CHANGES IN THE DESIGN AND CONSTRUCTION HOUSING CODE OF THE YEAR 1997 AND THE NEW PROPOSAL OF 2004.

Msc. Monica Patricia Gutierrez
Universidad Centroamericana José Simeón Cañas UCA
Departamento de Mecánica Estructural
Lecturer and Investigator

HISTORY OF HOUSING CODES IN EL SALVADOR

History of Codes in El Salvador

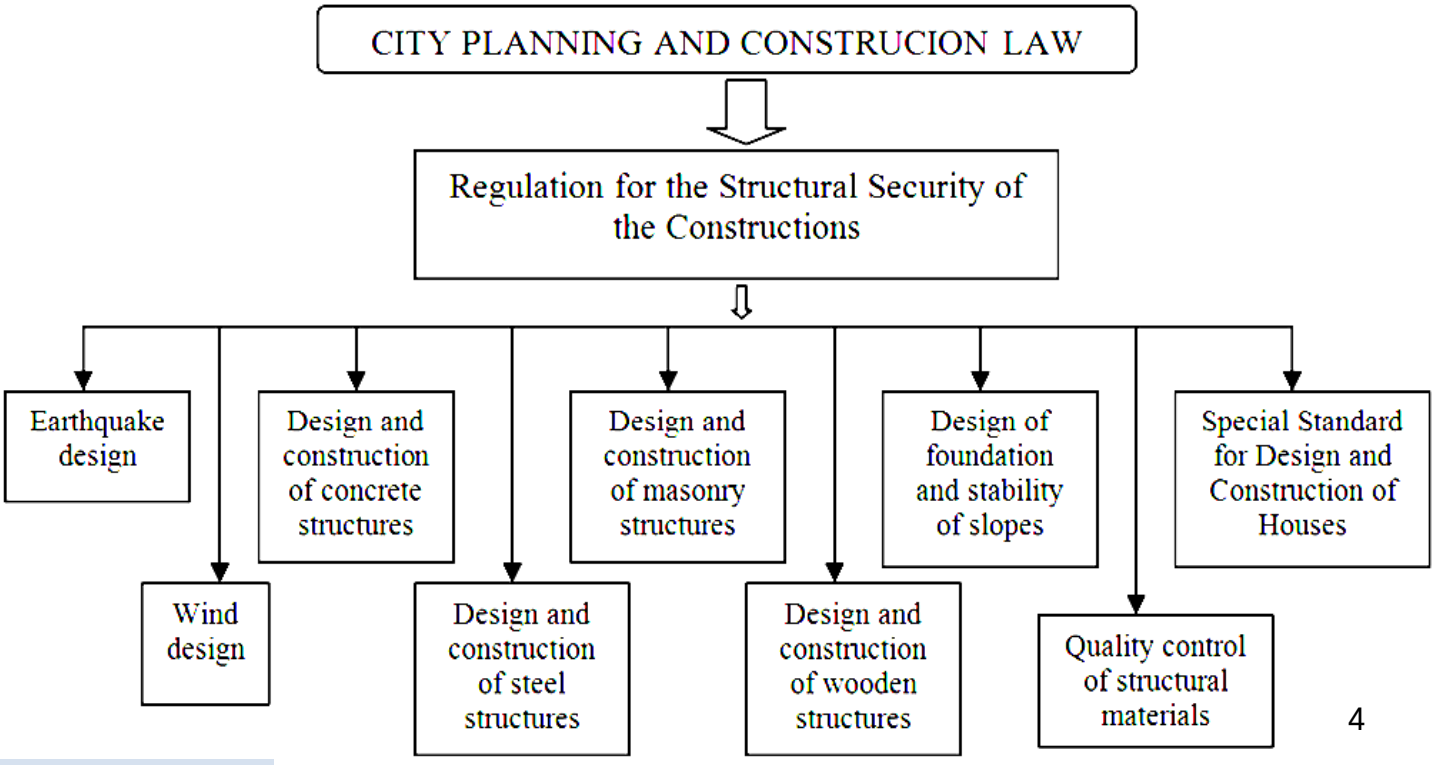
Earthquake	Magnitude Richter	
03/05/1965	6.3 o 6.5	⇒ Appears first code in 1966
10/10/1986	7.5	⇒ Emergency code 1986 (it was suppose to last only for 1 year)

In 1997 a new code appear to substitute the emergency code

13/01/2001	7.6	⇒ Hospital code is been done and a Proposal code for housing is issue in 2004
13/02/2001	6.6	

Damage occurred in rural hosing and landslides

Distribution of the codes 1997



TAISHIN PROYECT

EARTHQUAKE-RESISTANT POPULAR HOUSING

JAPON

JICA

CENAPRED
Centro Nacional de Prevención de Desastres

Vice-Ministerio de Vivienda y Desarrollo Urbano
EL SALVADOR

Universidad de El Salvador

UNIVERSIDAD CENTROAMERICANA "José Simeón Cañas"

ISC Instituto Salvadoreño de la Construcción

FUNDASAL

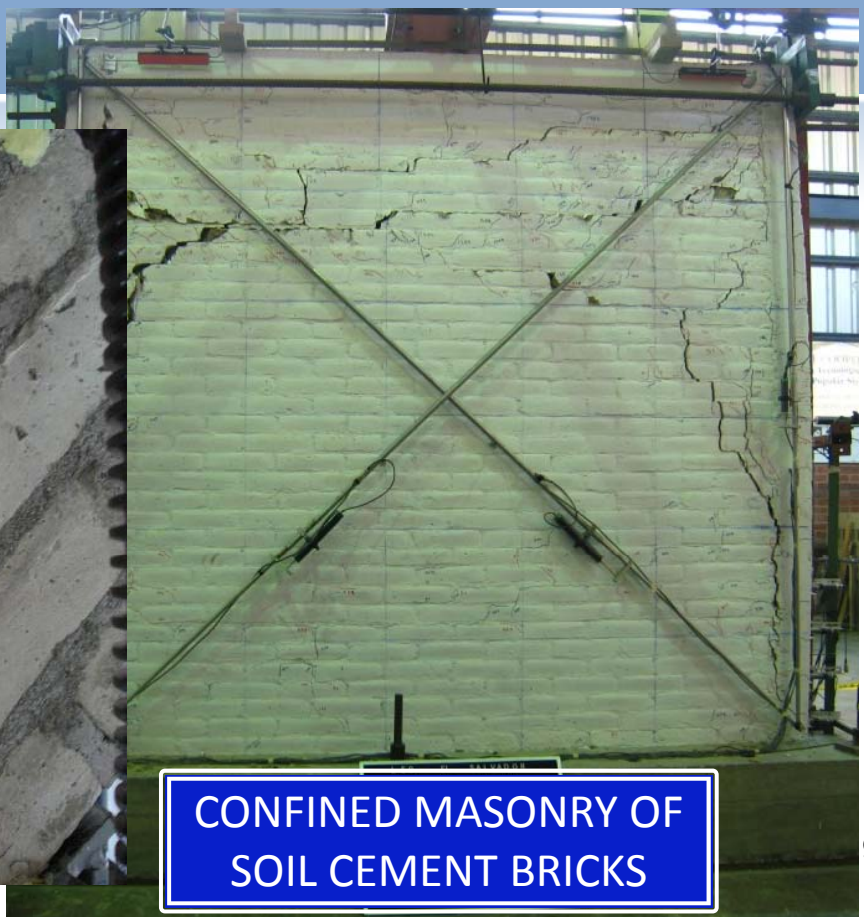
INVESTIGATION IN TAISHIN

BLOCK PANEL
(REFABRICATE)

INVESTIGATION IN TAISHIN

ADOBE

INVESTIGATION IN TAISHIN



CONFINED MASONRY OF SOIL CEMENT BRICKS

INVESTIGATION IN TAISHIN

REINFORCED MASONRY OF CEMENT BLOCKS

OBJECTIVE OF THE PROJECT

- First phase

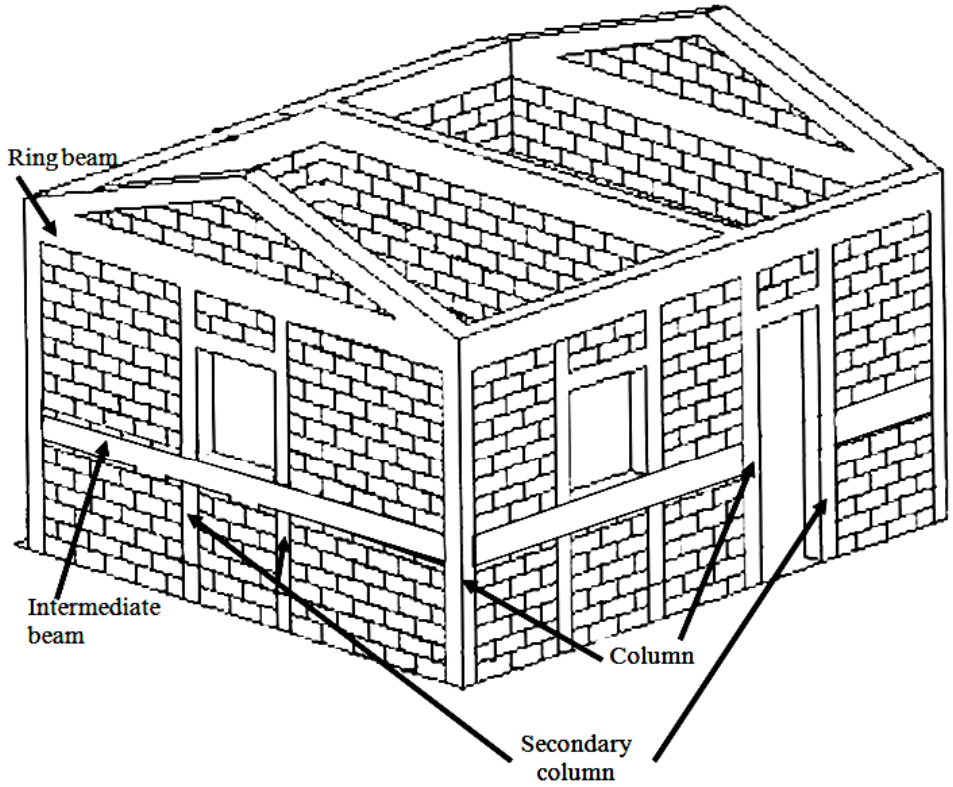
  It main objective was to improve the seismic capacity of the 4 constructive systems most popular in the rural areas

- Second phase

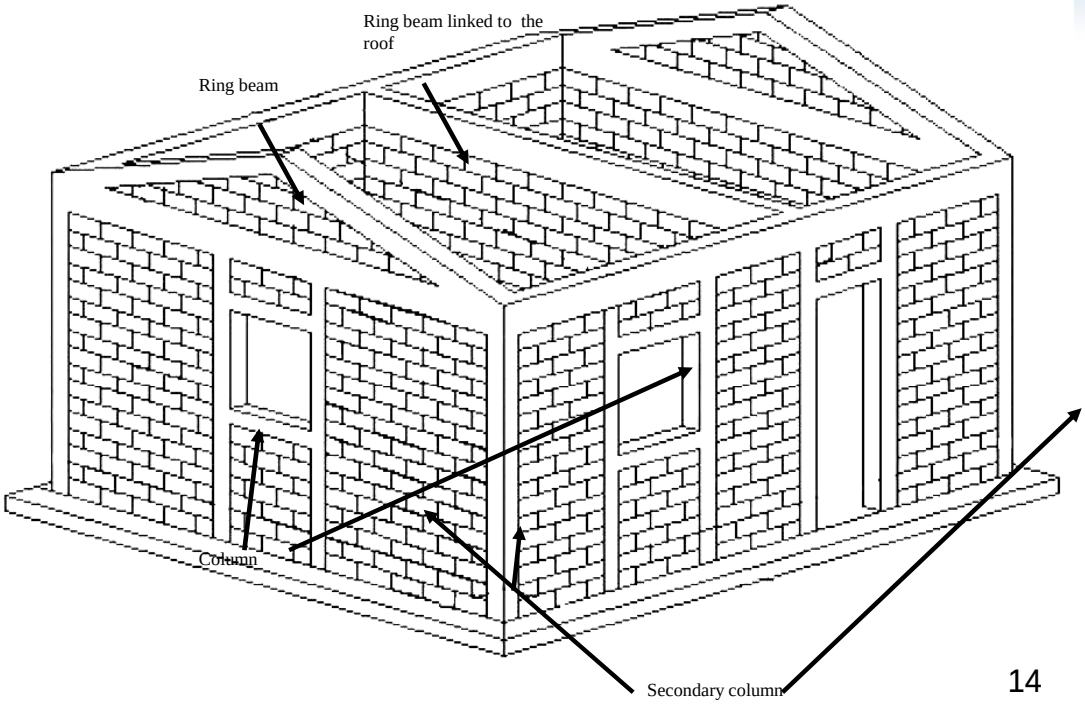
  The second phase investigation is to revise and validate the minimum requirements in the housing code of El Salvador, also to generate inputs and give recommendations for the elaboration of a technical guideline for panel block and 3 technical standards for social housing of one story of adobe, cement block and soil-cement brick

CHANGES IN THE CONSTRUCTION FOR CONFINED MASONRY

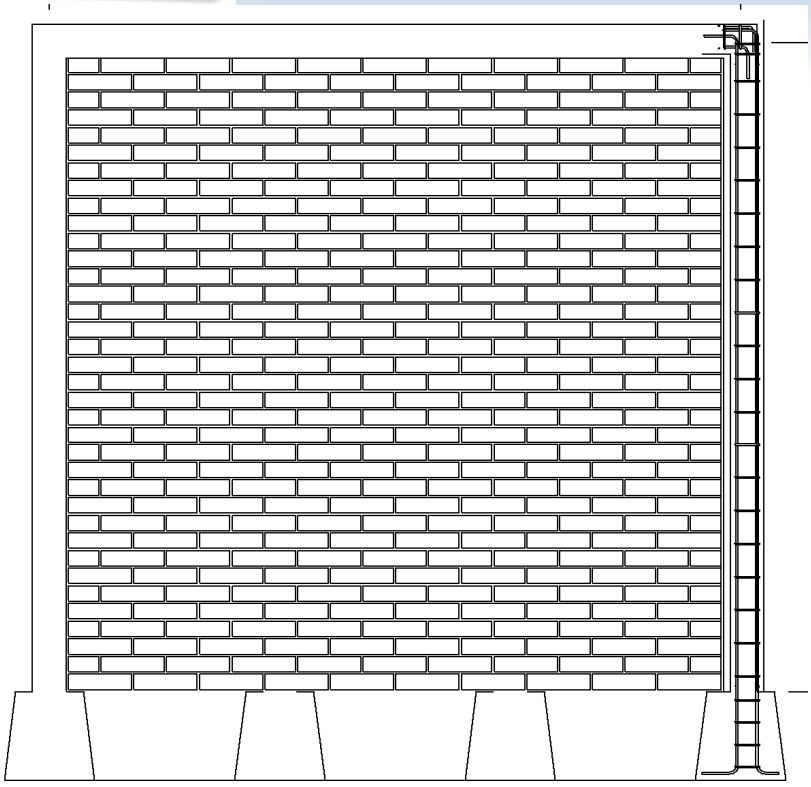
CONSTRUCTION OF CONFINED MASONRY STRUCTURES 1997



CONSTRUCTION OF CONFINED MASONRY STRUCTURES 2004



TESTS MADE IN EL SALVADOR FOR CONFINED MASONRY (USING SOIL-CEMENT BRICKS)



Types of load apply to the specimen

- Monotonic loading
- Cyclic loading

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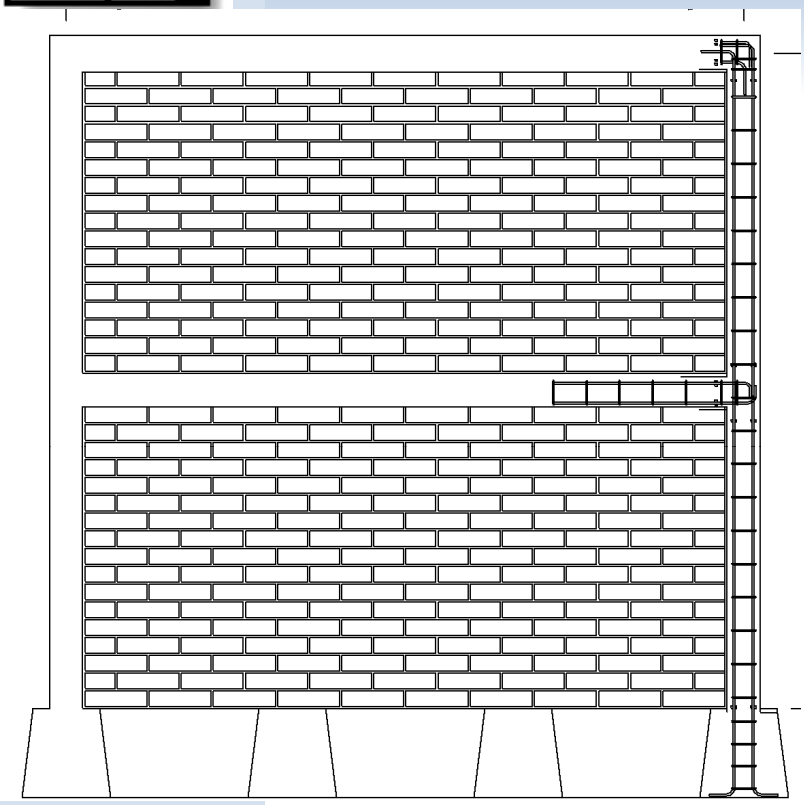

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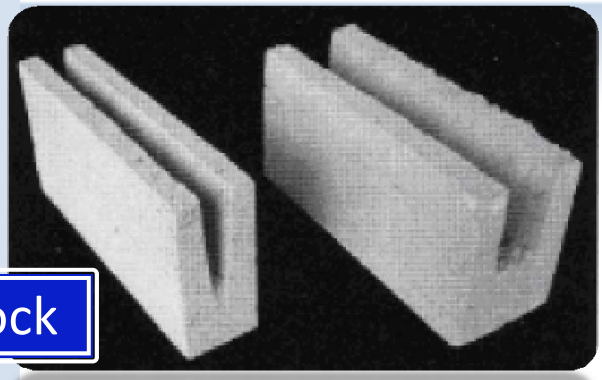
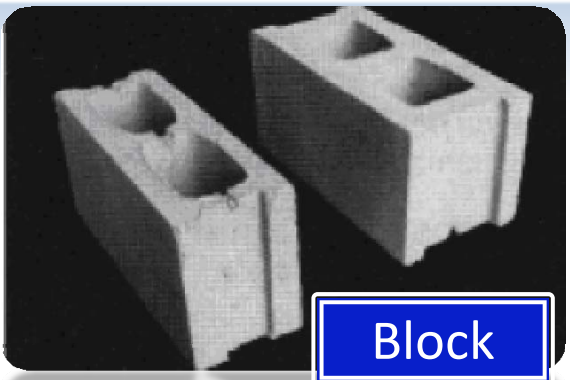
CHANGES IN THE CONSTRUCTION FOR REINFORCED MASONRY

TYPES OF BLOCKS USE IN THE CONSTRUCTION

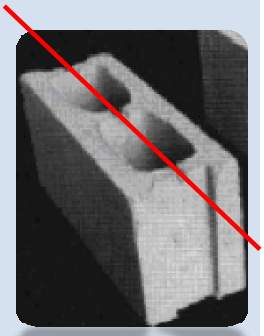


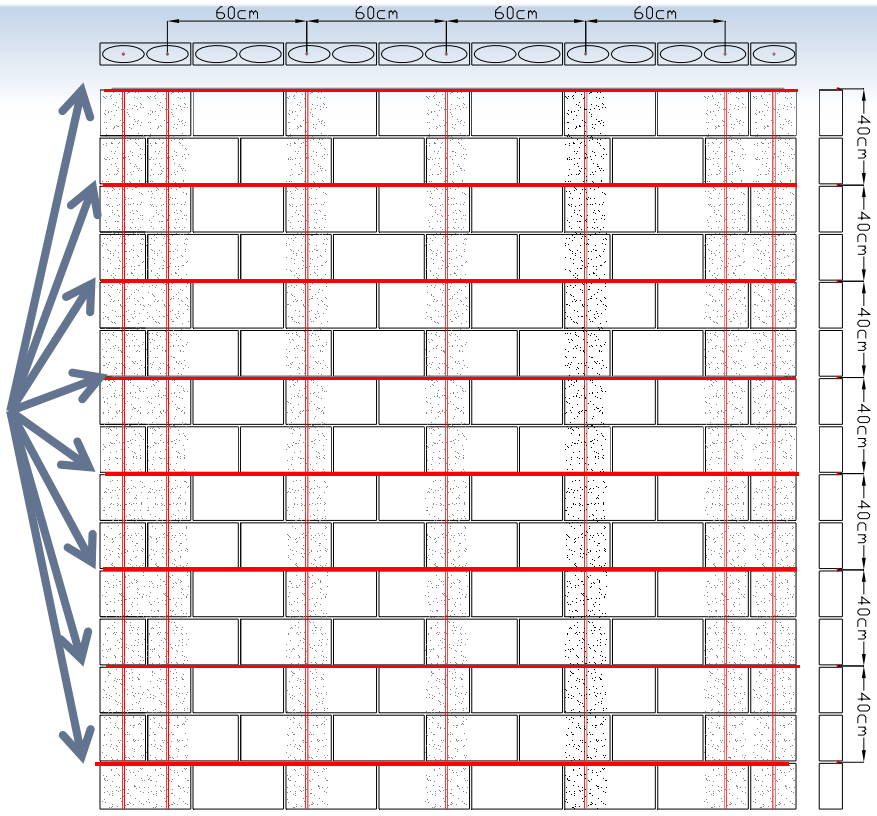
Solera Block



Block

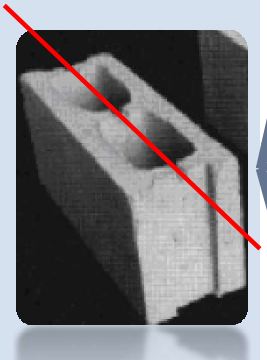
Construction of Reinforced Masonry Structures 1997

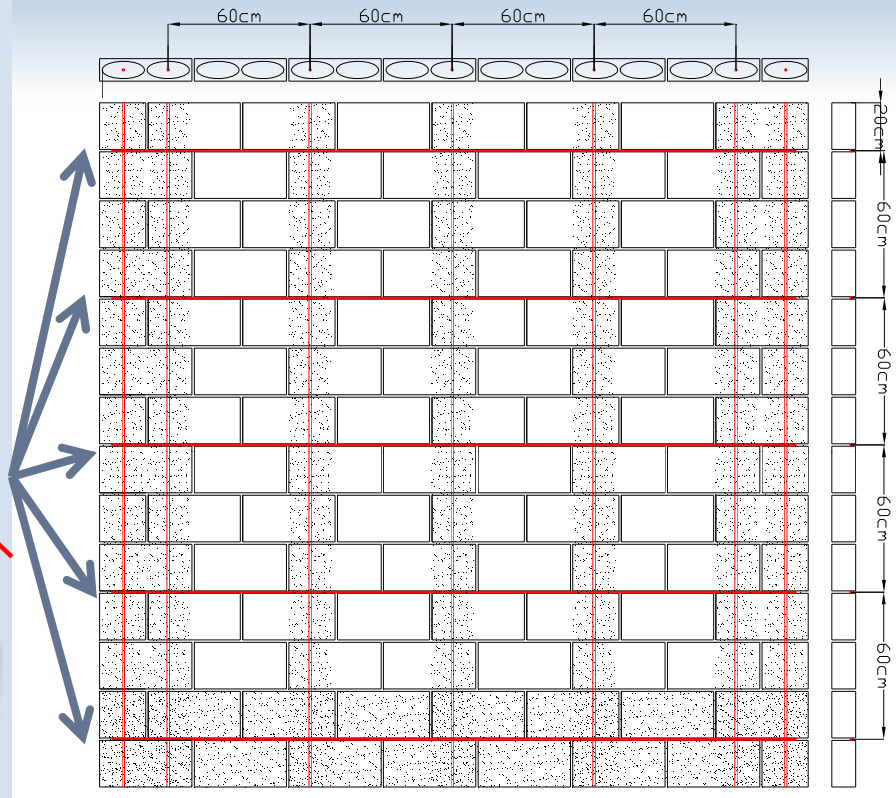




Construction of Reinforced Masonry Structures 2004

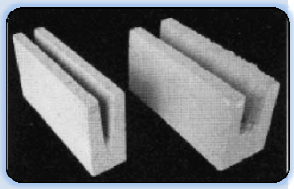
Option 1

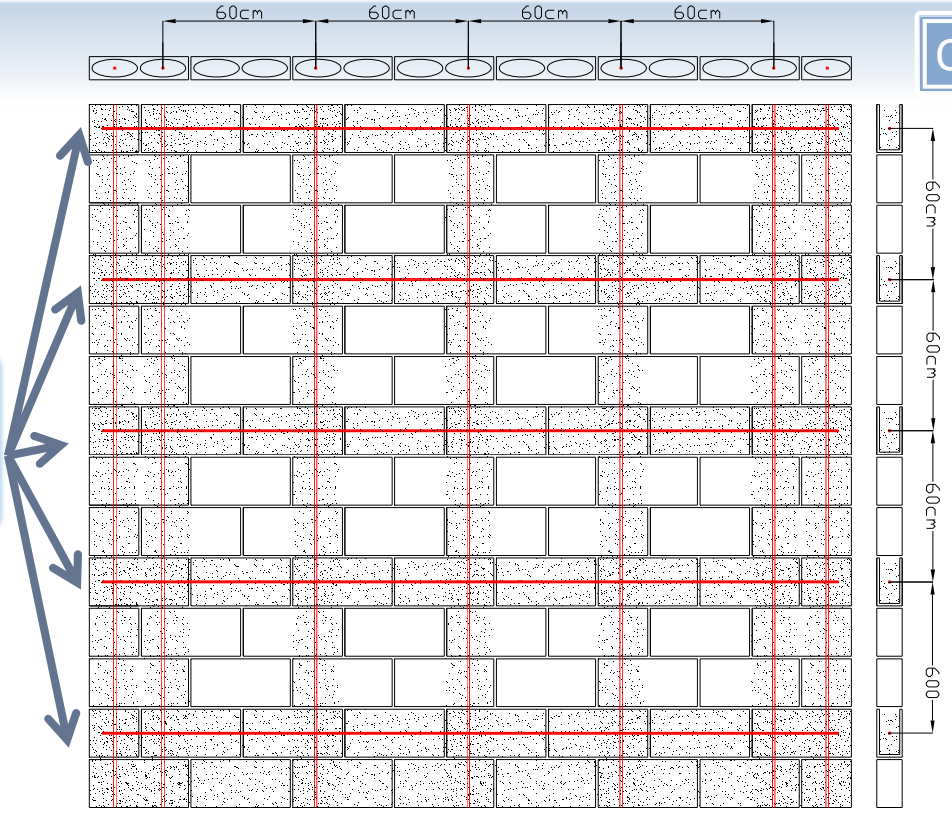




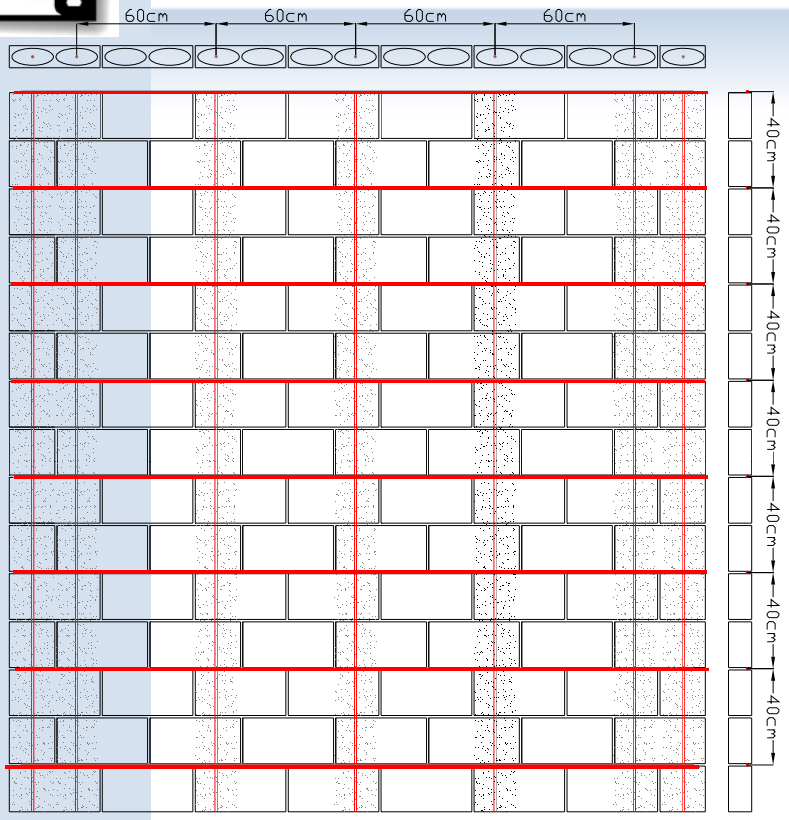
Construction of Reinforced Masonry Structures 2004

Option 2





Tests made in El Salvador for reinforced Masonry (using cement blocks)



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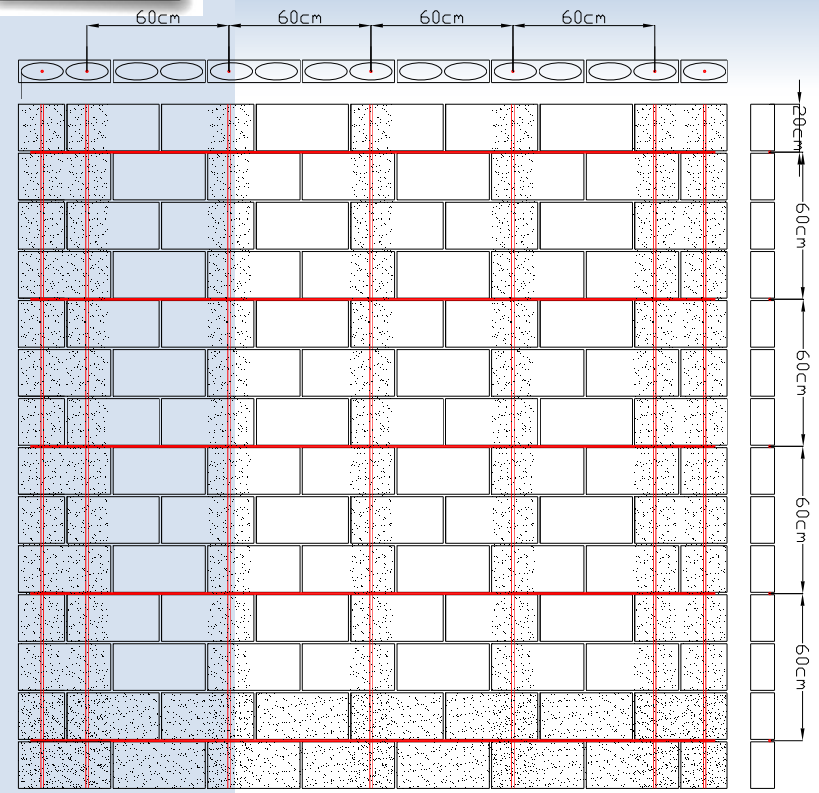
TESTS MADE IN EL SALVADOR FOR REINFORCED MASONRY (USING CEMENT BLOCKS)



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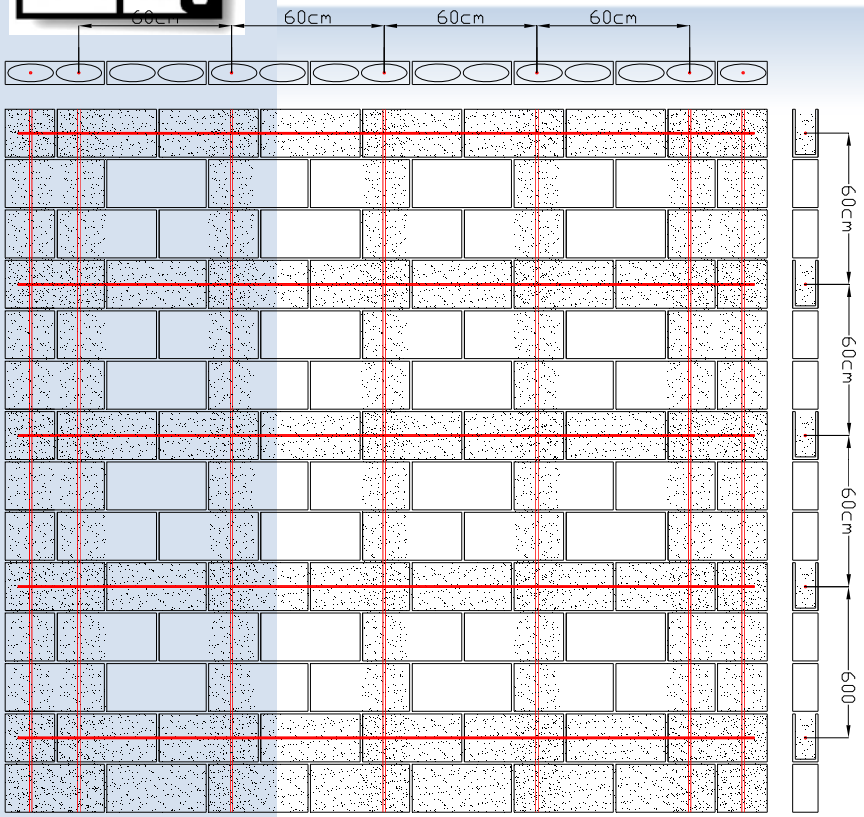

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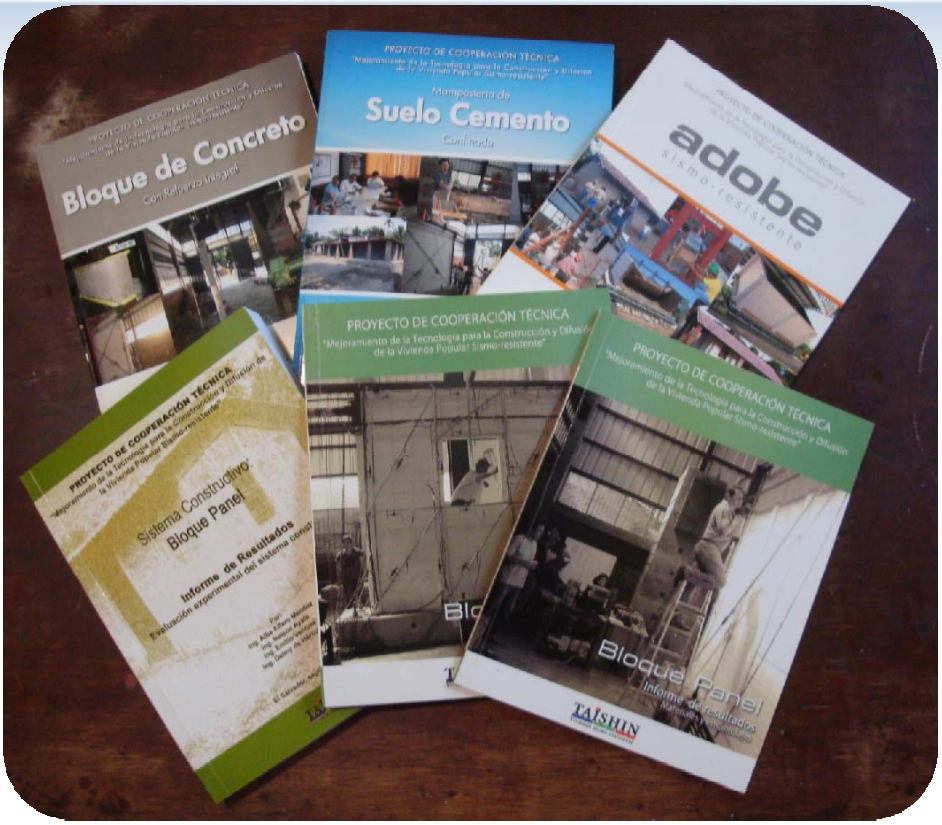
INVESTIGATION RESULTS



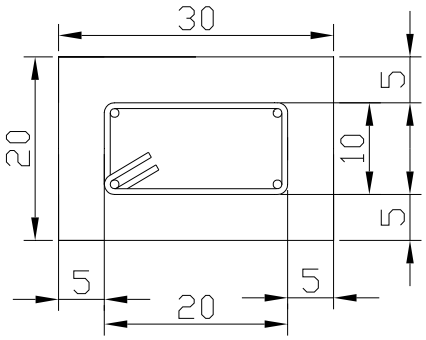
CHANGES IN THE CONSTRUCTION FOR THE FOUNDATION BEAM

THE FOUNDATION BEAM

- 1997 Housing Code

It mentions that for a one story house the foundation beam should be continuous with a transversal section of reinforced concrete with a minimum width of 30 cm and a minimum height of 20 cm. The reinforcement shall be at least 3 longitudinal bars Nº 3 (diameter of 3/8 inch) and stirrup bar of No. 2 (diameter of 1/4 inch) with maximum spacing of 20 cm.

In construction usually is use a 4 longitudinal bar arrangement.

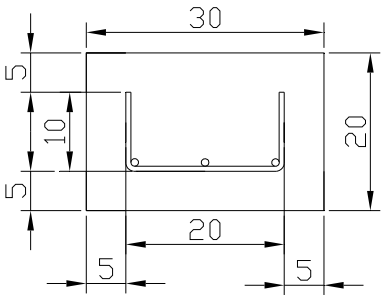


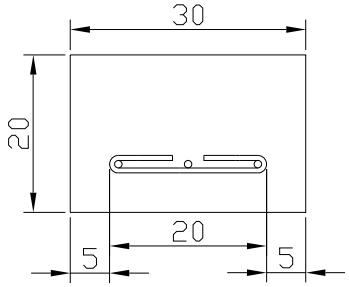
THE FOUNDATION BEAM

- 2004 Proposal Housing Code

For a one story house the foundation beam should be continuous with a transversal section of reinforced concrete with a minimum width of 30 cm and a minimum height of 20 cm. The reinforcement shall be at least 3 longitudinal bars Nº 3 (diameter of 3/8 inch) and stirrup bar of No. 3 (diameter of 3/8 inch) with maximum spacing of 20 cm.

The proposal codes gives example of the arrangement that should be use






Thank you
Muchas Gracias
Metropolitan Cathedral