

- Where standby power is connected to elevators, the machine room ventilation or air conditioning shall be connected to the standby power source.,
- Power and lighting for the fire command center.
- Stair pressurization fans.

3.1.10 Structural Integrity

If spray fire-resistant material (SFRM) is used in the building to achieve a specific fire-resistance rating, the minimum bond strength of the SFRM must be 430 pounds per square foot.

3.1.11 Fire Service Access Elevators

Fire Service Access Elevators are required in buildings where the highest occupable level is located more than 120 feet above the lowest level of fire department vehicle access. As mentioned in Section 3.1, based on previous coordination with the Park City Fire Department, they are open to classifying each of the three towers as separate for the determination of high-rise requirements. Based on these discussion, the development does not require Fire Service Access Elevators.

3.2 Grade Plane

The grade plane is a reference plane representing the average of finished ground level adjoining the building at the exterior walls. Where the finished ground level slopes away from the exterior walls, the reference grade plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet from the building, between the building and a point 6 feet from the building. Since the Sommet Blanc development is located on a sloped site, the determination of grade plane will be important in order to determine the building height and the number of stories above grade plane.

3.3 Construction Type

The development is proposed to utilize a concrete structure. It is therefore proposed that the development is classified as Type I-B (noncombustible, 2-hour fire-resistance-rated) construction in order to avoid additional compensation between Building A, Building B and the main lobby area. The entire development of Buildings A, B and Core therefore considered a single building, and no further assessment of fire spread between Buildings A, B and C is required.

As per UBC Table 601, the primary structural frame of a Type I-B building is required to achieve a 2-hour fire-resistance rating (FRR). However, UBC 403.2.1.1 item 2 allows for a reduction in the required FRR in a Type I-B high-rise building to that of a Type I-A building, which only requires a 1-hour FRR, see Section 4.2.1. The reduction is not permitted for Group F-1 or S-1 occupancies, but any Group F-1 or S-1 spaces in the building are accessory to the primary occupancy group (less than 10% of the area) and should not impact the application of this code exception.

The primary occupancy of the development will be Group R-2 with some Group A assembly spaces and Group S-2 storage spaces. UBC Table 504.3 and Table 504.4 allow for a sprinklered Group A occupancy to be 180 ft

in height and 12 stories above grade plane for a Type I-B construction. As per Table 506.2 all of the occupancies are allowed an unlimited area, apart from Group S-2, which is limited to 237,000 SF per story. This has not been exceeded.

3.3.1 Protection of HSS Columns

There are a number of HSS columns that are part of the structure that is supporting the floor assemblies throughout the development that will be protected by intumescent paint. For aesthetic reasons, it is desired that the protection of these columns be reduced from 2-hours to a 1-hour FRR.

As discussed above, Buildings A, B and C are now considered as a single high-rise building, and per UBC 403.2.1.1 item 2 the HSS columns will only require a 1-hour FRR, unless supporting building elements requiring a 2-hour FRR.

3.4 Exit Stair Discharge

Interior exit stairways are required to discharge directly to the outside or through exit passageways to the outside. Not more than 50 percent of the number and required capacity of interior exit stairways is permitted to egress through areas on the level of discharge, provided the path to the exterior doors from the termination of the exit stairway enclosures is readily visible, identifiable and unobstructed.

Half of the interior exit stairways in the development are proposed to egress through areas of the level of discharge. In Buildings A and B, the path from the interior exit stairs to the exterior doors are currently not considered readily visible. It is understood that this has been discussed with the Park City Building Department, who are open to the current layout as long as there is ample signage to assist in identifying the path of travel.

It is recommended that this item is continued to be discussed with the Park City Building Department as the design progresses in order to resolve this issue.

3.5 Elevator Lobbies

Elevator hoistway door openings are required to be protected where an elevator hoistway connects more than three stories. Preliminary drawings indicate that elevator lobbies will not be desirable in the development, but additional doors are permitted in lieu of enclosed lobbies as per UBC 3006.3 item 3. These are also required to protect the residential corridors per UBC 3006.2.1 as the hoistways open directly into the corridors. The doors are required to comply with the smoke and draft control door assembly requirements in UBC 716.2.2.1 when tested in accordance with UL 1784 without an artificial bottom seal.

Protection of elevator hoistway door openings is not required at the level of exit discharge.

Means of egress is permitted through an enclosed elevator lobby (if provided), but access to not less than one of the required exits is required to be provided without travel through enclosed elevator lobbies.

3.6 Separation for R-2 Dwelling Units

Walls separating dwelling or sleeping units in the same building, and walls separating the dwelling units from other occupancies contiguous with the, are required to be 1-hour fire partitions constructed in accordance with UBC Section 708.

3.7 Site Fire Department Access

Per the UFC, approved fire apparatus access roads are required to extend to within 150 feet of all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building. The only access to the development is along the new extension of Marsac Avenue along the north side of the development, and as such does not meet the 150 feet requirement.

The fire code official is authorized to increase the dimension of 150 feet where the building is equipped throughout with an approved automatic sprinkler system, or where fire apparatus access roads cannot be installed because of the location on property, topography, waterways, nonnegotiable grades or other similar conditions, and an approved alternative means of fire protection is provided.

The proposed fire apparatus access should be confirmed with Park City Fire Department.

3.8 Exterior Cladding

Per UFC N05.1.1, exterior wall coverings of buildings of Type I construction are permitted to be constructed of combustible materials with a number of limitations. UFC N05.1.1 item 2 allows for combustible exterior wall coverings up to 40 feet in height above grade plane, and item 3 allows for the use of fire-retardant-treated wood (FRTW) to be used up to 60 feet in height above grade plane.

There is a desire to utilize timber as an exterior wall covering on the entire development, which exceeds 60 feet in height above grade plane. It is understood that Park City is open to the use of timber, but this should be further discussed and confirmed with Park City.

4 DETAILED REQUIREMENTS

4.1 Occupancy Classifications

Each portion of the Sommet Blanc development is individually classified by use as per UBC Chapter 3 (see Table 1).

Table 1 - Occupancy classifications

Occupancies	Classification
Conference rooms/Lounges with an occupant load of 50 or more people	A-3
Finest rooms	A-3
Restaurants	A-2
Offices	B
Conference rooms/Lounges with an occupant load not over 49 people	B
Residential Apartments	R-2
Boiler and Chiller rooms	F-1
Electrical, Mechanical rooms	F-2
Loading dock	S-1
Parking garage	S-2

The amount of hazardous materials is assumed to be limited to be less than the exempt quantities in UBC Section 414 and a Group H Occupancy will not be created. Cleaning materials are not in excess of the exempt amounts permitted per control area as described in the UBC. This Report will be amended as necessary if the amount of hazardous materials is present in quantities over the exempt amounts.

4.1.1 Occupancy Separations

The development will be classified as mixed-use because it contains a variety of occupancies. Mixed-use occupancies may be either classified as accessory, nonseparated or separated. The building will be classified as a non-separated occupancies in accordance with Section 508.3 of the UBC. For non-separated occupancies, the code requirements apply to each portion of the building based on the occupancy classification of that space. Except as identified in Section 4.1.2 of this report, no occupancy-based fire-resistance-rated separations are required.

4.2.6 Combustible Exterior Cladding and Insulation

If provided, combustible materials on the exterior side of exterior walls and other exterior wall coverings such as metal composite materials, exterior insulation and finish systems as well as high-pressure decorative exterior-grade composite laminates must comply with their respective section in UBC Chapter 14.

Exterior wall coverings are permitted to be constructed of combustible materials when complying with all of the following:

- Combustible exterior wall coverings do not exceed 10 percent of an exterior wall surface area where the fire separation distance is 5 feet or less.
- Combustible exterior wall coverings are limited to 40 feet in height above grade plane.
- Combustible exterior wall coverings constructed of fire-retardant-treated wood complying with UBC Section 2303.2 for exterior installation are not be limited in wall surface area where the fire separation distance is 5 feet or less and is not permitted up to 60 feet in height above grade plane regardless of the fire separation distance.
- Wood veneers must comply with UBC N05.5.
- Exterior wall coverings must be tested in accordance with NFPA 268.
- Combustible exterior wall coverings containing foam plastic insulation must be tested in accordance with and comply with the acceptance criteria of NFPA 265.

Metal composite materials, exterior insulation and finish systems and high-pressure decorative exterior-grade compact laminates have their own limits and allowances. This report can be expanded to address those aspects if the design team considers using these materials.

4.3 Compartmentation

4.3.1 Fire Barriers

Fire barriers will be used to form 2-hour enclosures for interior exit stairways, shafts and exit passageways. Fire barriers must extend from the top of the fire-rated floor assembly below to the underside of the floor or roof above and will be securely attached thereto. The supporting construction will also maintain the fire-resistance of the fire barrier assembly. See Table 7 for fire resistance ratings of opening protections.

4.3.2 Fire Partitions

Fire partitions will be used to form 1-hour separations between dwelling units for the Group R-2 levels, and to form enclosures for corridors located on the Group R-2 levels. No other corridors are anticipated at this time.

¹ Standard Test Method for Determining Ignitability of Wall Assemblies Using a Radiant Heat Energy Source, National Fire Protection Association

² Standard Fire Test Method for the Evaluation of Fire Penetration Characteristics of Exterior Non-load bearing Wall Assemblies Containing Combustible Components, National Fire Protection Association

- 4) High-density polyethylene (HDPE) interior finish materials are required to be tested per the requirements of NFPA 286.
- 5) Materials having a thickness less than 0.036 inch applied directly to the surface of noncombustible walls or ceilings are not required to be tested.

Table 7 - Interior walls and ceiling finish requirements

Occupancy	Interior Exit Stairways and Exit Passageways	Corridors and enclosure for exit access stairways	Rooms and Enclosed Spaces
Group A	B	B	C
Group B	B	C	C
Group R, F and S	C	C	C

4.7.1.2 Foam Plastics

- 1) In addition to testing for the required flame spread and smoke-developed indices, foam plastics used as interior finish are also required to be tested per one of the following: NFPA 286, FM 4880¹, UL 1040² or UL 175³.
- 2) These requirements also apply both to exposed foam plastics and to foam plastics used in conjunction with a textile or vinyl facing or cover.

4.7.1.3 Attachment

- 1) Interior finish materials are required to be applied or otherwise fastened in such a manner that such materials will not readily become detached where subjected to room temperatures of 200°F for not less than 30 minutes.
- 2) The interior finish materials are required to be applied directly against noncombustible walls or ceilings or to furring strips not exceeding 1/2 inches. The intervening spaces between furring strips are required to be:
- a) filled with noncombustible, inorganic or Class A materials, or
- b) finished at a maximum of 8 feet in any direction.
- 3) Where walls are set out or ceilings are dropped more than 1/2 inches, Class A materials are required to be used except where interior finish materials meet one of the following:
- a) constructed on both sides by an automatic sprinkler system, or
- b) the combustible void is filled with fiberglass or noncombustible insulation, or

4.5 Floor Penetrations

The penetrations of floor assemblies will be protected by an approved through penetration firestop system. The through penetration firestop system will have a 2-hour F rating and a 2-hour T rating.

Where a floor penetration contained and located within the cavity of a wall above the floor or below the floor, the through penetration firestop system will only have an F rating but no T rating.

Through penetration firestop systems are not required where the floor penetration meets the conditions of Exception 1 or 2 of Section 716.4.1 of the UBC.

4.6 Joints

Joint systems installed in or between FRR walls, floors, floor/ceiling assemblies, roofs and roof/ceiling assemblies are required to be protected by an approved fire-resistant joint system. Fire-resistant joint systems are not required in the following conditions:

- Enclosed parking garages (UBC 716.1 Exception 6)
- Walls that are permitted to have unprotected openings.
- Roofs, where openings are permitted.

4.7 Interior Finishes and Decorative Interiors

4.7.1 Interior Wall and Ceiling Finish Requirements

When any special wall hangings/coverings, awnings/ceilings, or other decorative interior features/structures are proposed, they should be closely reviewed for code compliance, potential fire hazard and for fire sprinkler discharge obstructions.

4.7.1.1 Classification

- 1) Interior wall and ceiling finishes have a flame spread index not greater than specified in Table 9 (classified in accordance with ASTM E84¹ or UL 723²).
- 2) Textile and expanded vinyl wall or ceiling coverings are Class A (or tested per NFPA 265³).
- 3) Testing per the requirements of NFPA 286⁴ can be an alternative to the flame spread and smoke-developed indices.

¹ Test Methods for Surface Burning Characteristics of Building Materials, ASTM International

² Standard Test for Surface Burning Characteristics of Building Materials, Underwriters Laboratories, Inc.

³ Method of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings on Full Height Rooms and Walls, National Fire Protection Association

⁴ Standard Method of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth, National Fire Protection Association

entire building is approximately 258,000 SF and will be a mixed-use development consisting of nonseparated occupancies per UBC 508.3.

The minimum required fire resistance of structural elements is summarized in Table 3.

Table 3 - Minimum fire resistance rating of structural elements

Building Element	Fire-Resistive Requirement	Notes
Type I-B		
Columns supporting floors/mezzanines	2 hours/1 hour ¹	UBC Section 403.2.1.1 (2) ¹
Primary Beams	2 hours/1 hour ¹	UBC Section 403.2.1.1 (2) ¹
Columns supporting roof only	1 hour	
Primary Beams supporting roof only	1 hour	
Floor including secondary beams and joists	2 hours/1 hour ¹	UBC Section 403.2.1.1 (2) ¹
Roofs including secondary beams and joists	1 hour	

The buildings are now high-rises and qualify for a reduction in the required FRR to that of a Type I-A building. It is noted that any 2-hour fire-resistance-rated shaft enclosure bearing on other construction elements will trigger these elements to require a 2-hour fire-resistance rating, see Section 4.3.1 of this report.

4.2.2 Structural Frame

The primary structural frame is defined as the columns and the girders, beams, trusses and spandrels having direct connections to the columns, and bracing members designed to carry gravity loads. Bracing members that are essential to the vertical stability of the primary structural frame under gravity loading are also considered part of the primary structural frame whether or not the bracing member carries gravity loads.

The members of floor or roof panels which have no connection to the columns, and bracing members that are not included in the primary structural frame, are considered secondary members and not a part of the structural frame.

Structure that supports only stair treads and stair landings within a 2-hour fire-resistance-rated shaft enclosure is not required to have a fire-resistance rating.

Attachments to primary and secondary structural steel members are required to be protected with the same fire-resistive material and thickness as required for the structural member. The protection is required to extend away from the structural member a distance of not less than 12 inches, or will be applied to the entire length when the attachment is less than 12 inches long. When an attachment is hollow and the ends are open, the fire-

resistive material and thickness is required to be applied to both exterior and interior of the hollow steel attachment.

4.2.3 Fire Separation Distance (FSD)

The fire separation distance used to determine the exterior wall fire-resistance rating and allowable openings is the distance measured from the building face to one of the following:

- The closest interior lot line.
- To the centerline of a street, an alley or public way.
- To an imaginary line between two buildings on the lot.

The distance is required to be measured at right angles from the face of the wall and separately for each story (see Figure 4).

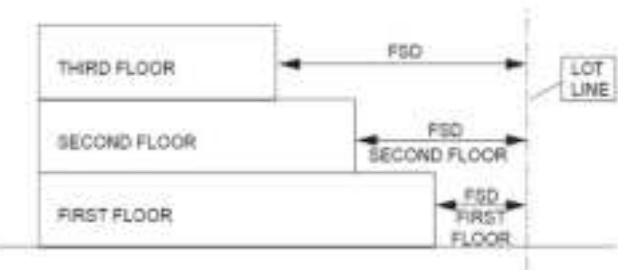


Figure 4 - Fire separation distance measurements for floor attachments (Figure from UBC commentary)

4.2.4 Exterior Walls

Fire-resistance rating requirements for exterior walls will be per Table 4.

Table 4 - Exterior wall fire resistance rating requirements

Fire Separation Distance	Fire Resistance Rating
< 20 feet	1
≥ 20 feet	None Required

Maximum area of protected and unprotected exterior wall openings in percentage of the exterior wall in any story will be per Table 5.

Table 5 - Exterior wall opening limitations

Fire Separation Distance	Fire Resistance Rating
3 ≤ X < 5 feet	15 percent

Rated Separation	Min. Fire Resistance Rating	Size Limitation
1-hour smoke barriers	45 minutes ²	No limit
0.5-hour fire partition in corridors	20 minutes ²	No limit
Other 1-hour fire partitions	45 minutes	No limit
Stair doors	90 minutes	25% of length of wall ¹

1. No limit where the opening protective has been tested in accordance with ASTM E 119¹ and has a minimum fire-resistance rating not less than the fire-resistance rating of the wall.
2. Also meet the requirements for a smoke and draft-control door assembly tested in accordance with UL 1784².

Fire doors will be self-closing or will automatically close upon activation of smoke detection, or upon the loss of power to the smoke detector or hold-open device, at the following locations:

- In shaft walls,
- In exit enclosures,
- In fire partitions,
- In smoke-resistive walls of rooms for chiller and boiler rooms, and for doors installed across corridors to limit dead-end wall thickness.

4.3.5 Fire and Smoke Dampers

The fire damper operating temperature will be approximately 50°F above the normal temperature within the duct system, but not less than 160°F (UBC 717.3.3.1). Fire dampers will have a minimum fire protection rating specified in Table 8.

Table 8 - Fire damper rating

Fire Rating of Wall Penetrated	Min. Damper Rating
2 hours or less	90 minute
3 hours or more	180 minutes

Fire dampers will be located at:

- Ducts and air transfer openings in fire barriers, unless:
- the penetration is part of the fire-resistance rated assembly, in accordance with ASTM E 119.

¹ Test Methods for Fire Tests of Building Construction and Materials, ASTM International

² Air Leakage Tests of Door Assemblies, Underwriters Laboratories, Inc.

Sommet Blanc, Park City, Utah

21020.00_Sommet Blanc_FLS Basis of Design CD_vet0.docx

21

Sommet Blanc, Park City, Utah

21020.00_Sommet Blanc_FLS Basis of Design CD_vet0.docx

21

4.1.2 Fire- and Smoke-Resistive Separations

The areas summarized in Table 2 will be separated by fire- and/or smoke-resistive construction.

Table 2 - Spaces requiring fire-resistance-rated separation from adjacent areas

Spaces	Separation
Corridors serving residential apartments	0.5-hour fire partitions
Between residential units	1-hour fire partitions
Interior exit stairways	2-hour fire barriers
Shafts, elevator hoistways and chutes	2-hour fire barriers
Chute access rooms	1-hour fire barriers
Refuse chute termination rooms	2-hours fire barriers
Elevator lobbies (unless alternatives per Section 4.14.3 of this report are used)	1-hour fire partitions
Elevator machine rooms and machinery spaces	2-hour fire barriers
IDF and electrical rooms if they form a shaft	2-hour fire barriers
Refrigerant machinery (chiller)	0-hour smoke partition
Furnace room where any piece of equipment is over 400,000 Btu per hour input	0-hour smoke partition
Rooms with boilers where the largest piece of equipment is over 15 psi and	0-hour smoke partition
10 horsepower	

The walls and shafts within enclosed usable spaces under enclosed and unenclosed stairways will be protected by 1-hour fire-resistance-rated construction or the fire-resistance rating of the stairway enclosure, whichever is greater.

Ventilation equipment and ductwork for the exit stair enclosures will be separated from the remainder of the building, including other mechanical equipment, with 2-hour shaft construction or equivalent protection (e.g. fire-resistance-rated ducts).

4.2 Building Construction

4.2.1 Construction Type

The buildings will be of Type I-B (noncombustible, 2-hour fire-resistance-rated) construction. The Type I-B construction permits 12 stories and 180 feet height above the grade plane for a Group R-2 occupancy. The Sommet Blanc development will have 10 stories above grade and a building height of approximately 191 feet. For the occupancies of the building, a Type I-B construction permits unlimited area, apart for Group S-2 occupancies which are limited to 237,000 sf per story, or 711,000 sf for the entire building. The total area of the

4.3.2 Fire Partitions

Fire partitions will be used to form 1-hour separations between dwelling units for the Group R-2 levels, and to form enclosures for corridors located on the Group R-2 levels. No other corridors are anticipated at this time. Fire partitions must extend from the top of the floor/ceiling assembly below and be securely attached to either the underside of the floor or roof sheathing above, or the underside of a floor/ceiling assembly having a fire-resistance rating that is not less than the fire-resistance rating of the fire partition. See Table 7 for fire resistance ratings of opening protections.

4.3.3 Shafts

Floor openings for elevators, mechanical equipment, plumbing, etc. will be enclosed by 2-hour fire barriers. (As an alternative to shaft enclosures, fire-resistance-rated ductwork, which has been tested per the requirements of shafts, are acceptable.) The fire barriers enclosing shafts (not interior exit stairways or elevator hoistway enclosures) are permitted to be reduced to 1-hour FSD where automatic sprinklers are installed within the shafts at the top and at alternative floor levels. A shaft that extends to the underside of the roof is not required to be enclosed or protected at the top.

Two story vertical opening are permitted without shaft protection when the following are met:

- Does not penetrate a horizontal assembly that separate smoke barriers that separate smoke compartments;
- Is not concealed within the construction of a wall or floor/ceiling assembly;
- Is separated from floor opening and air transfer opening serving floor s by construction conforming to the required shaft enclosure;
- Does not connect more than two stories.

Unenclosed stairways connecting two stories that are located in the two story vertical opening are also acceptable per UBC Section 1019.3 item 1. Draft curtains and closely spaced sprinklers are not required per UBC Section 1019.3 item 4 because these stairs only connect two stories.

4.3.4 Fire Doors

Fire doors will be installed in accordance with NFPA 80 and have a fire-resistance rating per Table 7.

Table 7 - Minimum rating of fire doors

Rated Separation	Min. Fire Resistance Rating	Size Limitation
1-hour fire barrier in shafts	60 minutes	25% of length of wall ¹
Other 1-hour fire barriers	45 minutes	25% of length of wall ¹
2-hour fire barriers	90 minutes	25% of length of wall ¹

109 South Jackson St., Suite 600
Salt Lake City, UT 84103
+1 360 284 0870
olsonkundig.com

Olson Kundig

SOMMET BLANC
9300 MARSAC AVE
PARK CITY, UT 84003



Aspen Group USA, LLC
PO Box 980022
Park City, Utah 84098

Pool Consultant
Howard K20
2696 N University Ave., Suite 290
Provo, UT 84604

Landscape Architect
EPG Design
6840 South High Tech Drive, Suite 100
Midvale, Utah 84047

Specifications Writer
Fridley Group
88 Mainell Road
Middlebury, VT

Code Consultant
Holmes
600 1st Avenue, Suite 200A
Seattle, WA 98104

Fire Protection Engineer
Jensen Hughes
One Research Drive, Suite 305C
Westborough, MA 01581

Vertical Transportation Consultant
Larch Bates
1615 North Creek Parkway, Suite 304
Bothell, WA 98011

Structural Engineer
Magnussen Kiermancic Associates
1301 5th Ave., Suite 3200
Seattle, WA 98101

Lighting Designer
O
4319 SE MLK Blvd., Suite 210
Portland, Oregon 97219

Building Envelope Consultant
RDH
2101 N 34th St
Seattle, WA 98103

Accessibility Consultant
Studio Pacifica
2144 Westlake Ave N, Suite F
Seattle, WA 98109

MEP Engineer
WSP USA
1001 Fourth Ave., Suite 3100
Seattle, WA 98154

principal architect
TK, KM
project manager
TM, JR, LS, MD
drawn by
SK, SS, JR, CP, AL
NH, EK, BO, ER

- 2) The permissible amount of decorative materials in a Group A occupancy cannot exceed 10 percent of the aggregate area of walls and ceilings.
- 3) The 10 percent limit does not apply to curtains, draperies, fabric hangings and similar combustible decorative materials used as window coverings.
- 4) Interior trim is required to be of minimum Class C materials.
- 5) Combustible trim, excluding handrails and guardrails, cannot exceed 10 percent of the specific wall or ceiling area in which it is located.
- 6) If plastics are used as interior finish or decorations, they will need to be separately identified and evaluated.
- 7) Decorative ceiling elements include umbrellas, awnings, canopies, roofs of interior structures, interior projections, lattice ceilings, and other horizontal installations that might obstruct or delay actuation of sprinklers will need to be separately identified and evaluated.

4.8 Means of Egress

4.8.1 General

The occupant load of every room or space that is assembly occupancy will be posted in a conspicuous place near the main exit or exit access doors.

Table 10 shows the occupant load factors used to calculate the occupant load in the primary areas.

Table 10 - Occupant Load Factors

Building Areas, Uses	Floor Area Per Occupant (sf)
Restaurants, lounges, game room	15 net
Meeting rooms	15 net
Bowling center	5 occupants per lane (including 15 feet of runway) 7 net for other areas
Exercise rooms	50 gross
Residential - Dwelling Units	200 gross
Parking garage	200 gross
MEP and Storage rooms	200 gross

4.8.2 Exit Signs

Exit and exit access doors will be clearly marked by exit signs readily visible from any direction of egress travel. Access to exits will be marked by additional exit signs if the egress paths to exits and exit access doors are not immediately visible. Exit signs in corridors will be placed so that there is a visible exit sign within 100 feet.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
30

Exit signs will not be required in areas that require only one exit.

Main exterior exit doors that are obvious and clearly identifiable will not be provided with exit signs.

Tactile exit signs stating EXIT will be provided adjacent to each door to an exit stairway and the exit discharge.

Exit signs will be internally or externally illuminated at all times. Upon primary power loss, the exit signs will maintain continuous illumination for at least 90 minutes.

4.8.3 Means of Egress Illumination

The means of egress, including the exit discharge, will be illuminated at all times when the space served by the means of egress system is occupied. No illumination will be required for the means of egress within the dwelling units (Group R-2).

The means of egress illumination level is at least 1 foot-candle at the floor level in the path of egress, including along the path of travel for the exit discharge from each exit to the public way.

Emergency power will provide power for the means of egress illumination system for at least 90 minutes for the exit access corridors, aisles and passageways, where two or more means of egress are required, and for all exit stairways and the portion of the exterior exit discharge immediately adjacent to exit discharge doorways.

Emergency lighting facilities will provide initial illumination that is at least an average of 1 foot-candle and a minimum at any point of 0.1 foot-candle measured along the path of egress at floor level. Illumination levels can decline to 0.6 foot-candle average and a minimum at any point of 0.06 foot-candle at the end of the emergency lighting time duration. A maximum-to-minimum illumination uniformity ratio of 40 to 1 will not be exceeded.

4.8.4 Minimum Capacity of the Egress System

Minimum exit capacities will be per Table 11.

Table 11 - Egress width per occupant

Egress Element	Clear Width per Occupant
Stairs	0.2 inches per occupant
Ramps	0.15 inches per occupants
Doors and other level egress components	0.15 inches per occupant

The stairways and corridors will have a minimum width of 44 inches.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
31

Stairways and corridors serving V9 or less occupants may have a minimum width of 36 inches.

Corridors providing access to mechanical/electrical equipment only may have a minimum width of 24 inches.

4.8.5 Number of Required Exits

The minimum number of required exits or access to exits will be per Table 12.

Table 12 - Required number of remote means of egress

Occupancy	Occupant Load	Required Means of Egress
Group A, F	Fewer than 50	1
	50 or more	2
Group S	Fewer than 30	1
	30 or more	2
Group R-2	Fewer than 21	1
	21 or more	2

A minimum of three exits or exit access doorways will be provided from any space, where the occupant load exceeds 500.

A minimum of four exits or exit access doorways will be provided from any space, where the occupant load exceeds 1000.

A minimum of two exits or exit access doorways will be provided from any space, where the common path of travel exceeds the code limits (see Table 13).

4.8.6 Exit and Exit Access Doors

Fire doors are required to be automatic or self-closing and swing in the direction of egress travel where serving a space with an occupant load of 50 or more persons.

Panic hardware will be provided on all doors provided with latch or lock that are part of the means of egress from the assembly areas having an occupant load of 50 or more.

Egress doors will always be readily operable from the egress side without the use of a key or special knowledge or effort.

Doors from the dwelling units with an occupant load of 10 or less may have night latches, dead bolts or security chains if these devices are readily operable from the inside without the use of a key or tool.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
32

Horizontal sliding doors may be used from spaces that have an occupant load of less than 10 people, or within single dwelling units in Group R-2 occupancies.

The doors will provide a minimum clear width of 32 inches (measured per Figure 5), with the exception of doors opening into storage closets less than 10 square feet in area. The maximum width of a swinging door leaf will be 48 inches.

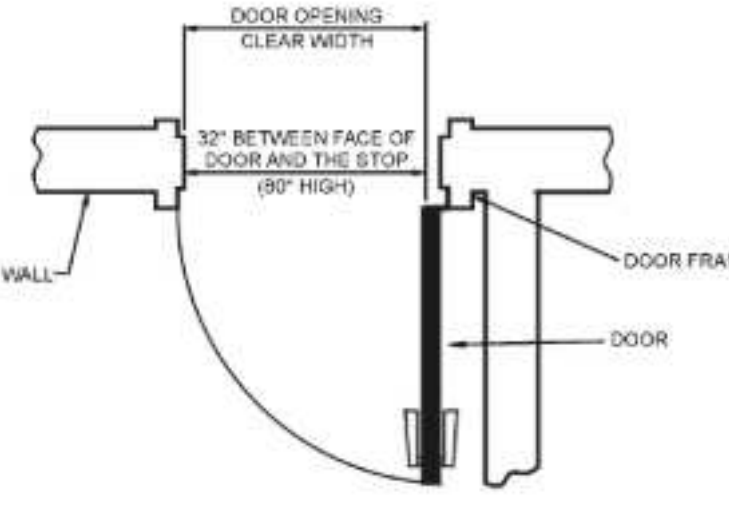


Figure 5 - Door exit width measurement

The space between two doors in a series will be at least 48 inches plus the width of the door swinging into the space (see Figure 6).

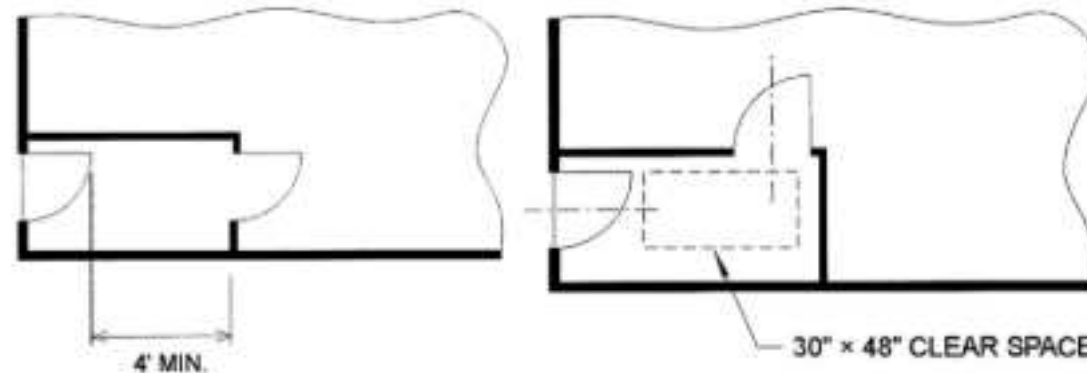


Figure 6 - Clear space between doors in a series

Door landings will be provided at the same elevation on either side of a door for a distance equal to the door width. Accessibility requirements may result in larger landings in some areas.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
33

When fully open, doors will not project more than 7 inches into the landing or the required width of an egress element. Doors in any position will not reduce the landing or the required width of an egress element to less than one-half of its required width (see Figure 7).

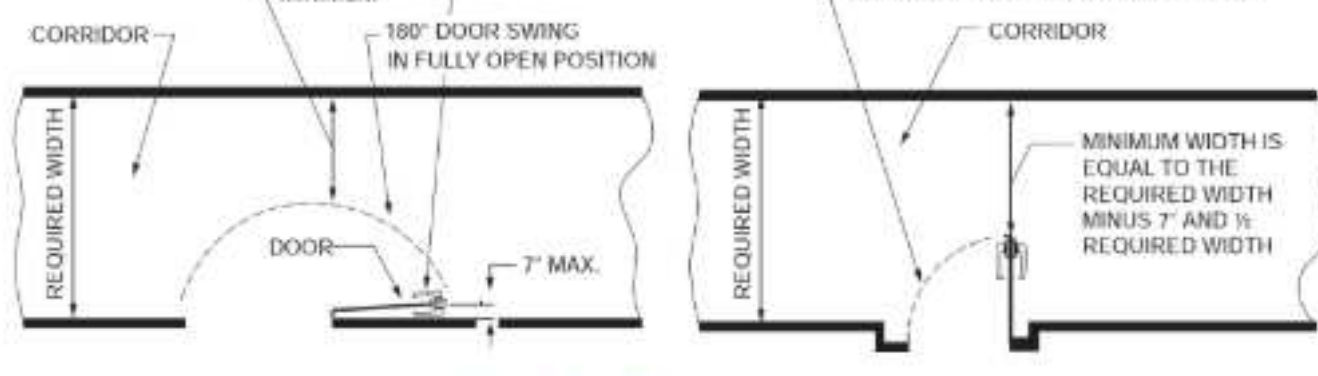


Figure 7 - Door encroachment

The fire door opening force will not be more than 15 lbs to release latch, 30 lbs to set door leaf in motion, and 15 lbs to fully open the door. The force for pushing or pulling open interior swinging egress doors, other than fire doors, cannot exceed 5 lbs.

Rooms and/or spaces that are not normally occupied will not open directly into exit enclosures.

4.8.7 Exit Separation

For areas requiring two exits, the exit doors or exit access doorways will not be closer than one-third of the length of the maximum overall diagonal dimension of the area served as per UBC 9007.1.1(2). The separation distance to exit or exit access doorways may be measured to any point along the width of the doorway (see Figure 8).

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
34

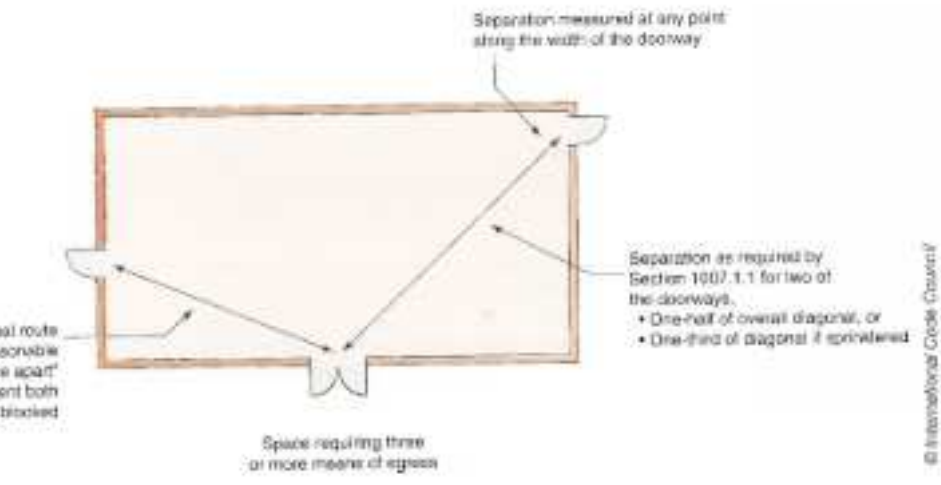


Figure 8 - Measurement of exit separation from a room

As per UBC 1007.1.1(1), where a 1-hour fire-resistance rated corridor is provided, the exit separation is permitted to be measured along the path of travel within the corridor (see Figure 9).

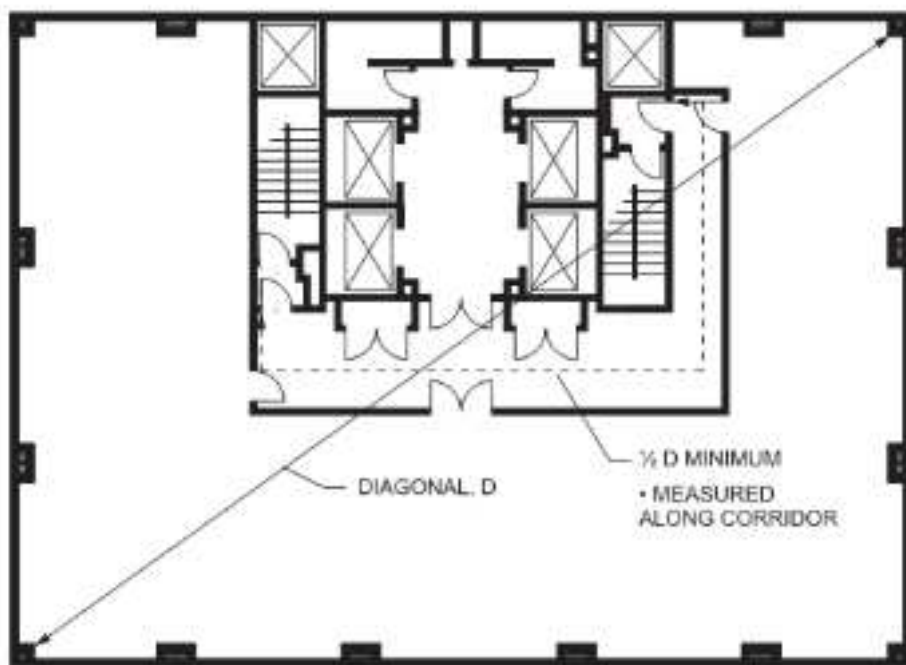


Figure 9 - Measurement of exit separation within a corridor (Figure from IBC commentary)

Additional fire-rise requirements for the buildings is that exit stairs shall be separated by 30-ft or 1/4 of the building diagonal, see Section 3.1.1.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
35

For areas requiring three or more exits, at least two will be placed no closer than one-third the length of the maximum overall diagonal dimension of the area served. The additional exits will be placed such that if one exit becomes blocked, the other exit(s) will be available.

Exit access doorways will be separated by a horizontal distance equal to one-half the maximum horizontal dimension of large boiler and refrigeration machinery rooms.

4.8.8 Intervening Spaces

Egress from a room or a space to an exit or to a corridor will not pass through another room or intervening room, except where the room is accessory to the area served and provides a discernible egress path.

Egress will not pass through storage rooms, kitchens, closets or spaces used for similar purposes. An exit access will not pass through a room that can be locked to prevent egress.

4.8.9 Corridors

Per the code definition, a corridor is "an enclosed exit access component that defines and provides a path of egress travel". Corridors serving Group R occupancies are required to have a 0.5-hour fire-resistance rating.

4.8.10 Travel Distance / Common Path of Egress / Dead End Corridors

Table 13 - Travel distance / Common path of egress / Dead-end corridor limitations

Occupancy	Maximum Travel Distance ¹	Maximum Common Path of Egress Travel ² (see Figure 11)	Maximum Dead-End Corridor Distance ³ (see Figure 10)
Group A	250 feet	75 feet	20 feet
Group B	300 feet	100 feet	50 feet
Group F-1	250 feet ⁴	100 feet	50 feet
Group F-2	400 feet	100 feet	50 feet
Group R-1	250 feet	125 feet	50 feet
Group S	250 feet	100 feet	50 feet
Group S-2	400 feet	100 feet	50 feet

1. Travel distance to the nearest exit.
2. The portion of the exit access, which the occupants are required to traverse before two separate and distinct paths of egress travel to two exits are available.
3. Where more than one exit or exit access is required.
4. A dead-end corridor is not limited in length where the length of the dead-end corridor is less than 2.5 times the least width of the dead-end corridor.
5. All portions of refrigeration machinery room will be within 150 feet of an exit or exit access doorway.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
36

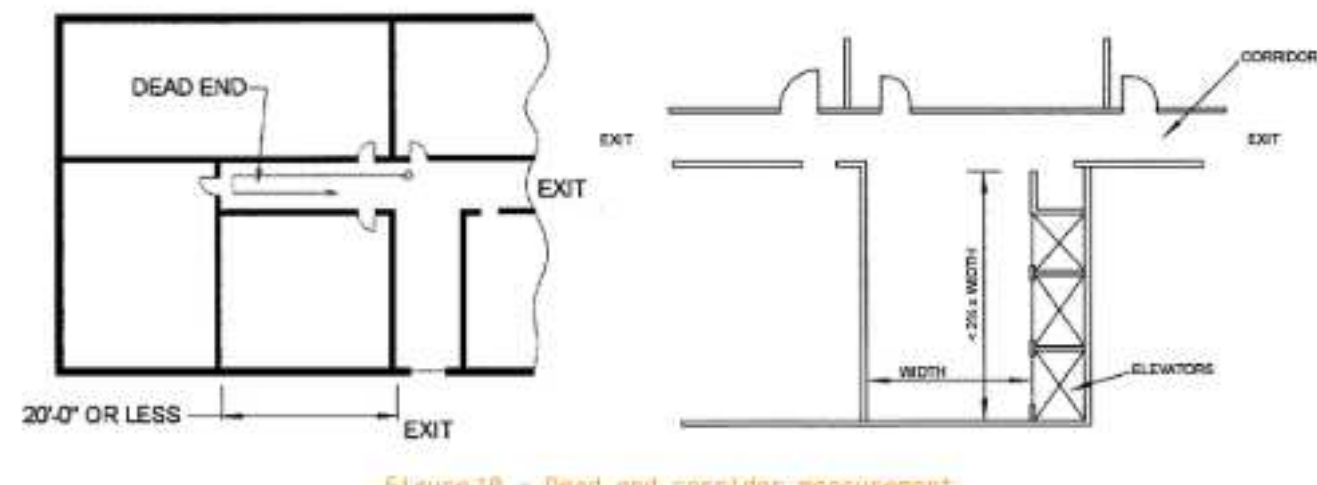


Figure 10 - Dead end corridor measurement

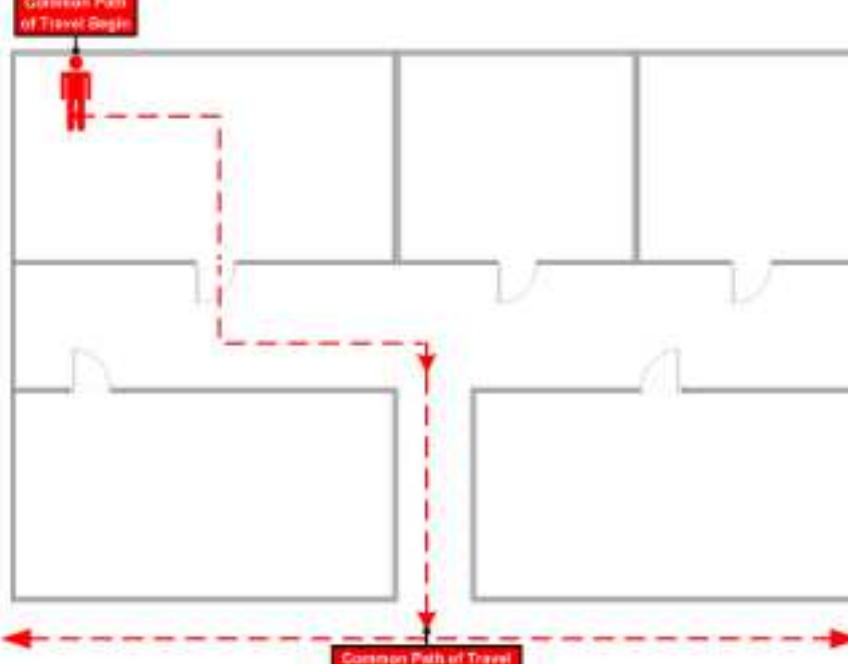


Figure 11 - Measurement of common path of egress travel

Exit access travel distance is required to be measured from the most remote point within a story along the natural and unobstructed path of horizontal and vertical egress travel to the entrance to an exit (see Figure 12).

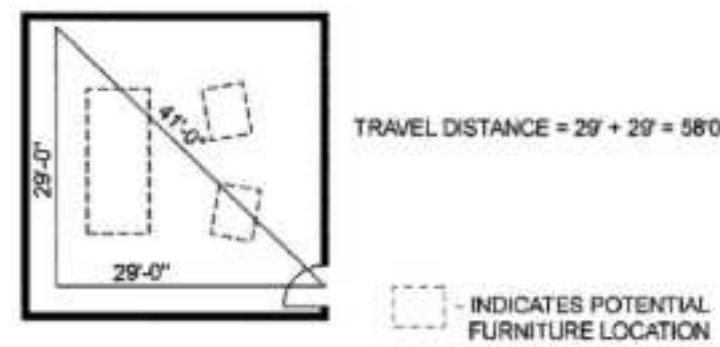


Figure 12 - Exit access travel distance measurement along an unobstructed path

4.8.11 Stairs

Projections into the required stairway width will not exceed 4.5 inches on each side located below the handrail height. Projections are not limited above the required headroom height.

Open risers are not permitted, with the exception of stairs that are not part of the accessible means of egress. These stairs may have openings between the treads that does not permit the passage of a sphere with a diameter of 4 inches.

At least one stairway is required to serve the highest roof level. If the roof or penthouses contains elevator equipment that must be accessed for maintenance, that roof level is also required to be accessed by a stairway.

4.8.12 Ramps

Ramps will have a running slope not steeper than one unit vertical in 12 units horizontal (8-percent slope).

Ramps will have minimum 60-inch long landings at the bottom and top of each ramp.

Where the ramp is not a part of an accessible route, the length of the landing is not required to be more than 48 inches in the direction of travel.

The rise of a ramp will not be over 30 inches between landings.

4.8.13 Handrails

Stairways will have handrails on each side.

Ramps with a rise greater than 6 inches will have handrails on both sides.

Handrails will be provided 34 to 38 inches above landings and nose of tread on each side.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
38

Handrails will return to a wall, guard or the walking surface or will be continuous to the handrail of an adjacent flight of stairs or ramp run. Where handrails are not continuous between flights, the handrails are required to extend horizontally not less than 12 inches beyond the top riser and continue to slope for the depth of one tread beyond the bottom riser. At ramps where handrails are not continuous between runs, the handrails will extend horizontally above the landing 12 inches minimum beyond the top and bottom of ramp runs.

Stairways will have intermediate handrails located in such a manner that all portions of the stairway width required for egress capacity are within 30 inches of a handrail, which is permitted to project into the required stairway width up to 4.5 inches.

4.8.14 Guards

Guards will be located along open-sided walking surfaces, including mezzanines, stairs, ramps and landings that are located more than 30 inches measured vertically to the floor or grade below at any point within 36 inches horizontally to the edge of the open side.

Guards will also be provided where appliances, equipment, fans, roof hatch openings or other components that require service are located within 10 feet of a roof edge located more than 30 inches above the floor, roof or grade below. The guard will extend not less than 30 inches beyond each end of such roof component requiring protection.

Required guards will be not less than 42 inches high, measured vertically above the adjacent walking surfaces or the line connecting the leading edges of the treads.

Guards will not have openings which allow passage of a sphere 4 inches in diameter from the walking surface to the required guard height. (Guard protecting appliances, equipment, fans, roof hatch openings may be constructed so as to prevent the passage of a sphere 21 inches in diameter.)

4.8.15 Interior Exit Stairways

Enclosed exit stairs will be separated by 2-hour fire-resistive construction from the interior of the building with openings protected by assemblies having a 90-minute fire protection rating. Openings in enclosed exit stair shaft walls will be limited to those necessary for exit access to the enclosure from normally occupied spaces including egress corridors. Interior exit stairways are required to discharge:

- Directly to the outside.
- Through a continuous 2-hour fire-resistance rated passageway, or
- Through the level of exit discharge of the building as long as the way to the exterior is unobstructed and readily visible/identifiable from the termination of the exit enclosure. This option is limited to not more than half of the interior exit stairways and number of building occupants (see Section 3.4).

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
39

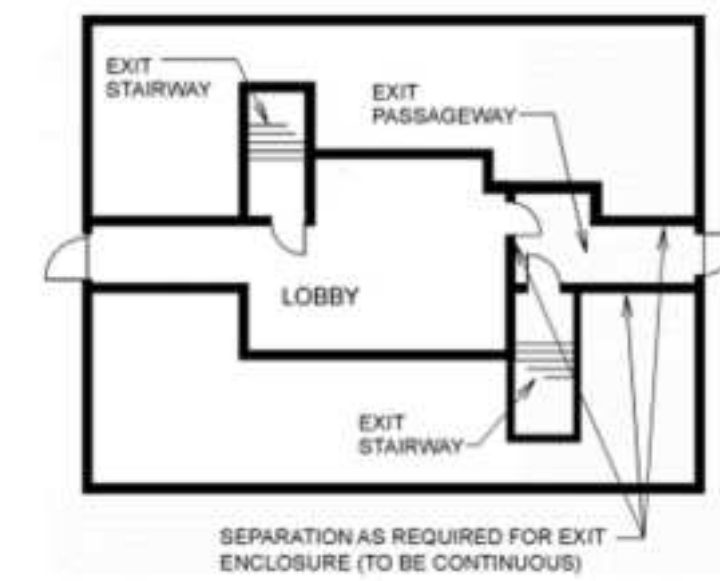


Figure 13 - Example exit stairway discharge configuration

Penetrations into an exit enclosure will be limited to sprinkler piping, standpipes, and electrical raceway serving the exit enclosure and terminating at a steel box not exceeding 16 square inches.

4.8.16 Accessible Means of Egress

Accessible spaces are required to be provided with not less than one accessible means of egress. Where more than one means of egress are required from any accessible space, each accessible portion of the space is required to be served by not less than two accessible means of egress.

Ramps, open exit access stairways, or interior or exterior exit stairways may be part of the accessible means of egress. However, stairways that connect levels in the same story are not permitted on part an accessible means of egress. The proposed accessible means of egress for the development consists of interior exit stairways and elevators.

Enclosed areas of refuge, enlarged floor level stair landings or stair vestibules are not required.

A two-way communication system will be provided at the elevator landings above grade levels (with the exception of service elevators) as noted below (see Figure 14):

- Two-way communication systems will provide communication between the elevator landings and a central control point location approved by the fire department.
- The two-way communication system will include both audible and visible signals.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
40

- Directions for the use of the two-way communication system, instructions for summoning assistance via the two-way communication system and written identification of the location will be posted adjacent to the two-way communication system.

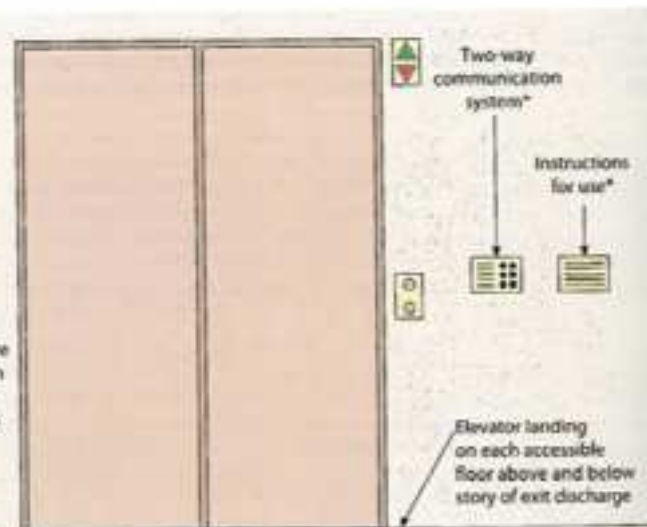


Figure 14 - Two-way communication system at elevator landing

4.9 Fire Suppression Systems

4.9.1 Automatic Fire Sprinkler Systems

Hydraulically calculated automatic fire sprinkler systems will protect the entire project. The automatic fire sprinkler systems will be designed to comply with NFPA 13.

No storage areas of ordinary combustibles are intended to have storage in excess of 12 feet in height. If storage in excess of 12 feet is later added, or storage of hazardous materials is introduced, it will be protected in accordance with NFPA 13 and the UFC.

The fire sprinkler system will be zoned per level and will be designed for Light Hazard in the residential apartments and Ordinary Hazard Group 1 in parking garage and the remainder of the development in accordance with NFPA 13 requirements.

As discussed in Section 3.1 and 3.3.1, Buildings A/B and C will be protected by independent automatic fire sprinkler systems, and each floor will be provided with control valves equipped with supervisory initiating devices and water-flow initiating devices.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
41

4.9.2 Standpipes

Class I standpipe system will be installed, designed per the requirements of NFPA 1A. The standpipes may be the automatic wet type, designed to provide a minimum pressure of 100 psi at the outlet of the hydraulically most remote 2-1/2-inch hose connections. 2-1/2-inch Class I connections will be provided at the following locations:

- In the main floor landings of all stairways. The hose connections will be located in a manner so as not to obstruct egress when the hose lines are connected and charged.
- At the entrance from the exit passageway to other areas of a building.
- Supplemental locations to ensure that the most remote portion of each floor is within 150 ft of a standpipe hose connection (measured along the path of travel).

Standpipe risers will be protected by 2-hour construction unless they are within a stair enclosure. Standpipe laterals that are not located within an interior exit stairway are not required to be enclosed within fire rated construction.

4.9.3 Fire Pump

One fire pump is required for the entire building.

An electric motor driven fire pump will be provided for each building, installed per the requirements of NFPA 20. The electric motor will be connected to an emergency power source.

A dedicated, 2-hour fire-resistance-rated fire pump room is required, with direct exterior access or via a protected corridor connected to an exit enclosure accessible from the exterior.

The fire pump controllers will be readily accessible and located adjacent to the fire pump room exterior door. The controllers will be within sight of the motor.

4.9.4 Water Supply

The water supply will be provided by the municipal water supply system with two isolated connections. The underground fire mains will be installed to comply with NFPA 24.

In addition to the above, the building will require a secondary, on-site water supply as required for high-rise buildings, see Section 3.1.8.

The fire department connection (FDC) must be located adjacent to the usable stairways, where the standpipe hose connections are located. The FDC should be on the street that the building fronts to, and be visible from the approved fire apparatus access road. The FDC cannot be further than 100 feet of a fire hydrant, measured on an approved route. A 3-foot clear space will be maintained around the FDC.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
42

The fire department connections will have at least 2-way inlets. To be discussed and confirmed by Park City Fire Department.

4.9.5 Portable Fire Extinguishers

The selection, installation, distribution, inspection, maintenance, and testing of portable fire extinguishers will be in accordance with the UFC.

Where each dwelling unit is provided with a portable fire extinguisher having a minimum rating of 1-A:10-B:C, other portable fire extinguishers will not be required except the following condition:

- On each floor of the structures under construction, in accordance with 3315.1 of the UFC.

For the Group A assembly spaces, portable fire extinguishers having a minimum rating of 2-A:10-B:C are recommended. The parking garage is an ordinary hazard space where Class B flammables are present, and 2A:20B extinguishers are recommended. The maximum travel distance to a portable fire extinguisher will not exceed 75 feet measured along normal paths of travel (50 feet in the parking garage). Portable fire extinguishers will be located in conspicuous locations where they are readily accessible and immediately available for use. Portable fire extinguishers will not be obstructed or obscured from view.

Commercial kitchens will have Class K extinguishers with a maximum travel distance shall not exceed 30 ft from the hazard to the extinguishers.

4.10 Fire Detection and Occupant Notification Systems

4.10.1 Fire Alarm System

The fire alarm system incorporating emergency voice alarm/communications (EVACS) will be designed to comply with NFPA 72.

The following five distinctly different signals will be transmitted to the approved supervising station:

- Water flow alarm
- Fire alarm
- System trouble
- Supervisory
- Valve tamper supervisory

The main fire alarm control panel will be located in the fire command center, where the annunciation of all initiating devices of the project will be provided.

The EVACS will allow for zone by zone communication and all call. Each floor will be a separate fire alarm zone. The length of any zone will not exceed 300 feet in any direction, but the zones may coincide with the automatic

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
43

fire sprinkler zones. The fire alarm annunciation will be fully coordinated with the floor levels, stairs and elevators.

Each floor will constitute a separate occupant notification zone. The occupant notification system of the floors immediately above and below the fire floor will also activate simultaneously with the fire alarm on the fire floor, or as required by the local fire chief.

4.10.2 Emergency Voice Alarm-Signaling System

The operation of an automatic fire detector or a fire sprinkler waterflow device will automatically sound an alert tone followed by recorded voice instructions. The voice message will be a direction for evacuation, and not any kind of message that could be construed as a reason to wait for instructions.

The voice alarm notification will be audible throughout the evacuation zone. The voice communications systems will be capable of the reproduction of prerecorded, synthesized, or live messages with voice intelligibility through speakers located in elevators, exit stairways and throughout a selected floor or floors.

A manual override for emergency voice communication will be provided for all paging zones.

At a minimum, paging zones will be provided as follows:

- Elevator groups (manual paging only)
- Interior exit stairways (manual paging only)
- Each floor

The emergency voice alarm-signaling system will be a dual-channel system, capable of sending two separate messages to different zones.

The audibility will exceed the ambient sound level in the room or space by 15 decibels minimum, or exceed any maximum sound level with a duration of 60 seconds by 5 decibels, whichever is louder. Sound levels will be maximum 110 decibels at the minimum hearing distance from the audible appliance.

The fire alarm panel will contain controls for manually activating the voice alarm system on a selective and general basis.

When activated, the voice alarm system will automatically override all other sound systems that would interfere with the required sound pressure levels.

The voice alarm system will be zoned to be coordinated with fire alarm and sprinkler zones.

A fire alarm speaker will not be provided in the fire command center.

Sommet Blanc, Park City, Utah
21020.00, Sommet Blanc, JLS Basis of Design CD, verD.docx
44

109 South Jackson S. Suite 60

