

# INSTALLATION NOTES

SAVE THESE INSTRUCTIONS

We have developed this series of field installation guidelines to assist you in correctly installing fixtures and transformers ensuring customer satisfaction and trouble free service. If you have any questions please call your local distributor or the FX Techline at **800-688-1269** before proceeding. Follow all NEC guidelines and local electrical codes.

For further info, see our website: [www.FXL.com](http://www.FXL.com)

## CF: CratereFurbo

**FX**  
LUMINAIRE

### Ground Install

INSTALL THE FX LUMINAIRE CRATERE FURBO IN WELL DRAINED TURF AND GRAVEL AREAS. DO NOT INSTALL IN LOCATIONS THAT ARE SUBJECT TO STANDING WATER AS THIS IS NOT AN UNDERWATER LIGHT.

1.00" ABOVE FINISH GRADE  
FINISHED GRADE

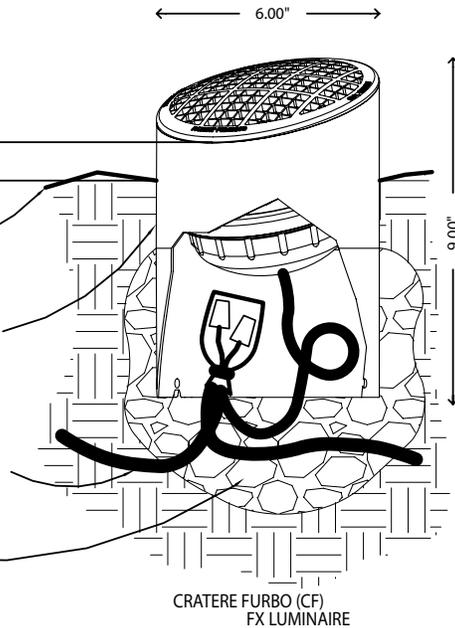
FX LUMINAIRE CRATERE FURBO LAMP FIXTURE. SEE LIGHTING PLAN LEGEND FOR WATTAGE AND BEAM SPREAD, 12 VOLT, 35 WATT MAX.

LOW VOLTAGE CABLE WITH FX LUMINAIRE LITESPLICE. LEAVE 18" LOOP COILED IN THE BOTTOM FOR MAINTENANCE PURPOSES.

COURSE GRAVEL FOR DRAINAGE

SECTION/ELEVATION

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SCALE: NOT TO SCALE

For a complete listing of installation details go to [www.fxl.com/learning/installation\\_notes.htm](http://www.fxl.com/learning/installation_notes.htm)

This lighting fixture is rated for transient landscape moisture – it is not an underwater light. If it is exposed to standing water, this fixture can possibly fail. Provide adequate drainage to prevent standing water from occurring around this fixture.

#### RISK OF FIRE WARNING:

DO NOT USE FX FIXTURES WITH ANY STYLE OF TRANSFORMER THAT EXCEEDS 14 VOLTS ON THE SECONDARY.

### Why use the LiteSplice?

Without a waterproof splice connection any system will develop voltage loss and low grade shorts making your lighting professional life hell. Below is our proven method of insuring you and your client years of trouble free high performance from the FX System.

**FX Does NOT recommend the use of Quick Clip style connectors or Pre-filled wirenuts because they are not waterproof and will rot out creating resistance and shorts. A little more time spent during installation is repaid handsomely in reduced service calls.**

#### Step 1

Begin with a 12, 10 or 8 gauge direct burial low voltage cable mainline. (Use stranded 12 gauge THHN (120v style) wire for conduit runs such as wall lights or trellis lights).



#### Step 2

Cut the mainline cable in half and strip back 3/4" of the insulation from each side to expose the multi-stranded copper conductor.



#### Step 3

Join one of the fixture's conductors to each side of the mainline as shown in the diagram. Since there is no polarity in low voltage, it doesn't matter which side is which when joining the conductors together. Install a wirenut on each side. Now is the time to test the individual circuits (cables) for voltage drop. If you were a good boy and followed the Circuiting Guidelines included with the FX MultiTap Transformer you should be able to provide each fixture with between 10.5 - 11.5 volts with all lamps installed and operating. Test now before you install the SpliceGel because it's easier to stick the VoltMeter's probes inside the wirenuts to get a reading.

#### Step 4

Pump about two squeezes of SpliceGel into the baggie and insert both wirenut connections into it. Push out the air and work the Gel into the bottom of the wirenut assuring a waterproof connection. Install the cable tie as shown and cinch down to complete the most cost effective permanent waterproof low voltage connection known to man. The Gel will set-up rock hard in about 3 days. It's best to leave 12-18" of slack at each fixture to allow for relocation or if you need to splice in additional cables in the future. Since this is a permanent splice solution — you will need to cut it off and start from scratch to add cables to the splice.

#### Step 3



#### Step 4



## Installation Guidelines:

### DO NOT EXCEED 50 WATTS IN THIS FIXTURE

Do not locate fixtures in areas that are prone to the collection of combustible material such as leaves and pine needles. Clean out the fixture housing regularly to reduce fire hazard. The CF is for turf or gravel applications only – Do not locate CF in planter areas that have ground cover because the fixture will quickly become covered up with plant material, thereby reducing light output. Always try to locate fixtures in well-drained soil where standing water does not collect. If installed in low-lying area, tie into drain system by installing catch basin in the gravel sump below fixture housing.

For high performance and predictable lamp life, supply fixture with between 11-11.5 volts with all lamps installed and operating. Use FX LUMINAIRE transformers only – FX WILL NOT WARRANTY OR REPLACE ANY COMPONENTS DAMAGED BY OTHER MANUFACTURER'S EQUIPMENT. The FX transformer is specifically designed for the high tech lamps used in our fixtures – the use of inferior power supplies can cause premature lamp failure and other problems including the risk of fire.

### For 50w CF: Lighted lamp is HOT! IMPORTANT SAFETY INSTRUCTIONS

**WARNING:** To reduce risk of FIRE OR INJURY TO PERSONS:

Turn off/unplug and allow to cool before replacing lamp, lamp gets HOT quickly! Contact only switch/plug when turning on. Do not touch the lens, guard, or enclosure (See drawing for location of lens)

Keep away from materials that may burn. Do not touch the lamp at anytime. Use soft cloth. Oil from skin may damage lamp. Do not operate the luminaire fitting with missing or damaged shield.

## SYSTEM LAYOUT

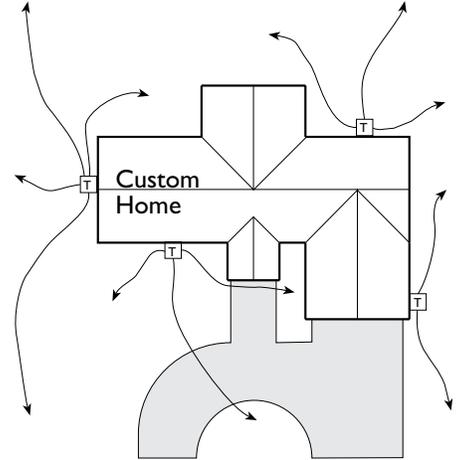
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### Single Transformer:

When using only one transformer, it is very important to center the transformer on the wattage load. If the project calls for 135 watts in both front and back yard, the PX-300 or PX-600 should be centered on the side of the house that will receive the most lighting. A common mistake is to locate the single transformer on the service side of the house or in the garage, which might result in excessively long cable runs to reach lighted areas. The primary goal in laying out low voltage systems is to minimize cable runs because of the negative effect voltage drop has on lamp output performance.

### Multiple Transformers:

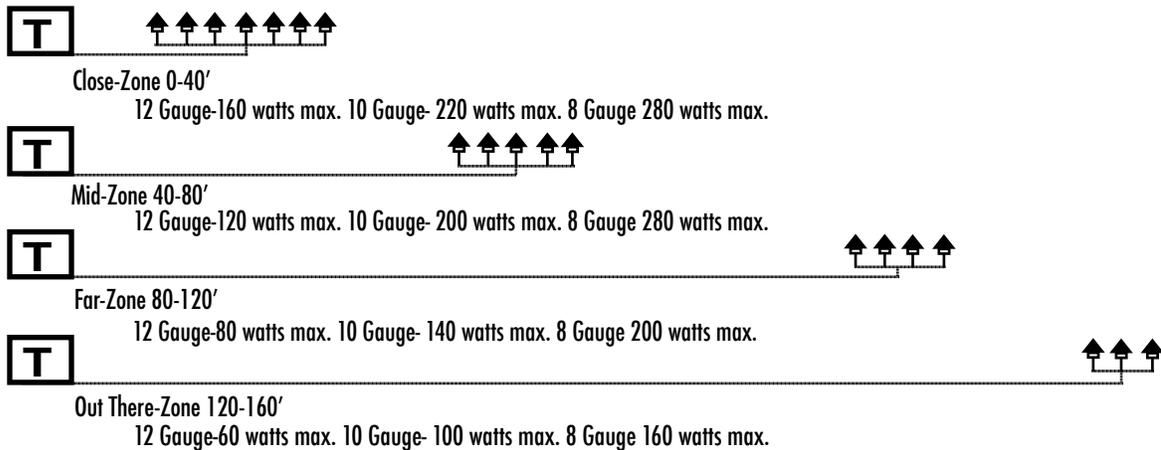
A common mistake in laying out multiple transformer circuits is to group several transformers in one location because of utility or visual considerations only. As with any low voltage layout, the prime directive should be to locate the transformers as close to the fixtures as possible in order to minimize cable runs and resulting voltage drop. The other multi-transformer layout consideration is "use zoning". Having several transformers allows the client to selectively control light in separate areas. This approach is similar to irrigation design in that the goal is to individually control areas that have similar needs. In lighting, a recreation area has different lighting needs than does a front entry. Therefore, the lights that serve these different lighting use areas need to be on separate transformers and switch controls.



Sample diagram of home with transformer and lamp placement

### Circuiting Guidelines:

**Loads PER CABLE**  
Add cable runs as necessary



### Lamp Life:

- Lamp life is rated in hours of operation. If lamps are rated for 4000 hours at 12 volts it means that at 4000 hours, 50% of the lamps are still work ing and 50% are not.
- For maximum light output, tune lighting circuits to provide between 11.5 and 12.0 volts as measured at lamp terminals when all of the lamps on the circuit are operating.
- For longer lamp life, adjust voltage down so lamps receive between 10.5 and 11.5 volts at the lamp terminals.
- Voltage can be regulated by adjusting circuit load/run by using FX Po tenxaX Transformers.
- To determine circuit voltage, use FX Digital Voltmeter.

Volts at Lamp	Lamp Life of Rate	Lumen Output of Rated
13.0*	50%	350%
12.5*	75%	175%
12.0	100%	100%
11.5	200%	80%
11.0	300%	75%
10.5	500%	65%
10.0	900%	50%

\*This voltage is not recommended