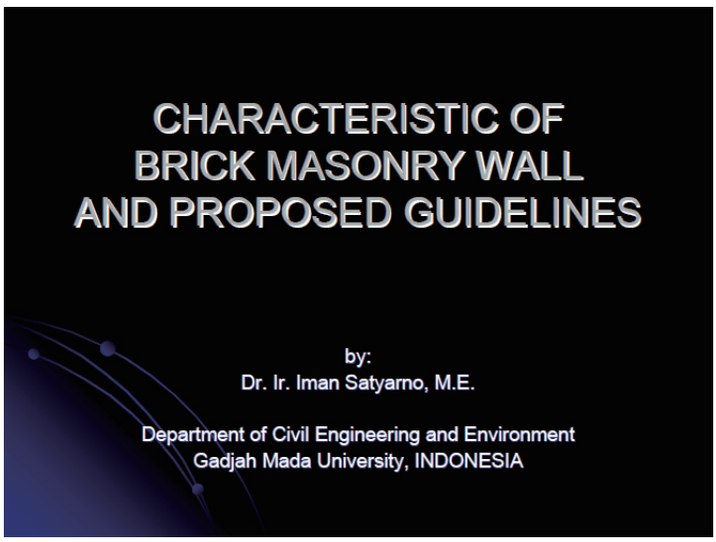
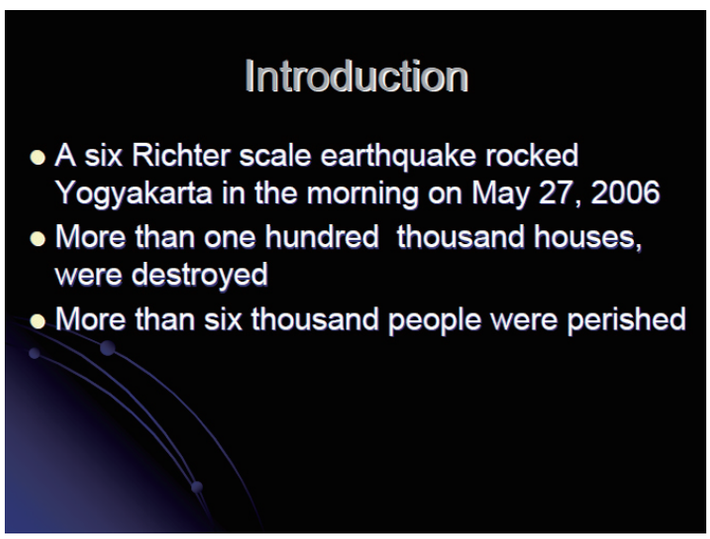
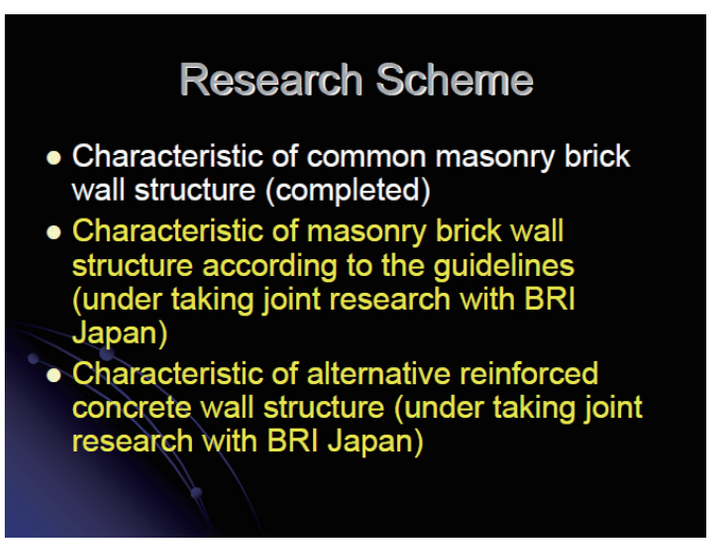
2.11. Study on Characteristics on Confined Masonry Structure and Proposal of Guideline

（Iman Satyarno）　　枠組み組積造の構造特性と構造規準の提案 （イマン・サティアノ）







Completed Laboratory Tests of Common Brick Masonry Wall

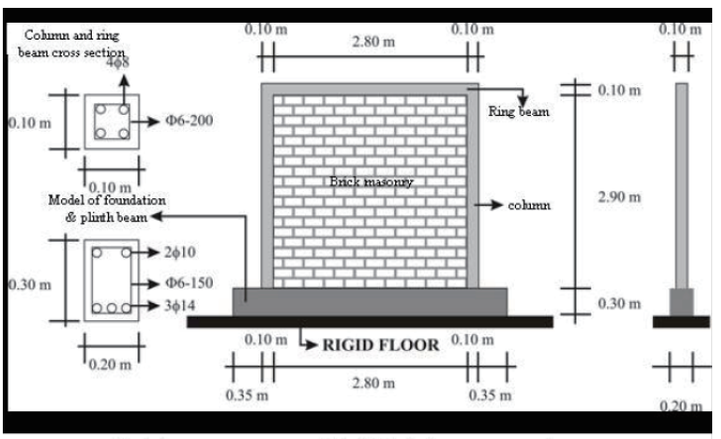
- frame without brick masonry wall,
- brick masonry infilled frame under static load,
- and brick masonry infilled frame under cyclic loading.

Parameters of Common Brick Masonry Wall

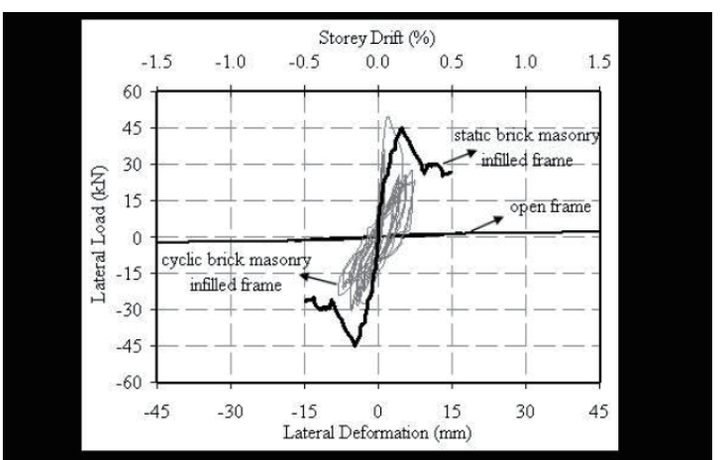
- The mortar for the bed joint of brick masonry was made of water, cement and sand with the volumetric ratio of 1 cement : 6 sand, where the amount of water was added to the mix was according to the right workability.
- The concrete for the frame elements was made of water, cement, sand and coarse aggregate with the volumetric ratio of 1 cement : 2 sand : 3 coarse aggregate, where the amount of water was added to the mix was according to the right workability.

Parameters of Common Brick Structure

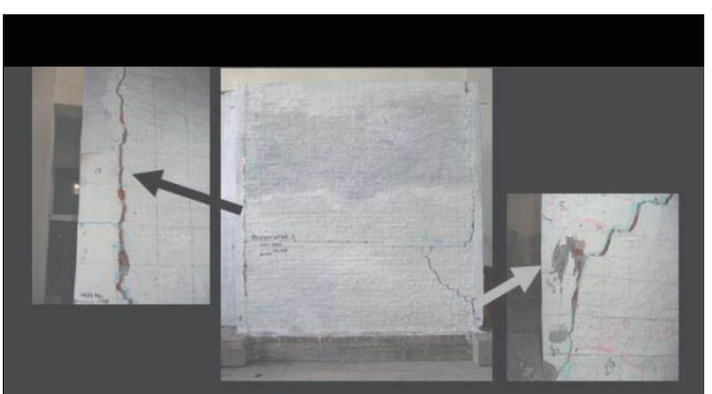
- For the reinforcement, 8 mm and 6 mm diameter steel bars were used for the longitudinal and transverse reinforcement or stirrup respectively.
- The bricks masonry walls were not plastered and were not anchored to the columns.
- The tests were carried out according to ASTM E2126-02a standard.



Brick masonry wall infilled frame specimen [Raharjo (2005)].



Lateral load lateral deformation from test results [Raharjo (2005), Setyawaty (2005)].



Typical failure of brick masonry infilled frame wall due to lateral load [Raharjo (2005)].

CONCLUSIONS

- The concrete can be adequately made by using volumetric ratio of 1 cement : 2 sand : 3 coarse aggregate.
- The volumetric ratio of mortar for the bed joint of brick masonry wall is suggested to be 1 cement : 4 cement.

CONCLUSIONS

- The open frame has no safety factor at all regions, therefore the reconstruction using this approach should be avoided unless structural analysis is carried out to find the adequate dimension and reinforcement for the elements of open frame.
- Each region is suggested to have different reinforced concrete cross section dimension and reinforcement as given in Table 6.
- Wall must be anchored to the columns.

Full paper can be found in:

Satyarno, I., 2006, *Some Practical Aspects in the Post Yogyakarta Earthquake Reconstruction of Brick Masonry Houses*", The Yogyakarta Earthquake of May 27, 2006, Edited by Karnawati et.al., Star Publishing Company, Inc., Belmont, CA.