FLORIDA BUILDING COMMISSION

Pool & Spa Drain Safety Subcommittee

October 1, 2001
Rosen Centre Hotel
9840 International Drive
Orlando, Florida

Members present
Dale Greiner
Gary Duren
Dan Shaw
Peggy Harris

Committee Objectives
Develop information package on pool entrapment protection criteria for use by building officials.

Agenda Review and Approval
The agenda was amended to narrow the scope of the meeting to provide information for building officials on which they may decide whether a product is approved per section 424.2.6.6 of the Florida Building Code. The agenda was approved. The report from the previous meeting was also approved..

Overview

1) Information requested from industry last time. Bednerik: Research work published by Rowley & Egstrom in 1997 passed out to the committee (used 3/4" pipe). Vacuum release requirement is in addition to other requirements; no standard presently exists. NSPI 5-95 referenced requires 8 feet per second velocity in drain line. No serious engineering appears to be needed for vent piping. Did not obtain engineered designs prior to this meeting. Tom: Know of no case where pipes clogged and drowning occurred. If it fails, cavitation happens. Letter from Gardner Collins, PE, says a 1 ½" pipe would be adequate. Shaw: BD needs to know a few principles: Distance of vertical pipe equals time until air is pulled. Pump immediately switches to other pipe when blockage occurs. Head of pump has to be above water line. Shaw: Are there design criteria available for engineers? Not known. Takes longer to vacate water (Gardiner letter) for larger pipe than smaller pipe. Brown: Lief Staurus has established that suction must be released within 3 seconds above 4 1/2" of mercury to prevent disembowlment. George Pellington (engineer): vacuum climbs to 22 to 24" mercury at once then decays, also sinusoidal. Not just size, also depth of pipe. A 1 1/2" pipe would take about 2 seconds, depending on how far away. Have to understand the laws of physics and analytical solutions: needs to be empirical or analytical. Brown: have to prove it works. Should have to pass a UL test. Shaw: Rest of code allows engineering.

2) Duren: Reported on set of standards; summarized standards. IAPMO has standard for safety vacuum release system; uses 2" mercury. CPSC asked ASTM to develop criteria for vent piping. ASME standard 1917 for suction fitting covers. IAPMO IGC 160-2001a is the only standard recognized at this time. ASTM standard F15.51 is still just a draft; is based on "Guidelines for Entrapment Hazards". The further away you are, the longer the time that occurs to react. Expect ASTM standard to be final by April at latest. Need further refinements in code language as well to clarify intent. Not sure engineered systems should be allowed unless independent 3rd party checks system.

Motion:
Shaw: "Vent piping designed by Florida-registered engineer that relieves the vacuum to less than 4.5" of mercury in 3 seconds or less would constitute an approved system. Seconded by Duren. Greiner: Add reference to IAPMO standard? Duren: IAPMO criteria may not be applicable to design for vent tubes. Shaw: ...or vacuum relief device designed to IAPMO IGC 160-2001... Duren: Add protection wording.
George: See p. 4 of ASTM Draft. Recommend adding to motion: "Such vent piping shall be designed and installed in such a manner that the air inlet port(s) cannot be defeated by reasonably anticipated conditions or in any manner environmental or human, that would prevent the device from functioning as intended. This includes, but is not limited to, infestation, debris buildup, or microbiological contamination." Amendment was moved by Shaw and seconded by Duren. Vote: Aye: 4, Nay: 0. Passes.

Motion:
Duren: Move that vacuum relief systems designed to IAPMO IGC 160-2001a shall be permitted. Seconded by Shaw. Vote: Aye 4, Nay 0. Passes.

3) Shaw: Has the issue of "anti-entrapment" vortex covers been resolved? George: ASTM Standard is on the weak side. Duren: Anti-vortex drains have nothing to do with entrapment. Shaw: Language in code includes reference to Standard which includes anti-entrapment criteria. Brown: Say "All anti-vortex covers shall meet ANSI A 112.19.8M."

Motion:
Duren: Move that anti-vortex cover (anti-entrapment) approved in the code shall be one meeting ANSI A 112.18.8M. Shaw: Second. Vote: Aye , Nay 0.

4:) Other approved devices or means. Some main drains not suction. A presentation was made on an anti-entrapment device that works on the venturi principle.

5) Should add information to the notice to clarify the inlet/outlet language.

Motion:
Harris: Also add to notice: "That cleaner suction inlets shall be protected by a permanently installed self-closing flapper valve". Seconded. Vote: Aye 4, Nay 0

FINAL ACTION, Motion:
Harris: Move that the Plumbing/Gas TAC Chair forward the Pool and Spa Drain Safety Subcommittee recommendations of this meeting to the Commission for action as an informational notice to be sent out to building departments. Vote: Aye 4, Nay 0

MOTION TO ADJOURN: Made & approved at 3:30 p.m.