

Architectural Analysis (Breadth Topic II)

As mentioned earlier in the lateral system design, 8 more shear walls were added to the G.Muttrah complex in order to provide enough strength to resist the high wind loads residing in Houston, Texas. The old shear walls were located around the elevator core and stairwells. In order to minimize the effect of the architecture, 12 of the new shear walls were placed on the same location. However, the remaining 6 shear walls had to be located in areas away from the stairwell and elevators. The new shear walls were positioned on openings that are open to the sky to facilitate ventilation through the building. The following Figure shows the opening in the residential floors:

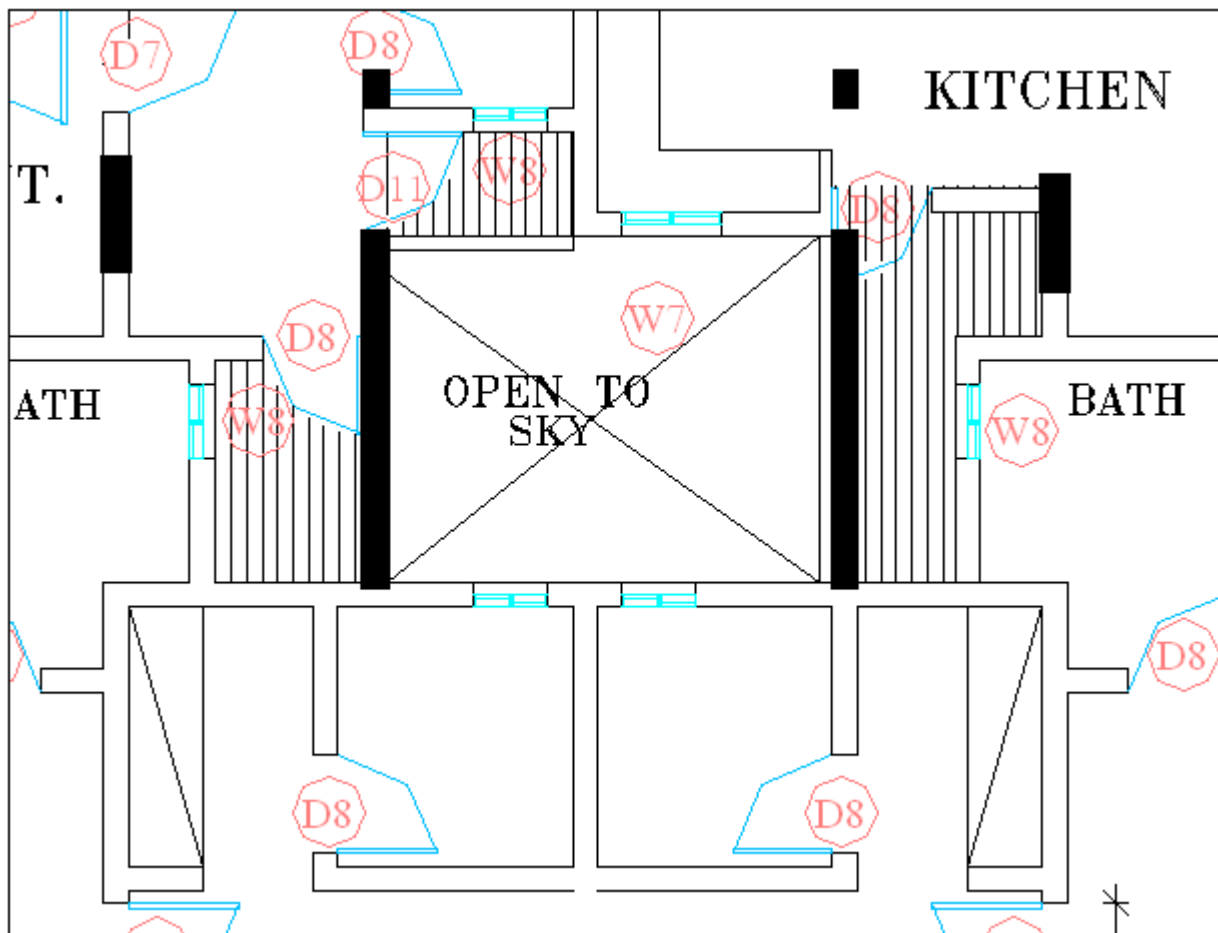


Figure 24: opening surrounded by shear walls

These openings however only start at the residential floors; hence the shear walls would affect the spaces in the retail and office floors. Since the office floor is an open flexible space, the shear walls do not cause any changes to the space layout. The retail space, on the other hand, was affected substantially with shear walls running down the hall ways. The following figure illustrates the new shear walls in the retail floor:

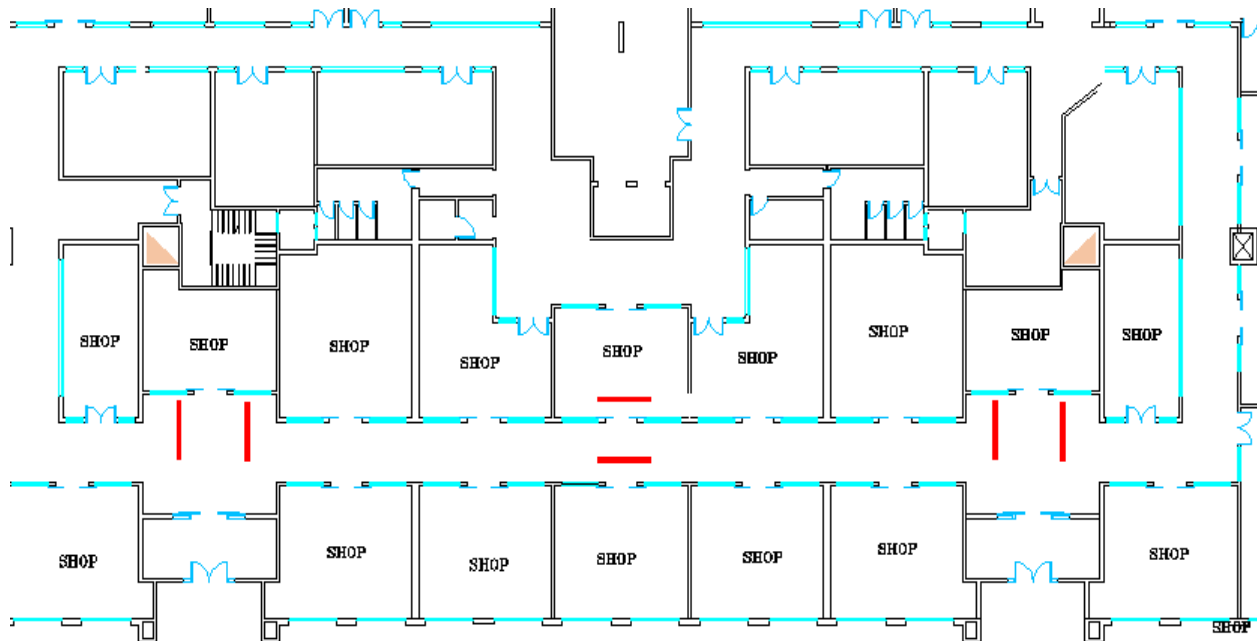


Figure 25: Spaces affected by shear walls

The spaces in the retail floor were redesigned in order to accommodate the new shear walls. Shops were designed around the shear walls and an additional hallway was added that connects the entrances to the stairwell. The columns did not have a major impact on the architecture since there were only about a foot away from the original column layout; hence an architecture study on the column effect was not needed.

Below is a plan of the new floor plan with spaces rearranged to accommodate the shear walls:

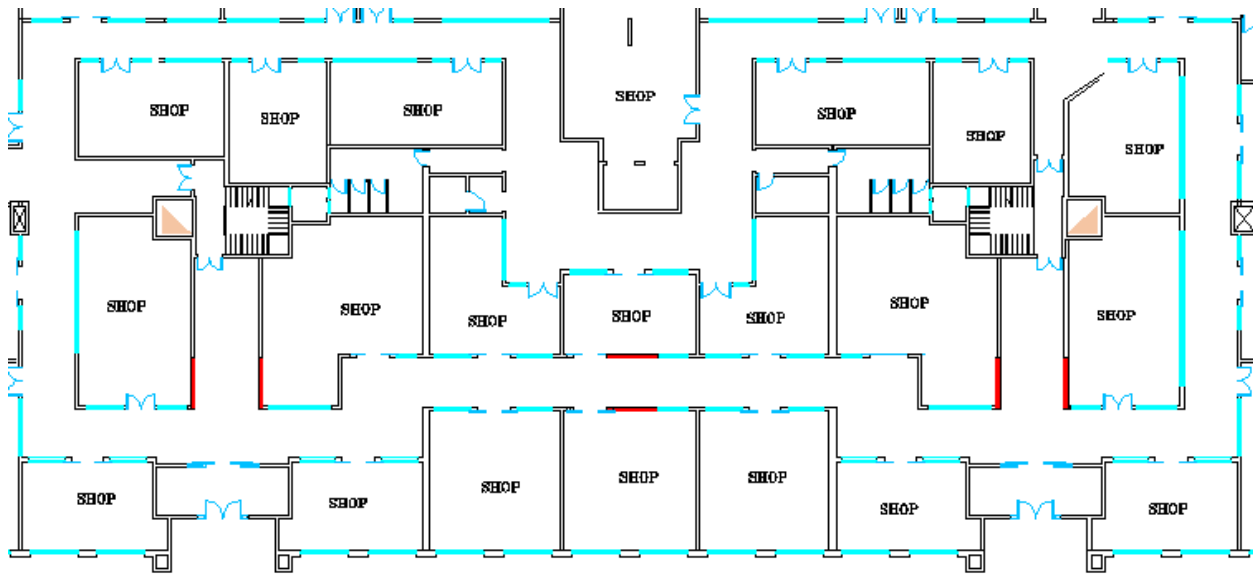


Figure 26: Spaces after redesign

In conclusion, it is understood that the new shear walls can be added into the G.Muttrah complex without having any major impacts on the architecture of the building. The only area being affected is the retail space which can easily be redesigned as discussed.