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**Writing Sample published on [www.eHow.com](http://www.eHow.com)**

## **How to Design a Fire Station**

### Overview

Fire stations present a unique challenge to architects due to the many functions required of a firehouse. Not simply a place to go to work, fire stations must have ample room to house fire trucks and equipment, plus incorporate administrative and residential areas. Departments that provide field medical service keep rescue units at the stations as well. Thoughtful planning is required for fire stations to be operational 24 per day, 365 days per year.

### Step 1

Know the main features of a fire station. The fire trucks, rescue units and other fire response vehicles are parked in the apparatus bays. Allow room in the bays for the apparatus bay support, where equipment is cleaned and stored, as well as for service of vehicles with basic maintenance checks. Administrative and training zones allow for the everyday running of the department and training of recruits. The residential sections include the common room, kitchen, showers, sleeping quarters and a fitness room.

### Step 2

Find out whether the station will be a new building or a renovation of a previous station or other kind of building. Constructing a completely new building will be much more expensive than renovating unless the current building is in disrepair or very old. Either way, the design and construction of the new station should incorporate as many eco-friendly features as possible to save tax-payers money in the future.

### Step 3

Determine the main use of the fire station. A substation will be smaller than a combined station and training facility, and the central command may require large apparatus maintenance capabilities. Design the station for a department's headquarters with administrative offices, equipment storage units and possibly an archival space such as the local fire museum. Include conference or presentation rooms for educational programs for local schools and groups. The types of trucks to be kept at the station dictate the length and height of the parking bays.

### Step 4

Research the kind of response calls the station will mostly likely take. Firefighters at a station in a residential area will respond to fires and vehicle accidents. A station near an industrial park requires equipment for handling chemical spills, explosions and other hazardous waste emergencies. A water harbor firehouse will need to accommodate watercraft for the dive unit. Consider whether the station will have a specialized focus such as wildfire or aircraft rescue fire fighting. Allow parking for rescue units or ambulances, plus corresponding paramedic equipment, if the department handles medical calls.

## Step 5

Design the space to flow from one area to another without disruption to other fire fighters or equipment. The communal room with the television should be distanced from the study or sleeping areas. Separate the decontamination zone from equipment areas to ensure hazardous material does not mix with supplies. Situate the apparatus bays in between the apparatus support bay and the administrative/living areas to provide quick internal response time while covering vehicle maintenance needs. Design flow must accommodate the guidelines of the American Disabilities Act if administrative or public areas are included in the station layout.

## Skill

- Challenging

## Tips

- Apply for funding from government and non-profit organizations to help with building costs.
- Choose one person to be the project manager to oversee all aspects of planning and construction. This person will either be the fire chief or a deputy chief.

## Keywords

- fire station design
- firehouse layout
- planning new fire house
- apparatus storage
- fire station floorplan

## Reference

- [Fire Station Design – RRM Design Group](#)
- [Whole Building Design Guide of the National Institute of Building Sciences](#)

## Resource

- [Fire Chief Magazine - Construction Management](#)
- [Fire Station Design Experts](#)

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