United States Department of the Interior

NATIONAL PARK SERVICE
Yosemite National Park
P.O. Box 577
Yosemite National Park, California 95389

IN REPLY REFER TO:

Memorandum

To: Superintendent, Yosemite National Park

From: Fire Marshal, Yosemite National Park

Subject: Ahwahnee Hotel Egress Critical Deficiencies

As Authority Having Jurisdiction (AHJ), the Yosemite Fire Marshal has conducted exhaustive review of the Ahwahnee Hotel egress systems to determine the minimum requirements for exits and the present day occupancy conditions allowable by code. This research and review process has taken into account all that has been brought forward by years of consultations with architects and engineers involved with the ongoing Ahwahnee Fire and Life Safety project and the Comprehensive Rehabilitation program, participation in the numerous meetings, studies, value analysis and choose by advantage sessions, application of all permitted alternatives and code exceptions, with careful consideration for the historic preservation of the hotel, and increased fire safety being provided by the installation of fire protection systems currently underway. In addition, the recommendations for both the 5th and 6th floor egress and mezzanine meeting space egress issues below have been made after close consultation with the PWR Structural Fire Management Officer and the Yosemite Chief Ranger. The primary codes reviewed and cited by the Fire Marshal are the NFPA 101, Life Safety Code 2009 Edition (chapters for existing buildings) later referred to as the "code", the 2010 California Historic Building Code and the 2009 International Building Code, all adopted by the National Park Service. All code citations are from the NFPA 101, Life Safety Code, 2009 Edition. In addition to these codes, numerous other codes and standards were reviewed to seek alternative approaches and determine what similar conditions might be in general acceptance in the code compliance community.

The following two critical egress issues remain unabated and require action to provide the protections to life safety required by codes. Critical issues are deficiencies which the correction of are considered essential to prevent severe or imminent exposure to loss of life, property, contents, or the continuity of park/building operations. The immediate correction of critical deficiencies should be considered a top priority.

1. <u>Existing occupancy of 5th and 6th floors not permitted by codes.</u>

   Having a single means of egress serve the 5th and 6th floors does not comply with code or allowed code exceptions [Ref NFPA 101:29.2.4.1]. Under the Ahwahnee Comprehensive Rehabilitation Program, numerous alternatives have been presented and reviewed at length. Two preferred

alternatives meeting code requirements were agreed upon at the Ahwahnee Comprehensive Rehabilitation CBA/VA and were recommended during the October 20, 2010 Management Briefing on CBA/VA Results.

AHJ 5th and 6th Floor Occupancy Recommendation: As no exceptions to providing a second means of egress to the 5th and 6th floors are permitted by code, it is paramount that actions be taken without delay to provide additional means of egress for both the 5th and 6th floors. Both of the FLS-01 and FLS-02 proposed actions described under Schematic Alternatives 1 and 2 in the Ahwahnee Comprehensive Rehabilitation Program - Recommended Preferred Alternative Summary Matrix contain code compliant 5th and 6th floor egress solutions acceptable to the Fire Marshal.

As the current egress system serving the 5th and 6th floors is not consistent with the basic existing building requirements for providing two exits from each floor, expedited implementation of corrective measures or temporary closure of guest rooms on the 5th and 6th floors shall be considered by the Superintendent. As this issue is critical to preserving life safety to occupants on the 5th and 6th floors, the Fire Marshal recommends proceeding immediately with final design and construction of egress from the 5th and 6th floors and related compliance. Additionally, it is recommended that every possible effort be made to complete construction of the new 5th and 6th floor exit systems during the planned hotel shut down, scheduled for February – March 2011 in conjunction with the ongoing Ahwahnee Fire and Life Safety - Project.

In addition to completion of sprinkler installation and smoke alarms, the NPS shall proceed without delay to correct egress deficiencies. Specifically, the NPS shall complete all required design documents, National Environmental Policy Act, National Historic Preservation Act, and Fire Code compliance documentation. The NPS shall also commit sufficient funding to fully implement the project necessary to and correct the egress deficiencies. Postponement or delay of any aspect of the above compliance, design and construction work will result in the immediate closure of the 5th and 6th floors of the Ahwahnee Hotel. The Fire Marshall shall be briefed weekly on the status and schedule of all aspects of the project. Should unacceptable delay occur, the Fire Marshall (through the Fire Management Officer and Chief Ranger) shall immediately recommend to the Park Superintendent that a Closure Order be issued and the 5th and 6th floors shall be closed immediately.

The NPS Division of Business and Revenue Management through the park Superintendent shall direct the park concessioner (Delaware North Corporation) to prepare and implement a facility emergency action plan and a fire prevention plan. These plans shall be reviewed and approved by the NPS Fire Marshall and shall include specific procedures and controls to enhance fire prevention, emergency preparedness, and education and training of both DNC and NPS staff in order to safely implement these plans. Preparation of these plans shall begin immediately and presented to the Fire Marshal for approval prior to the hotel reopening in March 2011 and shall be implemented immediately upon approval from the NPS.

2. Existing use of the Tudor Lounge, Tressider Room and Colonial Room located on the "Mezzanine" floor not permitted by codes.

Having a single means of egress serve this floor area as assembly or hotel use does not comply with code or allowed code exceptions. The historical use of this floor area was assembly (50 or more persons) for public and business gatherings and meetings. Code requires the occupant load and exit capacity be based on the square footage of the space. As this space would allow a total of 144 occupants given the square footage, the space is required to provide number of exits serving 144 occupants [Ref NFPA 1017.3.1.2*]. The Life Safety Code requires there be two exits for spaces less than 600 occupants under the assembly and hotel use chapters of the code. The "mezzanine" meeting rooms do not meet any of the exception requirements allowing a single exit under the assembly or hotel occupancy chapters of the code. [Ref NFPA 101: 7.4.1.1, 13.2.4.2 and 29.2.4.1]

Previously, this floor area was allowed to be occupied by 49 occupants as an interim while detailed code research, fire and smoke modeling and egress analysis was conducted. This was based on recommendations to the Fire Marshal from architects and engineers serving on prior Ahwahnee studies and is generally accepted for single rooms serving less than 50 occupants as long as other requirements of the Life Safety Code are met. Additional argument for allowing occupancy of this floor area was based on the areas resemblance to and history of being labeled a mezzanine which under specific conditions are permitted a single exit serving less than 50 persons [Ref NFPA 101:7.4.1.1(2) and 13.2.4.5]. The Fire Marshal has reviewed the Life Safety Code and Building codes and has determined this floor area clearly fails to meet openness requirements (e.g. must be 1/3 open to the floor below) to qualify as a mezzanine as defined by codes [Ref NFPA 101:8.6.9.2.1 and 8.6.9.3]. In addition, allowable common path of travel and overall maximum travel distances to exits, exit enclosure requirements, and sprinkler protection requirements specifically required in code to meet mezzanine exceptions allowing a single exit are not achieved. As no code exception under the assembly or hotel use chapters of the code is provided to allow a single means of egress under the mezzanine specific sections of the code, the mezzanine meeting rooms floor area are required a second means of egress under the assembly and hotel chapters of the code.

One alternative view acceptable to the Fire Marshal is to allow use of the Tudor and Colonial rooms to a combined maximum occupancy of 30 persons (for the entire floor area), exclude the Tressider Room from use as the most remote areas there exceed maximum travel distances allowed by code, and limited the Tudor and Colonial spaces to business use (not public or assembly use). By doing so allows the use of an exception given to single tenant business spaces that are sprinklered, and have total exit travel distance of 100 ft or less [Ref NFPA 101:39.2.4.6]. The Total Travel distance from the most remote area of both the Tudor and Colonial rooms is the same, 104 feet. Based on the building having full sprinkler protection and fire alarm detection at completion of the Fire and Life Safety project, common path of travel is not limited by applicable code in this situation [Ref NFPA 101:39.2.5.3.2], use of the spaces in the area adjacent to and below the Tudor and Colonial rooms have a ordinary hazard content, and operational controls can limit the space to a maximum of 30 occupants (to be posted), the Fire Marshal is acceptable to permitting an excess in travel distance beyond code maximum of 100 feet to a total travel distance to the outside of 104 feet. If this alternative is acceptable to the Superintendent, the Fire Marshal has approved up to 30 occupants can occupy the "mezzanine" meeting room floor for

business use. Limited occupancy in excess of 30 occupants may be granted by the Fire Marshal under rare and limited conditions with strict controls and issuance of a conditional permit issued by the Fire Marshal. Conditions may require presence of trained security and fire staff to facilitate fire watch and safe egress, staging of fire apparatus, special signage, emergency procedure announcements and site inspections to verify conditions, all described in a permit.

One consideration is there are inherent weaknesses in relying on operational controls to prevent occupancy numbers exceeding 30 as they are entirely dependent on strict control of the space and vigilant enforcement by the hotel staff. There are first hand reports of the current occupancy limit of 49 being violated by significant over occupancy that was not abated. It has to be clear that the allowance of occupancy of the "mezzanine" meeting rooms is conditional and that occupancy over 30 persons without a conditional permit from the Fire Marshal is a clear violation.

AHJ Tudor, Tressider and Colonial rooms occupancy recommendation: After Ahwahnee Fire Life Safety project completion providing full sprinkler and fire detection and alarm coverage, and until such time as a compliant second means of egress is provided serving the Tudor, Tressider, and Colonial rooms, allow occupancy of the Tudor and Colonial rooms with a maximum combined occupancy of 30 persons (posted) for general office and meetings incidental to business use. The Tressider Room is not to be used due to excess travel distance. The facility emergency action plan and a fire prevention plan described under the 5th and 6th floor egress issues under item 1 above are to be prepared by the concessioner and approved by the Fire Marshal to include specific controls to limit occupancy of the "mezzanine" meeting rooms to a combined maximum of 30 occupants for that floor area [Ref NFPA 101:43.4.2].

Don Coffman

Attachments 1
Ahwahnee Hotel Egress Critical Deficiencies – Code References

cc:
Charles Cuvelier, Division Chief, VP, YOSE
Marty Neilson, Division Chief, BRM, YOSE
Kelly Martin, Branch Chief, FAM, YOSE
Curtis Troutt, Structural Fire Management Officer, PWR

AHWAHNEE HOTEL EGRESS CRITICAL DEFICIENCIES
MEMORANDUM CODE REFERENCES
OCTOBER 25, 2010
DON COFFMAN, FIRE MARSHAL – YOSEMITE NP

The following references detail the specific language contained in the National Fire Protection Association Life Safety Code for code citations contained in the memorandum titled *Ahwahnee Hotel Egress Critical Deficiencies*. This memorandum from the Yosemite Fire Marshal to the Yosemite Superintendent dated October 20, 2010 is intended to communicate code requirements effecting continued occupancy of the Ahwahnee Hotel 5th and 6th floors and the "mezzanine" space having the Tudor, Tressider and Colonial rooms. Code references are arranged in order of appearance in the memorandum.

NFPA 101, Life Safety Code®, 2009 Edition

Chapter 29 Existing Hotels and Dormitories

29.2.4 Number of Exits.

29.2.4.1 In buildings other than those complying with 29.2.4.2, not less than two exits shall be accessible from every floor, including floors below the level of exit discharge and floors occupied for public purposes.

29.2.4.2 A single exit shall be permitted in buildings where the total number of stories does not exceed four, provided that all of the following conditions are met:

(1)There are four or fewer guest rooms or guest suites per story.

(2)The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with 29.3.5.

(3)The exit stairway does not serve more than one-half of a story below the level of exit discharge.

(4)The travel distance from the entrance door of any guest room or guest suite to an exit does not exceed 35 ft (10.7 m).

(5)The exit stairway is completely enclosed or separated from the rest of the building by barriers having a minimum 1-hour fire resistance rating.

(6)All openings between the exit stairway enclosure and the building are protected with self-closing door assemblies having a minimum 1-hour fire protection rating.

(7)All corridors serving as access to exits have a minimum 1-hour fire resistance rating.

(8)Horizontal and vertical separation having a minimum ½-hour fire resistance rating is provided between guest rooms or guest suites.

Chapter 7 Means of Egress

7.3 Capacity of Means of Egress.

7.3.1 Occupant Load.

7.3.1.2* Occupant Load Factor. The occupant load in any building or portion thereof shall be not less than the number of persons determined by dividing the floor area assigned to that use by the occupant load factor for that use as specified in Table 7.3.1.2, Figure 7.3.1.2(a), and Figure 7.3.1.2(b).

Chapter 7 Means of Egress

7.4 Number of Means of Egress.

7.4.1 General.

7.4.1.1 The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions:

(1)A single means of egress shall be permitted where permitted in Chapters 11 through 43.

(2)A single means of egress shall be permitted for a mezzanine or balcony where the common path of travel limitations of Chapters 11 through 43 are met.

Chapter 13 Existing Assembly Occupancies

13.2.4* Number of Exits.

13.2.4.2 Assembly occupancies with occupant loads of 600 or fewer shall have two separate means of egress.

13.2.4.5 Balconies or mezzanines having an occupant load not exceeding 50 shall be permitted to be served by a single means of egress, and such means of egress shall be permitted to lead to the floor below.

13.2.4.6 Balconies or mezzanines having an occupant load exceeding 50, but not exceeding 100, shall have not less than two remote means of egress, but both such means of egress shall be permitted to lead to the floor below.

13.2.4.7 Balconies or mezzanines having an occupant load exceeding 100 shall have means of egress as described in 7.4.1.

13.2.5 Arrangement of Means of Egress.

13.2.5.1 General.

13.2.5.1.1 Means of egress shall be arranged in accordance with Section 7.5.

13.2.5.1.2 A common path of travel shall be permitted for the first 20 ft (6100 mm) from any point where the common path serves any number of occupants, and for the first 75 ft (23 m) from any point where the common path serves not more than 50 occupants.

Chapter 7 Means of Egress

7.4 Number of Means of Egress.

7.4.1 General.

7.4.1.1 The number of means of egress from any balcony, mezzanine, story, or portion thereof shall be not less than two, except under one of the following conditions:

(1)A single means of egress shall be permitted where permitted in Chapters 11 through 43.

(2)A single means of egress shall be permitted for a mezzanine or balcony where the common path of travel limitations of Chapters 11 through 43 are met.

Chapter 13 Existing Assembly Occupancies

13.2.4* Number of Exits.

13.2.4.5 Balconies or mezzanines having an occupant load not exceeding 50 shall be permitted to be served by a single means of egress, and such means of egress shall be permitted to lead to the floor below.

Chapter 8 Features of Fire Protection

8.6.9 Mezzanines.

8.6.9.2.1 The aggregate area of mezzanines located within a room, other than those located in special-purpose industrial occupancies, shall not exceed one-third the open area of the room in which the mezzanines are located. Enclosed space shall not be included in a determination of the size of the room in which the mezzanine is located.

8.6.9.3 Openness. The openness of mezzanines shall be in accordance with 8.6.9.3.1 or 8.6.9.3.2.

8.6.9.3.1 All portions of a mezzanine, other than walls not more than 42 in. (1065 mm) high, columns, and posts, shall be open to and unobstructed from the room in which the mezzanine is located, unless the occupant load of the aggregate area of the enclosed space does not exceed 10.

8.6.9.3.2 A mezzanine having two or more means of egress shall not be required to open into the room in which it is located if not less than one of the means of egress provides direct access from the enclosed area to an exit at the mezzanine level.

Chapter 39 Existing Business Occupancies

39.2.4 Number of Exits.

39.2.4.6 A single exit shall be permitted for a single-tenant space/building two or fewer stories in height, provided that both of the following criteria are met:

(1)The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with 9.7.1.1(1).

(2)The total travel to the outside does not exceed 100 ft (30 m).

39.2.5 Arrangement of Means of Egress.

39.2.5.3* Limitation on common path of travel shall be in accordance with 39.2.5.3.1, 39.2.5.3.2, and 39.2.5.3.3.

39.2.5.3.1 Common path of travel shall not exceed 100 ft (30 m) on a story protected throughout by an approved automatic sprinkler system in accordance with 9.7.1.1(1).

39.2.5.3.2 Common path of travel shall not be limited in a single-tenant space with an occupant load not exceeding 30 people.

39.2.5.3.3 In buildings other than those complying with 39.2.5.3.1 or 39.2.5.3.2, common path of travel shall not exceed 75 ft (23 m).

39.2.6 Travel Distance to Exits. Travel distance shall comply with 39.2.6.1 through 39.2.6.3.

39.2.6.1 Travel distance shall be measured in accordance with Section 7.6.

39.2.6.2 Travel distance to an exit shall not exceed 200 ft (61 m) from any point in a building, unless otherwise permitted by 39.2.6.3.

39.2.6.3 Travel distance shall not exceed 300 ft (61 m) in business occupancies protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.

43.4.2 Capacity of Means of Egress. The capacity of means of egress, determined in accordance with Section 7.3, shall be sufficient for the occupant load thereof, unless one of the following conditions exists:

(1) The authority having jurisdiction shall be permitted to establish the occupant load as the number of persons for which existing means of egress is adequate, provided that measures are established to prevent occupancy by a greater number of persons.

(2)* The egress capacity shall have been previously approved as being adequate.

NFPA 1, Fire Code, 2009 Edition

1.12 Permits and Approvals.

1.12.1 The AHJ shall be authorized to establish and issue permits, certificates, and approvals pertaining to conditions, operations, or materials hazardous to life or property pursuant to Section 1.12.