

building will not confine it.

Even materials that do not sustain fire do not guarantee the safety of a structure. Steel, for instance, quickly loses its strength when heated and its yield point decreases significantly as it absorbs heat, endangering the stability of the structure. An unprotected, conventional steel joist system will fail in minutes under standard laboratory fire exposure test methods, while a conventional wood joist floor system can last 1.5 times longer.

Even reinforced concrete is not immune to fire. Although concrete structures have rarely collapsed, concrete will spall under elevated temperatures, exposing the steel reinforcement and weakening structural members.

Many construction associations support building codes that require balanced design and encourage code-writing officials to require that buildings be constructed with noncombustible materials in walls and floors. Fire statistics could be greatly improved by recognizing that fire containment is just as important as suppression and detection systems. Determination of the quantity and type of combustible materials likely to be present enables designers to establish the potential fire loads of the building. This data coupled with the area and height of the building will provide designers with the degree of structural protection against the spread of fire between different parts of a building.

Flame-resistant interior materials

Any material that forms part of the building interior and is directly exposed is considered to be an interior finish. This includes interior claddings, flooring, carpeting, doors, trim, windows, and lighting elements. It is critical to determine the flame-spread rating and smoke-development classification of the materials being used. It is generally recognized that there is really no such thing as a fireproof building as fires can occur in any type of structure. The severity of a fire, however, is contingent on the ability of a building to

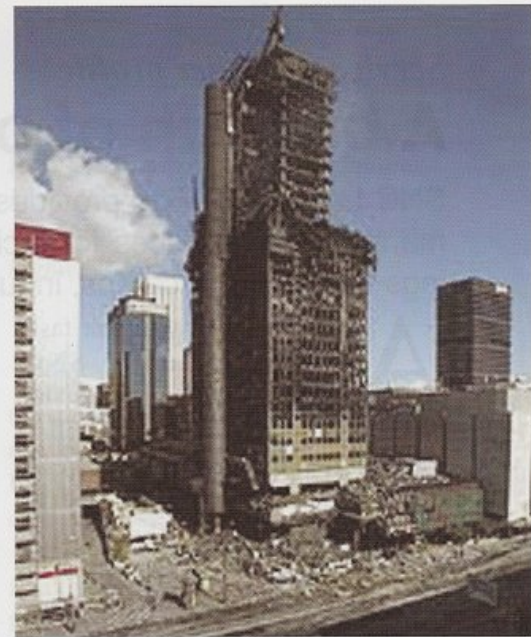
confine the fire, limit its effects on the supporting structure and to control the spread of smoke and gases.

Any structure can be designed as a system of assemblies that will limit or slow the effects of fire. This will allow occupants sufficient time to escape the building and for firefighters to safely reach and extinguish the fire. Occupant safety is also dependent on other parameters such as detection, exit paths, and the use of automatic fire suppression systems such as sprinklers.

The fire safety plan

Once the building structure has been completed, the groundwork to obtain occupancy permits is put into motion. The key ingredient to obtain permits is to develop a Fire Department approved Fire Safety Plan (FSP) for the building occupants. The FSP is a customized manual that outlines life safety procedures and the availability of fire protection equipment within a building. Most importantly, it is an internal map to guide Fire Fighters in the event that a fire emergency arises in your building. Other objectives of the FSP are to increase safety awareness for all the occupants of a building, and to minimize the occurrence of situations that may be life threatening. The FSP illustrates the floor plan layout of a building, including all exits, stairwells and the location of fire and life safety equipment. It describes occupant evacuation procedures and the fire drill schedules. It lists emergency contact telephone numbers, specifies procedures for the floor warden teams and identifies occupants with special needs. It also describes the requirements for daily, weekly, monthly and yearly inspections or testing of the fire and life safety equipment in the building. Most commercial and residential building structures under the National Fire Code are likely to require emergency fire evacuation plans and regular evaluation drills, so workplace health and safety planners or property managers must be prepared for these events.

Fire Safety Planning involves the



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identification of potentially hazardous situations, the assessment of risks and the implementation of control measures to eliminate or reduce the risk of injury or harm that may occur during a fire evacuation. Training in set fire evacuation procedures and clear escape routes are the key principles applied to reduce the loss of life and the risk of injury. All occupants of a building, including the personnel who coordinate the emergency fire evacuations, must be familiar with these procedures and have regular practice fire drills. To be effective, emergency fire evacuations must be an integral part of the buildings emergency management system.

Fred P. Baumgartner and Ray Goulet of Firepoint Technologies Inc. specialize in the development of approved Fire Safety Plans and evacuation procedures, assisting in the achievement of the highest level of fire and life safety awareness for building occupants. Services include instructional programs such as fire drill training, evacuation planning, floor warden and supervisory team training and fire extinguisher demonstrations. For information, call 905-874-9400, email info@firepoint.cc or visit www.firepoint.cc.