New Fire Station Design Standards

A fire station is part of the critical infrastructure for a community, so one should give careful thought to the use of the station and design. Tennessee has no minimum laws, rules, or regulations on the construction of a fire station except that the building must meet the minimum building code adopted by the local jurisdiction. If there are no locally adopted codes, the current State minimum code applies, which is the 2012 International Building Code.

If there are no sleeping facilities within the structure, the building must meet Group S (Storage) standards for construction. If sleeping areas or a meeting area for over 100 people is contained in the building, the station must meet the Standard for Mixed Occupancy construction.

The building should provide “gender friendly” separate hygiene and sleeping facilities for men and women. Tennessee Code Annotated 4-24-302, Gender friendly conditions in existing facilities, states:

(a) Each municipal or county fire department, and each volunteer fire department or company, are urged to develop plans that, to the greatest extent possible, will create gender friendly conditions in existing facilities.

(b) The purpose of the plans is to identify which stations could be upgraded to accomplish a gender-friendly facility and identify which stations cannot be made gender-friendly due to space constraints, historical significance of the station, or other documented reasons why this could not be accomplished.

(c) The plans, once developed, shall be made available upon request by the commission on firefighting personnel standards and education and from interested persons in the community.

For a building to meet ISO’s definition of a fire station, it must be capable of being heated to a minimum temperature of 45 degrees (F), year round, and be secured from unauthorized entry.

The station should have a safe room where occupants can go to take shelter during severe weather and tornado warnings.

The jurisdiction should consider including sustainable design and energy efficient features in the building. Some communities are building stations to meet Leadership in Energy and Environmental Design (LEED) criteria and to receive certification as a LEED
facility. Energy efficient design saves money on operating costs and demonstrates the jurisdictions’ commitment to being good stewards of the environment.

Fire stations are part of a community’s critical infrastructure. As such, they should have security features against unauthorized entry and have emergency power generators capable of running the entire building during an extended power outage or disaster.

MTAS recommends that the fire department fully sprinkler the facility: set the example and exceed the minimum building code requirements for fire and life safety.

A fire station is a complicated building, especially if it will be occupied 24/7. People will be living and sleeping in a building housing hazardous chemicals and motor fuels, so care should be taken in its layout and design, giving thought to workflow and how the different spaces relates to each other. For example, where to put the bunkroom to provide the fastest route to the fire trucks, and a decontamination area near the apparatus bay for cleaning of contaminated gear and equipment, are two design considerations. Here are some resources to provide more information on fire station design.

The National Institute of Building Sciences has a WBDG (Whole Building Design Guide) for fire stations. Access the guide at http://www.wbdg.org/design/firestation.php

The US Green Building Council (USGBC) has information on LEED design at their website http://www.usgbc.org.

FEMA has information on building a safe room at https://www.fema.gov/safe-rooms.


Though not available on-line, the NFPA Fire Protection Handbook has a chapter (Chapter 14 in the twentieth edition of the handbook) on fire station design.

NFPA does not have a design standard for fire stations, but the fire department should consider various NFPA standards when designing a station.

If you have questions about designing and building fire stations please contact MTAS for assistance.

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