Agenda

- Objectives
- Ontario Fire Code requirements
- Ontario Building Code requirements
- Fire Inspections
- Inspection Orders – case studies
Objectives

• “The problem”
• Clear understanding of linkages between Building Code (design), and Fire Code (occupancy) requirements
• Identify different corridor separation and corridor width requirements, based on occupancy type
• How to assess subjective wording
• Different perspectives between fire inspectors and operators regarding combustible content and obstructions; consultants can help bridge this gap in developing solutions/strategies to manage
Terminology

- Means of egress
- Access to exit, exit
- Exit corridor
- Public corridor (suites/occupancy type)
- Corridor serving the public
- Corridor serving patients’ or residents’ sleeping rooms (Group B, Div. 2 or 3)
- Fire separation
- Fire-resistance rating
- Travel distance
Terminology

- Fire separation
- Exit
- td
Ontario Fire Code
• 2.4.1.1.(1) Combustible materials shall not be accumulated in/around buildings in such quantity or location as to create a fire hazard

• 2.4.1.1.(2) Combustible materials shall not be accumulated in any part of an elevator shaft, ventilation shaft, means of egress, service room or service space, unless designed for those materials

• 2.7.1.7. means of egress …free of obstructions
2.4.1.1.(2) doesn’t say you can’t have combustible materials, just that it can’t “be accumulated” unless “designed”; (1) not to the degree that it would be a fire hazard

• Dictionary definition of “accumulate” means “to gather in increasing quantity” (Collins, Webster) – judgment call

• Design – is taken to mean either the expected use of the area (like a classroom, or exit system), or the requirements in the Building Code or Fire Code
In the Ontario Building Code, examples:
- Fire separation of corridor
- Unobstructed corridor width
- Exits – An exit shall be designed for no purpose other than for exiting…. (3.4.4.4.(6))

The OBC provides the conditions necessary for occupancy in the corridor, however it is the OFC that determines if occupancy is acceptable.
Exit stair – coat storage
<table>
<thead>
<tr>
<th>Reference</th>
<th>Occupancy Type Or Scope</th>
<th>Requirements</th>
</tr>
</thead>
</table>
| Articles 2.7.1.1., 2.7.1.2., 2.7.1.3. | Mercantile (Group E), and Business & Personal Services (Group D) | Aisles serving individual work areas not subdivided into rooms or suites:  
  - Main aisles  
  - Subsidiary aisles |
| Part 3            | Indoor Storage, Section 3.3.                                 | • Maximum storage heights  
  • Fire access aisles  
  • Aisles separating individual storage areas  
  • Access aisles, and main access aisles |
| Part 4            | Flammable Liquids and Combustible Liquids                   | • Fire access aisles  
  • Aisles separating individual storage areas  
  • Access aisles, and main access aisles |

* Not exhaustive
OFC Section 3.3. – aisle width obstructed
Accumulation and obstruction of aisle width
Part 9 Retrofit:

- **9.4.2.6.(2)** Corridors serving bedrooms shall be separated from adjacent rooms, except sitting areas, lounges, nurses stations and washrooms by rated fire separations.

- **9.9.2.8.** Corridors serving guest suites shall be separated from adjacent rooms and areas on the same floor area by rated fire separations.
  - **9.9.2.12.(3)** Fireplaces and space heaters permitted, provided not in an exit or in a corridor serving as access to exit for guest suites.
  - **2.4.1.2.** Corridors serving as access to exits for guest suites may contain solid wood or other approved furniture, provided the furniture does not obstruct egress route.
Hospital corridor

Nurses’ station – open to corridor system on either side
Ontario Building Code
<table>
<thead>
<tr>
<th>Reference</th>
<th>Occupancy Type</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Article 3.3.1.4.</td>
<td>General</td>
<td>Fire separations</td>
</tr>
<tr>
<td>Article 3.3.1.9.</td>
<td>General</td>
<td>Corridor widths, unobstructed widths, etc.</td>
</tr>
<tr>
<td>Article 3.3.1.16.</td>
<td>General</td>
<td>Capacity of access to exits</td>
</tr>
<tr>
<td>Article 3.3.1.22.</td>
<td>General</td>
<td>Alternate egress required where obstructions (turnstile)</td>
</tr>
<tr>
<td>Subsection 3.3.2.</td>
<td>Assembly (Group A)</td>
<td>Fire separation of rooms, aisles, corridors used by public</td>
</tr>
<tr>
<td>Subsection 3.3.3.</td>
<td>Care, Care &amp; Treatment, or Detention (B)</td>
<td>Fire separation of sleeping rooms, patient rooms, resident rooms, corridor widths (B2)</td>
</tr>
<tr>
<td>Subsection 3.3.4.</td>
<td>Residential (Group C)</td>
<td>Fire separation of suites from floor area</td>
</tr>
</tbody>
</table>
(A) Public Corridor Separations, general 3.3.1.4.(1)

- Except as otherwise required by this Part, or as permitted by Sentence (4), public corridors are to be separated from remainder of storey by a rated fire separation (3/4 hr)

Exceptions:

- (3) If storey is sprinklered, **unrated fire separation** *(provided corridor does not serve B1, B2, B3 or C occupancy)*
Exceptions, cont’d.:

• (4)(a) Where floor area is sprinklered, no fire separation, where travel distance ≤ 45 m throughout floor area (*exception doesn’t apply to B2 or C suites)*

• (4)(b) In D or E occupancy, the fire separation may be waived between public corridor and suites, and occupancy permitted in public corridor, provided:
  • Sprinklered building
  • 9 m corridor width minimum; 3 m unobstructed width adjacent suites fronting public corridor
  • 15% of public corridor area limitation
  • Ceiling height, travel distance criteria
Corridor separation 3.3.2.5.(1)

(A) A corridor used by the public in an assembly occupancy, as an access to exit, must be separated from the remainder of the floor area by a 1-hr rated fire separation (reduced to 45 minutes, based on floor assembly rating).

- Fire resistance rating waived if floor area is sprinklered.
- Fire separation waived, if distance from any point in floor area to an exit, measured along path of travel to exit ≤ 3.4.2.5. (i.e. 45 m in a sprinklered floor area).
Retirement Complex – Group A2 floor

45 m
Summary of Group B2 requirements

- Public corridor **exemption** to fire separation requirements, does **not** apply between B2 suites and remainder of floor area 3.3.1.4.
- Floor area containing patients’/residents’ sleeping rooms, divided into 1000 m² fire compartments 3.3.3.5.(2)
- Travel distance from any point within fire compartment to door of adjoining fire compartment, 45 m max. 3.3.3.5.(7)
- Walls between patients’/residents’ sleeping rooms and the remainder of the floor area, unrated fire separations 3.3.3.5.(9)
- Within a group of rooms, (9) does not apply, provided ≤ 5 patients/residents, and doesn’t contain storage, or washrooms for others 3.3.3.5.(10)
is this alcove required to be fire separated from the corridor?

is this acceptable combustible content?

Hospital – alcove off corridor serving patient rooms
Summary of Group B3 requirements

- Suite separation, general 3.3.1.1.(1)
- Public corridor separation, general 3.3.1.4.
  Public corridor exemption for fire-resistance rating does not apply to B3
- Walls between suites and adjoining rooms, B3 occupancy 3.3.3.2.(2)
- Walls separating corridors [serving sleeping rooms] from adjacent rooms 3.3.3.2.(3)
- Walls separating sleeping rooms from adjacent rooms and corridors in B3 light, unrated fire separation 3.3.3.2.(4)
Retirement Complex – Group B3 floor
Summary of Group C requirements

- Suite separation, general 3.3.1.1.(1)
- Public corridor separation, general 3.3.1.4.(1)
- Exemption of public corridor fire separation where floor area is sprinklered, and travel distance throughout floor area ≤ 45m; however exemption does not apply between Group C suites and remainder of floor area
- Suite separation, 3.3.4.2.(1)
  Group C occupancy specific
Retirement Complex – Group C floor

45 m
Furnished lobby adjacent corridor - example
Summary of Group D & E requirements

- Suite separation, general 3.3.1.1.(1)
- Suites not required to be separated from adjoining if comply with 3.3.1.4.(4)(b) 3.3.1.1.(3)
- Public corridor separation 3.3.1.4.(1)
  - Waived fire-resistance rating, if sprinklered 3.3.1.4.(3)
  - Waived fire separation between public corridor and suites where floor area is sprinklered and td ≤ 45 m to exits 3.3.1.4.(4)(a)
  - Waived fire separation between public corridor and suites provided compliance with 3.3.1.9.(6) and 3.4.2.5.(1)(d) (increased travel distance, occupancy in corridor) 3.3.1.4.(4)(b)
When a “patio” is extended from front of a restaurant in a shopping mall, does this affect the public corridor fire separation requirements?
(B) Corridor widths

Article 3.3.1.9. – 1100 mm minimum width of a public corridor

• Except as in 3.3.3.3.(2) and (3) (B2, B3 reqmt’s), minimum unobstructed width of 1100 mm for:
  • Corridor used by the public (e.g. Group A)
  • Corridor serving classrooms (A2)
  • Corridor in B2 or B3, that:
    • Serves a service room
    • Serves an administrative area
    • Will not be used by non-ambulatory outpatients or residents
Restaurant exit corridor – accumulation & obstructions
Article 3.3.3.3. (2) and (3)

- 2400 mm - corridor serving patients in a hospital
- 1650 mm - corridor serving residents who are not ambulatory in Group B2, or B3 occupancy (nursing home; care facility)
  - Exception B3 “light”
Hospital corridors

Portable nurses stations along corridor

Is “moving stock” treated any differently, when determining obstructions?
Fire Inspections
Operator Strategies
How would you enforce 2.4.1.1.(2)?

“Combustible materials shall not be accumulated in any part of a …means of egress, unless the location, room or space is designed for those materials”

- What area of the building is it?
- Is the space designed for the “contents”?
- Are the contents combustible? Is it an accumulation?
- Are contents needed operationally?
- What strategies can be used to manage contents?
Is this acceptable? (obstructions, combustible loading)
What about this?
Hospital - corridor serving patients
Hospital corridor
not used by patients or outpatients

Issues?

1100 mm?
Hospital corridor – not used by patients or outpatients – 

1100 mm width required

What about pallets?
Considerations to mitigate fire hazard of combustible content in or adjacent to corridors

- Are design features in place that are permissive?
  - Corridor width, travel distance to exit
  - Sprinklering
  - Degree of combustible content
- Treatment of upholstered furniture treatment to a recognized standard (but not specified in Codes)
- Detection
- Staff supervision? Staff training?
- Fire safety plan (hospital example of wheelchairs in halls for patient evacuation)
- Limit quantity
Inspection Order Reviews
Case Studies
Based on information provided by both parties

Did not evaluate OBC requirements, unless provided by a party to the “Fire Marshal Review”; however formed basis for “alternative compliance” offered in Decision

Photos were “donated” – are purely for example, and not used from actual Inspection Orders
Community Center

Building Description:

• Occupancy type: Group A2, single suite
• Non-combustible construction; sprinklered
• Main level has wide central corridor/concourse
• Café now occupies small area within corridor

Order:

• Remove upholstered chairs, until treated to meet NFPA 705, and
• Secure furniture in place
Community Center, cont’d

Decision:

• Uphold

• Alternatively:
  • Prove floor area is designed to accommodate furniture (i.e. OBC requirements satisfied - unobstructed corridor width of 1100 mm)
  • Ensure upholstered furniture meets a recognized applicable testing standard for the purpose
  • Enclose furniture so that it can’t encroach required unobstructed corridor width
Condominium building

Building description:

- Occupancy type: Group C, multi-unit residential
- 6 storey, non-combustible construction
- Not sprinklered
- Ground floor has 8 residential units served by a public corridor
- Only one exit/main entrance
- Lobby adjacent public corridor and exit – not fire separated from corridor
Condominium building, cont’d

Order:
• Remove upholstered furniture in lobby/room adjacent public corridor

Decision:
• Uphold
• Alternatively: provide a fire separation to furnished lobby

Rationale:
• Floor area is not sprinklered
• High accumulation of upholstered furniture compromises single exit
Nursing Home

Building Description:

- Occupancy type: Group B2
- 2 storey
- Non-combustible construction; sprinklered

Order:

- Remove furniture, nursing stations and mobility devices from corridors
- Corridors not designed to accommodate storage
Nursing Home corridor - example
Nursing Home, cont’d

Decision:
  • Rescinded

Rationale:
  • Nursing stations and resident’s chairs are common items found in B2 occupancy corridors
  • Acceptable provided minimum unobstructed corridor width requirements are maintained
Thank You