ASTM E2336 New Grease Duct Test Standard

The 2006 International Mechanical Code (IMC) has adopted new language which requires field installed grease duct enclosure systems to be tested to ASTM E2336. Reference to ASTM E2336 in the 2006 IMC eliminates confusion with previous building code language "nationally recognized test standard" and gives designers, contractors, and code enforcement officials clear guidance on how to accept grease duct enclosure systems.

What is ASTM E2336? What is it NOT?

- ASTM E2336 is modeled directly from ICC-ES Acceptance Criteria 101 (AC101) first published in 1994.
- ASTM E2336 requires compliance to 5 fire tests:
  1. Section 16.1 requires noncombustibility to ASTM E136
  2. Section 16.2 requires a 2 Hour ASTM E119 Wall Panel Test
  3. Section 16.3 requires a durability test modeled after ASTM C518
  4. Section 16.4 requires an internal grease duct fire test to demonstrate performance during long term exposure to service conditions (500°F for 4 hours), and exposure to a standardized internal grease fire (2000°F for 30 minutes)
  5. Section 16.5 requires a fire engulfment test run to the ASTM E119 fire curve, which tests the capability of the duct and enclosure system to resist external fires, tests the integrity of the enclosure fastening system, and tests the through penetration performance of the system.
- ASTM E2336 is a more stringent set of test requirements than previous non-specific building code language required. Specifically, the requirements of Section 16.2 for an ASTM E119 Wall Panel test, and Section 16.4 for a 2000 F internal grease fire with insulated thermocouples directly on the enclosure material are much more stringent.
- ASTM E2336 is an ANSI standard now written into the 2006 IMC and NFPA 96. ICC-Evaluation Service reports that reference 2006 IMC and UL Listings that reference ASTM E2336 demonstrate review and compliance to all five tests specified in ASTM E2336. ICC-ES Reports also provide approval for prefabricated grease duct access doors.
- ASTM E2336 is not UL 1978. UL, OPL and ICC-ES have all determined that ASTM E2336 is a more appropriate fire test standard than UL1978 for predicting and comparing performance of grease duct enclosure materials. As such, in January 2009 UL, OPL and ICC-ES will withdraw listings and Legacy Reports for enclosure materials that use UL1978 as basis for approval.
- ASTM E2336 is not an HVAC duct test standard because it simulates extreme fire conditions from the inside the duct (rapid rise to 2000°F simulating a grease fire). Laboratory listings for HVAC duct systems tested to ISO-6944 are not effected by changes in the 2006 IMC.

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How is FireMaster® affected by these code changes?

Adoption of ASTM E2336 into the 2006 IMC means that FireMaster grease duct enclosure materials have specific code recognition and clear performance requirements for use as grease duct enclosure systems.

FireMaster FastWrap® XL applied in 2 layers meets the requirements of ASTM E2336. FastWrap XL is listed by Underwriters Laboratories under HNKT G-18, certifying that the product meets the requirements of ASTM E 2336. FireMaster FastWrap XL is listed in ICC-ES report ESR 2213 as meeting the requirements of the 2006 IMC and the 2006 IAPMO UMC.

FireMaster FastWrap XL is the thinnest and lightest flexible wrap material available that has demonstrated compliance with all the requirements of ASTM E2336. FastWrap XL uses Superwool Fiber, a 2000 F rated, non-combustible, alkaline-earth silicate wool with low biopersistence at its core. FastWrap XL is the product of extensive research and development resulting in breakthrough improvements in fiberization technology with significant enhancements in thermal properties beneficial to fire protection applications.

Single layer enclosure systems compliant to UL1978 cannot be installed in 2 layers to meet the requirements of ASTM E2336 unless they are specifically tested to all the requirements of ASTM E2336, and show compliance through either an ICC-ES building code report, a UL Listing, or another accredited Listing.

FastWrap+ cannot be substituted for FastWrap XL in applications requiring compliance to ASTM E2336.

Excerpt From E2336 - 04

4. Summary of Test Method

4.1 Representative test specimens of the enclosure material or the grease duct enclosure system are subjected to the following tests. These test methods describe the following test sequence and procedures:

4.1.1 A noncombustibilty test, Test Method E 136, demonstrates the enclosure material's ability to resist combustion at a standardized temperature and duration.

4.1.2 A fire resistance test, [Wall Panel] Test Methods E 119, illustrates the ability of the enclosure material to resist the effects of fire when applied in a vertical application.

4.1.3 A durability test intended to simulate the effects of long-term exposure of typical in-service conditions on the thermal transmission qualities of the enclosure materials when subjected to a modified version of Test Method C 518.

4.1.4 An internal fire test uses two standardized fire exposures occurring inside the grease duct. Both tests illustrate the enclosure material's ability to resist thermal transmission of heat to the unexposed side in a horizontal application. The first standardized fire exposure is intended to simulate long term exposure of the enclosure material to a standardized service condition [4 hours at 500°F]. The second standardized fire exposure is intended to simulate a standardized grease fire [30 minutes at 2000°F].

4.1.5 A fire-engulfment test uses a standardized fire exposure, the time temperature curve of Test Methods E 119, to simulate a fire occurring on the outside of the grease duct, and demonstrates the ability of the grease duct enclosure system to remain intact without a through opening. The fire-engulfment test also tests the fastening methods used to secure the enclosure material to the grease duct and the supporting system. The fire-engulfment test also provides a means to test a through-penetration fire stop to determine its compatibility with the grease duct enclosure system.