UL 1978 Summary

Standard for Safety
Grease Ducts

Overview

1. **Vent Test Installations**
    a. Room should have ventilation capable of maintaining the build-up of carbon monoxide to less than 50 parts per million throughout the test. Room must be free of extraneous drafts and the grease duct is to exhaust into the same space or into a space freely communicating with the space from which the combustion air is taken. Room ambient temperature must not increase by more than 40^{o}F above the ambient temperature recorded at the beginning of the test.

2. **Temperature Measurement**
    a. Temperature tests should be at 500F flue gases, and abnormal temperature and tested using a thermocouple located within the insulated outlet of the flue gas generator.
    b. Maximum temperatures on surfaces should no more than 117F above ambient temperature when the flue gas temperature is maintained while the flue gas generator is fired at minimum input of 925 Btu/hr per square inch of the cross-sectional are of the grease duct and regulated to produce flue gas at a temperature of 430F above ambient temperature within 15 minutes at the flue gas thermocouple location.

3. **Abnormal Temperature Test**
    a. The maximum temperature attained on test structure should be no more than 175F above ambient temperature. This test is to be a continuation of the 500F temperature test. Flue gases entering the grease duct are to be increased to a minimum of 4025 btu/hr per square inch of the cross-sectional area of the grease duct and the dilution of air regulated to produce flue at a temperature of 1930F above ambient temperature. The time to reach 1930F above ambient temperature should not exceed 15 minutes. The test period should last 30 minutes after the initial temperature of 1930F above ambient temperature is reached.

4. **Leakage Test**
    a. No flame, leakage of grease, or grease vapor should occur through or around joints.
    b. Horizontal section of the ducts is to be coated with refined pork lard in the amount of 0.3 pounds per square foot of surface area. The duct is to be connected to a capped tee and a heating unit, capable of heating refined pork lard to 600F and is to be placed under the capped tee duct inlet.
    c. A shallow pan with approximately 2 pounds of refined pork lard per square foot of pan area is to be heated to approximately 600F and ignited. Observations are to be recorded for any leakage of grease occurring at joints or access door in the duct.

5. **Vertical support test**
    a. Support should be installed as instructed. A section of the grease duct is to be placed on the support and loaded with weights or by a machine. The maximum static load is to be equal to four times the load imposed by the heaviest grease duct that the support with be required to sustain. Test is applied for a minimum of 60 minutes.
6. **Impact test**
    a. A weighted bag of at least 50 pounds is to be swung from a pendulum and have 3 impacts; At the level of a joint, at the level halfway above the first joint tested and the next join, and at the same level as before, but rotated around the axis of the grease duct by 90 degrees from the previous impact.
7. **Load test**
    a. Load should be four times weight of maximum length between supports sustained for 5 minutes.
8. **Pressure Test**
    a. Pipe is to be sealed and filled with water 5 times of rated operating pressure. Pressure is to be maintained for 1 minute and samples should not leak or burst.
9. **Volume Test**
    a. Samples should be weighed first. Immersed in corn oil and lard for 70 hours at 277 +1.8F. Samples are removed and cooled for 60 minutes then wiped clean and weighed.