



TECHNICAL SERVICE BULLETIN

Date:

Product: Underwater lights

Re: Installation of underwater lights in overflow pools

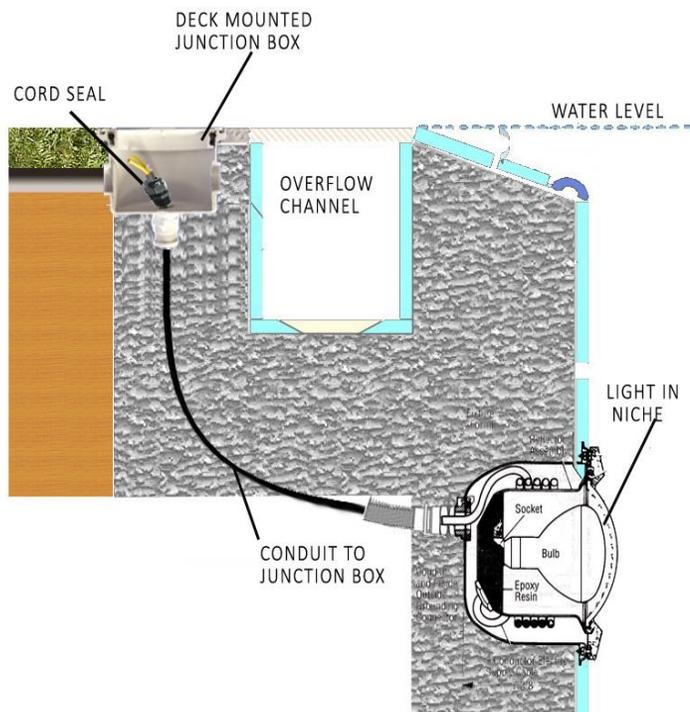
In the United States, by building code, underwater pool lights are installed with a junction box set 45cm higher than the pool water surface. With the popularity of overflow pools in markets outside of North America a deck mounted junction box is used to make a connection between the cable from the transformer and the cable from the underwater light. Underwater lights usually have a 2m-3m cable. Some installers mistakenly replace this cable with a longer cable that can reach the transformer directly. Typically, this is to accommodate ill-informed pool owners and designers that are adamant about not having a deck mounted junction box in the pool surround. This practice is not to building code in the United States and voids the warranty on the light as changing the cable on the light can affect the factory installed sealing. It is also hazardous to join a light cable to another cable below the water line as it is difficult to get a leak-proof joint. Without a junction box maintenance of the light is difficult and in many such cases the pool water has to be lowered to the level of the light for access.



The removal of heat from the underwater light is done by allowing pool water to flow through the underwater light niche. The water cools the fixture by being in contact with the front and rear of the fixture.

Errant installers also fix the light fixture to the pool surface tiling using silicon. This is done because some lighting installers think they are preventing the ingress of water into the niche. This shouldn't be done under any circumstances as it prevents adequate heat dissipation from the light fixture.

Water from the pool is often present in the lighting conduit up to the level of water in the pool. Any puncture of the light conduit will result in this pool water emptying into the soil around the pool structure up to the level of the puncture. It is recommended that the underwater lighting conduit is pressure tested prior to installation of the light fitting.

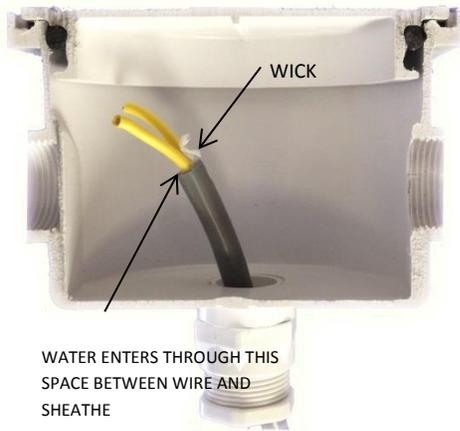


(Continued on reverse side)

In a skimmer type pool the presence of water in the conduit is not a problem as the deck mounted junction box is usually above the water level. In an overflow type pool the water level in the pool is the same as the deck level. Water in the conduit can flow into the junction box and fill the junction box. Very often it is assumed that the junction box gasket is defective and that the water present in the junction box is water that has seeped into it from the deck surface. In overflow pools the conduit from the light should have a cord seal on the end of it to prevent the pool water from flowing into the junction box.



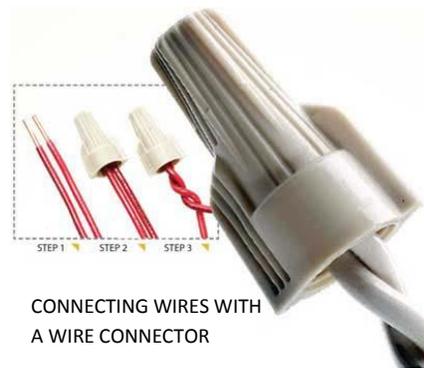
CORD SEALS



WATER ENTERS THROUGH THIS SPACE BETWEEN WIRE AND SHEATH

Moisture can also find its way into the junction box – through a leaking cover, condensation or ground water. All this water in the junction box can find its way into the fixture through the cable. The light cable consists of two/three sheathed cables inside an external waterproof sheath. A wick is also included to draw water away from the cables. There exists minute gaps between the sheathed cables and the external sheath. If the end of the cable is not sealed properly, water present inside the

deck mounted junction box will wick along the inside of the external sheath into the fixture itself. This happens over time and gradually the water can be seen building up inside the fixture. Eventually this moisture inside the fixture can affect the light electronics. Sensitive IC boards in LED lighting are especially prone to failure when any moisture is present.



CONNECTING WIRES WITH A WIRE CONNECTOR

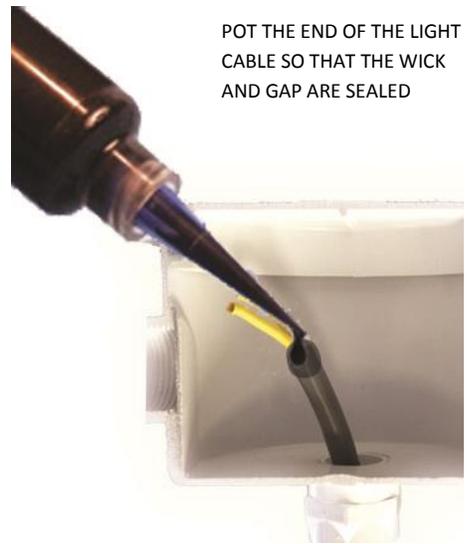


POTTING COMPOUND

One way to best avoid the ingress of water into the fixture through the cable in the case of overflow pools is to follow the US practice and elevate the junction box at least 45 cm above the water surface and hide the junction point on a wall, in shrubbery or inside an aboveground equipment room.

If the junction box must remain on deck level, then in addition to the cord seal on the end of the conduit, the light cable and the cables from the transformer should be joined in a water proof connector and sealed using suitable potting material.

A properly sealed connection between the wires from the transformer and the wires from the underwater light will prevent moisture from entering the fixture and this will prolong the life of the underwater light.



POT THE END OF THE LIGHT CABLE SO THAT THE WICK AND GAP ARE SEALED