Chapter five

Conclusion and recommendations

5.1. Conclusion

The research can be concluded into the following points:

Drift index comparison :

- The rigid frame gives the maximum values for drift index of frames in (x) direction $\{ \mathrm{DI} = 7.767 \times 10^{-3} \}$ and (y) direction $\{ \mathrm{DI} = 6.652 \times 10^{-3} \}$.
- Braced frames reduce the drift index of the rigid frame.
- The (K) braced frame type gives the minimum drift index comparing with other braced frames, and it reduces the drift index of the rigid frame by (33.3 %) in (x) direction; and (35.9 %) in (y) direction.
- The (V) braced frame type gives the maximum drift index comparing with other braced frames, and it reduces the drift index of the rigid frame by (29.2 %) in (x) direction; and (31.9 %) in (y) direction.

Weight comparison :

- The rigid frame gives the maximum total weight of columns members (730.5 KN), beams members (984.9 KN) and the total frames members (1715.5 KN).
- For the total weight of frame members of braced frames we found that the maximum value is given by V braced frame (and it reduces the weight of the rigid frame by (4.10%)); and the minimum value is given by quadrangular braced frame (and it reduces the weight of the rigid frame by (9.49%)).
- For the total weight of columns of braced frames we found that the maximum value is given by Quadrangular braced frame (and it reduces the weight of the columns of the rigid frame by (32.0%)); and the

minimum value is given by Eccentric braced frame (and it reduces the weight of the columns of rigid frame by (38.3%)).

- For the total weight of beams of braced frames we found that the maximum value is given by eccentric braced frame (and it reduces the weight of the beams of the rigid frame by (1.3%)); and the minimum value is given by Quadrangular braced frame (and it reduces the weight of the beams of rigid frame by (11.7%)).
- For the total weight of bracings of braced frames we found that the maximum value is given by single d**iag**onal braced frame (238.4 KN); and the minimum value is given by Quadrangular braced frame (186.3 KN).

5.2. Recommendations:

- Rework this research using other programs and comparing their results with the results we have obtained.
- Make these comparisons with other types of structure systems (outrigger structure – suspended structure –space frame structure…).
- Rework this research with other types of bracings.
- Make analysis and design of a real multi story steel building using different types of bracings and comparing them under cost considerations.