

The hotel structural system was transferred from the hotel column grid to the substructure grid at different levels. Most of the column transfers occurred right above the lobby level to accommodate the large open space required for the hotel lobby and ballroom. Some column transfers also occurred below the lowest guestroom floor. Skilling, Helle, Christiansen, and Robertson originally designed all the transfers. Following the 1993 bombing, extensive renovations to the hotel required additional transfer girders above the lobby level. These new transfers were designed by Leslie E. Robertson Associates (*Engineering News Record* 1994). Details of the 2nd floor transfer system are not included in this report.

Structural steel was ASTM A36 throughout except for the 2nd floor transfer girders, which were ASTM A572-Grade 50. Typical floor beams were W16 and W21 rolled shapes, spaced 13 feet 0 inches on center. The connection design reactions for the floor beams were specified to be based on the uniformly loaded beam end shear. Typical simple shear connection types are not indicated on the design drawings. Although the structural drawings prepared by Weiskopf & Pickworth indicate typical details of stud shear connectors, the total extent of composite design is unclear. The drawings show that composite action was used all through the 4th floor and on a few elements of the 21st floor. There is no indication that the typical guestroom floors (i.e., 5th through 20th floors) made use of composite action. The design drawings specified that all steel was to be fireproofed, and that all steel pieces weighing less than 28 pounds per linear foot were to have double spray-on thickness for fireproofing. The typical hotel floor framing plan is shown in Figure 3-4, as taken from the original structural design drawings prepared by Weiskopf & Pickworth.

Uniform floor live load allowance was specified to be 40 pounds per square foot (psf) for the typical guest room areas.

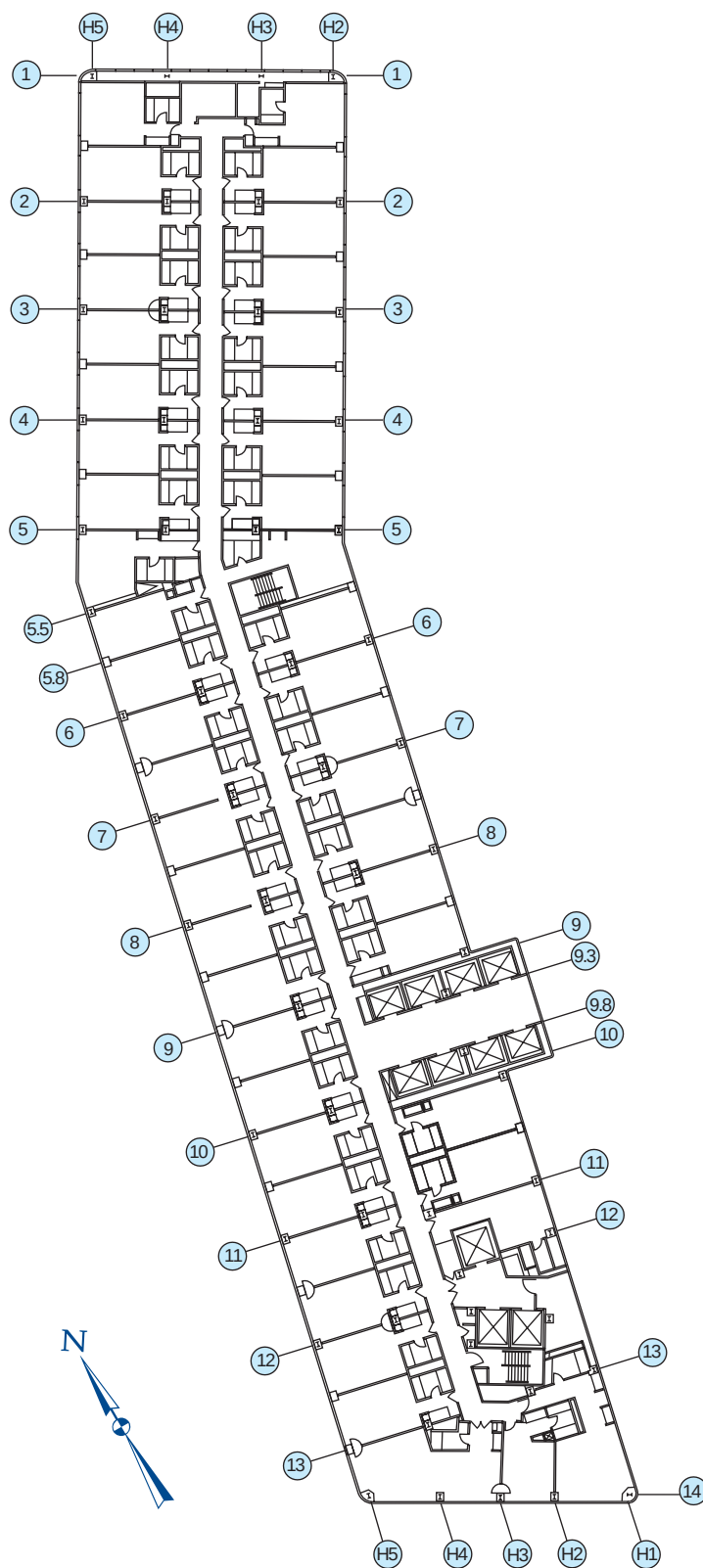


Figure 3-3 Typical hotel floor plan (SOM 1981).