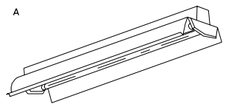
MARK A



LUMINAIRE REQUIREMENTS

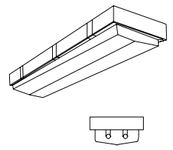
1. HOUSING SHALL BE 0.026" MINIMUM THICKNESS DIE FORMED COLD ROLLED STEEL, CHEMICALLY TREATED FOR RUST PREVENTION AND FINISHED WITH WHITE BAKED ENAMEL OR POLYESTER FINISH. PROVIDE TOP AND END KNOCKOUTS IN FIXTURE AND METAL END PLATES.
2. HOUSING WELDED OR SECURED BY SCREWS, RIVETS OR SNAP TOGETHER TABS AND SLOTS, INTO A SINGLE ASSEMBLY. PROVIDE INTERNAL GREEN GROUNDING SCREW.
3. REFLECTOR SHALL BE 0.019" MINIMUM THICKNESS STEEL (SOLID WHEN LUMINAIRE IS MOUNTED BELOW CATWALKS, ETC. 10 - 20% APERTURES WHEN PROTECTED FROM FALLING OBJECTS.) PROVIDE 30° SHIELDING CENTER VEE. CHEMICALLY TREAT FOR RUST PREVENTION AND FINISH WITH WHITE BAKED ENAMEL, PORCELAIN ENAMEL, OR POLYESTER FINISH. MINIMUM REFLECTANCE SHALL BE 85%.
4. THE LUMINAIRE SHALL NOT PERMANENTLY DEFORM WHEN LIFTED BY ONE CORNER.
5. SPACING TO MOUNTING HEIGHT RATIO = 1.3
6. LUMINAIRE SHALL BE CAPABLE OF CONTINUOUS ROW AND SINGLE UNIT PLACEMENT WITH PENDANT OR SURFACE MOUNTING.
7. BALLAST SHALL BE HIGH POWER FACTOR (> .95) INSTANT START CLASS P ELECTRONIC BALLAST WITH A SOUND RATING OF "A".

TYPE A - 2 F32/T8 LAMPS
TYPE B - 2 F96/T12 LAMPS
TYPE C - 4 F32/T8 LAMPS IN TANDEM (96" FIXTURE LENGTH)

OPTIONS:

1. WIRE GUARD

INDUSTRIAL FLUORESCENT



MARK H

LUMINAIRE REQUIREMENTS

1. MOLDED 100% ACRYLIC DIFFUSE LENS (NOT CLEAR) FULLY GASKETED WITH FIBERGLASS OR PLASTIC HOUSING.
2. PROVIDE A MINIMUM OF 6 PLASTIC LATCHES TO SECURE LENS.
3. BALLAST SHALL BE HIGH POWER FACTOR (> .95) INSTANT START CLASS P ELECTRONIC BALLAST WITH A SOUND RATING OF "A". SECURE BALLAST TO HOUSING WITH AT LEAST ONE SCREW AND SLIP-ON BRACKET OR 2 SCREWS - ONE AT EACH END.
4. UL LISTED FOR DAMP OR WET LABEL AS INDICATED.
5. OVERALL LUMINAIRE LENGTH SHALL BE 48" NOMINAL.
6. MINIMUM COEFFICIENT OF UTILIZATION (CU) WITH CAVITY REFLECTANCES OF 80% CEILING, 50% WALLS AND 20% FLOOR SHALL BE:

RCR	TYPE A	TYPE B
1	CU = 76	70
2	65	60
3	57	52
4	50	46

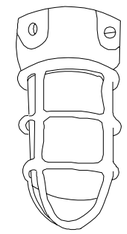
7. SPACING TO MOUNTING HEIGHT RATIO = 1.5
8. HOUSING SHALL HAVE INTERNAL GREEN GROUNDING SCREW.

TYPE A - 1 F32/T8 LAMP.
TYPE B - 2 F32/T8 LAMPS.

HOUSING OPTIONS

1. UL LISTED FOR DAMP LOCATIONS.
2. UL LISTED FOR WET LOCATIONS.

WET/DAMP LOCATION LUMINAIRES

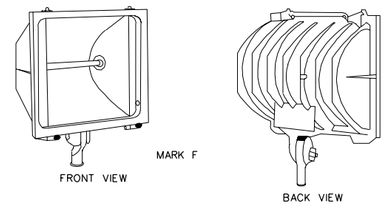


MARK B X

NOTES:

1. FIXTURE BODY SHALL BE CONSTRUCTED WITH AN ENCLOSED AND GASKETED CHAMBER AS AN INTEGRAL PART OF THE BODY WHICH SHALL SERVE AS AN OUTLET BOX. FIXTURE SHALL BE SUITABLE FOR WET LOCATIONS.
2. FIXTURE SHALL CONFORM TO UL 1571 AND SHALL BE PROVIDED WITH A CAST ALUMINUM GUARD OF ADEQUATE RIGIDITY AND STRENGTH. A GUARD SHALL BE ATTACHED TO THE FIXTURE SO THAT ITS PERMANENCE OF POSITION IS ASSURED.
3. THE SUFFIX X DENOTES "R" FOR RED LAMPS AND "W" FOR WHITE LAMPS.

INCANDESCENT FIXTURE



FRONT VIEW

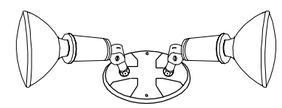
MARK F

BACK VIEW

NOTES:

1. FIXTURE SHALL BE 1500 OR 500 WATT, TUNGSTEN HALOGEN (QUARTZ-IODINE) FLOODLIGHT WITH NEMA TYPE 6 X 5 LIGHT DISTRIBUTION.
2. FIXTURE SHALL CONFORM TO UL 1572 AND NEMA FA 1, AND SHALL BE THE HEAVY DUTY ENCLOSED TYPE.
3. FIXTURE HOUSING SHALL BE DIE-CAST ALUMINUM WITH CAST-IN FINS FOR HEAT DISSIPATION. THE MANUFACTURER'S STANDARD COMMERCIAL PRODUCT FINISH SHALL BE PROVIDED ON ALL INTERIOR AND EXTERIOR METAL SURFACES. THE FIXTURE HOUSING SHALL INCLUDE A HORIZONTAL ADJUSTMENT INCORPORATED IN THE MOUNTING ARM, BETWEEN THE MOUNTING ARM AND THE FIXTURE HOUSING, OR AS AN ACCESSORY ATTACHED TO THE MOUNTING ARM CONSISTENT WITH THE STANDARD PRACTICE OF THE FIXTURE MANUFACTURER.
4. THE FIXTURE SHALL BE PREWIRED, AND SHALL HAVE A HIGH-TEMPERATURE, METAL-ENCASED, SPRING-LOADED GLAZED PORCELAIN LAMPHOLDER.
5. THE REFLECTOR SHALL BE ALUMINUM WHICH SHALL BE SUITABLY FINISHED FOR THE TYPE AND RATING OF THE LAMP.
6. THE LENS SHALL BE THERMAL SHOCK AND IMPACT RESISTANT GLASS SECURELY HELD IN A DOOR FRAME EQUIPPED WITH GASKETS AS REQUIRED TO PREVENT THE ENTRANCE OF INSECTS AND LIGHT LEAKAGE.

FLOODLIGHT FIXTURE - WHITE LENS



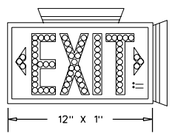
MARK G

FIXTURE SHALL BE WEATHER RESISTANT, FERROUS METAL BASE, WITH TWO ADJUSTABLE-POSITION SOCKETS, CONFORMING TO UL 496.

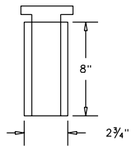
LAMPS 2-150W. PAR 38, RED FLOOD LAMPS, 120 VOLTS

FLOODLIGHT FIXTURE - RED LENS

MARK I



FRONT VIEW



END VIEW

NOTES:

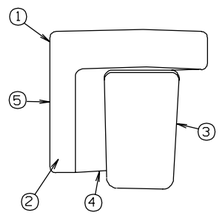
1. UNIT NOT AVAILABLE WITH WET LABEL.
2. UNIT IS AVAILABLE WITH DAMP LABEL.

LUMINAIRE REQUIREMENTS

1. ALUMINUM, STEEL, THERMOPLASTIC OR POLYCARBONATE HOUSING.
2. BRUSHED ALUMINUM, THERMOPLASTIC OR STEEL STENCIL WITH LETTERS 6 INCHES TALL AND ¾" WIDE STROKES AND PUNCH-OUT FACE, FOR LED'S OR INTERNAL LED ILLUMINATION.
3. RED ILLUMINATION PROVIDED BY LIGHT EMITTING DIODES (LED), APPROXIMATELY 120 LED'S PER FACE. (THIS QUANTITY DOES NOT APPLY TO INTERNALLY ILLUMINATED SIGNS.)
4. CLEAR PROTECTIVE NON-BREAKABLE LENS TO PROTECT LED'S. (NOT REQUIRED FOR INTERNALLY ILLUMINATED SIGNS.)
5. PROVIDE POWER FAILURE, BROWN OUT PROTECTION AND SURGE PROTECTION.
6. PROVIDE NI-CAD BATTERY POWER AND SOLID STATE TYPE CHARGER.
7. PROVIDE UNIVERSAL ARROWS AND BLANK OFF PLATES.
8. PROVIDE SINGLE OR DOUBLE FACE AS INDICATED ON PLANS.
9. PROVIDE UNIVERSAL MOUNTING.
10. UNITS MOUNTED EXPOSED TO THE ELEMENTS OR IN CLASSIFIED AREAS SHALL HAVE UL LABEL AS INDICATED.
11. PROVIDE INTERNAL GREEN GROUNDING SCREW.
12. PROVIDE TEST BUTTON IN BOTTOM OF HOUSING.
13. PROVIDE INDICATOR LIGHTS IN FACE TO INDICATE WHEN UNIT IS ON NORMAL POWER OR ON BATTERY POWER.
14. HOUSING SHALL HAVE A MATTE BLACK FINISH, EXCEPT AS INDICATED OTHERWISE.

LIGHT EMITTING DIODE EXIT SIGN

N.T.S.



MARK C

OPTIONS:

1. BLACK FINISH
2. INTEGRAL PHOTO CELL
3. AMBER LENS
4. LOCKING SCREW

LUMINAIRE REQUIREMENTS

1. HOUSING SHALL BE ULTRA-VIOLET RESISTANT POLYCARBONATE DARK BRONZE UNLESS INDICATED OTHERWISE. APPROX. 10"H X 7"W X 9"
2. PROVIDE WITH ALUMINUM OR POLYCARBONATE BACK PLATE.
3. PROVIDE ACRYLIC OR POLYCARBONATE ULTRA-VIOLET RESISTANT PRISMATIC OR DIFFUSE LENS.
4. PROVIDE HIGH POWER FACTOR (> .9) ELECTROMAGNETIC BALLAST.
5. PROVIDE INTERNAL GREEN GROUNDING SCREW.
6. PROVIDE UL WET LABEL.

LAMP OPTIONS:

TYPE A: 1-F7/T4 TWIN TUBE COMPACT FLUORESCENT
TYPE B: 1-F13/T4 TWIN TUBE COMPACT FLUORESCENT
TYPE C: 2-F7/T4 TWIN TUBE COMPACT FLUORESCENT
TYPE D: 2-F13/T4 TWIN TUBE COMPACT FLUORESCENT
TYPE E: 1-18W LOW PRESSURE SODIUM

EXTERIOR COMPACT FLUORESCENT AND LOW PRESSURE SODIUM-WALL MOUNT

LIGHTING FIXTURE SCHEDULE

FIXTURE MARK	VOLTS	SKETCH NO. TYPE	LAMPS NO	LAMPS WATTS	HT	REMARKS
A	120	40-06-04 2218	2	32	CEIL'G	SURFACE MOUNT * SEE NOTE 1
B X	120	SEE DETAIL THIS SHEET	1	150	CEIL'G	SURFACE MOUNT R - RED W - WHITE
C	120	SEE DETAIL THIS SHEET	1	18	1981	*SEE NOTE 2
D	120	SEE DETAIL 1 SHEET E-11	1	150	2133	PEDESTAL MOUNT RED LAMP NOTE 3
E	120	SEE DETAIL 4 SHEET E-11	2	100	ROOF	
F	240	SEE DETAIL THIS SHEET	1	1500	AS SHOWN	POLE MOUNT
G	120	SEE DETAIL THIS SHEET	2	150	AS SHOWN	POLE MOUNT
H	120	SEE DETAIL THIS SHEET	2	32	CEIL'G	
I	120	SEE DETAIL THIS SHEET			CEIL'G	LED EXIT SIGN
J	120	40-06-04 603	2	18	2134	EMERGENCY LIGHTS
K	120	40-06-04 1033	1	13	CEIL'G	COMPACT FLOURESCENT LAMP

* NOTES:

1. BALLAST(S) SHALL BE COLD WEATHER TYPE FOR STARTING TEMPERATURES DOWN TO MINUS 29 DEGREES C.
2. SEE SHEET E-12 FOR MOUNTING HEIGHT ON EXTERIOR OF CONTROL TOWER. CHOOSE EITHER FLOURESCENT OR LOW PRESSURE SODIUM.
3. DELETE THIS FIXTURE WHERE THE RANGE WILL NOT BE USED FOR NIGHT FIRE EXERCISES.

US Army Corps of Engineers

Symbol	Description	Date	Approved	Symbol	Description	Date	Approved

Designed by: N/A
Date: 01 APR 98
Rev.
Dwn by: JTP
Ckd by: MLR
Design file no.
Reviewed by: WLS
Submitted by: RNM
Drawing code: STD 179-00-01
File name: STDE08.DGN
Plot date: 20 MAR 98
Plot scale: FULL

U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA

FORCE XXI/FORCE MODERNIZATION PROGRAM
STANDARD DESIGN

LIGHTING FIXTURE DETAILS

Sheet reference number:
E-08
Sheet of