

APPEAL FORM

Questions for this promotional examination were taken solely from the source material listed in the Source Material List. Information contained in any other material will not be considered in determining the correct answer to any question.

Houston Fire Department

HFD Investigator 1/7/2015

You may only appeal **ONE** question per form.

For Question # 89 I would like the Test Review Committee to take the following action (please check one or explain in the space provided):

- () Make A the only correct answer. () Other (please explain below):
() Make B the only correct answer.
(X) Make C the only correct answer.
() Consider the following as correct answers
(circle the answers you feel are correct):
A B C
() Give all applicants credit
() Remove the question from the exam.

Explanation: Please provide a detailed explanation of your appeal / rebuttal. **DO NOT WRITE THE TEST QUESTION ON THIS FORM.** Print/ Write legibly.

Numerous references in the book state that Non-combustible and fire-resistant construction offer "better" resistance of fire & ~~common~~ it is the tenants and contents that catch fire.

However, the Book on page 282 Specifically States:

"Both Type II non combustible construction (covered in this chapter)..."

and later "In this chapter the focus is on steel because it is the most prevalent material of choice."

Again references to This Chapter pertain to Fire-Resistive Construction.

20929206

Random Test Number

1-9-2015

DATE

Do not write in this box. This area is for Test Review Committee or Civil Service Commission use only.

Approved

Denied

Committee Chairman Signature _____

Case Study



Figure 10-1 The Memphis dollar store fire, in which the roof collapsed at the rear of the building.

Courtesy of NIOSH.

In 2003, an arson fire broke out in the rear office of a "dollar store" (with items for sale ranging from clothing to automotive supplies) in Memphis, Tennessee (**Figure 10-1**). Constructed of unprotected steel bar joists supported by concrete block walls, the 8,900-square-foot (826.8m²) building was divided by a concrete block wall into two areas. The sales area, approximately 100 feet (31 m) deep, was at the front of the building; a smaller storage and office space was located at the rear of the store. The roof deck consisted of a corrugated steel deck covered with $\frac{3}{4}$ " fiberboard and asphalt. A suspended ceiling was installed in the sales area, while the bar joists were exposed in the rear storeroom and office.

Fire fighters entered the front of the store and noted a light smoke condition. Other fire fighters entered the structure through a rear door, going into the storeroom. The fire fighters in the storeroom encountered moderate smoke conditions, when they opened the door to the office, they were met with heavy fire conditions. Handlines were stretched through the front door, and fire fighters were assigned to the roof for ventilation as smoke conditions worsened.

One fire fighter was directed to open up the drop ceiling in the store. As he conducted this task, the fire intensified in the ceiling void and blew down a number of ceiling tiles and HVAC diffusers onto fire fighters below (believed to be the result of a backdraft). At about the same time, a portion of the bar-joist roof in the storeroom collapsed; two fire fighters—one in the storeroom and one in the sales area—became trapped, ultimately succumbing to the effects of the fire.

1. What are the effects of a drop ceiling in terms of locating a fire?
2. How can backdrafts occur in a void space consisting of a drop ceiling, bar joists, and a built-up metal deck roof?
3. Which type of fire load is necessary to initiate the collapse of steel bar joists?
4. How many buildings of this type exist in your community?

Introduction

Both Type II noncombustible construction (covered in this chapter) and Type I fire-resistive construction (covered in the chapter that discusses fire-resistive construction) use construction materials that will not support combustion—namely, steel and concrete. What, then, is the difference between noncombustible and fire-resistive construction? The answer is simple—the level of fire resistance (fire rating) assigned to the structural frame, walls, floors, and roof. Noncombustible construction has little or no fire resistance for its structural members, while fire-resistive construction has moderate to heavy fire resistance.

Noncombustible construction also differs from fire-resistive construction in that its allowable area and height (discussed in the chapter that reviews

building and fire codes) are much smaller than the corresponding criteria for fire-resistive construction. Many noncombustible buildings are 1–3 stories in height, with the maximum height being 12 stories for certain types of occupancies. Fire-resistive construction, by comparison, is permitted to be of unlimited height.

Although the use of concrete is found in some buildings of noncombustible construction, noncombustible construction relies heavily on the use of steel for its structural system, including the roof and floor framing. In this chapter, the focus is on steel because it is the most prevalent material of choice. Nevertheless, many actual examples of fire-resistive construction can be cited that use steel for their framing systems. These buildings will have high levels of fire resistance (protection) for the steel.