

Summary of Component 2-2

Bridge between Engineering and Construction Works

Thematic International Workshop 2007 on
Feasible and Affordable Seismic Constructions

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World Bank Tokyo Development Learning Center, Tokyo, Japan

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Background of R&D

- Earthquakes cause serious damages to human societies



Serious Damages to houses

- Developing countries are more vulnerable because they can not afford to be prepared
- Conventional housing should be focused because it is the main cause of human losses and needs more to be done to be safer



Problems

Improper Mixture of Concrete

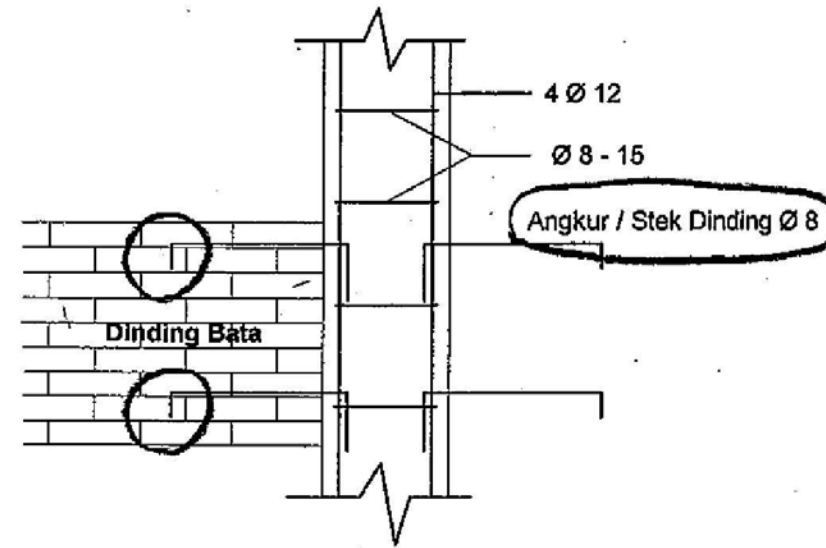
- Improper mixture ratio/too little cement
- Too much water
- Inadequate placing/No compacting



Problems

Improper Bending Works of Rebar

- No anchorage of walls to columns
- Inadequate placing of hoops



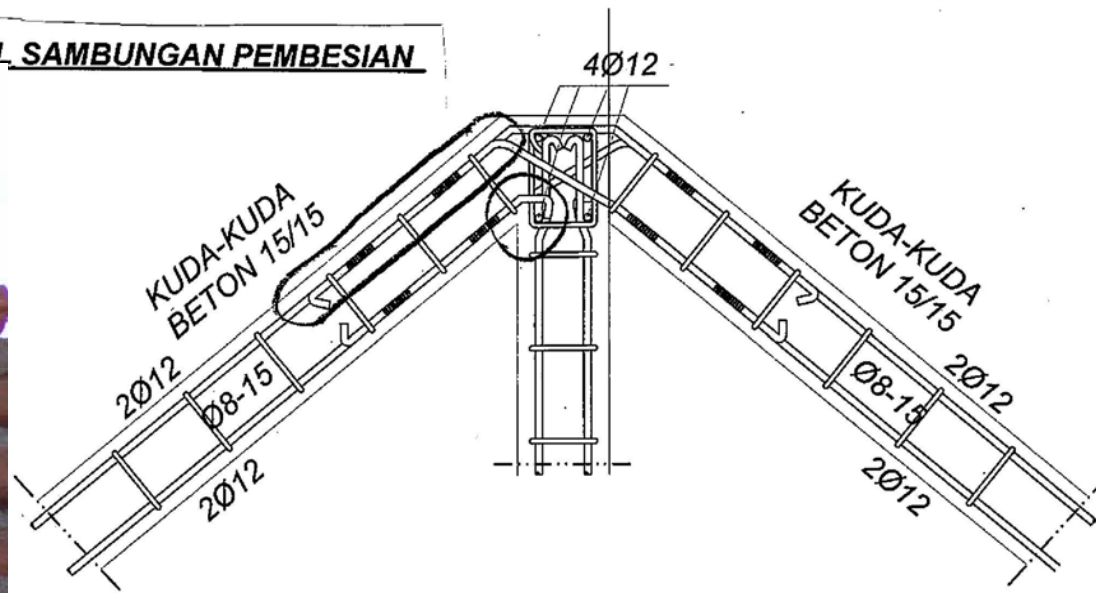
Problems

Improper Bending Works of Rebar

- Inadequate connection
- Feasible detailing is necessary



DETAIL SAMBUNGAN PEMBESIAN



Proposal of Research and Development

Bridge between Engineering and Construction Works

- **Purpose**

- to introduce engineering approach into non-engineered constructions**

- to propose recommendations on construction works and structural designs**

- to propose a simple method to estimate seismic strength**

- **Targeted structure types**

- Confined masonry with brick walls**

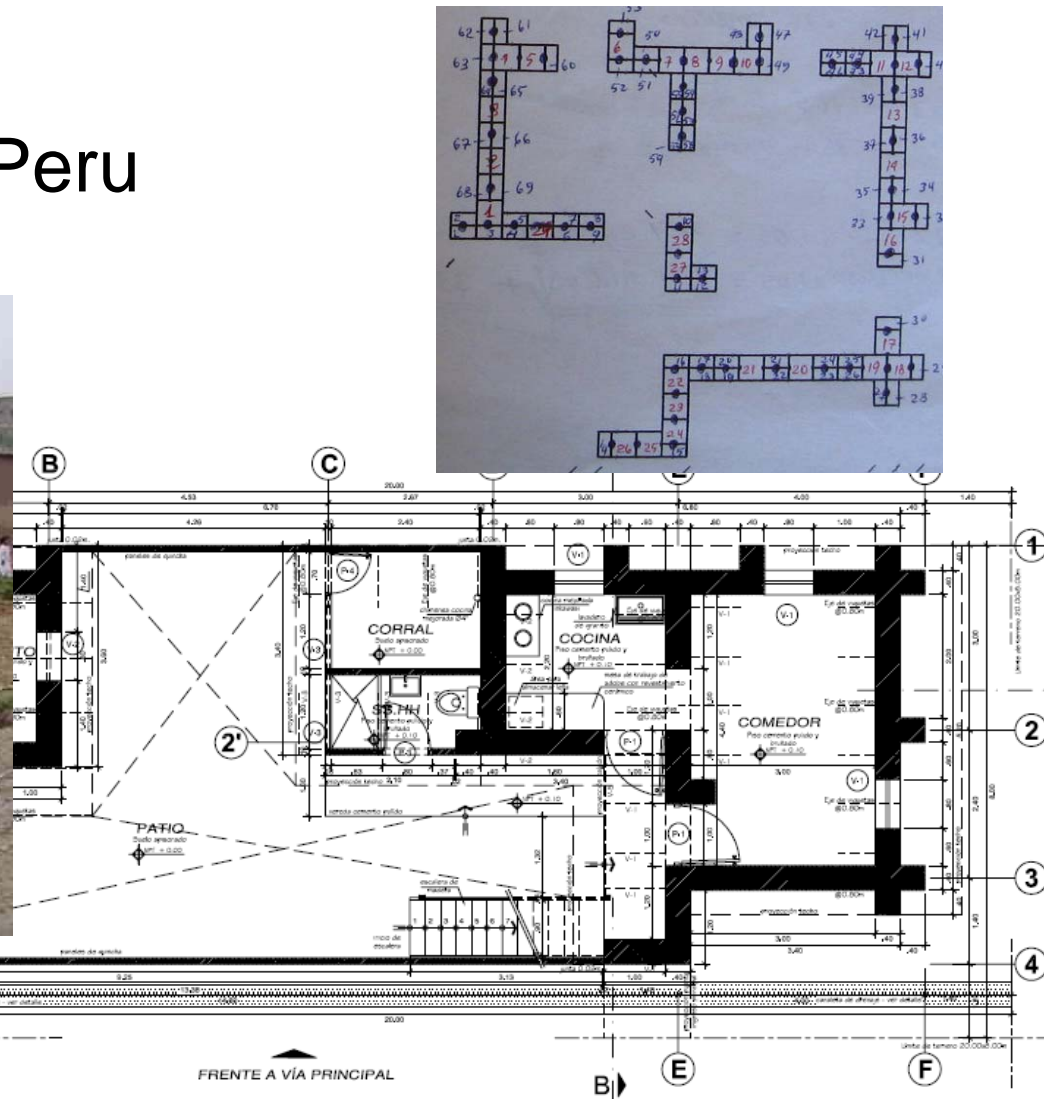
- Adobe houses for reference**

R&D activities

- Monitoring of construction works in actual construction sites
- Series of experiments on materials and components
- Elaboration of proposals for improvement of construction works with available materials, tools and construction skills
- Elaboration of proposals on structure designs which are feasible and acceptable for construction workers
- Elaboration of proposals on simple and easy method to estimate seismic strength by simple and low cost experiments

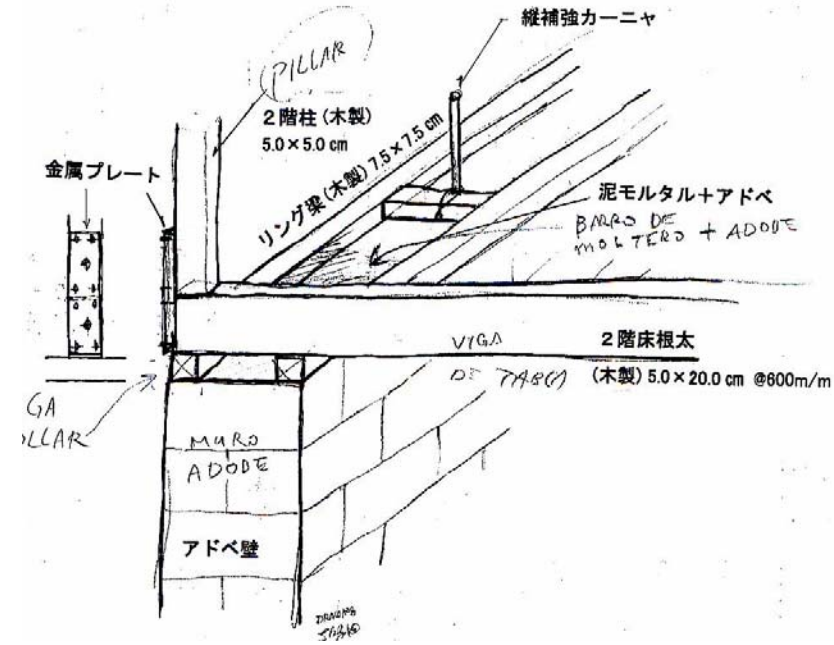
Activities in 2006

- Monitoring of construction works of Adobe houses of JICA Pilot Project in Peru



Adobe houses of JICA Pilot Project

- Highly engineered adobe houses
- Very precise construction works
- Complicated procedures
- Simplification/rationalization is recommendable



Activities in 2007

- Monitoring activities by Japanese engineers on confined masonry in Indonesia and Peru
- Series of experiments of materials and components
- Proposal of simple method for estimation of seismic strength
- Discussion and elaboration of recommendations



BRI and our partners

expect

active participation and contribution

Such as

***offering experience and expertise**

***proposing collaborative works**

such as monitoring activities and experiments

Thank you