		ISSU Proje Ve Ve Design Ve Ve Ve Ve Ve Ve Ve Ve Ve Ve Ve Ve Ve
	Sommet Blanc Park City, Utah	Patr Fire
Holmes Fire	Olson Kundig Construction Documents Fire & Life Safety Code Report Vention D May 23, 2022	
<ul> <li>key issues, and the Detailed Requirements summarized apply to this project.</li> <li><b>1.2 Building Description</b></li> <li>Sommet Blanc is a mixed-use commercial and residered (Building A, Building B, and Building C), each provous on a sloped site. Based on early discussions with P development, but due to recent design changes are three towers are now considered a single high-rise the below grade parking, and by a small common the parking levels in Building A. Building C, connect summarized as follows: <ul> <li>Construction: Type I-B</li> <li>Building height:</li> <li>Building A/B: approximately 98 feet</li> <li>Building C: approximately 98 feet</li> <li>Building area: the entire development had</li> </ul> </li> </ul>		1.3
Code Topic       Fire Protection       Systems (UBC   Fully sprinklered (NFPA 13) Smoke Alarms in R-2 apartme 420.5)		3 This prop the j
Systems (UBC Chapter 9)     420.5)       Emergency Voice/Alarm Con System (NFPA 72)	nmunication Class K (commercial kitchens) Standpipe Connections: Class I	3.1 The is loo disc build dep that will i level app Build Build Build Som 3.1. Req than whic encl stair

## ATION

Sommat Blan	c, Park City, Utah					1
21020.00	ic, Park City, otan					-
Date	Status		Prepared	Reviewed		
/15/2021	Preliminary draft - Schemat	ic Design	PG	BP		
/07/2022	100% Design Development	ie besign	PG	GS	8	2
/22/2022	90% Construction Documer	its	PG	GS	8	3
5/23/2022	Building Permit Submittal		PG	GS	8	
			and and a second se	1.2.2.		
	Extent	t of Revision			r i	
adated repor	t to reflect changes to Building	ANY NO CONTRACTO	h are now high-r	lees		
110/2022	t to reflect that Buildings A, B	2001 1.101	P. COMPRESSION AND	1978.W		
	t in response to design team c				8	
inded or impli irial contained itted by law, a	r the requirements for this project, ed for use by any other third part I herein. Il rights are reserved and no part form or by any means without the	y and no responsibili of this publication of written permission of <b>Reviewed By:</b> //	ty is undertaken to overed by copyrig	o any other third		
on alist	24	Geza Szakats Project Director	6	7	8	
		21020.00_Sommet		Blanc, Park City, Utah Design CD_verD.daca 1		
bly) uses inc of egress: Ec ilding C is se protection f PA 13 compli- oposed to be ass I automa hergency Voi	ant automatic fire sprinkler pr served by independent fire sp tic wet standpipes ce & Alarm Communication (E it enclosures xtinguishers	nd a fitness space, ing B towers are se . There are no horiz otection throughou prinkler systems.	and Group S-2 ( rved by four inte ontal exits propo It. Each of the th	parking) rior exit stairs, osed.		1.4 The P (AHJ) amen and F Natio limite
Architect: O	Olson Kundig	ng vection				

cal Engineer: WSP Engineer: O-LLC Lighting Design

al Engineer: MKA onsultant: Holmes

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

## DESIGN / KEY ISSUES

ghts some of the major fire/life safety design criteria of the project and key code issues and olutions that are unusual and/or have the most impact on the fire/life safety approach of

## e Requirements

development is located on a sloped site, and the highest occupied level of the development an 75 feet above the lowest fire department access lane. Due to recent design updates and he local authorities of Park City, all of Buildings A, B and C are considered a single high-rise the highest occupied level of the building is more than 75 feet above the lowest fires lane, the building will need to meet the high-rise requirements of the code. It is understood Fire Department are open to classifying Buildings A, B and C as different structures as they ir operations adjacent to the Building which has triggered the alarm. The highest occupied e three Buildings A, B and C from the lowest level of fire department access (adjacent to each g) is as follows:

### imately 85 feet imately 92 feet

ximately 98 feet le required high-rise systems and features include the following:

## ess of interior exit stairways

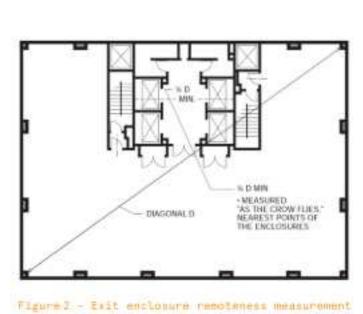
exit stairways are required to be separated by a distance not less than 30 feet or not less the length of the maximum overall diagonal dimension of the building or area to be served, The distance needs to be measured in a straight line between the nearest points of the ding the interior exit stairways (see Figure 2). Not fewer than two of the four interior exit uilding are required to comply with this requirement.

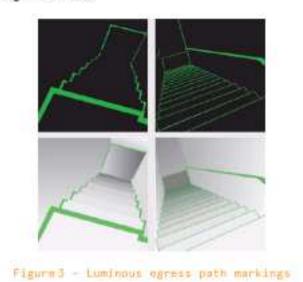
### TABLE OF CONTENTS Introduction..... 1.1 Scope..... 1.2 Building Description ..... 1.3 Project team ..... 1.4 Building and Fire Codes for the Project ..... Code Summary..... Basis of Design / Key Issues..... 3.1 High-Rise Requirements ..... 3.1.1 Remoteness of interior exit stairways ..... 3.1.2 Luminous Egress Path Markings ..... 3.1.3 Smoke Removal..... 3.1.4 Stairway Pressurization..... 3.1.5 EVAC Fire Alarm System ..... 3.1.6 Fire Command Center (FCC) ..... 3.1.7 Fire Pumps ..... 3.1.8 Secondary Water Supply Tank ..... 3.1.9 Secondary Power Supply..... 3.1.10 Structural Integrity ..... 3.1.11 Fire Service Access Elevators ..... 3.2 Grade Plane ..... 3.3 Construction Type ..... 3.3.1 Protection of HSS Columns ..... 3.4 Exit Stair Discharge ..... 3.5 Elevator Lobbies ..... 3.6 Separation for R-2 Dwelling Units..... 3.7 Site Fire Department Access ..... 3.8 Exterior Cladding ..... Detailed Requirements ..... 4.1 Occupancy Classifications ..... 4.1.1 Occupancy Separations ..... 4.1.2 Fire- and Smoke-Resistive Separations .....

**Building and Fire Codes for the Project** 

### ational Fire Protection Association (NFPA) Standards, as referenced by the above Code nited to:

- NFPA 13: Installation of Sprinkler Systems 2016 Edition
- NFPA 14: Installation of Standpipe and Hose Systems 2016 Edition NFPA 20: Installation of Stationary Pumps for Fire Protection – 2016 Edition
- NFPA 24: Installation of Private Fire Service Mains and Their Appurtenances, 2
- NFPA 72: National Fire Alarm Code 2019 Edition NFPA 80: Fire Doors and Other Opening Protectives - 2016 Edition
- NFPA 701: Standard Methods of Fire Tests for Flame-propagation of Textiles and





3.1.3 Smoke Removal

A smoke removal system will be provided to facilitate smoke removal in post-fire operations. The system shall be equipped with either natural or mechanical ventilation for the removal of products of combustion. It is understood that the smoke removal system will be designed by others.

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

CONTENTS Introduction	4.2.1         Construction Type	4.8.14 Guards 4.8.15 Interior Exit Stairways
Scope5 Building Description	4.2.3 Fire Separation Distance (FSD)	4.8.16 Accessible Means of Egress
Project team	4.2.5 Combustible Materials	4.9.1 Automatic Fire Sprinkler Systems
Building and Fire Codes for the Project7 Code Summary	4.2.6 Combustible Exterior Cladding and Insulation	4.9.2     Standpipes       4.9.3     Fire Pump
asis of Design / Key Issues11 ligh-Rise Requirements	4.3.1 Fire Barriers	4.9.4     Water Supply       4.9.5     Portable Fire Extinguishers
In the sequirements	4.3.2 Fire Partitions24 4.3.3 Shafts	4.9.5 Portable Fire Extinguishers
1.2       Luminous Egress Path Markings	4.3.4 Fire Doors	4.10.1     Fire Alarm System       4.10.2     Emergency Voice Alarm-Signaling System
1.4 Stairway Pressurization	4.4 Wall Penetrations	4.10.3 Initiating Devices
.5 EVAC Fire Alarm System	4.5 Floor Penetrations	4.11         Sleeping Area Requirements (Low Frequency Sounders)           4.12         Smoke Alarms
7 Fire Pumps	4.7 Interior Finishes and Decorative Interiors	4.13       Carbon Monoxide Detection
9 Secondary Power Supply 14	4.7.2 Floor Finish	4.13.1     Supervisory signals       4.13.2     Visual Alarms
0 Structural Integrity	4.7.3 Combustible Decorations and Trim	4.14 Elevators 4.14.1 Hoistway Protection
de Plane	4.8.1 General	4.14.2 Venting
Protection of HSS Columns	4.8.3 Means of Egress Illumination	4.14.3       Elevator Lobby         4.14.4       Elevator Recall
Stair Discharge	4.8.4       Minimum Capacity of the Egress System	4.14.5 Manual Override 4.15 Emergency and Standby Power
aration for R-2 Dwelling Units 17	4.8.6 Exit and Exit Access Doors	4.15.1 Secondary Power
Fire Department Access 17 rior Cladding 17	4.8.7       Exit Separation	4.15.2 Systems on Emergency or Standby Power 4.16 Fire Department Operations
uiled Requirements	4.8.9 Corridors	4.16.1 Site Fire Department Access
Occupancy Separations	4.8.10       Travel Distance / Common Path of Egress / Dead End Corridors	4.16.3 Fire Command Center
Fire- and Smoke-Resistive Separations	4.8.12 Ramps	4.16.4 Emergency Responder Radio Coverage
Sommet Blanc, Park City, Utah	Sommet Blanc, Park City, Utah	Sommet Blanc, Park City,
21020.00_Sommet Blanc_FLS Basis of Design CD_verD.docx 2	21020.00_Sommet Blanc_FLS Basis of Design CD_verD.docx 3	21020.00_Sommet Blanc_FLS Basis of Design CD_verD
		-
ng and Fire Codes for the Project Building Department, and the Park City Fire Department are the authorities having jurisdiction	2 CODE SUMMARY Code Topic Summary	Code Topic         Summary           Common Path of Travel Limit:         Exit Access Travel Distance Limit:
ject. The City has adopted the 2018 edition of the Utah Building and Fire Codes with local e 2018 Utah Building and Fire Codes are amended versions of the 2018 International Building	AHJ Park City, Utah	A -2 & A-3 = 75 ft A, F-1, R-2 & S-1 = 250 ft
	Type of Type I-B	Means of Egress         B, F-1, F-2, S-1 & S-2 = 100 ft         B = 300 ft           (UBC Chapter         R-2 = 125 ft         F-2 & S-2 = 400 ft
tection Association (NFPA) Standards, as referenced by the above Codes, include, but are not	Construction Building Height Allowable Height & Number of Stories - 180 ft / 12 (	10] Dead-end Corridor Limit: Egress Width: A = 20 ft Stairs = 0.2 in per person
8: Installation of Sprinkler Systems - 2016 Edition 1: Installation of Standpipe and Hose Systems - 2016 Edition	(UBC Section         Proposed Height & Number of Stories -98 ft / 10 stories above grade & 2 stories below           504)         grade	B, R-2, F-1, F-2, S-1 & S-2 = 50 ft All Other = 0.15 in per person
0: Installation of Stationary Pumps for Fire Protection - 2016 Edition 4: Installation of Private Fire Service Mains and Their Appurtenances, 2016 Edition	A-2 Assembly: Restaurants and dining spaces, including associated kitchens	Applicable 2018 edition of the Utah Codes (primary governing codes) with Park City Amendments
2: National Fire Alarm Code - 2019 Edition 0: Fire Doors and Other Opening Protectives - 2016 Edition	A-3 Assembly: Lounges with an occupant load of 50 people or more, flexible use assembly spaces and fitness areas	Codes
01: Standard Methods of Fire Tests for Flame-propagation of Textiles and Films - 2015 Edition	B Business Offices, lounges with an occupant load less than 50 people	Maximum Allowable Area per Floor: 144,000 square feet (Group S-1)
	R-2 Residential Apartments – UBC 420 requirements apply F-1 Industrial Boiler and Chiller rooms	237,000 square feet (Group S-2) Unlimited square feet (other occupancies)
	Occupancy F-2 Industrial Electrical, Mechanical rooms	Approximate Proposed Gross Building Area:
	(UBC Chapter 3) S-1 Storage: Moderate-hazard storage including waste storage, loading dock, and warehouse	(UBC Section         Building A/B: 258,000 SF           506)         Building C: 97,000 SF
	S-2 Storage: Car parking, low-hazard storage and bicycle storage	TOTAL: 355,000 Approximate Building Area of the Largest Story:
	Accessory occupancies cannot exceed 10% of floor area per story. It is assumed that the limited quantiles of hazardous materials in the building will be less	Building A/B: 40,000 SF
	than the exempt quantities in UBC Section 414 and a Group H Occupancy will not be	Building C: 14,000 SF Largest Combined Story: 41,000 SF
	created. This Report will be amended as necessary if the amount of hazardous materials is present in quantities over the exempt amounts.	Primary Structural Frame: 1 hour
	Occupancy The project will be a mixed-use development consisting of Nonseparated Occupancies	Fire Resistance Exterior Non-Bearing Walls: 0 hour where Fire Separation Distance (FSD) exceeds 20 f
	Separation (UBC as per UBC Section 508.3. Section 508)	Ratings (FRR)     and 1 hour where 10 ft < FSD ≤ 20 ft
		Floor and secondary beams: 1 hour
		Roof and secondary beams: 1 hour
Sommet Blanc, Park City, Utah 21020.00_Sommet Blanc_FLS Basis of Design CD_verD.docx	Sommet Blanc, Park City, Utah 21020.00_Sommet Blanc_FLS Basis of Design CD_verD.docx	Sommet Blanc, Park City, 21020.00_Sommet Blanc_FLS Basis of Design CD_verD
7	8	
	3.1.4 Stairway Pressurization A combination of active and passive smoke control system will serve the entire building. The primary approach	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.
MAX NO	will be a positive pressurization system for the stairway enclosures. It is understood that the required smoke control report and rational analysis as per UBC 909 will be provided by others.	3.1.8 Secondary Water Supply Tank
	3.1.5 EVAC Fire Alarm System	A secondary water supply tank is required to serve the automatic fire sprinkler system of the building. The secondary water supply tank is required to be located adjacent to the fire pump room
ND N	The fire alarm system in the buildings is required to incorporate emergency voice alarm/communications (EVACS) and will be designed to comply with NFPA 72.	The volume of the tank depends on the most demanding automatic fire sprinkler system in each building. The
DIAGONALD     MEASURED     AS THE CROW FLIES.     MEAREST POINTS OF     THE ENCLOSURES	The following five distinctly different signals will be transmitted to the approved supervising station:	<ul> <li>usable capacity of the secondary water supply tank is estimated to be at least the following for the buildin</li> <li>Parking garage (Ordinary Hazard Group 1): 42,000 gallons</li> </ul>
	Water flow alarm	These volume calculations assume that the secondary water supply tank only includes the 100 gpm "inside"
	Fire alarm     System trouble	hose stream demand, not the entire inside plus outside 250 gpm hose stream.
Figure 2 - Exit enclosure remoteness measurement	<ul> <li>Supervisory</li> <li>Valve tamper supervisory</li> </ul>	3.1.9 Secondary Power Supply The secondary power source and its transfer switches inside the building will be protected per Section 4.15
us egress path markings delineating the exit path will be provided in interior exit stairways	The main fire alarm control panel will be located in the fire command center, where the annunciation of all initiation devices of the project will be provided.	The secondary power source and its transfer switches inside the building will be protected per Section 4.15. this report, and will be ventilated directly to and from the exterior. Fuel lines supplying a generator set insid building will be separated from areas of the building other than the room the generator is located in by an
eways serving high-rise levels.	initiating devices of the project will be provided. The EVACS will allow for zone bu zone communication and all call. Each floor will be a separate fire alarm zone.	approved method or assembly that has a fire-resistance rating of not less than 1 hour.
	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 fire periodies zones. The fire alarm appropriation will be fully coordinated with the floor levels, stairs and	Primary power shutdown capability will be provided in the fire command center. The on-premises fuel suppl for the secondary power generator will be sufficient for at least 2-hour full-demand operation, and for at lea
$\swarrow$	fire sprinkler zones. The fire alarm annunciation will be fully coordinated with the floor levels, stairs and elevators.	8-hour operation of the fire pump. Emergency power will supply the following systems at a minimum (10 seconds transfer time):
	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,	Emergency voice/alarm communication systems.
	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.	<ul> <li>Exit signs.</li> <li>Means of egress illumination.</li> </ul>
	3.1.6 Fire Command Center (FCC)	Fire sprinkler alarm and supervisory systems.

A fire command center is required in each of the two buildings. The fire command center is required to be separated from the remainder of the building by not less than a 1-hour fire barriers. The room is required to be not less than 200 square feet with a minimum dimension of 10 feet. The fire command center is required to be provided with an independent ventilation or air-conditioning system.

The location of and access to the fire command center are required to be approved by the fire chief.

## 3.1.7 Fire Pumps

One fire pump is required for the entire development, as Buildings A, B and C are now considered a single highrise building.

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

 Fire alarm and supervisory systems. Fire detection and supervisory systems.

Fire pump controller.

 Electrically powered fire pumps. Elevator car lighting.

Radio repeater system.

bank.

Standby power will supply the following systems at a minimum (60 seconds transfer time): One elevator in each bank. The standby power will be manually transferable to any elevator in each

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

> > 14

DISOD Kundig seattle, Washington 98104 USA +1 206 624 5670 olsonkundig.com	SOMMET BLANC 9300 MARSAC AVE PARK CITY, UT 84060	
Ο	SOI 9300 PARk	
	GROUP	
<b>Aspen Group Us</b> PO Box 980 Park City, Utah	<b>SA, LLC</b> 022	
Landscape Architect EPG Design 6949 South High Tech Drive, Suite 100 Midvale, Utah 84047 Specifications Writer Friday Group 88 Mainelli 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 Consulatant Lerch Bates 19515 North Creek Parkway, Suite 304 Bothell, WA 98011 Structural Engineer Magnusson Klemencic Associates 1301 5th Ave, Suite 3200 Seattle, WA 98101 Lighting Designer O- 1319 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 Seattle, WA 98109 <u>MEP Engineer</u> WSP USA	e F	
WSP USA 1001 Fourth Ave., Suite 310 Seattle, WA 98154	00	
drawn by SK, NH, checked by Che job no. 2009	JB, LB, MD SS, JR, CP, AL, EK, BD, EB cker	
<u>1 09/30/22 BUILDING F</u> RESUBMIT no. date		
ISSUED FC		
	TION	

- 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 occupiable 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

occupancies per UBC 508.3.

**Building Element** 

Primary Beams

Columns supporting floors/mezzanines

Columns supporting roof only

4.2.2 Structural Frame

structural frame.

Primary Beams supporting roof only

Floor including secondary beams and joists

Roofs including secondary beams and joists

is not required to have a fire-resistance-rating.

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 compartmentation between Building A, Building B and the main lobby area. The entire development of Buildings A, B and Care 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 fireresistance 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 II-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 R-2 occupancy to be 180 ft

entire building is approximately 258,000 SF and will be a mixed-use development consisting of nonseparated

Fire-Resistive

Type I-B

Requirement

2 hours/1 hour'

2 hours/1 hour1

1 hour

1 hour

2 hour2/1 hour 1

1 hour

The buildings are now high-rises and qualify for a reduction in the required FRR to that of a Type II-A building.

The primary structural frame is defined as the columns and the girders, beams, trusses and spandrels having

The members of floor or roof panels which have no connection to the columns, and bracing members that are

Structure that supports only stair treads and stair landings within a 2-hour fire-resistance-rated shaft enclosure

Attachments to primary and secondary structural steel members are required to be protected with the same

away from the structural member a distance of not less than 12 inches, or will be applied to the entire length

fire-resistive material and thickness as required for the structural member. The protection is required to extend

when the attachment is less than 12 inches long. When an attachment is hollow and the ends are open, the fire-

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.

not included in the primary structural frame, are considered secondary members and not a part of the

<sup>2</sup>It is noted that any 2-hour fire-resistive rated shaft enclosure bearing on other construction elements will

trigger these elements to require a 2-hour fire-resistive rating, see Section 4.3.1 of this report.

Notes

UBC Section 403.2.1.1 [2]1

UBC Section 403.2.1.1 [2]1

UBC Section 403.2.1.1 [2]

Sommet Blanc, Park City, Utah

21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

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

Table3 - Minimum fire resistance rating of structural elements

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx 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

path of travel.

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 716.2.2.1.1 when tested in accordance with UL 1784 without an artificial bottom seal.

attachment.

The closest interior lot line.

(see Figure 4).

4.2.4 Exterior Walls

Table4 - Exterior wall fire resistance rating requirements

Fire Separation
< 20 feet

≥ 20 feet

story will be per Table 5.

Fire Separation 3 ≤ X < 5 feet

Rated Separation	Min. Fire Resistance Rating	Size Limitation
I-hour smoke barriers	45 minutes <sup>2</sup>	No limit
0.5-hour fire partition in corridors	20 minutes <sup>2</sup>	No limit
Other 1-hour fire partitions	45 minutes	No limit

25% of length of wall Stair doors 90 minutes 1 No limit where the opening protective has been tested in accordance with ASTM E 119<sup>3</sup> 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

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 travel distances.

## 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.

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.

<sup>3</sup> Test Methods for Fire Tests of Building Construction and Materials, ASTM International \* Air Leakage Tests of Door Assemblies, Underwriters Laboratories, Inc.

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

dampers are acceptable. Smoke dampers will be located at:

moke	dampers w
	Smoke det
	between. 1
	anticipate
	detectors
	Smoke da
	located wi

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

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

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.

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.

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

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

### 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:

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

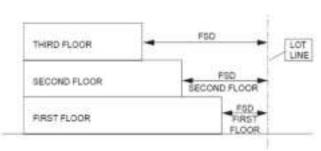


Figure 4 - Fire separation distance measurements for floor offsets (figure from IBC commentary)

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

Distance | Fire Resistance Rating None Required

Maximum area of protected and unprotected exterior wall openings in percentage of the exterior wall in any

Tables - Exterior wall o	pening limitations
Fire Separation Distance	Fire Resistance Rating
2 CV - Educt	1E annual

15 percent

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

Penetrations of shaft enclosures, unless:

 the penetration is part of the fire-resistance rated assembly, in accordance with ASTM E 119, or steel exhaust subducts extend at least 22 inches vertically in exhaust shafts and there is a continuous airflow upward toward the outside.

 Penetrations of fire partitions. Penetrations of fire-resistance-rated corridor walls, unless

the duct is protected as a through penetration.

 Penetrations of a single floor/ceiling assembly that are not protected by shafts. Exterior walls that are required to be protected in accordance with Section 705.10 of the UBC must be protected with fire dampers.

Smoke dampers will have a leakage rating of Class II or better. Elevated temperature ratings will be not less than 250°F. Where an assembly is required to have both fire and smoke dampers, combination fire/smoke

 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.

Penetrations of shaft enclosures, with the exception of:

 bathroom and toilet room exhaust openings that are installed with steel exhaust subducts, having a minimum wall thickness of 0.187-inch (No. 26 gage); the subducts extend at least 22 inches vertically; and an exhaust fan is installed at the upper terminus of the shaft that is powered. Penetrations of smoke-resistive walls for chiller and boiler rooms.

will close upon actuation of smoke detectors as follows:

tector located in the duct, within 5-feet of the damper, and with no air inlets or outlets in The detector will be listed for the air velocity, air temperature, and humidity that are ted at the point of installation. Dampers will close upon fan shutdown where local smoke require a minimum velocity to operate. mpers within un-ducted openings in walls will release upon activation of a spot-type detector vithin 5-feet horizontally of the damper on both sides.

4.4 Wall Penetrations

The penetrations of fire-resistance-rated wall assemblies will be protected by an approved through penetration firestop system. The through penetration firestop system will have an F rating equaling the rating of the wall. No T rating is required.

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

## 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.

## 3.8 Exterior Cladding

Per UFC 1405.1.1, exterior wall coverings of buildings of Type I construction are permitted to be constructed of combustible materials with a number of limitations. UFC 1405.1.1 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.

Fire Separation Distance	Fire Resistance Rating
5 ≤ X < 10 feet	25 percent
10 ≲ X < 15 feet	45 percent
15 ≤ X < 20 feet	75 percent
≥20 feet	No Limit

Canopies, exterior balconies or other architectural projections cannot extend any closer to the line used to determine the fire separation distance than shown in Table 6.

No parapets are required per Exceptions 1 and 6 of Section 705.11 of the UBC.

fables - Winimum distance of (	projections
Fire Separation Distance (FSD)	Minimum Distance from Line Used to Determin
< 2 feet	Projections Not Permitted
2 ≤ X < 3 feet	24 inches
3 ≤ X <5 feet	24 inches plus 8 inches for every foot of FSD be feet or fraction thereof
≥5 feet	40 inches

4.2.5 Combustible Materials

- Noncombustible building materials will be used, with the exception of: Thermal and acoustical insulations, other than foam plastics, having a flame-spread index of not more
- than 25. Fire-retardant-treated wood may be used: in nonbearing partitions that have a required fire-resistance rating of 2 hours or less, in roof construction, including girders, trusses, framing and decking, and
- o in nonbearing exterior walls where no fire rating is required. Non-fire-retardant-treated wood is permitted for trim and millwork such as doors, door frames, window sashes and frames. Non-fire-retardant-treated wood is only acceptable as exterior wood veneer for up to 40 feet above
- grade plane. Fire-retardant-treated wood is acceptable as exterior wood veneer for up to 60 feet above grade plane.
- Other combustible materials may be used in specific areas as permitted by Section 603 of the UBC or as identified in this report.

21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

### 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.

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 714.4.1 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

- Enclosed parking garages (UBC 715.1 Exception 5)
- Walls that are permitted to have unprotected openings.
- 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

- Interior wall and ceiling finishes have a flame spread index not greater than specified in Table 9 (classified in accordance with ASTM E84<sup>5</sup> or UL 723<sup>6</sup>). 2) Textile and expanded vinyl wall or ceiling coverings are Class A (or tested per NFPA 2657).
- 3) Testing per the requirements of NFPA 286" can be an alternative to the flame spread and smokedeveloped indices.
- <sup>1</sup> Test Methods for Surface Burning Characteristics of Building Materials, ASTM International
- <sup>6</sup> Standard for Test for Surface Burning Characteristics of Building Materials, Underwriters Laboratories, Inc. Method of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Wall Coverings on Full Height Panels and Walls, National Fire Protection Association
- Standard Method of Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth, National Fire Protection Association

# are not required in the following conditions: Roofs, where openings are permitted.

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

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

ne FSD . . . . . . . . . . . . . beyond 3

Sommet Blanc, Park City, Utah

Where a floor penetration contained and located within the cavity of a wall above the floor or below the floor,

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

## 4 DETAILED REQUIREMENTS

Table 1 - Occupancy classifications

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

Occupancies	Classification	
Canference rooms/Lounges with an occupant load of 50 or more people	A-3	
Fitness rooms	A-3	
Restaurants	A-2	
Offices	В	
Conference rooms/Lounges with an occupant load not over 49 people	В	
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 fireresistance-rated separations are required.

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

## 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 compact 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 note permitted up to 60 feet in height above grade plane regardless of the fire separation distance. Wood veneers must comply with UBC 1405.5
- Exterior wall coverings must be tested in accordance with NFPA 268<sup>1</sup>. Combustible exterior wall coverings containing foam plastic insulation must be tested in accordance with and comply with the acceptance criteria of NFPA 2852.

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.

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

Protection Association \* Standard Fire Test Method for the Evaluation of Fire Propagation Characteristics of Exterior Non-load-bearing Wall Assemblies Cantaining Combustible Components, National Fire Protection Association

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

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 9 - Interior wall and ceiling finish requirements

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

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 4880°, UL 104010 or UL 1715".
- 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 1.75 inches. The intervening spaces between furring strips are required to be: a) filled with noncombustible, inorganic or Class A materials, or
- b) fireblocked at a maximum of 8 feet in any direction.
- 3) Where walls are set out or ceilings are dropped more than 1.75 inches, Class A materials are required to be used except where interior finish materials meet one of the following: a) protected on both sides by an automatic sprinkler system, or b) the combustible void is filled with fiberglass or noncombustible insulation, or

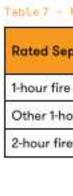
<sup>9</sup> American National Standard for Evaluating Insulated Wall or Wall and Roof/ Ceiling Assemblies, Plastic Interior Finish Materials, Plastic Exterior Building Panels, Wall/Celling Coating Systems, Interior and Exterior Finish Systems, Factory Mutual Global Research <sup>10</sup> Fire Test of Insulated Wall Construction, Underwriters Laboratories, Inc. " Fire Test of Interior Finish Material, Underwriters Laboratories, Inc.

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

greater.

4.3.3 Shafts

4.3.4 Fire Doors



UL 723, specimen preparation and mounting is required to be in accordance with ASTM E257312.

4.7.2 Floor Finish 1) Floors and floor coverings of a traditional type, such as wood, vinyl, linoleum or terrazzo, and resilient floor covering materials which are not comprised of fibers, are not regulated by the UBC. 2) Interior floor finish and interior floor covering materials are required to comply with ASTM E648<sup>th</sup>, and having a specific optical density smoke rating not to exceed 450 per ASTM E662". 4.7.3 Combustible Decorations and Trim 1) Curtains, draperies, hangings and other decorative materials suspended from walls or ceilings are required to be tested by an approved agency be flame resistant in accordance with the provisions. set forth in NFPA 701.

## 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) room	0-hour smake 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 10 horsepower	0-hour smoke partition

The walls and soffits 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

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 98 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

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

### 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 fireresistance rating that is not less than the fire-resistance rating of the fire partition. See Table 7 for fire resistance ratings of opening protections.

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 FRR 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.

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

paration	Min. Fire Resistance Rating	Size Limitation
e barrier in shafts	60 minutes	25% of length of wall
our fire barriers	45 minutes	25% of length of wall
e barriers	90 minutes	25% of length of wall

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

### c) attached to a noncombustible backing, or attached to furring strips installed as required for direct attachment.

4) The hangers and assembly members of such dropped ceilings that are below the main ceiling line are required to be of noncombustible materials.

## 4.7.1.4 Thin Combustible Materials

1) An interior wall or ceiling finish that is not more than 0.25-inch thick is required to be applied directly against a noncombustible backing, unless: a) the material is noncombustible, or

b) where the qualifying tests with Class A materials were made with the material suspended or furred out from the noncombustible backing.

## 4.7.1.5 Site-fabricated Stretch Systems

1) A site-fabricated stretch systems is a system, fabricated on site and intended for acoustical, tackable or aesthetic purposes that is comprised of three elements: a) a frame (constructed of plastic, wood, metal or other material) used to hold fabric in place, b) a core material (infill, with the correct properties for the application), and

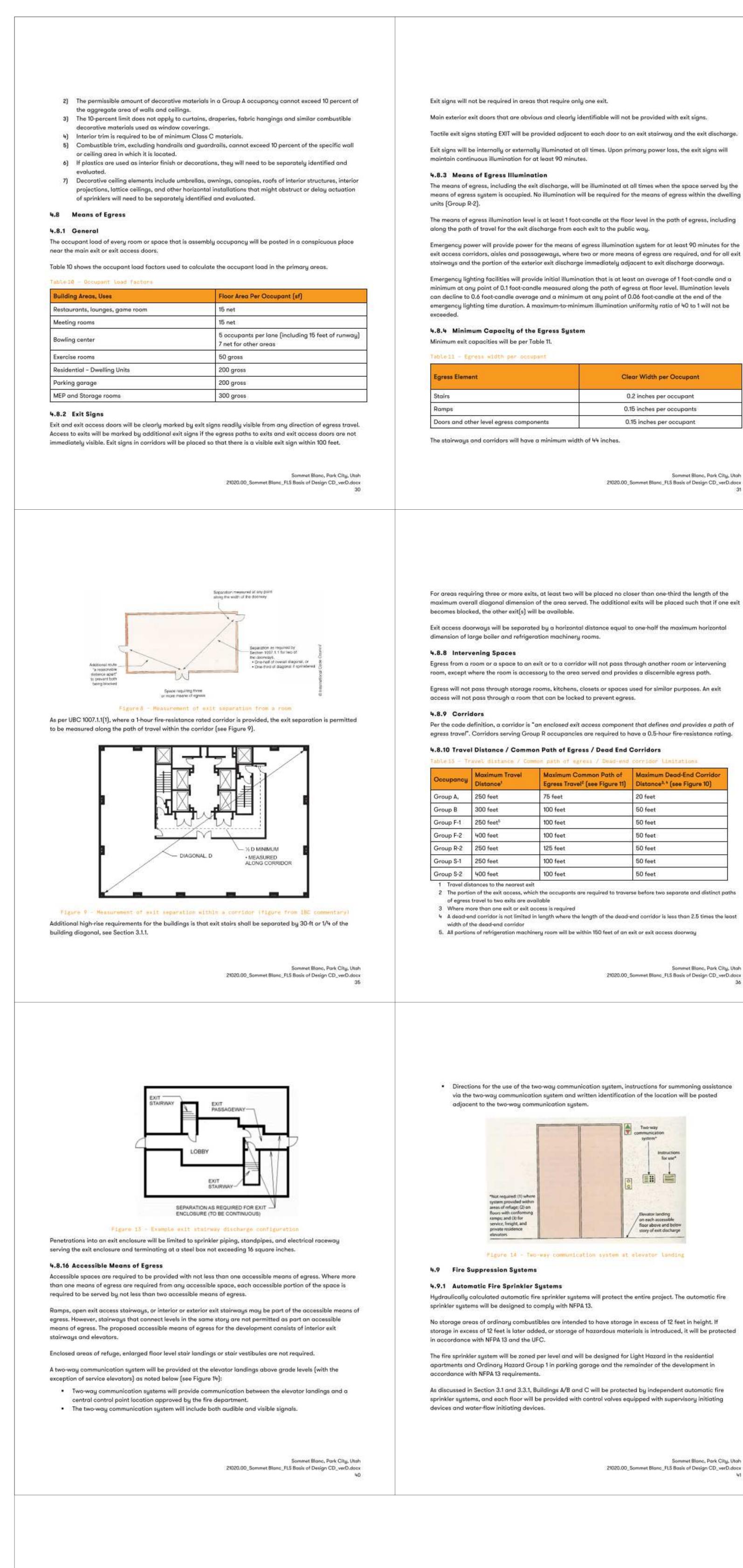
c) an outside layer, comprised of a textile, fabric or vinyl, that is stretched taunt and held in place by tension or mechanical fasteners via the frame. Where used as interior wall or ceiling finish materials, site-fabricated stretch systems are required to be tested in the manner intended for use, and required to be classified per ASTM E84 or UL 723, or tested per the requirements of NFPA 286. If the materials are tested in accordance with ASTM E84 or

<sup>12</sup> Standard Practice for Specimen Preparation and Mounting of Site-fabricated Stretch Systems to Assess Surface Burning Characteristics, ASTM International Standard Test Method/or Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source, ASTM International \* Standard Test Method/or Specific Optical Density of Smoke Generated by Solid Materials, ASTM International

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx



CODE SUMMARY - FIRE LIFE SAFETY REPORT A0.21



## 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 stainway and the exit discharge. Exit signs will be internally or externally illuminated at all times. Upon primary power loss, the exit signs will

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

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

4.8.4 Minimum Capacity of the Egress System

	Clear Width per Occupant
	0.2 inches per occupant
	0.15 inches per occupants
evel 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\_FLS Basis of Design CD\_verD.docx

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.

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.

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

aximum Travel stance <sup>1</sup>	Maximum Common Path of Egress Travel <sup>2</sup> (see Figure 11)	Maximum Dead-End Corridor Distance <sup>3, 1</sup> (see Figure 10)
i0 feet	75 feet	20 feet
)0 feet	100 feet	50 feet
i0 feet <sup>6</sup>	100 feet	50 feet
10 feet	100 feet	50 feet
i0 feet	125 feet	50 feet

100 feet 50 feet 100 feet 50 feet

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

width of the dead-end corridor 5. All portions of refrigeration machinery room will be within 150 feet of an exit ar exit access doorway

> Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

 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.

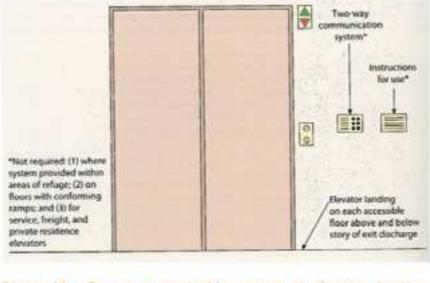


Figure 14 - Two-way communication system at elevator Landing

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

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

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\_FLS Basis of Design CD\_verD.docx

4.8.5 Number of Required Exits

The minimum number of	required	exits or	access.	to exits v	will be	per Table 1	2.

Occupancy	Occupant Load	Required Means of Egress
0.15	Fewer than 50	1
Group A, F	50 or more	2
<u> </u>	Fewer than 30	1
Group S	30 or more	2
C D.2	Fewer than 21	1
Group R-2	21 or more	2

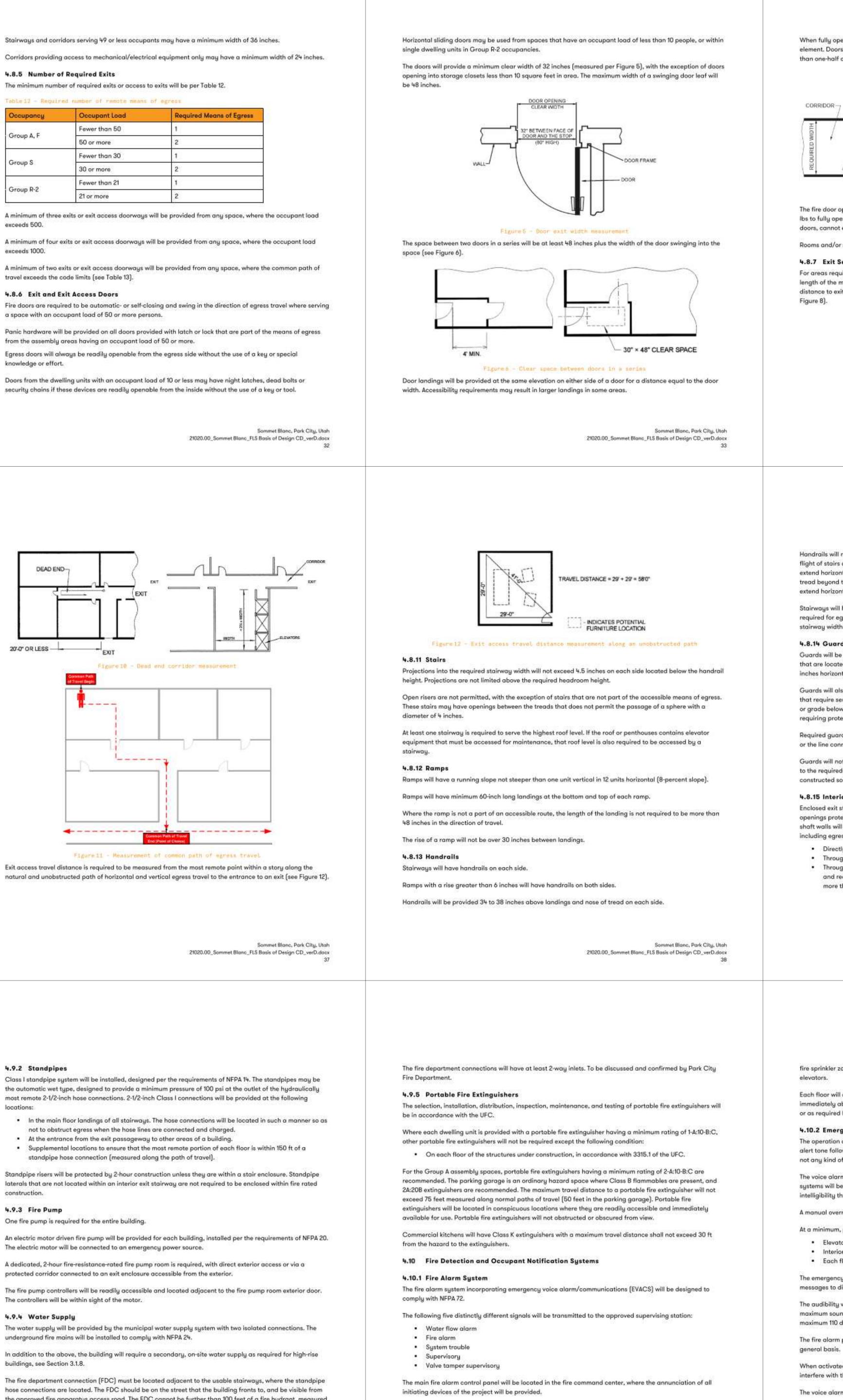
exceeds 500.

exceeds 1000.

### 4.8.6 Exit and Exit Access Doors

a space with an accupant load of 50 or more persons.

from the assembly areas having an occupant load of 50 or more. knowledge or effort.



### 4.9.2 Standpipes

locations:

construction.

### 4.9.3 Fire Pump

One fire pump is required for the entire building.

The electric motor will be connected to an emergency power source.

protected corridor connected to an exit enclosure accessible from the exterior.

The controllers will be within sight of the motor.

### 4.9.4 Water Supply

underground fire mains will be installed to comply with NFPA 24.

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.

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\_FLS Basis of Design CD\_verD.docx

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx



A0.22

<section-header><section-header><section-header><section-header><section-header><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item><list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></list-item></section-header></section-header></section-header></section-header></section-header>
<ul> <li>Fire hydrants hall have an overage spacing of 300 feet along streets and access roads adjacent to the buildings. When any portion of a building is in access of 400 teet from a fire hydrant, on-site hydrants and mains capable of supplying the required fire flow shall be provided. The minimum water main site shall be 8 and 100 feet from a fire hydrant, on-site hydrants and mains capable of supplying the required fire flow shall be provided. The minimum water main site shall be 8 and 100 feet from a fire hydrant. An site hydrants and the 9 and 100 feet from a fire hydrant on site shall be 9 and 100 feet from a fire hydrant. An site hydrants and mains capable of supplying the required fire flow aball be provided. As any will be located on the door to findicate the fire command center will be provided with a site installed. A sign will be located on the door to findicate the fire command center will be provided with a site presentation or alr-conditioning system.</li> <li>The fire department communications system unit.</li> <li>Ne fire department communications system unit.</li> <li>Status indicating the location data presentation systems installed in the building.</li> <li>Controls for uncloking interior and static presentation systems installed in the building.</li> <li>Schemich for flow department use with controlled access to the public teephone system.</li> <li>Schemich for flow department could water and shall presentations.</li> <li>A preved and Varter frow read static flow place and the department access and the location of fire read in from reading. Information, une department access and the location of fire department access and the location of fire walls. The fire from read with a minimum additing the building core, means of means increading the fire read state and the department access and the location of fire walls. The fire for the system read state and be partice.</li> <li>A preved Building latering that indicating the tapical floor plan and detailing the building core. means of meands. The f</li></ul>
<ul> <li>buildings. When any portion of a building is in secess of 400 feet from a fire hydrant, and he hydrants and mains capable of supplying the required fire flow shall be provided. The minimum water main size shall be 8 inches.</li> <li><b>Lot Strice Command Center</b></li> <li>The fire command center will be minimum 200 square feet in area with a minimum dimension of 10 feet. The fire command center will be provided from other portions of the building by thour fire barriers. The fire command center will be provided with an independent weithat an a location approval by the fire code official. A sign will be located on the door to indicate the fire command center will be provided with an independent weithat and manufactories regulation or air conditioning system.</li> <li>The fire command center will be provided with: <ul> <li>The fire dopatrment communication system unit.</li> <li>The fire dopatrment communication system.</li> <li>Fire detection and arm system annunciator.</li> <li>Status indicators for the status and subtoring the location of the elevators and whether they are operational.</li> <li>Status indicators and controls for air distribution systems.</li> <li>The fire fighter's control panel for a moke removal and statior pressurization systems installed in the building.</li> <li>Controls for unloking interior est stativeg doors simultaneously.</li> <li>Spinkher valve and waterflow detector discleplay panels.</li> <li>Spinkher valve and waterflow detector discleplay panels.</li> <li>Schematic building plans indicating the typical floor plan and detailing the building core, means of gages, fire proteins, and whether they can be and stating statis indicators.</li> <li>An tephone for fire department can static and static pressurization systems installed in the building.</li> <li>Schematic building plans indicating the typical floor plan and detailing the building core, means of gages, fire proteins, sance barriers, and smoke partitions.</li> <li>An paperove Building Information Card.</li> <li>Work table.&lt;</li></ul></li></ul>
pathways, conduit, access panels, etc.) installed at the start of the project. Not less than a two-inch conduit having a minimum two-hour fire resistive rating is required to be installed between the first floor to the roof. If Sommet Blanc, Park City, Utah 21020.00_Sommet Blanc_FLS Basis of Design CD_verD.docx 50

um 20-foot horizontal distance from a permanently installed cooking appliance. A can be used as well.

be installed less than a 3-foot horizontal distance from the door or opening of a s a bathtub or shower. There may be other areas that require smoke alarm coverage in on the appliances provided and the configuration of the unit. The full list of specific in NFPA 72 29.8.3.4.

alarm is located within an individual dwelling unit, they will be required to be tivation of one smoke alarm will activate all other alarms in the individual unit. The learly audible in all bedrooms with all intervening doors closed. The smoke alarms will from the building's electrical system and will be equipped with backup batteries. equired if the smoke alarms are connected to the building's emergency power.

## oxide Detection

ction is required, per UFC Section 1103.9, to be in dwelling units if the building contains s and fuel-burning fireplaces. Fuel-burning forced-air furnaces serving dwelling units are n monoxide detection as well. Carbon monoxide detection is required to be installed in

h separate sleeping area in the immediate vicinity of the bedrooms piable level of a dwelling unit, including basements. urning appliance is located within a bedroom or its attached bathroom, carbon

ction can be provided by either carbon monoxide alarms or carbon monoxide detection carbon monoxide/smoke alarms are acceptable to be installed if listed in accordance

n monoxide alarm is located within an individual dwelling unit, they will be required to activation of one carbon monoxide alarm will activate all other carbon monoxide unit. The smoke alarms will receive primary power from the building's electrical system ith backup batteries.

## Signals

ill receive supervisory signals from the following devices:

## sprinkler and standpipe system control valves.

roller (loss of phase, phase reversal, pump running, pump running on emergency

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

to be shared, load calculations are required to be provided demonstrating the volume ned by the size installed.

 Emergency generator status indicators. First responder radio amplification system.

## 4.13.2 Visual Alarms

Visual alarm devices will be located at all accessible public- and common-use areas, including toilet rooms, hallways and lobbies. Where the average ambient noise is greater than 105 decibels, visible alarm notification appliances only will be provided. Visual alarm devices are not required in exit enclosures and elevator cabs.

Each story that contains dwelling units will be provided with the capability to support visible alarm notification appliances.

Visual signaling appliances will operate in unison with the occupant notification system and will be synchronized as required by NFPA 72 (up to two separate groups of synchronized strobes are allowed within the field of view).

## 4.14 Elevators

4.14.1 Hoistway Protection

only connect two adjacent stories.

The elevator machine rooms, elevator machinery spaces, elevator control spaces, or elevator control room swill have 2-hour fire-resistance-rated enclosures.

## 4.14.2 Venting

Elevator machine rooms, machinery spaces that contain the driving machine, and control rooms or spaces that contain the operation or motion controller for elevator operation are required to be provided with an independent ventilation or air-conditioning system to protect against the overheating of the electrical equipment.

Elevator hoistway smoke vents are not required.

### 4.14.3 Elevator Lobby

with UL 1784.

The elevator hoistway openings are required to be protected at each floor where an elevator shaft enclosure connects more than two stories. The elevator hoistway openings are not required to be protected at the street floor level or level of exit discharge. There are three options: 1. Traditional elevator lobby enclosures formed by 1-hour fire partitions. Doors in fire partitions are required to meet the requirements for a smoke and draft control door assembly tested in accordance

21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx 51

All elevator hoistways will be of 2-hour fire-resistive construction, with the exception of elevator hoistways that

2. An additional door (tested in accordance with UL 1784) to protect the hoistway opening. This door can be packeted adjacent to the hoistway door and swing 180 degrees. 3. An elevator hoistways pressurization system.

Drawings indicate that the hoistways will open into residential corridors and that elevator lobbies will not be available in the development, and as such Options 2 and 3 are of interest, see Section 3.5.

Signage (also tactile) will be provided in front of the elevator landing, indicating to not use the elevator in case of fire. The signs will be pictorial signs and include the text that read "IN FIRE EMERGENCY, DO NOT USE ELEVATOR, USE EXIT STAIRS."

4.14.4 Elevator Recall

Elevators will be provided with emergency recall capabilities. Activation of a smoke detector in front of the elevators or elevator machine room smoke detector will cause automatic recall of the elevator to the primary recall level and will be under manual control only. Manual controls for elevator recall will be provided at the main grade level lobby of each elevator hoistway.

4.14.5 Manual Override

A three-position (on/off/bypass), key-operated switch will be provided at the primary recall level for each elevator for emergency override.

A three-position (on/off/hold), key-operated switch will be provided inside each elevator cab.

Elevator keys will be provided for the Fire Department in a lockable cabinet in the fire command center.

4.15 Emergency and Standby Power

4.15.1 Secondary Power Secondary Power is split into two categories: Standby Power and Emergency Power. Emergency Power systems shall automatically provide power within 10 seconds after primary power is lost, while Standby Power systems shall automatically provide power within 60 seconds after primary power is lost.

4.15.2 Systems on Emergency or Standby Power

Emergency power will supply the following systems at a minimum (10 seconds transfer time):

- Exit signs. Means of egress illumination.
- Fire sprinkler alarm and supervisory systems. Fire alarm and supervisory systems.
- Fire detection and supervisory systems.

Fire pump controller.

Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx

48

bank.

Sommet Blanc, Park City, Utah

## Electrically powered fire pumps. Elevator car lighting. Radio repeater system. Standby power will supply the following systems at a minimum (60 seconds transfer time): One elevator in each bank. The standby power will be manually transferable to any elevator in each 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. Fans serving shafts with steel exhaust subducts for the omission of dampers. Stair pressurization fans. 4.16 Fire Department Operations 4.16.1 Site Fire Department Access Per the UFC, approved fire apparatus access roads are required to extend to within 150 feet of all partions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the 159 Seat Seat 206 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 $\bigcirc$ 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. J The proposed fire apparatus access should be confirmed with Park City Fire Department. The site fire department access roadway must meet the following requirements: $\mathbf{i}$ Unobstructed width = 20 feet (exclusive of shoulders) Unobstructed height = 13 feet 6 inches $\mathbf{L}$ Surface = capable of sustaining the imposed load of fire apparatus (75,000 lb) and must be an approved all-weather surface SOMMET BLAN 9300 MARSAC AVE PARK CITY, UT 84060 Minimum turning radius of 28 feet. CO Dead-ends in excess of 150 feet must be provided with an approved turn-around Grade ≤ 6% unless approved by the Park City Fire Department 4.16.2 Site Fire Department Utilities OIS Fire hydrants are required to be provided along the fire apparatus access road per the Park City Fire Department "Fire and Life Safety Development Guidelines". The fire-flow calculation requirement needs to be discussed with the Park City Fire Department, and is based on the construction type and area of the building. Sommet Blanc, Park City, Utah 21020.00\_Sommet Blanc\_FLS Basis of Design CD\_verD.docx ASPEN GROUP Aspen Group USA, LLC PO Box 980022 Park City, Utah 84098 Pool Consultant Cloward H20 2696 N University Ave, Suite 290 Provo, UT 84604 <u>Landscape Architect</u> **EPG Design** 6949 South High Tech Drive, Suite 100 Midvale, Utah 84047 Specifications Writer Friday Group 88 Mainelli Road Middlebury, VT <u>Code Consultant</u> **Holmes** 600 1st Avenue, Suite 200A Seattle, WA 98104 Fire Protection Engineer Jensen Hughes One Research Drive, Suite 305C Westborough, MA 01581 Vertical Transportation Consulatant Lerch Bates 19515 North Creek Parkway, Suite 304 Bothell, WA 98011 Structural Engineer Magnusson Klemencic Associates 1301 5th Ave, Suite 3200 Seattle, WA 98101 Lighting Designer 1319 SE MLK Blvd, Suite 210 Portland, Oregon 97219 Building Envelope Consultant 2101 N 34th St Seattle, WA 98103 Accessibility Consultant Studio Pacifica 2144 Westlake Ave N, Suite F Seattle, WA 98109 <u>MEP Engineer</u> WSP USA 1001 Fourth Ave., Suite 3100 Seattle, WA 98154 principal architect <u>TK, KM</u> project manager\_\_\_TM, JB, LB, MD drawn by <u>SK, SS, JR, CP, A</u>L, <u>NH, EK, BD, EB</u> \_\_\_\_\_ checked by <u>Checker</u> job no. 20052 date 11/18/2022 revisions: \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_ no. date by **ISSUED FOR** CONSTRUCTION 11/18/2022 CODE SUMMARY - FIRE LIFE SAFETY REPORT A0.23