



EXHIBIT 680.4 Limitations of 680.22(B) for the areas surrounding outdoor and indoor pools.

Dry-niche, no-niche, or wet-niche underwater luminaires operating at a voltage exceeding the low-voltage contact limit require GFCI protection.

See also

Article 100 for the definition of the term *low-voltage contact limit* and its associated commentary

(4) Voltage Limitation. No luminaires shall be installed for operation on supply circuits over 150 volts between conductors.

(5) Location, Wall-Mounted Luminaires. Luminaires mounted in walls shall be installed with the top of the luminaire lens not less than 450 mm (18 in.) below the normal water level of the pool, unless the luminaire is listed and identified for use at

lesser depths. No luminaire shall be installed less than 100 mm (4 in.) below the normal water level of the pool.

(6) Bottom-Mounted Luminaires. A luminaire facing upward shall comply with either (1) or (2):

- (1) Have the lens guarded to prevent contact by any person
- (2) Be listed for use without a guard

(7) Dependence on Submersion. Luminaires that depend on submersion for safe operation shall be inherently protected against the hazards of overheating when not submerged.

(8) Compliance. Compliance with these requirements shall be obtained by the use of a listed underwater luminaire and by installation of a listed **GFCI** in the branch circuit or a listed transformer or power supply for luminaires operating at not more than the low-voltage contact limit.