by bracing If outside shelters are built, they should be buried or semiburied to take advantage of protective earth covering

Many companies have not seriously considered constructing employee shelters because they do not think that the expense could be justified by the limited use However, this is not necessarily the case, the shelter can have daily use as a locker room, training room, meeting room, cafeteria, or employee lounge There might also be a psychological value in having employees use the shelter area on a daily basis, the familiarity tends to minimize any depressing effect which use of the shelter might have in an actual emergency Although most industrial employee shelters are designed to give protection only from fallout, companies who have incorporated shelters in the construction of new buildings have found that with a small amount of additional expense they can also protect against blast

Whenever natural or wartime catastrophes threaten, the following places should be avoided areas around windows (flying glass presents a serious hazard), open areas, upper stories, places with weak walls or roofs, or containing piles of insecure materials

The executive who becomes coordinator of the shelter program should study publications such as *Protecting Personnel in Wartime*, and *Studies in Business Policy* (Report No 55), National Industrial Conference Board Civil Defense can also help

Dispersion is also important in assignment of employees to shelters For example, if all the engineering staff were assigned to one shelter which was later destroyed, the loss would be greater than if the occupants had been a work force cross section

Each employee shelter will have to have one person, with assistants, designated as the shelter manager. These managers will have to be carefully trained because they will be faced with all the psychological problems of life in close quarters, plus mass feeding, distribution of water, arranging sleeping accommodations, assigning chores, control of supplies, bolstering morale, and handling the personal problems that each individual will bring with him

Alarm systems

In most industrial operations a definite fire alarm system is set up, using existing signaling systems such as a plant whistle, however, to avoid confusion with the regularly used signals, some plants have special codes or other signaling devices This type of signal also may indicate the location of the fire, or separate signaling devices may be used for the different building or working areas in the company property

The alarm system that activates the disaster plan may or may not go through the communications center, but rather should be touched off in the emergency headquarters office Alarm systems should be provided in all buildings (or fire-resistant sections of buildings) occupied by 40 or more persons.

Electric alarms are preferred to mechanical ones except in a shop having one large open area where there is only one alarm-summons station and one alarm-sending device, such as a manually operated gong. Manually operated alarms should supplement electric alarms Closed circuit systems of the type specified by the National Fire Protection Association's Standard No 71, *Central Station Protective Signaling Systems*, or No 72, *Proprietary, Auxiliary and Local Protective Signaling Systems* are recommended For remote station systems, the standard is NFPA No 72C, *Remote Station Protective Signaling Systems* Requirements for simple alarm units for use with automatic sprinkler systems are contained in NFPA No 13, *Sprinkler Systems, Installation* The open circuit alarm system is not recommended because if the power fails or if the circuit is broken, no warning is given

Plants in areas where municipal fire departments are available usually have a municipal alarm box close to the plant entrance or in one of the buildings Others may have auxiliary alarm box areas, connected to the municipal fire alarm system, at various points in the plant Another system often used is a direct connection to the nearest fire station which may register by a water alarm on the sprinkler system or be set off manually If possible, the fire alarm system should be connected with the local fire fighting alarm, and have an independent power supply

In large cities private central station services are available and provide excellent protection These central stations receive signals from plant fire alarm boxes, watchmen, sprinkler head operations, and other