUORESCENT T8, TYPICALLY WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- BALLAST - CLASS P, THERMALLY-PROTECTED, HIGH POWER FACTOR ( $\geq .95$ ), ELECTRONIC TYPE WITH SOUND RATING A. SEE SPECIFICATION OR LIGHTING FIXTURE SCHEDULE FOR BALLAST OPTIONS AND SPECIFICS.
- CERTIFICATION - UL LISTED AND LABELED.
- ACCESSORIES - WIRE GUARD AND ASYMMETRICAL OR SYMMETRICAL REFLECTOR OPTIONAL, AS NOTED IN FIXTURE SCHEDULE.
- FIXTURE TYPES -  
TYPE A - 2' IN LENGTH WITH 1 OR 2 LAMPS.  
TYPE B - 3' IN LENGTH WITH 1 OR 2 LAMPS.  
TYPE C - 4' IN LENGTH WITH 1 OR 2 LAMPS.  
TYPE D - 8' IN LENGTH WITH 1 OR 2 LAMPS.

STRIP FLUORESCENT

REVISED: AUGUST 2004 LIGHTING PLATE: NL-14

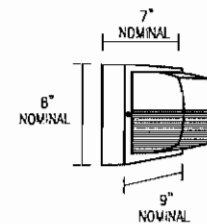


**LUMINAIRE REQUIREMENTS:**

- HOUSING - ONE-PIECE, DIE-STAMPED, COLD ROLLED STEEL OR ACRYLIC-ENAMELED ALUMINUM. PROVIDE WITH PRE-WIRED JUNCTION BOX HAVING SNAP-ON ACCESS COVER. ACCESS TO JUNCTION BOX FROM BELOW CEILING SHALL BE PROVIDED THROUGH FIXTURE AFTER REMOVAL OF REFLECTOR.
- REFLECTOR - ONE-PIECE, CLEAR, SPUN ALUMINUM, IRIDESCENCE-SUPPRESSED.
- BALLAST - CLASS P, MULTI-VOLT (120V-277V INPUT), HIGH POWER FACTOR ( $\geq .95$ ), PROGRAMMED RAPID START ELECTRONIC TYPE WITH  $\leq 10\%$  TOTAL HARMONIC DISTORTION. BALLAST SHALL BE CAPABLE OF UNIVERSALLY OPERATING 26W OR 32 WATT LAMPS.
- LAMPS - MULTI-TUBE, COMPACT FLUORESCENT WITH 4-PIN BASE. PROVIDE WITH WATTAGES AS INDICATED. SEE LIGHTING FIXTURE SCHEDULE.
- LENS/TRIM - \* OPTIONS INCLUDE DROPPED OR FLAT OPAL LEXAN; DROPPED OR FLAT OPAL GLASS; OR FRESNEL GLASS. SEE LIGHTING FIXTURE SCHEDULE.
- CERTIFICATION - UL LISTED AND LABELED FOR DAMP LOCATIONS.

RECESSED COMPACT FLUORESCENT SHOWER LIGHT

REVISED: AUGUST 2004 LIGHTING PLATE: NL-38



**LUMINAIRE REQUIREMENTS:**

- HOUSING - RUGGED, DIE-CAST, SINGLE-PIECE ALUMINUM HOUSING. HOUSING IS COMPLETELY SEALED AGAINST MOISTURE AND ENVIRONMENTAL CONTAMINANTS.
- FINISH - STANDARD FINISH IS CORROSION-RESISTANT POWDER COAT. AVAILABLE IN DARK BRONZE, BLACK, WHITE OR NATURAL ALUMINUM.
- OPTICS - INDIVIDUAL, PRECISION-MOLDED LENS ASSEMBLY; PROVIDE OPTIMAL LUMINAIRE SPACING AND IMPROVED UNIFORMITY.
- ELECTRICAL - UTILIZES HIGH-EFFICIENCY LEDs MOUNTED TO A METAL CORE CIRCUIT BOARD AND ALUMINUM HEAT SINK, ENSURING OPTIMAL THERMAL MANAGEMENT. NOMINAL 5100K TEMPERATURE, CRI > 70.
- CERTIFICATION - UL LISTED AND LABELED FOR WET LOCATIONS.

LED WALLPACK



NO.	DATE	DESCRIPTION	BY	APPR

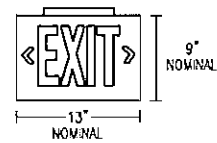


FOR COMPLETE WORK	
ACTIVITY	
DESCRIPTION TO DATE	
DESIGNER	DFH/IEP
CHECKER	DGW
DATE	

DEPARTMENT OF THE NAVY  
NAVAL STATION  
NAVAL FACILITIES ENGINEERING COMMAND  
NORFOLK, VA  
MARINE CORPS BASE  
CAMP LEJEUNE, NC

SCALE:	AS NOTED
PROJECT NO.	1132805
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	12605669
SHEET	70 OF 74



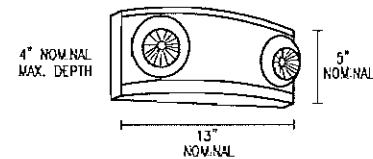


**LUMINAIRE REQUIREMENTS:**

- HOUSING - DIE-CAST ALUMINUM OR HIGH-IMPACT, UV-STABILIZED, INJECTION-MOLDED THERMOPLASTIC. SINGLE OR DOUBLE-FACED AS INDICATED.
- FINISH (ON CAST ALUMINUM HOUSING ONLY) - TEXTURED POWDER COAT FINISH. OPTIONS INCLUDE WHITE, WHITE WITH BRUSHED ALUMINUM FACE, BLACK, OR BLACK WITH BRUSHED ALUMINUM FACE.
- LETTERS/CHEVRONS - MAXIMUM 6" HIGH WITH 3/4" STROKE. RED OR GREEN LETTERS AS INDICATED. PROVIDE CHEVRONS AS INDICATED EITHER LEFT, RIGHT OR BOTH DIRECTIONS AS INDICATED. CHEVRONS PUNCHED OUT THROUGH HOUSING AS REQUIRED.
- EMERGENCY PACK - SOLID-STATE, CONSTANT-CURRENT TYPE BATTERY CHARGER WITH MAINTENANCE-FREE, NICKEL-CADMIUM BATTERY, AC-ON INDICATOR LAMP AND TEST SWITCH.
- MOUNTING - UNIVERSAL MOUNTING KIT FOR CEILING, WALL OR END-OF-FIXTURE MOUNTING.
- ILLUMINATION - PROVIDED BY RED, GREEN OR WHITE HIGH-OUTPUT LEDS INSIDE OF TEXTURE HOUSING. PROVIDE POLYSTYRENE DIFFUSER IN COLOR INDICATED WITH FREQUENCY-MATCHED SILKSCREEN COATING FOR MAXIMUM LED LIGHT OUTPUT.
- CERTIFICATION - UL LISTED AND CERTIFIED FOR DAMP LOCATIONS.

LED EXIT SIGN

REVISED: AUGUST 2004 LIGHTING PLATE: NL-63

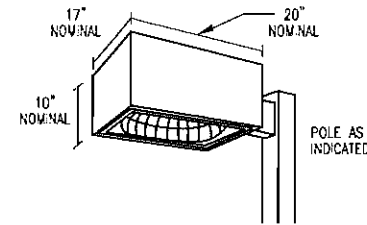


**LUMINAIRE REQUIREMENTS:**

- HOUSING - UV STABLE, FLAME-RATED, HIGH-IMPACT THERMOPLASTIC IN WHITE OR BLACK TEXTURED FINISH.
- INTERNAL COMPONENTS - FULLY AUTOMATIC, SOLID STATE, CONSTANT VOLTAGE, CURRENT-LIMITED BATTERY CHARGER; MAINTENANCE-FREE LEAD-ACID BATTERY; AND BUILT-IN OVERLOAD AND LOW-VOLTAGE BATTERY PROTECTION.
- EXTERIOR HOUSING INDICATORS - LED AC-ON INDICATOR AND INTEGRAL TEST SWITCH.
- LAMP HEADS - UV STABLE, FLAME RATED POLYCARBONATE THERMOPLASTIC. MR16 HALOGEN LAMPS SHALL BE 5 WATTS, HIGH-OUTPUT OR AS INDICATED IN LIGHTING FIXTURE SCHEDULE.
- MOUNTING - DIRECTLY TO 4" OCTAGONAL OR SQUARE OUTLET BOX.
- CERTIFICATION - UL LISTED AND LABELED, COMPLIES WITH UL 924 AND NFPA 101 REQUIREMENTS. LISTED FOR DAMP LOCATIONS.
- OPTIONS - VOLTMETER, VANDER-RESISTANT SHIELD, SELF-DIAGNOSTIC/TESTING ELECTRONICS AND WIRE GUARD.

DECORATIVE EMERGENCY LIGHTING UNIT

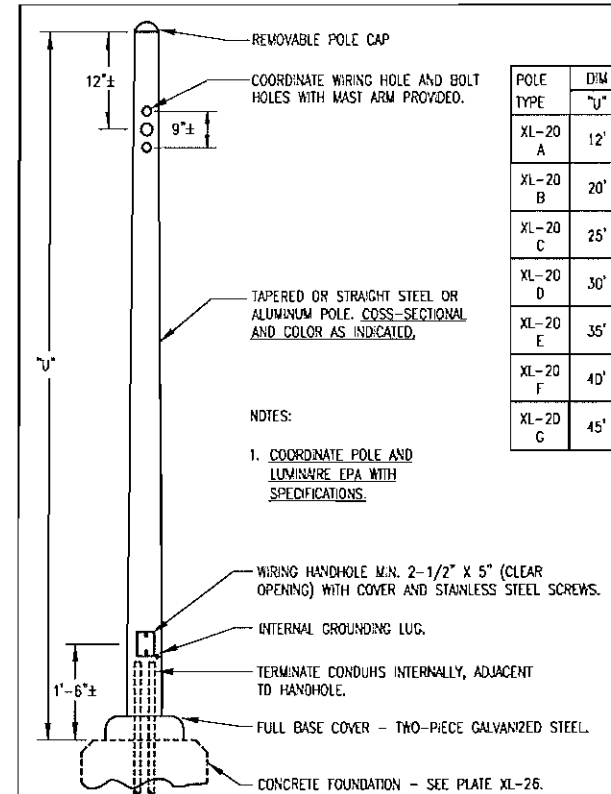
REVISED: AUGUST 2004 LIGHTING PLATE: NL-67



**LUMINAIRE REQUIREMENTS:**

- HOUSING - STURDY LOW-COPPER ALUMINUM, SINGLE-PIECE DIE CAST HOUSING.
- FINISH - EXTERIOR PARTS ARE PROTECTED BY A ZINC-INFUSED SUPER DURABLE TGC THERMOSET POWDER COAT FINISH THAT PROVIDES SUPERIOR RESISTANCE TO CORROSION AND WEATHERING. COLORS ARE DARK BRONZE, BLACK, NATURAL ALUMINUM AND WHITE.
- OPTICS - INDIVIDUAL PRECISION-MOLDED ACRYLIC LENSES PROVIDE OPTIMAL LUMINAIRE SPACING AND IMPROVED UNIFORMITY. CHOICE OF THREE OPTIMIZED DISTRIBUTIONS: TYPES 2, 3, 4 AND 5. OPTICS SHALL PRODUCE FULL CUTOFF OR CUTOFF CONTROL AS INDICATED.
- ELECTRICAL - HIGH-EFFICIENCY NOMINAL 4000K, 65 CRI LEDS MOUNTED TO A METAL-CORE CIRCUIT BOARD AND ALUMINUM HEAT SHNK, ENSURING OPTIMAL THERMAL MANAGEMENT AND LONG LIFE. INTEGRAL SURGE PROTECTION IN ACCORDANCE WITH IEEE/ANSI C62.41.2 CATEGORY C LOW.
- MOUNTING - INTEGRAL ARM TO PROVIDE MOUNTING TO POLE TO ENSURE ALIGNMENT AND LEVELING.
- CERTIFICATION - UL LISTED AND CERTIFIED FOR WET LOCATIONS.

AREA LUMINAIRE - LED



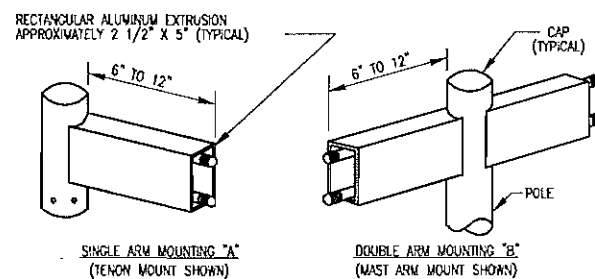
POLE TYPE	DM
XL-20 A	12'
XL-20 B	20'
XL-20 C	25'
XL-20 D	30'
XL-20 E	35'
XL-20 F	40'
XL-20 G	45'

**NOTES:**

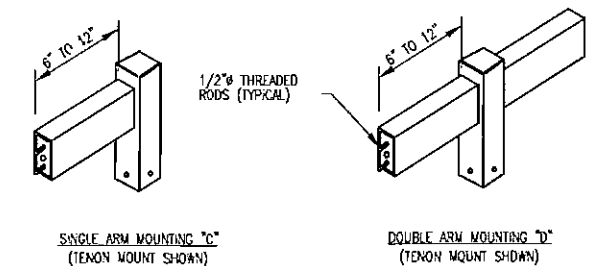
- COORDINATE POLE AND LUMINAIRE EPA WITH SPECIFICATIONS.

STEEL/ALUMINUM POLE - ANCHOR-BASE, MAST-ARM MOUNT

SKETCH DATE: AUGUST 2004 STYLE: XL-20



ROUND POLE MOUNTING

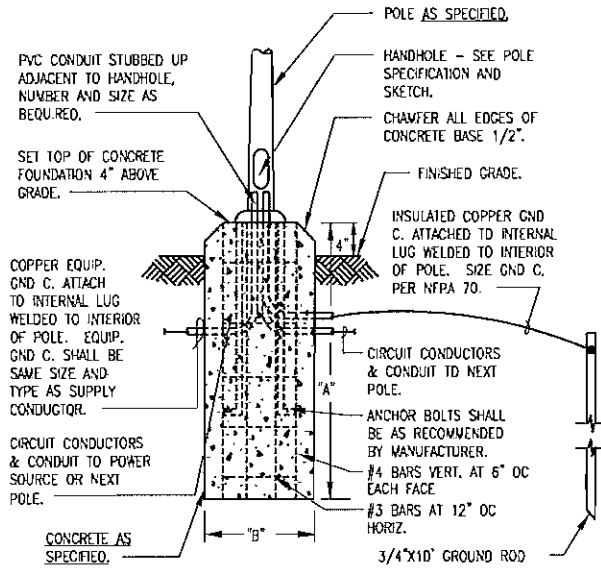


SQUARE MOUNTING ARMS

- NOTES:
- ALL FASTENERS SHALL BE CONCEALED.
  - ALL ARMS ARE AVAILABLE IN TENON OR MAST ARM MOUNT, SPECIFY TYPE DESIRED.

LUMINAIRE MOUNTING ARMS

SKETCH DATE: AUGUST 2004 STYLE: XL-25

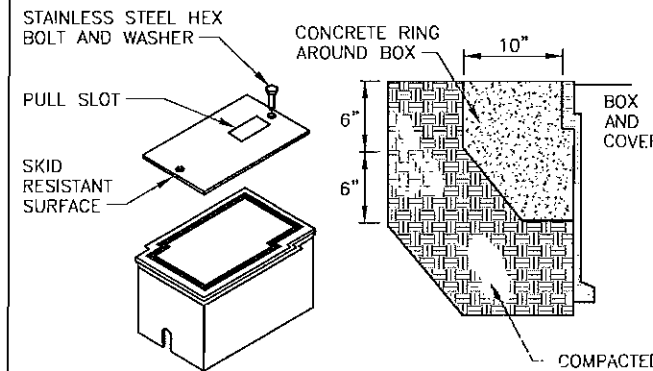


LEGEND  
GND C. - GROUNDING CONDUCTOR

POLE HT.	A	B
8' - 12'	36"	12"
13' - 20'	42"	16"
21' - 30'	72"	24"
31' - 40'	78"	30"

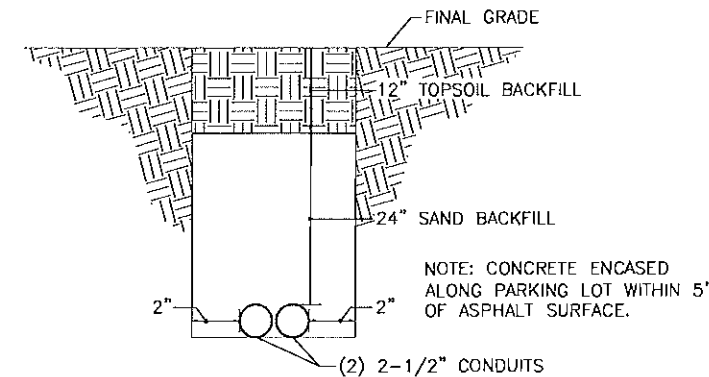
BOLT-DOWN POLE FOUNDATIONS

SKETCH DATE: AUGUST 2004 STYLE: XL-26



**HANDHOLE REQUIREMENTS**

- HOUSING SHALL BE A POLYMER CONCRETE REINFORCED WITH A HEAVY WEAVE FIBERGLASS REINFORCING WITH COMPRESSIVE STRENGTH OF NO LESS THAN 10,000 PSI.
- COVER SHALL WITHSTAND A SEVICE LOAD OF NO LESS THAN 8000 LBS OVER A 10" x 10" AREA FOR LIGHT DUTY AND 15,000 LBS OVER A 10" x 10" AREA FOR HEAVY DUTY.
- PROVIDE STAINLESS STEEL BOLTS AND INSERTS.
- PROVIDE WITH TWO 2 1/2" MOUSEHOLES.
- PROVIDE LABEL "ELECTRICAL" FOR POWER HANDHOLES AND "TELEPHONE" FOR TELEPHONE HANDHOLES OR AS INDIATED.



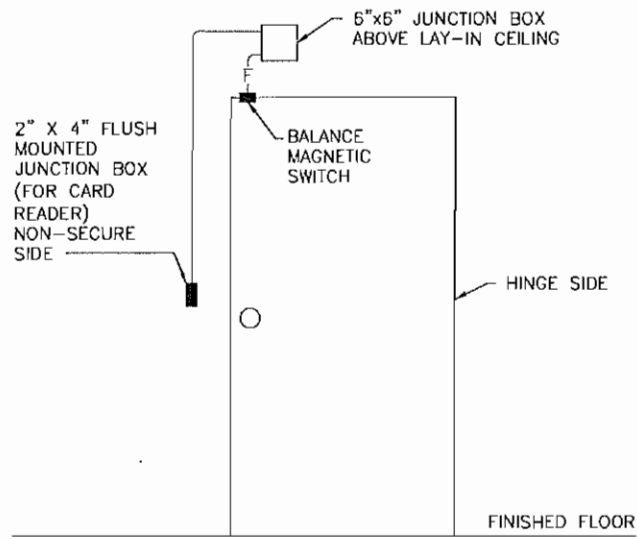
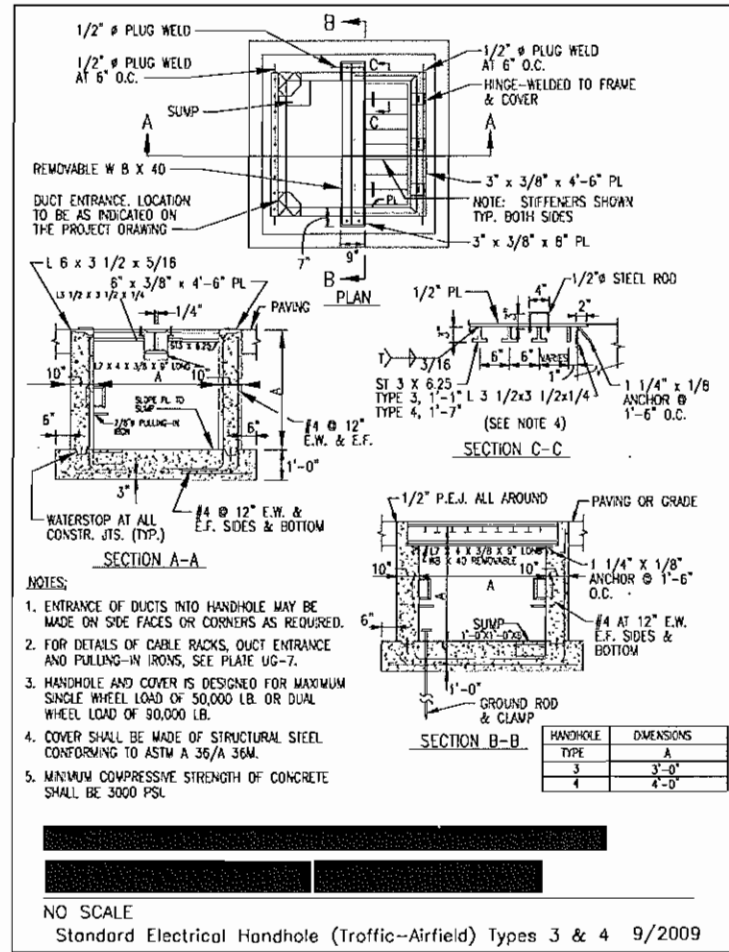
NO SCALE

NAVSTA  
S. S. Roberts  
Lic. No. 10424  
9-21-11  
PROFESSIONAL ENGINEER

HBA

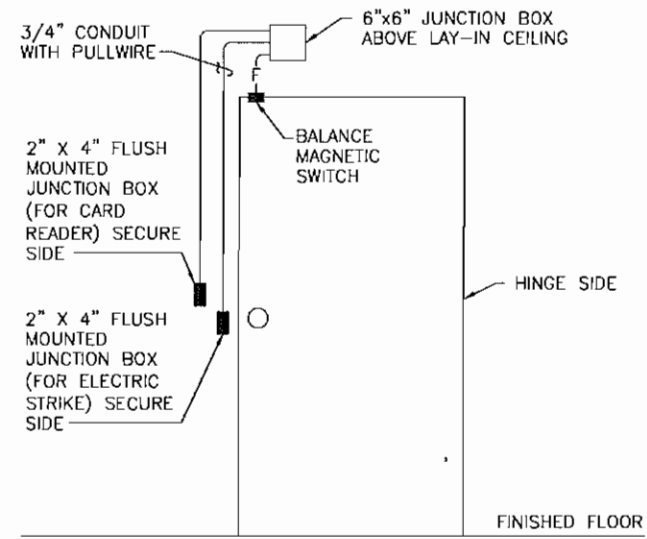
NAVAL FACILITIES ENGINEERING COMMAND  
MARINE CORPS BASE  
CAMP LEJEUNE, NC

SCALE: AS NOTED  
PROJECT NO. 1132806  
CONSTR. CONTRACT NO.  
NAVFAC DRAWING NO. 12605670  
SHEET 71 OF 74  
DRAFTING REVISION 8 AUG 2004



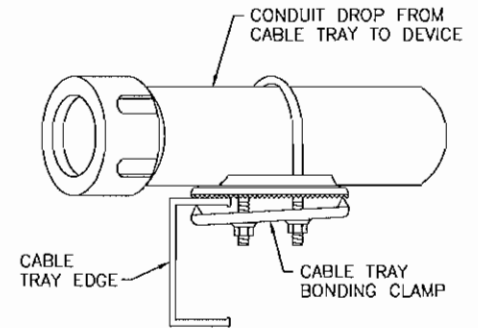
NOTE: SECURITY DEVICES AND WIRING SHALL BE FURNISHED AND INSTALLED BY THE GOVERNMENT.

NO SCALE

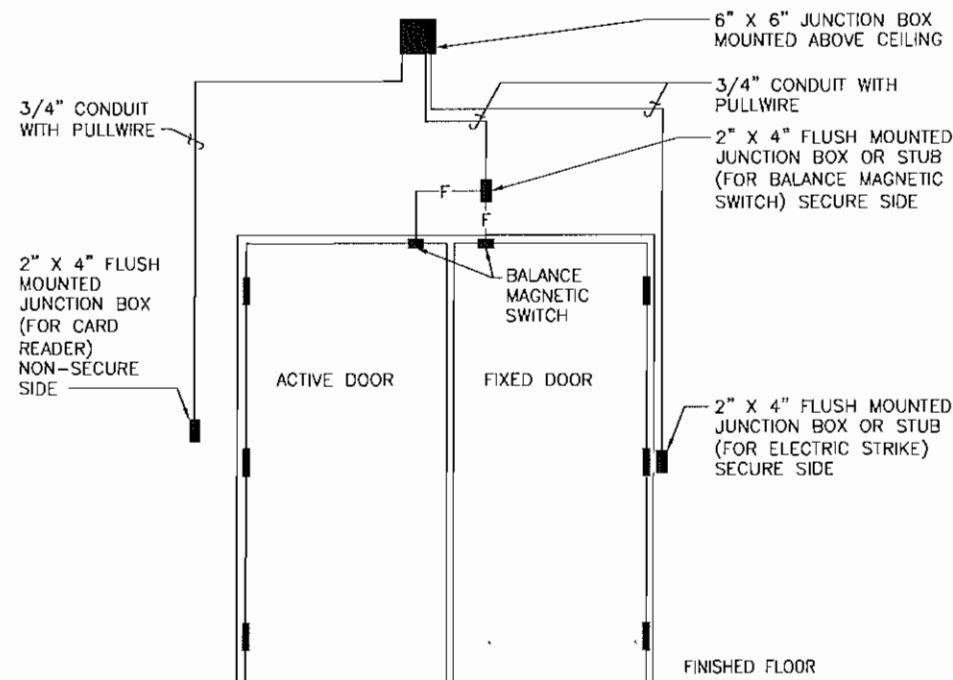


NOTE: SECURITY DEVICES AND WIRING SHALL BE FURNISHED AND INSTALLED BY THE GOVERNMENT.

NO SCALE

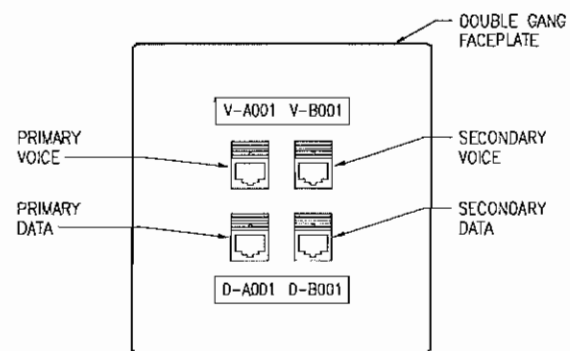


NO SCALE



NOTE: SECURITY DEVICES AND WIRING SHALL BE FURNISHED AND INSTALLED BY THE GOVERNMENT.

NO SCALE



NO SCALE

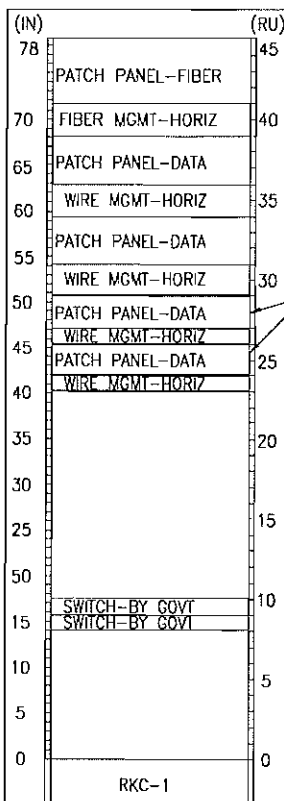
DESIGN DOCUMENT ISSUED AS A PROGRESS SUBMITTAL ONLY AND NOT TO BE USED FOR BID PREPARATION, ORDERING OF MATERIALS OR CONSTRUCTION.



APPROVED	DATE	APP'R
FOR COMMANDER WORK		
ACTIVITY		
REFERENCES TO DATE		
DESIGNER	DRW'G	CHK'D
BRANCH NUMBER		
DATE		
DEPARTMENT OF THE NAVY		
NAVAL FACILITIES ENGINEERING COMMAND		
NAVY STATION		
MARINE CORPS BASE		
CAMP LEJEUNE, NC		
SCALE:	AS NOTED	
PROJECT NO.	1132806	
CONSTR. CONTR. NO.		
NAVIC DRAWING NO.	12805871	
SHEET	72	OF 74

DETAILS

CLASSIFIED NETWORK EQUIPMENT

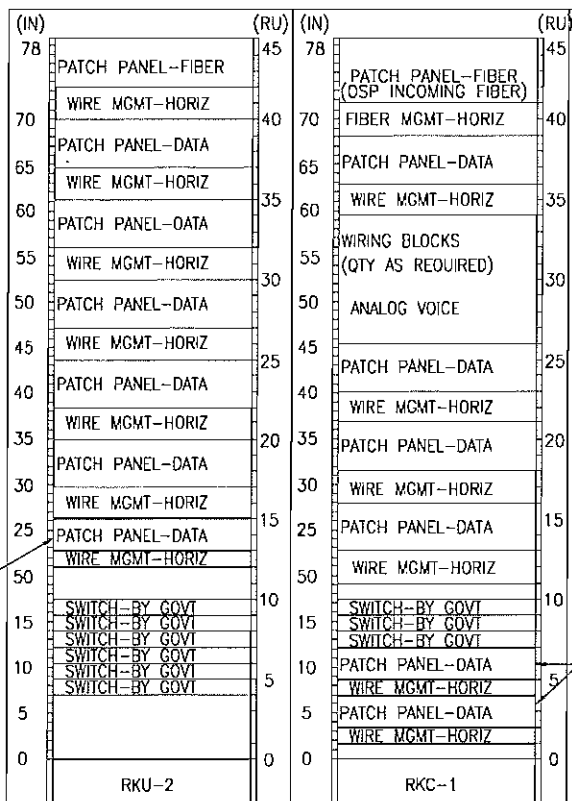


TELECOM RM G-147

PROVIDE TWO (48) PATCH PANELS TO ACCOMMODATE THE NEW ADDITION

PROVIDE ONE (48) PATCH PANELS TO ACCOMMODATE THE NEW ADDITION

UNCLASSIFIED NETWORK EQUIPMENT

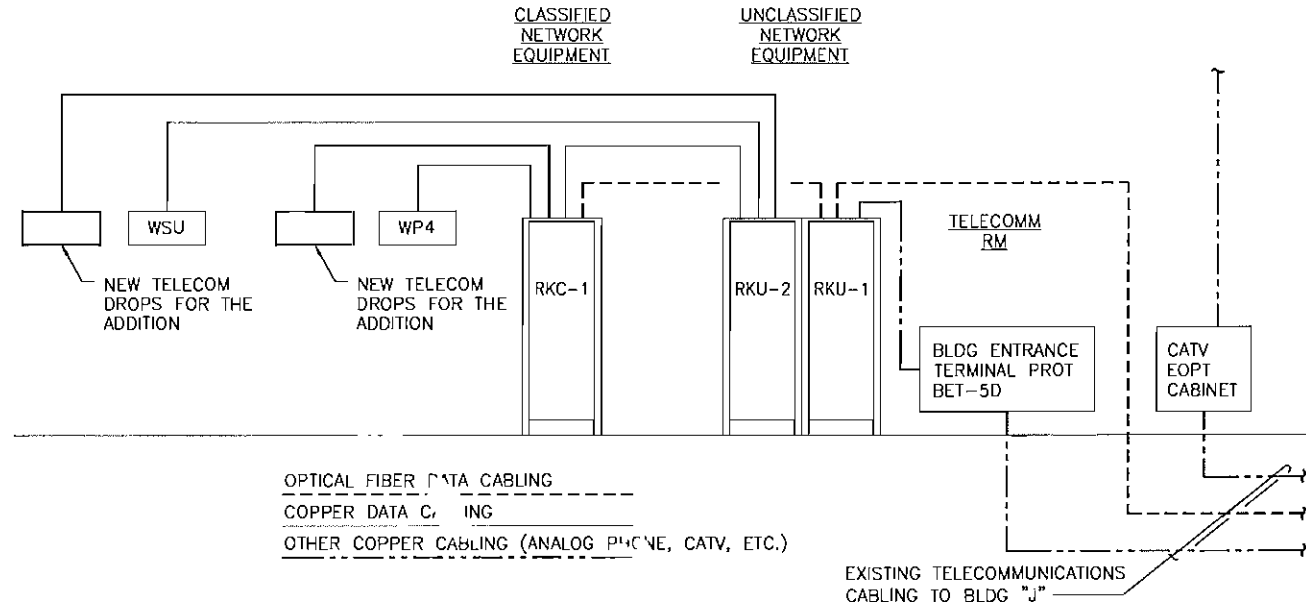


PROVIDE TWO (48) PATCH PANELS TO ACCOMMODATE THE NEW ADDITION

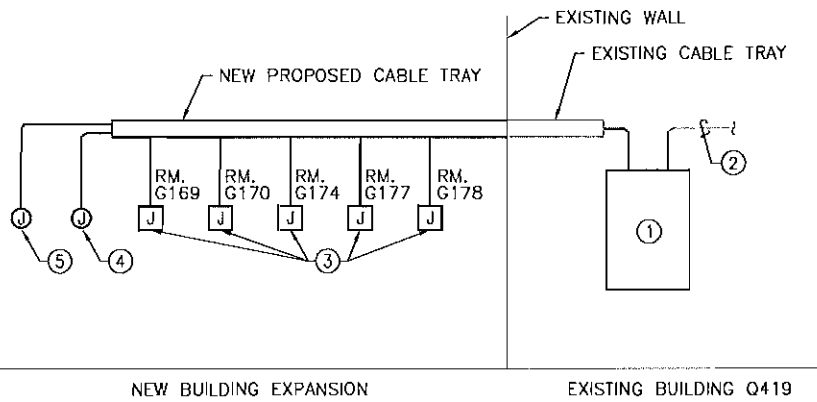
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ROOM #	DOOR	6x6 J-BOX IN CEILING	J-BOX UNSECURE SIDE (CARD READER)	J-BOX SECURE SIDE (CARD READER)	J-BOX UNSECURE SIDE (ITS WORKING STATION)	BMS	BMS DOUBLE FOR OVERHEAD DOORS	ELECTRIC STRIKE INTEGRAL W/FRAME	ELECTRIC STRIKE INTEGRAL W/FRAME FOR VERTICAL ROD	VERTICAL LOCKING ROD	P4 KEY ACCESS (BASE ACCESS SPACES)	EXTERNAL HARDWARE REMOVED	TELLER STYLE SECURITY WINDOW	MANUAL OVERRIDE BUTTON	HORIZONTAL LOCKING ROD FOR OVERHEAD DOORS	KEY LOCKABLE	APPROPRIATE HARDWARE	CYPHER LOCK	Y09 INSTALLED	IR SENSORS INSTALLED	INSIDE ROOM - LOCATION DECIDED BY SPANWAR	UL 437 DEAD BOLT LOCKS	ASTRACAL	COMMENTS		
G169	X	X			X		X																			
G170	X	X			X		X																			
G174	X		X		X																					
G177	X	X			X		X				X															
G178	X	X			X		X				X															
G161																										
G162																										
G163																										
G164																										
G165																										
G166																										
G167																										
G168																										
G175																										
G176																										

NO SCALE



NO SCALE



- NOTES:
- EXISTING CCTV CABINET LOCATED IN EXISTING TELECOMM RM. G-147.
  - WIRING TO EXISTING INTELLIGENCE SYSTEM CONTROLLER.
  - 6"x6" JUNCTION BOX MOUNTED ABOVE THE CEILING. SEE SHEET E-5D3 FOR DOOR DEVICE MOUNTING DETAILS. PROVIDE A 1-1/2" EMPTY CONDUIT WITH A PULLSTRING FROM THE 6"x6" JUNCTION BOX AND TERMINATE IN THE CABLE TRAY SYSTEM.
  - PROVIDE A 4"x2" FLUSH MOUNTED JUNCTION BOX AT THE SOUTHEAST CORNER OF THE BUILDING FOR THE CCTV SURVEILLANCE CAMERA. MOUNT THE JUNCTION BOX 1'-0" BELOW THE ROOF EAVE. PROVIDE A 3/4" EMPTY CONDUIT WITH A PULLSTRING FROM THE 4"x2" JUNCTION BOX AND TERMINATE IN THE CABLE TRAY SYSTEM.
  - PROVIDE A 4"x2" FLUSH MOUNTED JUNCTION BOX AT THE SOUTHWEST CORNER OF THE BUILDING FOR THE CCTV SURVEILLANCE CAMERA. MOUNT THE JUNCTION BOX 1'-0" BELOW THE ROOF EAVE. PROVIDE A 3/4" EMPTY CONDUIT WITH A PULLSTRING FROM THE 4"x2" JUNCTION BOX AND TERMINATE IN THE CABLE TRAY SYSTEM.

NO SCALE

DATE

DESCRIPTION

REV

PROJECT

FOR COMMANDER NAFC

AGENCY

INSTRUMENT TO DATE

DESIGNER [initials] DATE

CHECKED BY [initials] DATE

BRANCH NUMBER

CHECK ENGINEER

DATE

DEPARTMENT OF THE NAVY

NAVAL STATION

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VA

CAMP LEJEUNE, NC

MARINE CORPS BASE

SCALE: AS NOTED

PROJECT NO. 1132806

CONSTR. CONTROL NO.

NAFC DESIGN NO. 12605672

SHEET 73 OF 74

DATE/REV REVISION 6 AUG 2007

400A, 400A M.C.B., 480Y/277V, 3 PHASE, 4 WIRE, 18 KAC MIN, SURFACE MOUNT

LOAD SERVED	LOAD (AMP)			BRKR TRIP	WIRE SIZE	CKT NO	PHASE ABC	CKT NO	WIRE SIZE	BRKR TRIP	LOAD (AMP)			LOAD SERVED
	A	B	C								A	B	C	
XFMR PP	*	*	*	125	*	1		2						SPACE
		*	*					4						SPACE
			*					6						SPACE
RTJ-1	*			50	*	7		8	*	40				STERILZER
		*	*									*	*	
X-RAY PANEL	*			80	*	13		14	*	80				UPS
		*	*									*	*	
FPVAV 2	*			20	*	19		20	*	20				FPVAV 1
PPVAV 4		*	*	20	*	21		22	*	20		*	*	F-VAV 5
FPVAV 3			*	20	*	23		24	4/0	225		73.5		PANEL "M1"
SPACE						25					81.9			
SPACE						27						82.4		
SPACE						29		30						SPACE
SPACE						31		32						SPACE
SPACE						33		34						SPACE
SPACE						35		36						SPACE
SPACE						37		38						SPACE
SPACE						39		40						SPACE
SPACE						41		42						SPACE
TOTAL	*	*	*								81.9	82.4	73.5	TOTAL

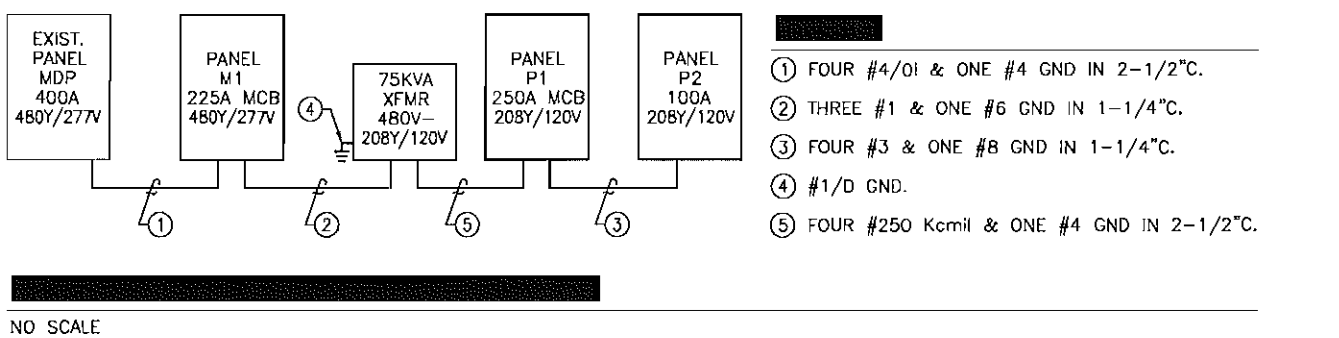
NEW TOTAL CONNECTED AMPS A: 81.9 B: 82.4 C: 73.5

NOTE: (\*) INDICATES EXISTING CONDITIONS.

225A, 225A M.C.B., 480Y/277V, 3 PHASE, 4 WIRE, 10 KAIC MIN, SURFACE MOUNT

LOAD SERVED	LOAD (AMP)			BRKR TRIP	WIRE SIZE	CKT NO	PHASE ABC	CKT NO	WIRE SIZE	BRKR TRIP	LOAD (AMP)			LOAD SERVED
	A	B	C								A	B	C	
LTS. RMS. G161-G168	5.3			20	12	1		2	12	20	1.8			LTS. RMS. G160, G175-G174
LTS. RMS. G175-G179		2.7		20	12	3		4	12	20		4.3		LTS. RMS. G169-G172
EXT. BLDG. LTS.			1.1	20	12	5		6	12	20		2.1	2.1	P-1 & P-2
75 KVA XFMR	61.2			125	1	7								
		63												
SITE LIGHTING	1.2		60	20	12	13		12	12	20	7.6		7.6	RTU-1
SPACE						15						7.6		
SPACE						17		18						SPACE
SPACE						19		20						SPACE
SPACE						21		22						SPACE
SPACE						23		24						SPACE
SPACE						25		26						SPACE
SPACE						27		28						SPACE
SPACE						29		30						SPACE
TOTAL	67.7	65.7	61.1								14.2	16.7	12.4	TOTAL

TOTAL CONNECTED AMPS A: 81.9 B: 82.4 C: 73.5



400A, 250A M.C.B., 208Y/120V, 3 PHASE, 4 WIRE, 10 KAIC MIN, SURFACE MOUNT

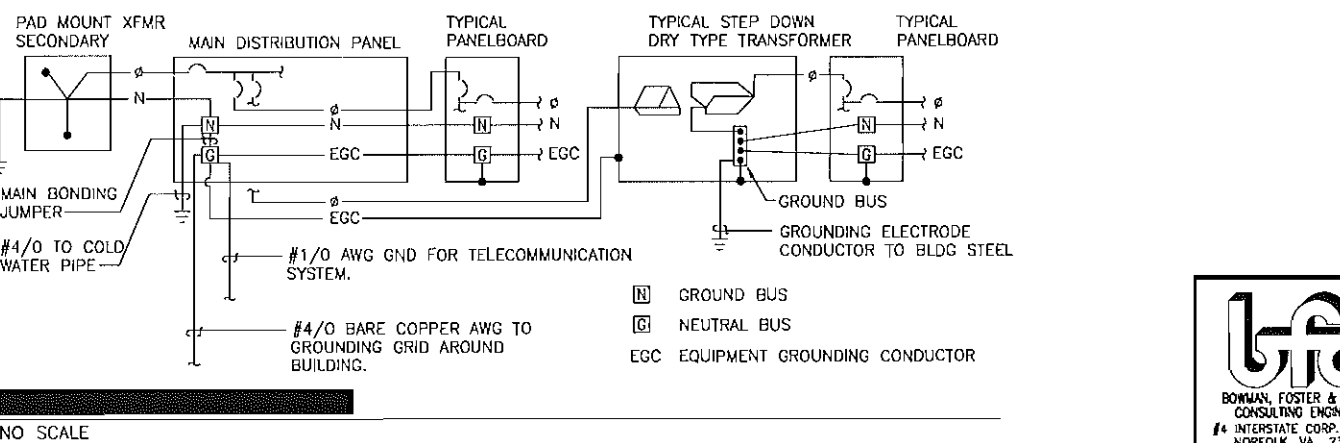
LOAD SERVED	LOAD (AMP)			BRKR TRIP	WIRE SIZE	CKT NO	PHASE ABC	CKT NO	WIRE SIZE	BRKR TRIP	LOAD (AMP)			LOAD SERVED
	A	B	C								A	B	C	
DDC PANEL	5			20	12	1		2	12	20	1.5			ROOFTOP RECPT.
UH-1		1		20	12	3		4	12	20		12		RECPT. RM. G161
B-1			1	20	12	5		6	12	20			12	RECPT. RM. G162
EF-1 & EF-2	6.8			20	12	7		8	12	20	12			RECPT. RM. G163
RECPT. RM. G170		10		20	12	9		10	12	20		12		RECPT. RM. G164
RECPT. RM. G170			12	20	12	11		12	12	20			12	RECPT. RM. G165
RECPT. RM. G170	12			20	12	13		14	12	20	12			RECPT. RM. G166
RECPT. RM. G170		12		20	12	15		16	12	20		12		RECPT. RM. G167
RECPT. RM. G170			12	20	12	17		18	12	20			12	RECPT. RM. G168
RECPT. RM. G170	12			20	12	19		20	12	20	12			RECPT. RM. G169
RECPT. RM. G170		12		20	12	21		22	12	20		12		RECPT. RM. G169
ACCESS CONTROL DEVICES G177 & G174			3	20	12	23		24	12	20			12	RECPT. RM. G169
ELECTRIC WATER COOLER	10			20	12	25		26	12	20	12			RECPT. RM. G169
RECPT. RMS. G171-G172		4.5		20	12	27		28	12	20		12		RECPT. RM. G169
MICROWAVE			10	20	12	29		30	12	20			12	RECPT. RM. G169
REFRIGERATOR	10			20	12	31		32	12	20	10			RECPT. RM. G169
COPIER		10		20	12	33		34						SPACE
COPIER			10	20	12	35		36						SPACE
SPACE						37		38	3	100	26			PANEL "P2"
SPACE						39						35		
SPACE						41							30.2	
TOTAL	55.8	49.5	48								85.5	95	90.2	TOTAL

TOTAL CONNECTED AMPS A: 141.3 B: 144.5 C: 138.2

100A, MAIN LUGS ONLY, 208Y/120V, 3 PHASE, 4 WIRE, 10 KAIC MIN, SURFACE MOUNT

LOAD SERVED	LOAD (AMP)			BRKR TRIP	WIRE SIZE	CKT NO	PHASE ABC	CKT NO	WIRE SIZE	BRKR TRIP	LOAD (AMP)			LOAD SERVED
	A	B	C								A	B	C	
RECPT. RM. G175	12			20	12	1		2	12	20	6			RECPT. RMS. 188-G178
RECPT. RM. G176		12		20	12	3		4	12	20		3		RECPT. RM. G179
RECPT. RMS. G160, G173 & G174			6	20	12	5		6	12	20			10.7	ICE MACHINE
CCTV CAMERAS	3			20	12	7		8	12	20	3			ACCESS CONTROL DEVICES G170 & G169
PROJECTOR RM. G170		10		20	12	9		10	12	20		10		PROJECTOR RM. G169
AUTOMATIC DOOR OPENER			10	20	12	11		12	12	20			3.5	AC-1
WATER HEATER	1			20	12	13		14	12	20	1			TOILET AND URINAL ACTUATOR
SPARE				20		15		16		20				SPARE
SPARE				20		17		18		20				SPARE
SPARE				20		19		20		20				SPARE
SPARE				20		21		22		20				SPARE
SPACE						23		24						SPACE
SPACE						25		26						SPACE
SPACE						27		28						SPACE
SPACE						29		30						SPACE
TOTAL	16	22	16								10	13	14.2	TOTAL

TOTAL CONNECTED AMPS A: 26 B: 35 C: 30.2



DATE

DESCRIPTION

SCALE

APPROVED

FOR DRAWING

DESIGNER

CHECKER

DATE

BRANCH MANAGER

DATE

NAVAL FACILITIES ENGINEERING COMMAND

NORFOLK, VA

CAMP LEJUNE, NC

SCHEDULES AND ONE-LINE DIAGRAM

AS NOTED

PROJECT NO. 1132806

CONSTR. CONTR. NO.

12605873

2424 26th ROAD SOUTH ARLINGTON, VA 22206

SHEET 74 OF 74

UNIFORM REGION 4 AUG 2017

