



FIGURE A.3.10.4 International Shore Fire Connection.

changes in these characteristics, for a particular occupancy, are considerations that should be weighed in the selection and classification.

The light hazard classification is intended to encompass residential occupancies; however, this is not intended to preclude the use of listed residential sprinklers in residential occupancies or residential portions of other occupancies.

A.5.2 Light hazard occupancies include occupancies having uses and conditions similar to the following:

- Animal shelters
- Churches
- Clubs
- Eaves and overhangs, if of combustible construction with no combustibles beneath
- Educational
- Hospitals, including animal hospitals and veterinary facilities
- Institutional
- Kennels
- Libraries, except large stack rooms

It is not the committee's intent to automatically equate library bookshelves with ordinary hazard occupancies or with library stacks. Typical library bookshelves of approximately 8 ft in height, containing books stored vertically on end, held in place in close association with each other, with aisles wider than 30 in. can be considered to be light hazard occupancies. Similarly, library stack areas, which are more akin to shelf storage or record storage, as defined in NFPA 232, *Standard for the Protection of Records*, should be considered to be ordinary hazard occupancies.

Museums

Nursing or convalescent homes

Offices, including data processing

Residential

Restaurant seating areas

Theaters and auditoriums, excluding stages and prosceniums

Unused attics

A.5.3 For purposes of these definitions, Class I, Class II, Class III, and Class IV commodities would be considered to have moderate rates of heat release, while Group A plastics would be considered to have high rates of heat release. Stockpiles are considered to include display merchandise (mercantile) and arrangements of combustibles ancillary to operations within the occupancy as opposed to dedicated storage areas where the fire loading is generally more severe.

A.5.3.1 Ordinary hazard occupancies (Group 1) include occupancies having uses and conditions similar to the following:

- Automobile parking and showrooms
- Bakeries
- Beverage manufacturing
- Canneries
- Dairy products manufacturing and processing
- Electronic plants
- Glass and glass products manufacturing
- Laundries
- Restaurant service areas

A.5.3.2 Ordinary hazard occupancies (Group 2) include occupancies having uses and conditions similar to the following:

- Agricultural facilities
- Barns and stables
- Cereal mills
- Chemical plants — ordinary
- Confectionery products
- Distilleries
- Dry cleaners
- Exterior Loading Docks

Exterior loading docks only utilized for loading and unloading should be classified as OH2. Where utilized for storage, exterior loading docks and all interior loading docks should be protected based upon the actual occupancy, the materials handled on the dock, as if the materials were actually stored in that configuration.

- Feed mills
- Horse stables
- Leather goods manufacturing
- Libraries — large stack room areas
- Machine shops
- Metal working
- Mercantile
- Paper and pulp mills
- Paper process plants
- Piers and wharves
- Post offices
- Printing and publishing



Racetrack stable/kennel areas, including those stable/kennel areas, barns, and associated buildings at state, county, and local fairgrounds

- Repair garages
- Resin application area
- Stages
- Textile manufacturing
- Tire manufacturing
- Tobacco products manufacturing
- Wood machining
- Wood product assembly

A.5.4.1 Extra hazard occupancies (Group 1) include occupancies having uses and conditions similar to the following:

- Aircraft hangars (except as governed by NFPA 409, *Standard on Aircraft Hangars*)
- Combustible hydraulic fluid use areas
- Die casting
- Metal extruding
- Plywood and particle board manufacturing
- Printing [using inks having flash points below 100°F (38°C)]
- Rubber reclaiming, compounding, drying, milling, vulcanizing
- Saw mills
- Textile picking, opening, blending, garnetting, or carding, combining of cotton, synthetics, wool shoddy, or burlap
- Upholstering with plastic foams

A.5.4.2 Extra hazard occupancies (Group 2) include occupancies having uses and conditions similar to the following:

- Asphalt saturating
- Flammable liquids spraying
- Flow coating
- Manufactured home or modular building assemblies (where finished enclosure is present and has combustible interiors)
- Open oil quenching
- Plastics processing
- Solvent cleaning
- Varnish and paint dipping

A.5.5 Other NFPA standards contain design criteria for fire control or fire suppression (*see Section 5.5 and Chapter 2*). While these can form the basis of design criteria, this standard describes the methods of design, installation, fabrication, calculation, and evaluation of water supplies that should be used for the specific design of the system.

Other NFPA standards contain sprinkler system design criteria for fire control or suppression of specific hazards. This information has been either referenced or copied into Chapter 21 using NFPA's extract policy.

A.5.6 Specification of the type, amount, and arrangement of combustibles for any commodity classification is essentially an attempt to define the potential fire severity, based on its burning characteristics, so the fire can be successfully controlled by the prescribed sprinkler protection for the commodity class. In actual storage situations, however, many storage arrays do not fit precisely into one of the fundamental classifications; therefore, the user needs to make judgments after comparing each classification to the existing storage conditions. Storage arrays consist of thousands of products, which make it impossible to specify all the acceptable variations for any class. As an alternative, a variety of common products are classified in this appendix based on judgment, loss experience, and fire test results.

Table A.5.6 provides examples of commodities not addressed by the classifications in Section 5.6.

Table A.5.6.3 is an alphabetized list of commodities with corresponding classifications.

Table A.5.6.3.1 through Table A.5.6.3.4 and Table A.5.6.4.1 provide examples of commodities within a specific class.

Table A.5.6 Examples of Commodities Not Addressed by the Classifications in Section 5.6

Boxes, Crates
- Empty, wood slatted*
Lighters (butane)
- Loose in large containers (Level 3 aerosol)

*Should be treated as idle pallets.

A.5.6.1.1 Commodity classification is governed by the types and amounts of materials (e.g., metal, paper, wood, plastics) that are a part of a product and its primary packaging. However, in a storage or warehousing situation, classification is also affected by such factors as the primary storage or shipping container material, the amount of air space, and the location of the more hazardous materials within the container. For example, a Group A plastic product enclosed in a five- or six-sided metal container can be considered Class II, while a ceramic product heavily wrapped in tissue paper and placed in a corrugated carton could be Class III.

A.5.6.3 See Table A.5.6.3.

Table A.5.6.3 Alphabetized Listing of Commodity Classes

Commodity	Commodity Class
Aerosols	
Cartoned or uncartoned — Level 1	Class III
Alcoholic Beverages	
Cartoned or uncartoned	
- Up to 20 percent alcohol in metal, glass, or ceramic containers	Class I
- Up to 20 percent alcohol in wood containers	Class II
Ammunition	
Small arms, shotgun — packaged, cartoned	Class IV
Appliances, Major (e.g., stoves, refrigerators)	
- Not packaged, no appreciable plastic exterior trim	Class I
- Corrugated, cartoned (no appreciable plastic trim)	Class II
Baked Goods	
Cookies, cakes, pies	
- Frozen, packaged in cartons ^a	Class II
- Packaged, in cartons	Class III
Batteries	
Dry cells (nonlithium or similar exotic metals)	
- Packaged in cartons	Class I
- Blister-packed in cartons	Class II

(continues)