CHAPTER VII
CONCLUSION

This Chapter presents the main findings of the research carried out on the effects of masonry infill walls on the seismic response of gravity load design RC frame building. Effects of infill panel have widely ignored in the non linear analysis of infilled frame structures, mainly due to the complexity and uncertainty involved in the analysis procedure. In this research preliminary results on extensive numerical investigations have been presented using 3-D response. A simple and reliable analytical model, using an equivalent strut model based on concentrated plasticity approach has been developed and presented. Both Non-linear static (pushover analysis) and Time history analysis were performed to study the influence of masonry infill walls on the performance of structural models.

The main findings of this research are

- Study shows the inclusions of masonry infill walls in non-linear structural response greatly increases the strength and reduce the displacements and interstorey drift demand.

- Infills can be modeled as an equivalent strut considering the all possible failure mechanism to determine the strength and stiffness.

- Strength of the strut reduces with higher aspect ratio.

- The presence of infill walls and their distribution (or configurations) in the frame structures also alters the response of the structure.

- The strength requirement of infill increases with the increase in PGA.

- The Global structural member forces do vary with thickness of the infill wall under seismic action especially in terms of moments and shear forces. But its effect on interstorey drift ratio, roof displacement and fundamental period is insignificant.
• The performance of buildings is adversely and significantly affected if the infill panels were discontinued in the ground storey.

**FUTURE RESEARCH**

There are many issues which need to be addressed in the future research work.

A few of them are listed below-

• Present Study is limited to infilled frame analysis without openings. The findings on accuracy of the models with single bay and single storey of can be a good starting point for future research that will cover uncertainties associated with infill inclusion in the analysis. However the effect of openings in the calculation is very important. A lack of recommendation in this regard greatly effect on the response of the stricture.

• Since a damping property of infill structures is not yet established there is a scope for further research on this topic.

• Verification of the formulation with different geometry structure especially with masonry infill panel will be of great interest.

• A comprehensive database of tall buildings and their response to strong ground motions can be prepared using contribution of infill panels in the analysis which will help and guide the future development of IS code that will ensure safer structure than the current state of the art.
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