Mid - - lab report example

Engineering

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Up Report on the Construction of Earthquakes Resistant Building Past earthquakes have always demonstrated that severalbuildings that have already been constructed lack basic abilities to resist earthquakes. This has always led to their susceptibility to incur damages whenever earthquakes occur in a given locality. This implies the need to build and improve structures to withstand earthquake forces. During my field study, I was actively involved in the construction of a modern building that could be strong enough to cope with earthquakes. This, we were to achieve, using strategic building construction practice that could help prevent life threatening collapses and limit damages to repairable proportions. In order to achieve this, several safe construction procedures were applied.

Initially, the layout and planning of the building involved the consideration of the strategic location of the various rooms, walls, openings like doors and windows and also the number of floors to be constructed. Site and foundation aspects were other key considerations that the construction team considered during the initial stages of the construction.

As part of initial construction planning activities, steps to furnish the lateral resistance and critical considerations of vulnerable sections, highly stressed areas, pillars and sections which are highly likely to be affected by the earthquake forces with respective reinforcement required laid down. This provided me with an ideal overview of the structural action, structural vulnerabilities and mechanisms of damage to buildings due to earthquakes.

As the planning and layout foundations were carried out, there are several key technical lessons that I learnt. In a bid to construct buildings which are

safer and able to withstand external forces, instead of structures being brittle and able to collapse suddenly, reinforcements should be included to make them tough and able to deform or deflect a reasonable amount of external force. This we achieved by using resistive elements like shear walls and bracing. These elements were evenly distributed throughout the initial construction procedures in multi-directions.

In the initial layout that we constructed, all the elements which include the roof and openings among others were tied together. This was in a bid to reduce the effects accompanying earthquake forces. The technical explanation behind this was that this would make them act more like an integrated unit during the shaking resulting from earthquake and thereby transferring the resultant forces across the pre-created connections. This prevents separation.

The layout of the foundation was designed in that it allowed the building to be effectively connected to a suitable foundation and earth. According to our construction criteria learnt during the first phase of the project, specifically wet and soft soils were completely avoided. The resulting foundation had to be well tied together and to the wall. Special strengthening procedures and materials were considered in situations where wet soils could not be avoided. For sections with large free spaces, large jointed beams with columns strong enough to resist lateral loads independently were constructed. The application of ornamentation was reinforces with steel which was efficiently embedded into the main structure of the building.

The construction experience was mainly involved with the initial design and layout of earthquake safe building. These types of buildings significantly reduce the effects that earthquakes have on building and reduce the extent

of damages incurred. During the period that I monitored the project, main concern was in laying out of strong foundations in appropriate soils and constructing roofs, walls and openings that absorb shock and act as a unit during an earthquake. Wet soils were avoided and special reinforcements considered in unavoidable situations. The foundation, walls and roofs should also be constructed in a way that ensures that they are well connected together. Large resistive jointed beams were also applied in order to not only absorb shock but also deflect earthquake forces.

Works Cited

VanderWerf, Pieter A.. The concrete house: building solid, safe and efficient with insulating concrete forms. New York: Sterling, 2007. Print.