



## MEMORANDUM

**DATE:** October 15, 2008 (Revised November 4, 2008)  
**TO:** Whom It May Concern  
**FROM:** Fort Worth Fire Marshal's Office  
**RE:** Acceptable Alternate Method for Natural Gas Compressor Buildings

Please be advised that as of October 1, 2008, the Fort Worth Fire Marshal would like to specifically identify an acceptable alternate method to the Fort Worth Fire Code requirement for fire sprinkler protection of buildings over natural gas compressors in the City of Fort Worth, Texas.

Due to the large amounts of natural gas conveyed through natural gas compressors, any building, or enclosure, over such compressor is classified as an H-2 occupancy in accordance with the Fort Worth Fire Code, hereafter referred to as FWFC.

Note the following basic code requirement guidelines from the Fort Worth Building and Fire Codes as they relate to buildings over natural gas compressors, unless noted otherwise.

### **BUILDING CODE:**

1. The allowable area for an H-2 occupancy from Table 503 of the Building Code for a Type II-B (non-rated, non-combustible) building is 7,000 sq. ft. Maximum allowable area increase due to frontage is 75% resulting in 12,250 sq. ft.
2. Also, Section 415.3.1 of the Building Code, Number 2. requires a minimum 30 ft. distance from the building to a lot line.

**FIRE CODE** (All code sections below reference the FWFC, unless noted otherwise.):

1. Section 503 requires fire apparatus access road within 150 ft. of all point points of building by an approved route along a 5 ft. unobstructed path around the external walls of the building.
2. Section 506 requires Knox Lock/Box access to gates and buildings.
3. Section 508 requires fire hydrant within 500 ft. hose lay distance of all points of building.

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4. Section 903 requires automatic fire sprinkler system, as well as Section 2704.5. See Alternate, Method section below allowed for the elimination of such system based on additional safety features and practices being provided.
5. Section 908 requires emergency alarm system, along with Section 2704.9.
6. Section 911 requires explosion control, along with Section 2704.6 and 3504.1.1.
7. Section 2703 requires signage, including but not limited to NFPA 704, NO SMOKING, COMPRESSED GAS, etc., as well as general safety precautions.
8. Section 2703.2.2.1 requires emergency shut down for piping, as well as Section 3503.1.3.
9. Section 2704 and 2705 requires adequate ventilation.
10. Section 2704.7 requires back-up power or approved fail-safe engineered system.
11. Section 2704.10 and 2705.1.6 requires supervision/monitoring of the fire detection and emergency alarm system.
12. Section 2704.11 requires clearance to combustibles.
13. Section 2704.12 requires noncombustible floor.
14. Section 3503.1.4 requires ignition source control/grounding.
15. Section 1008.1.9 requires panic hardware for all exit doors.
16. Section 1027 pertains to maintenance of the means of egress.
17. Also, note that all electrical equipment shall be classified explosion proof, as required by the adopted edition of the National Electrical Code with local amendments.
18. Minimum permit requirements with regards to Fire Department issues include Gas Compressor Site Permit, Building Permit, Fire Department Hazardous Materials Facility Construction Permit, and Fire Department Fire Alarm Permit.
19. Note that all requirements pertaining to the Gas Compressor Site Permit are not addressed here, but are still required for approval of this alternate method.

The above list is not intended to be all-inclusive of Building and Fire Code requirements that might apply to such a building and does not in any way remove the responsibility of the

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applicant, owner, manager, tenant, etc., from complying with all adopted Building and Fire Code ordinances applicable to such a project.

#### **ALTERNATE METHOD:**

Section 104.9 of the FWFC allows for alternative materials and methods to be considered by the fire code official. The proposed method must meet the intent of the code. Additionally, Section 903.3.1.1.1 of the FWFC allows the fire code official to exempt sprinkler protection in certain instances.

Provisions required to eliminate fire sprinkler protection for such buildings include all of the following:

1. No combustible storage or other equipment is allowed in the building, other than the necessary natural gas compressor equipment. Permanent signage shall be provided at all access doors to the building indicating “NO STORAGE ALLOWED” having a minimum 2 inch high red letters on a white background. Additionally, the Certificate of Occupancy for this building shall indicate that “No combustible storage is allowed inside this building.”
2. All other Fire Code requirements associated with an H-2 occupancy, as mentioned above, are still applicable and shall be strictly enforced.
3. Minimum construction is Type IIB, and shall comply with all Building Code requirements.
4. UV/IR fire detection systems and natural gas detection systems are required with reduced spacing of detectors to no more than 75% of the maximum allowable spacing per the manufacturer for each type of detector, respectively.
5. Increase the number of exits from the building beyond that required by the Building Code by at least one, thereby reducing the travel distance below that required by the Building Code, as well.
6. Increase continuous ventilation required by Section 2704 and 2705 by at least 50% to provide increased air changes per hour.

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### **Fire Hydrants:**

Along with the above provisions for eliminating sprinkler protection, maximum distances to fire hydrants, as per Section 508, are evaluated on a case by case basis by the Fire Marshal. Due to the nature of tactics employed at fires at these facilities, travel distances may be extended. Provisions required to increase travel distances to fire hydrants for such buildings include all of the following:

1. Distance to occupied buildings.
2. Size, construction and arrangement of ancillary buildings on site.
3. Hydrant installation constraints.
4. Future use.
5. Locations of off-loading processes.
6. Impact on noise levels and setbacks

### **Fire Lanes:**

Note that the Fire Marshal is not opposed to the utilization of materials other than asphalt or concrete for the fire apparatus access roads required by Section 503; however, the following is required for review and approval of alternate materials:

- a. Professional Civil Engineer in the State of Texas shall submit signed/sealed drawing to the Fire Department for review. Drawing shall include site plan indicating location of fire lane, exact design of fire lane, and shall specifically notate compliance with all Fort Worth Fire Code requirements for a fire apparatus access road, including but not limited to 12,500 Lb. wheel load capacity, minimum turning radius, maximum 10% grade, etc.
- b. Fire lane shall be marked in accordance with the Fort Worth Fire Code, either by striping or signage. It is acceptable to construct a striped curb for this purpose since striping flex base is not feasible, and posting of signs creates operational problems for these facilities.

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**Construction Process:**

**Please note that with regards to construction of a new building over an existing operating natural gas compressor, there is a concern of potential containment of the flammable gas in the event of an accidental release. As such, the building shall not be fully enclosed until all applicable Fire Department permits, i.e. Hazardous Materials Facility Construction Permit for explosion control, ventilation, gas detection, etc., and Fire Alarm Permit for fire detection system, have been inspected and approved by the Fort Worth Fire Department. This ensures that safety provisions are in place, inspected, and approved prior to full enclosure of the building. As such, all doors shall be secured in the open position for the building, and the roof over each operating compressor shall remain uncovered and open to the atmosphere. The size of the roof opening shall require approval of the Fire Marshal dependent on the building construction. Upon acceptance of the above-mentioned permits, the roof may then be covered and the doors closed, i.e. complete the enclosure.**

Please note that this approval does not eliminate the applicant's responsibility to comply with all adopted and applicable laws and ordinances for such a project.

Please feel free to contact us with any questions at:

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