

August, 2012

## Code Analysis for Southwest Museum: Conceptual Design Phase

### Overview:

The Southwest Museum opened in 1914 and is nearly 100 years old. The Museum is listed on both the National Register of Historic Places (No.92001270) and Los Angeles Historic-Cultural Monuments (No. 283). Given its well documented historic pedigree, any restoration design of the museum can expect to fully utilize the California Historic Building Code (CHBC). The CHBC grants greater latitude for historic structures in how current building codes are interpreted. Given the Southwest Museum's Landmark status, its construction type which has the highest, best fire resistance rating (Type I construction: cast in place concrete) the assumption of both fire sprinklers will be included in the restoration design and that the structure will remain a museum, the code Analysis below works on the assumption that the CHBC can be applied favorably to restore the structure to the utmost, while preserving the character defining elements of the building.

### Referenced Codes:

2010 California Building Code  
2010 California Historic Building Code  
2010 ADA Standards  
Los Angeles Municipal Code

Construction Type: Type I (cast in place concrete)

Occupancy type: A-3

Occupancy load: 15 SF per Occupant

1 means of egress required for 49 and under Occupants = 735 SF and under

2 means of egress required for any space in a floor above or below grade.

More points of egress may be required per space or room based on occupant load and occupancy type.

Stairway widths: Minimum width is 44" For stairs serving an occ. load of less than 50 then 36" wide stairs are acceptable.

ADA – an accessible route will be required from disabled parking spaces to museum entrance and full access to all public spaces will be required as well to most staff areas. Accessible restrooms and drinking fountains will also be required.

## Analysis of issues specific to the Caracol and Torrance Towers

### Caracol Tower:

Existing SF per floor = 702 SF after (e) spiral stair case is deducted

Occupant load is less than 49 Occupants per floor (if mezzanine is not accessible) therefore only one means of egress is required per floor, however two means of egress are required with any structure over 1 floor in height. With the landmark status of the building there is a probability that the Historic Building Code will allow the existing spiral stair to fulfill one of the exit requirements, requiring that only one additional means of egress will be required. There will need to be an enclosed exit corridor at the bottom of the Caracol Tower stair in one of the storage rooms, exiting directly to the outside.

# PLUM

architects

Mezzanines: if the Caracol mezzanines are accessible to gallery patrons then that SF is added to the floor below, adding approx.  $225 \text{ SF} + 702 \text{ SF} = 927 \text{ SF}$ .

The existing mezzanines are quite narrow it is also unknown at this point if the width allows for accessible passage without modification.

Spiral Stairs: Calif. Historic Building Code allows for “distinct fire hazards” to be remedied by providing an Automatic Sprinkler System, except number of egress requirements. A new exit stair tower can be accommodated on the North side of the Caracol. For the other required exit stair, can the existing spiral stair be utilized? While spiral stairs are not allowed for egress under current code, the Historic Building Code may allow the existing spiral stairway to serve as one of the means of egress especially given the very light occupant load, full fire sprinklers and Type I construction of the building.

Stairway widths: Minimum width is 44” However, stairs serving an occupant load of less than 50 people then 36” wide stairs are okay

High Rise: the Caracol Tower does not fall under High Rise requirements

## Torrance Tower:

Existing Atrium Space.

Existing SF per floor = 470 SF after (e) open stair is deducted

The occupant load is less than 49 occupants per floor, adding a single exit stair and addition of sprinklers may very well allow the tower to come into compliance under the Historic Building Code. The existing stair appears to be 36 inches wide which is permissible for occupant loads under 50. The open stair would be exempted from enclosure due to fire sprinklers.

Atrium issues: The Torrance atrium interconnects over 2 floors, under ordinary conditions the atrium would need to be enclosed, however because of the historic nature of building and the addition of fire sprinklers there is a good chance this will not be required or an alternate means of enclosure will be accepted with further research.

## SEISMIC SAFETY

The existing SW Museum building may not be required to be completely seismically upgraded to current building codes. The California Building Code stipulates that if the building does not constitute a change in occupancy type ( i.e. it remains a museum) and new additions to the structure are either seismically independent or, if structurally connected, do not impact the existing structural loads more than 5% then modifying the existing structural system will not be required per sections (3403.3) but mostly under 3404, 3401.4 and historic buildings 3409.