

## **ENGINEERING GUIDANCE 98-11**

**SUBJECT:** Design of Manholes and Manhole Covers on Airport Pavements and Safety Areas

**PURPOSE:** Provide guidance for the design and construction of manholes and manhole covers for airfield pavements and safety areas.

**CANCELLATION:** This Engineering Guidance replaces Safety & Standards Guidance No. 94-06, dated August 19, 1994.

**DISCUSSION:** Manholes in the runway safety areas and in pavements for the larger airports are required to be designed for a 100,000-lb. wheel load. Some manholes and covers are being designed for an H-20 highway load instead of the most critical aircraft. The normal highway manholes and manhole covers for H-20 loadings are designed for a wheel load of 16,000 lbs. The manhole or structure designed for H-20 loadings will fail under these aircraft loadings.

**GUIDANCE:** Manholes and structures on airfield pavements are required to be designed to support the aircraft loadings in accordance with the Advisory Circulars (AC) noted below. Also those in safety areas have to be able to support an occasional passage of the aircraft gear without damage to the aircraft.

Smaller airports may be able to use the highway designed manholes and covers depending on the most critical anticipated load. Designers should check with the Airports District Office for these loadings. For the larger airports, manhole covers are required to be designed for 100,000 pounds wheel loads with 250 psi tire pressures. For spans of 2 feet or less in the least direction, a uniform live load of 250 psi should be used. For spans between 2 feet and 10 feet in the least direction, a uniform live load varying between 250 psi and 50 psi, in the inverse proportion to the span length, should be used. For spans 10 feet or greater in the least direction, the design should be based on the number of wheels that fit the span.

The castings for airports are commonly called out separately in commercial catalogs. An example is the Neenah construction castings contains a separate airport section devoted to these type loadings.

**REFERENCES:** AC 150/6320-6C, "Design of Structures for Heavy Aircraft, Appendix 3" and AC 150/5320-5B, "Loads on Structures, paragraph 15."

**APPROVAL:** \_\_\_\_\_ signed  
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**DATE:** \_\_\_\_\_ 3/4/98