



Islamic Republic of Afghanistan



MINISTRY OF EDUCATION

SCHOOL STANDARDS

Policies, Codes and Designs

Subjects in Presentation

- Standards and Designs
 - Policy guidelines: July 2006, Cost-effective Schools
 - Design and Construction Standards/Menu
 - Specifications
- School and Community Focus
 - SMC, PTA and Community Managed Construction
- Implementation Set-up
 - Center (C-DOC) and Province (P-DOC)

The Policy Document

Cost Effective Schools Construction *Policy Guidelines & Technical Specifications for School Construction*

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July 2006

Ministry of Education

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Key Policy Guidelines

- Objective
 - Expand network of cost-effective schools equitably and considering local materials, safety and environmental conservation.
- Policy Guidelines
 - The school complex: Classrooms, Staff rooms, Latrines, Water, Disability access/facility, Furniture, Compound wall
 - Site selection criteria for new schools
 - primary. school. max 3 km from village, dist. between two scs. min. 6 km.
 - secondary. school. max 4 km from village, dist. between two secondary school., min 8 km.
 - Students per classroom
 - Gr. 1-6 > 40-50 children, Gr. 7-9 > 35-45 & Gr. 10-12 > 30-40
 - Type of school > 1 sc. school for every 3 primary. Schools in towns and for every 4 primary. Schools in villages
 - Schools must be registered before construction and land deeds deposited with the Provincial Education Department.

Key Policy Guidelines

- *Technical Specifications*
 - size
 - structure
 - Construction
 - water and sanitation
 - disability access
 - safety against earthquakes
 - Environmental conservation
- *Standard designs incorporating the specifications are included.*

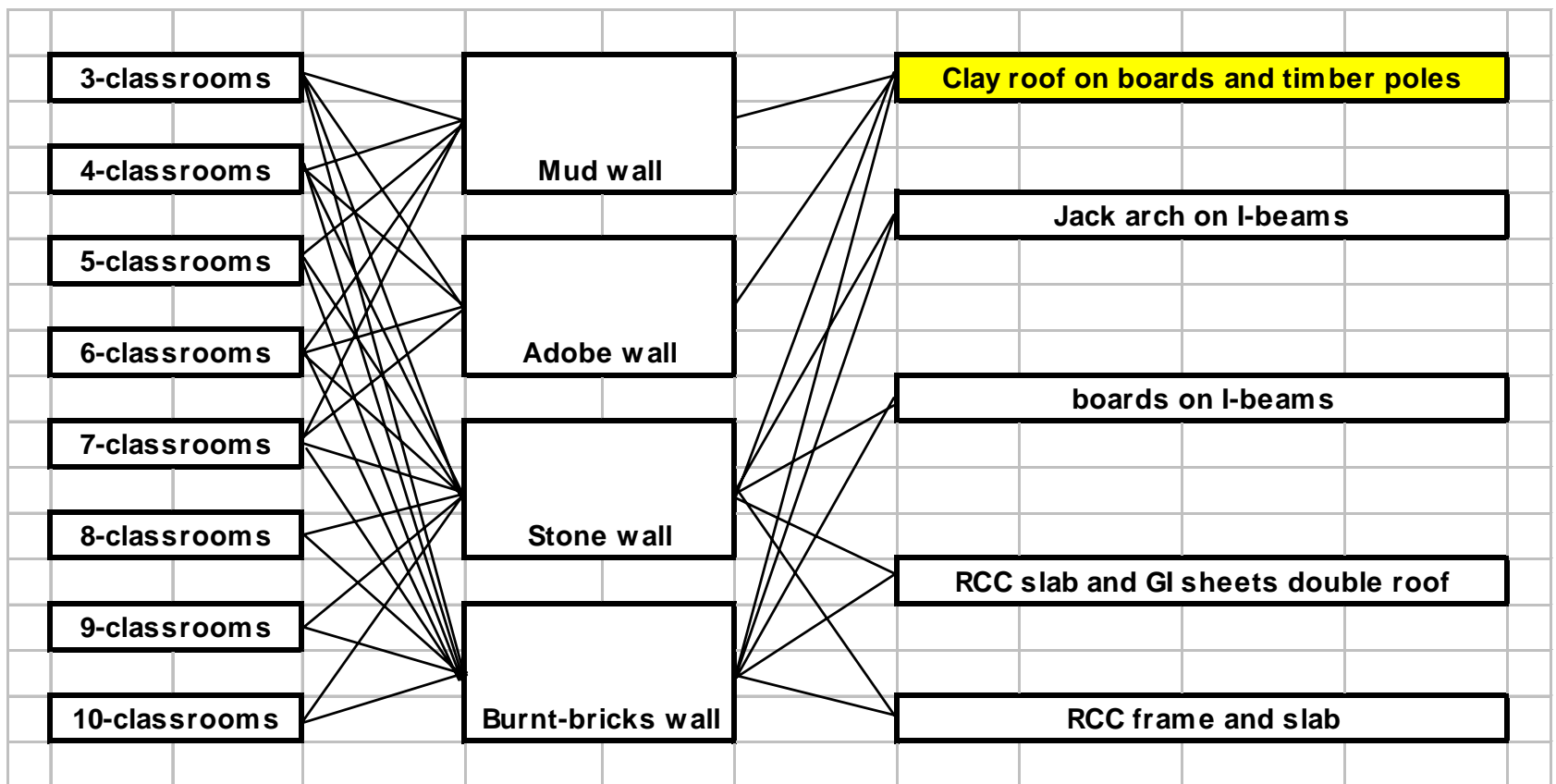
Social equity and Quick delivery

- *Smaller schools – Wider reach*
- *Narrower classrooms – use of local materials and skill*
- *Construction achievable through local contractors*
- *Construction demanding limited ‘engineering supervision’*
- *Enhancing prospect of community participation*
- *Enhancing locally achievable maintenance*

Design and Construction

- Class size and School size
 - Two Standards for Class sizes shall be in use:
 - Classroom space shall not be less than 0.7m²/child
 - 7m x 4.3m for traditional construction/ rural schools
 - 7.5m x 5m for improved construction/urban/peri-urban schools
 - School size (number of classrooms) shall depend on student capacity and type of school
- Design Menu
 - All schools are to be single storeyed for safety reasons.
 - Exception - urban locations with severe land limitations are designed with RCC to allow additional storey as future extension.

Design: Menu of Choices

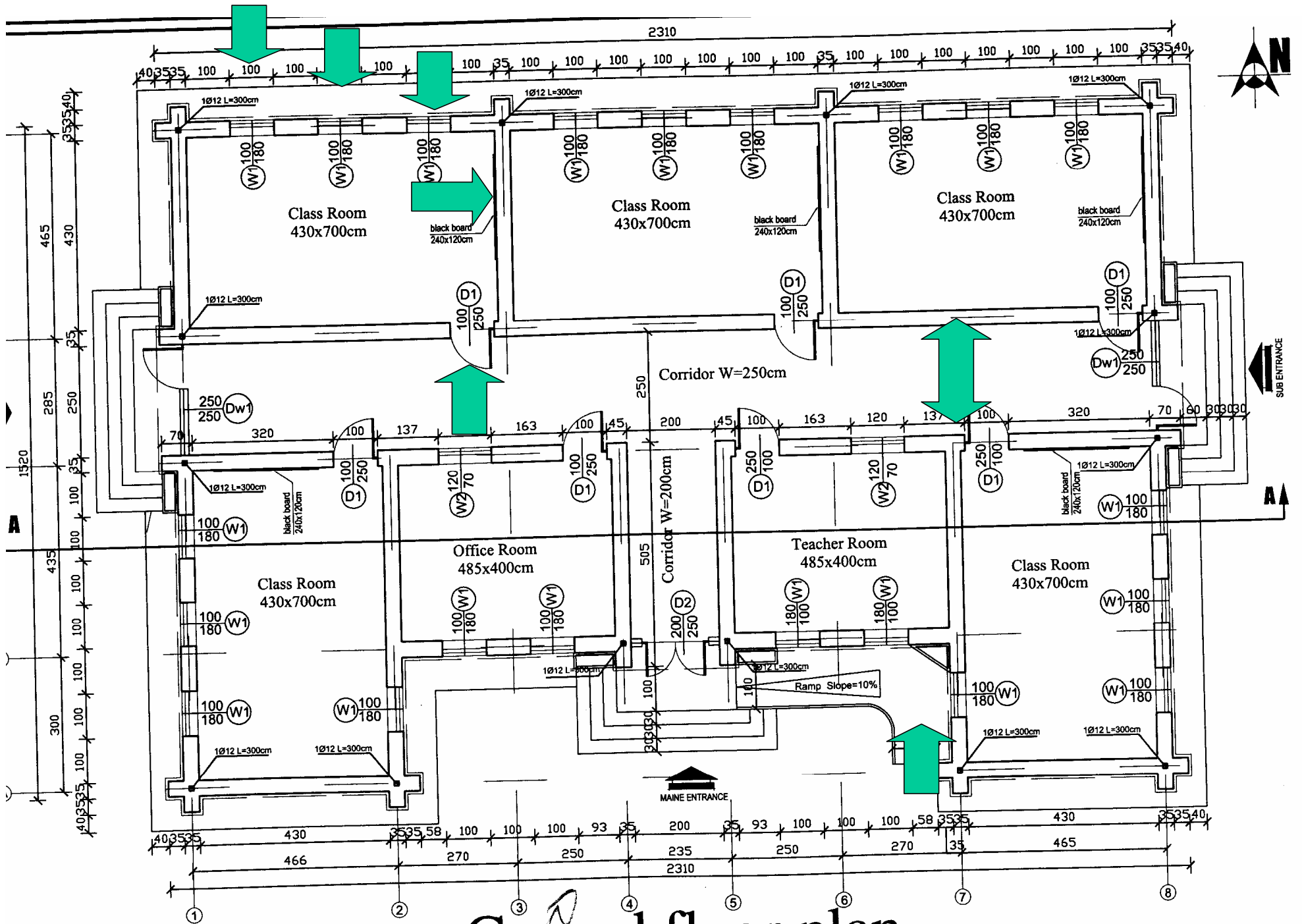


Functional Environment

- Classrooms windows
 - Natural Lighting from left of Children
 - Blackboard position vis-a-vis window side
 - Area of windows: 20% of floor area
 - Proportioned for minimum damage in earthquakes
 - Sufficient ventilation
- Door
 - Opening out for disaster mitigation
 - Wider corridor/paved pathway on outside
 - Disability response

Functional Environment

- Disability response
 - Provision of ramp access to classrooms
 - Provision of latrine for the disabled with ramp access
- Orientation for climate
 - Alternate layouts
 - Hot provinces
 - Cold provinces
- Layout
 - Providing for future expansion
 - Play spaces
 - Plants for environment and micro-climate control



Places of High Earthquake Risk

- Zone A (Risk of destruction) – Zone B (Risk of heavy damage)
- List of Places >> handout

Earthquake Hazard

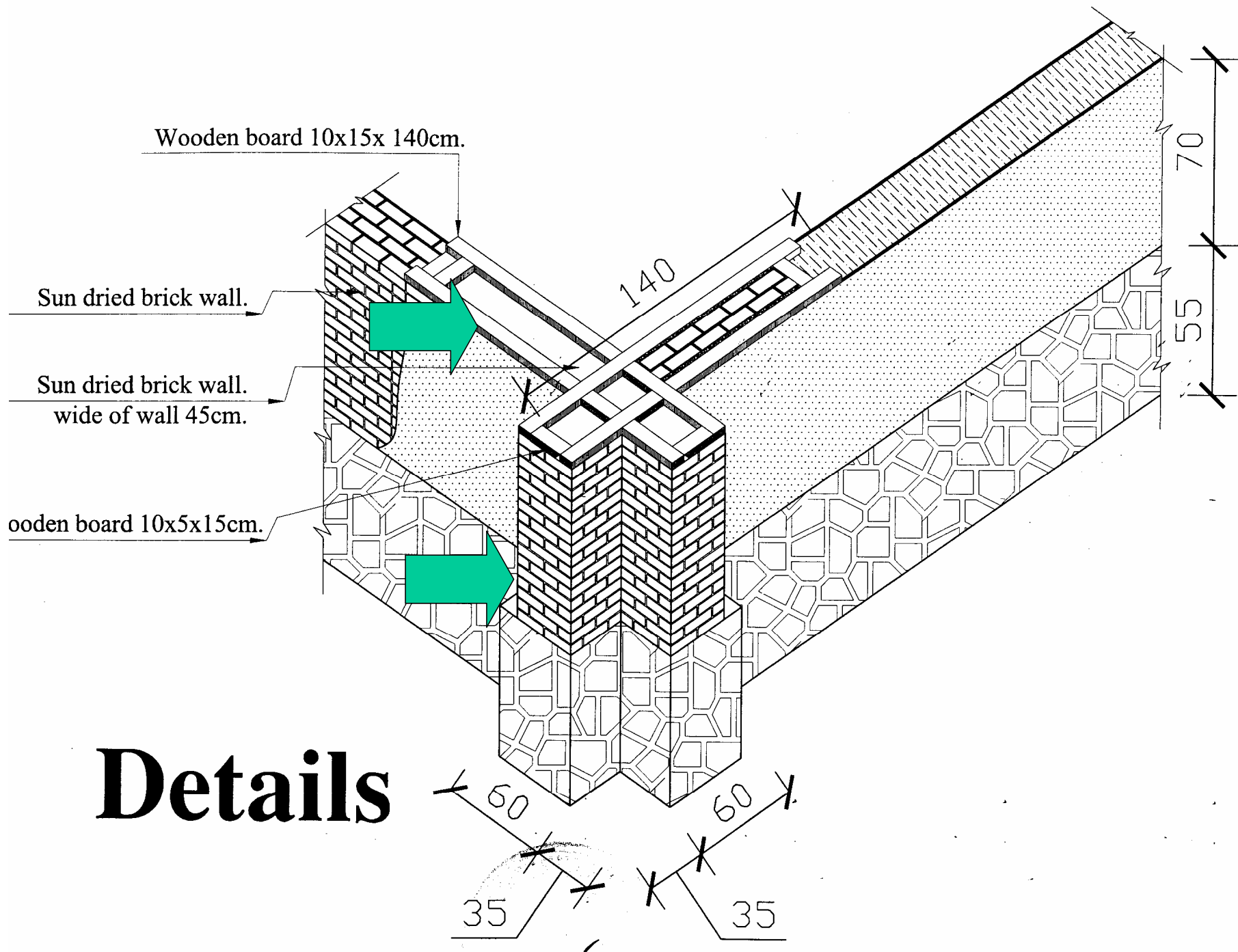
- Higher Occupancy Bldg > Higher vulnerability
 - e.g. Schools >>> Vulnerability should be reduced
- Tall and Weak Buildings > Higher hazard
 - Schools are better Single storeyed and still better if strengthened/designed for EQ resistance
- Greater risk in Zone A (Destruction likely) as compared to Zone B (Damage likely)
- Greater likelihood of building failure in sites with Weak soil than sites with strong bearing soil
- Greatest Hazard > more than 1storey, un-strengthened school buildings in Zone A site with weak soil.

Earthquake Hazard & Un-reinforced Masonry

	Zone A	Zone B	Zone C	Zone D
Land slides	Always	Avoid	Such	Sites
Liquefaction	Always	Avoid	Such	Sites
Weak soil	Avoid un-reinforced Masonry	NE EQ Measures	→	X
Strong soil	NE EQ Measures		→	X

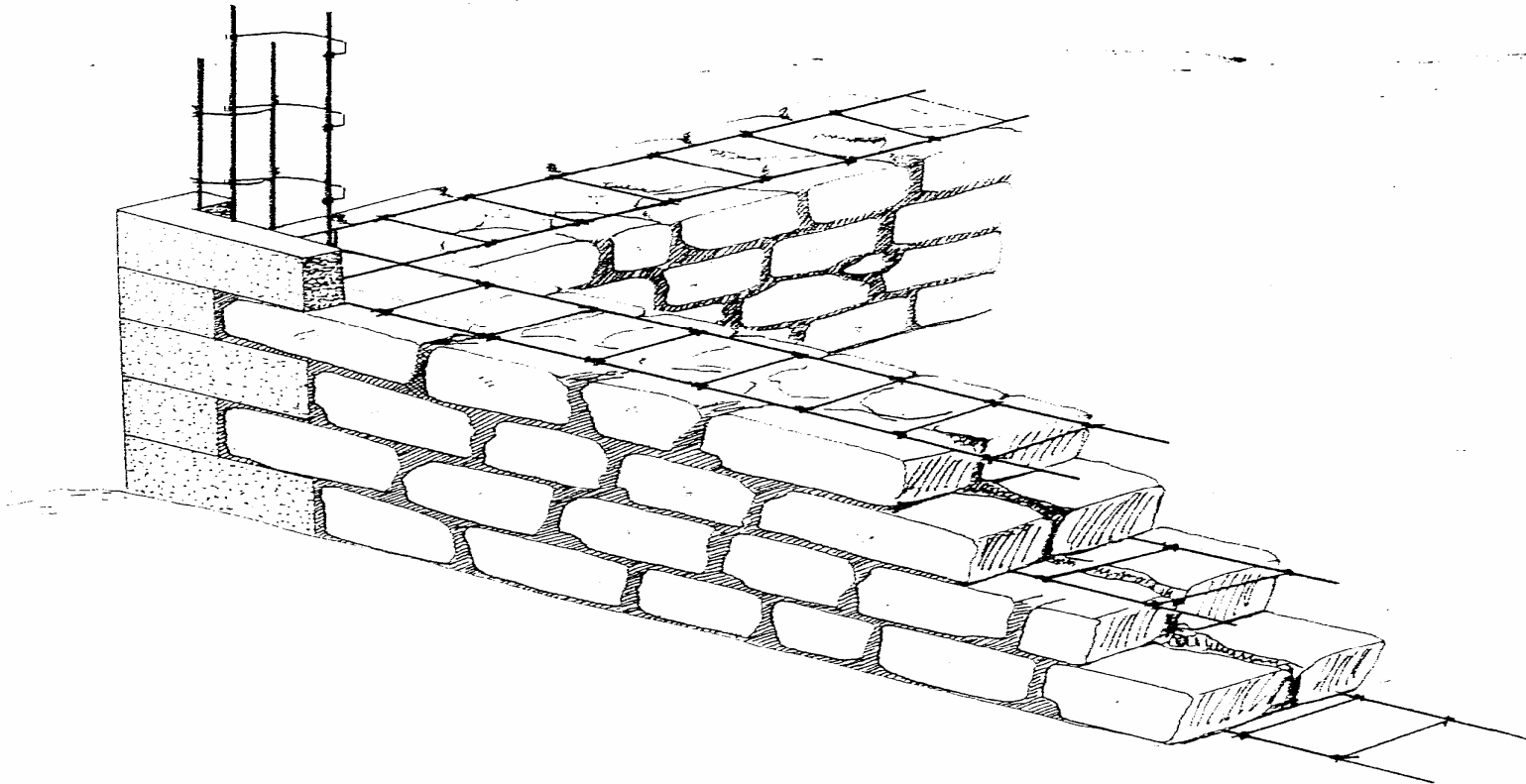
Non-engineered Earthquake Resistance Measures

- Causing Symmetry in Plans
- Openings offset from Wall corners and joints
- Proportions of Openings
- Buttresses >> Sketch
- Tie beams and *Katiba* >> sketch
- Regular Courses and Through stones (for RR stonework)
- Corner ties >> sketch
- Fibrous materials in mud >> sketch
- Uprights
- Construction joints



Details

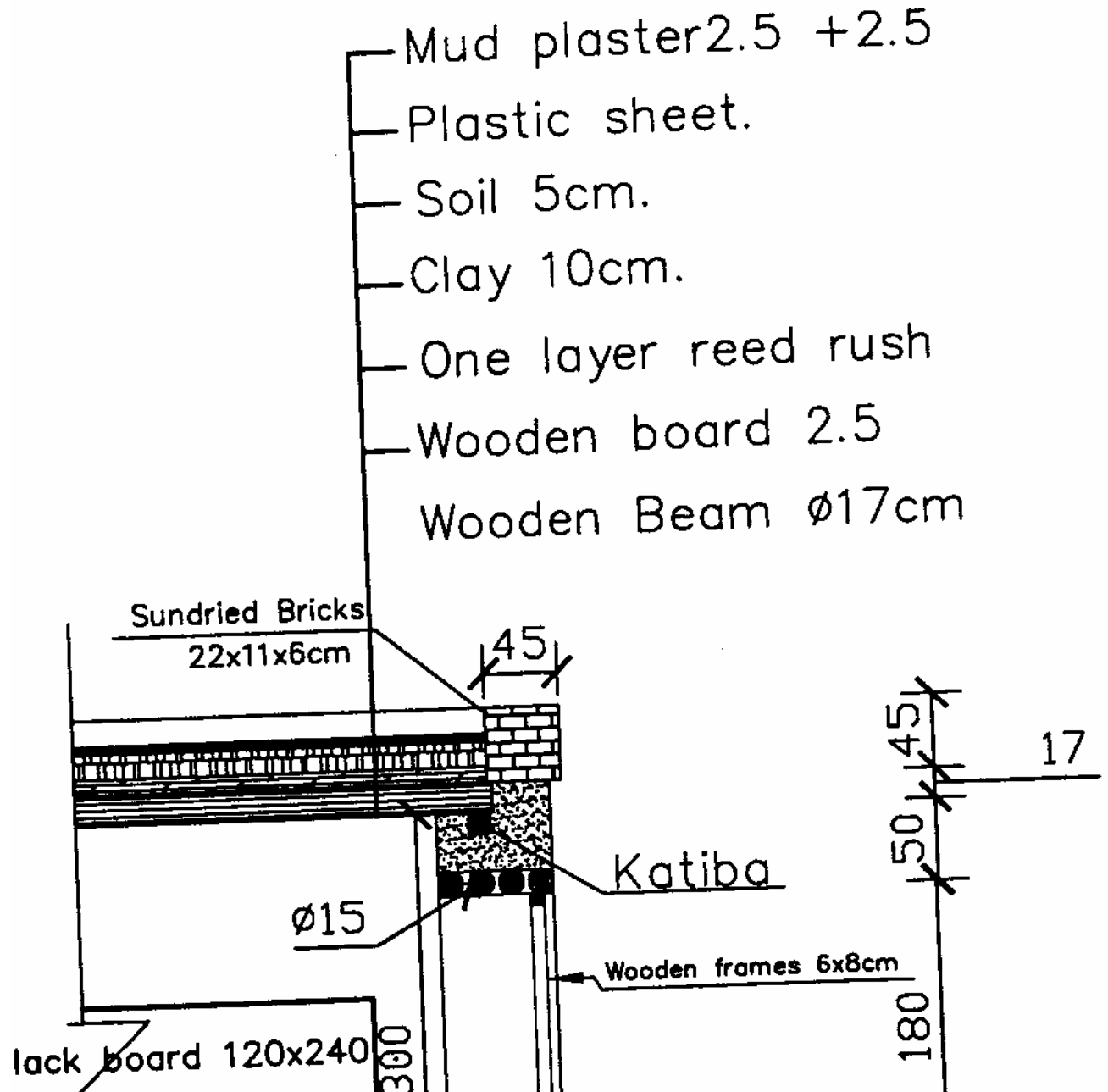
GI Wire reinforcement: replacing wooden ties



Technique

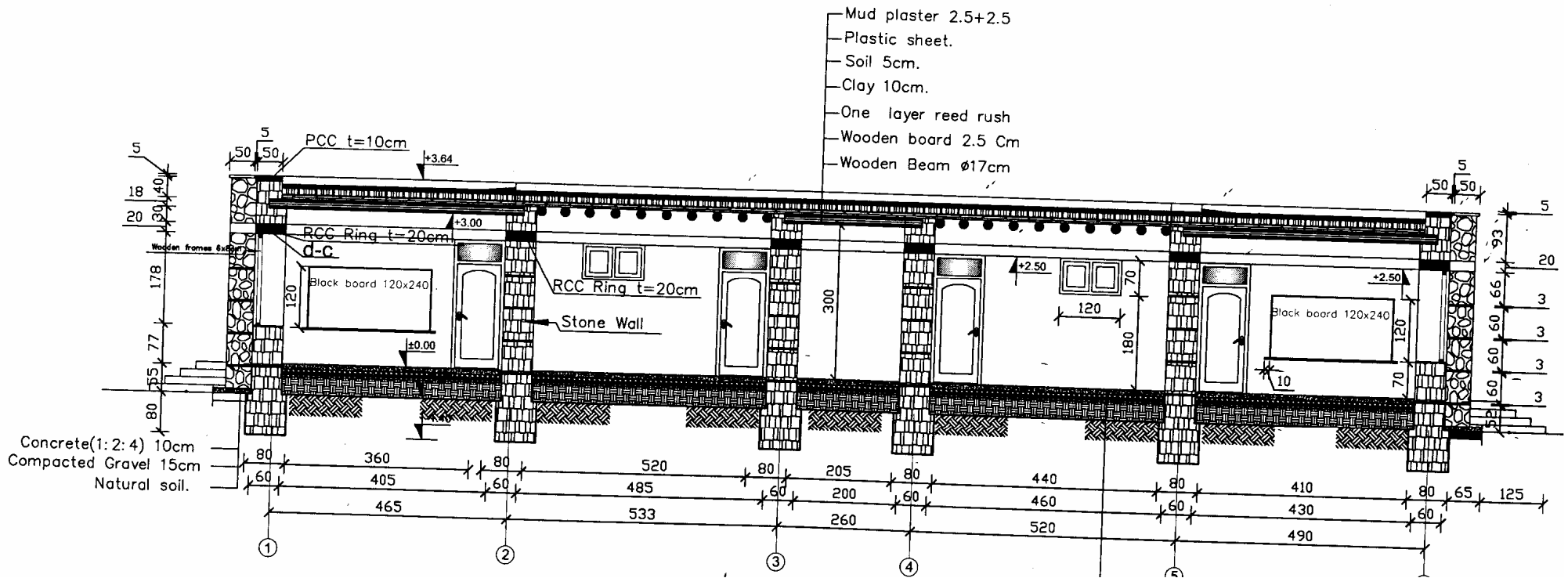
Above the foundation, the GI Wire Reinforcement is placed in every other course of stone or block masonry. At the corner of a wall, cement L-blocks are used. These blocks allow the GI wire to extend up vertically to create a column when filled with mortar.

*Traditional
Detail
Reworked
for
EQ Resistance*



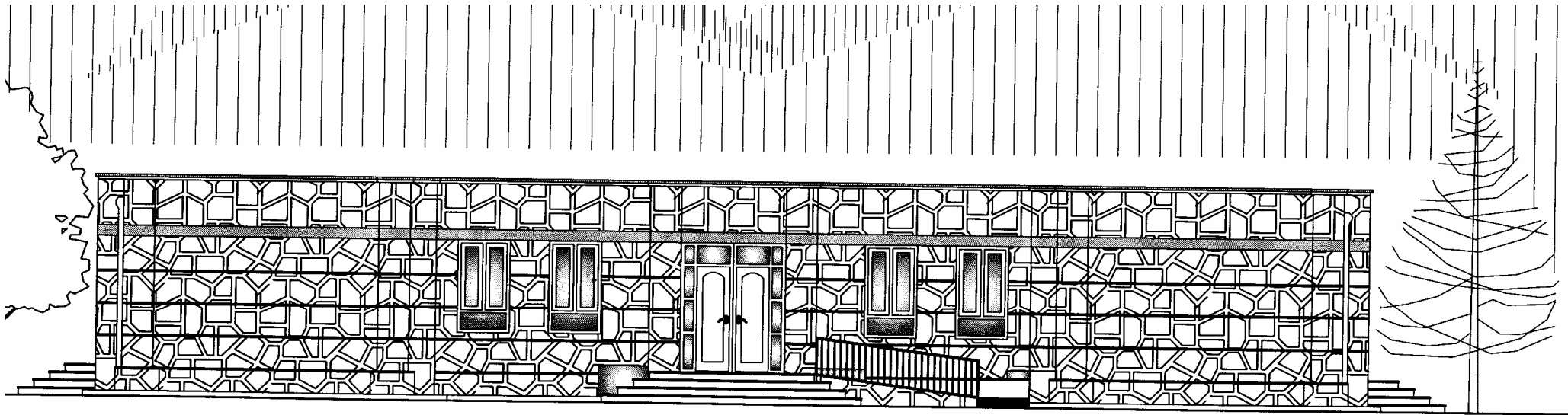
RCC Ring Ties

Changing over from timber poles to I-beams

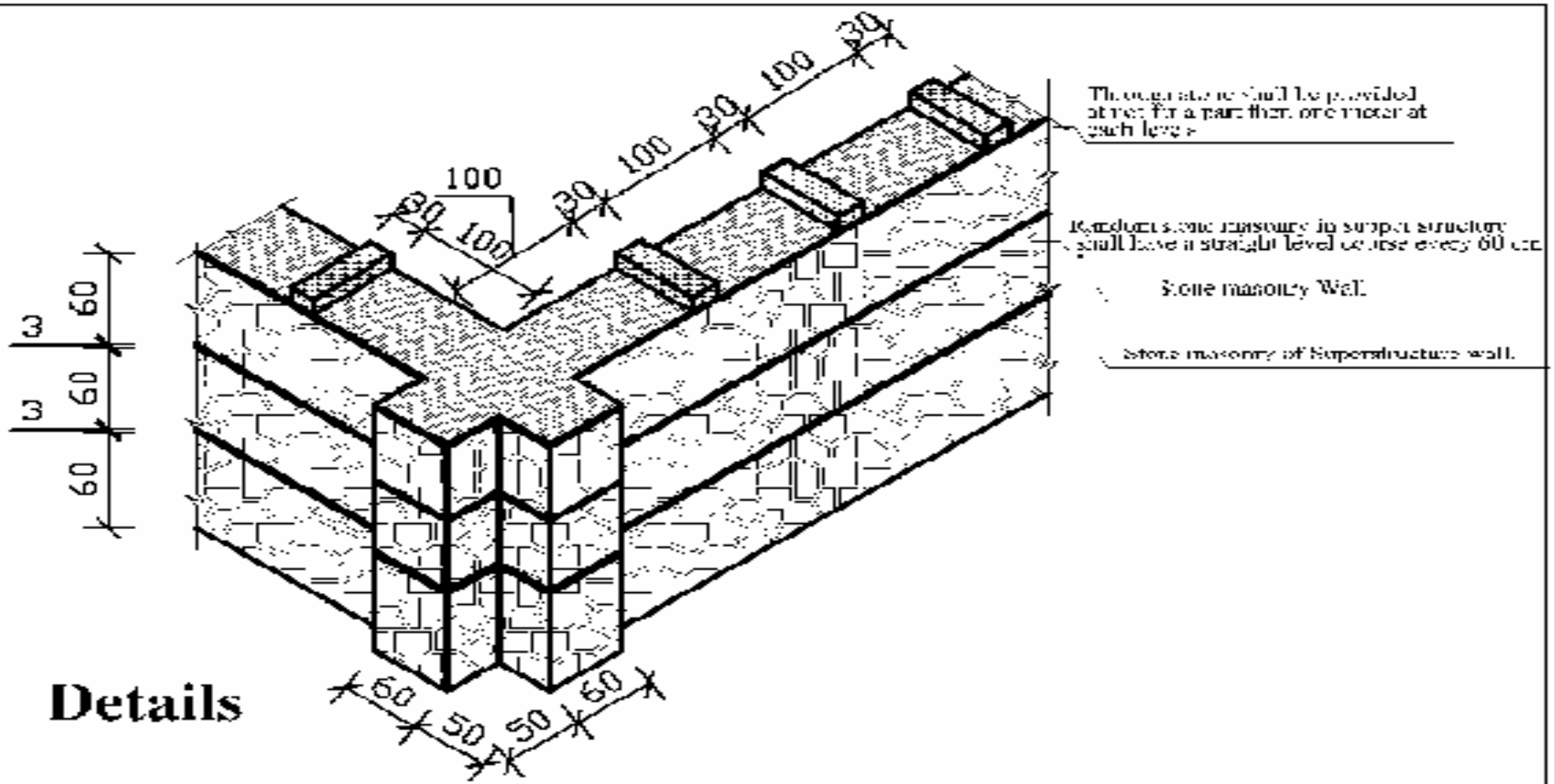


Strengthening RR Stonewall

THROUGH STONES & REGULAR COURSES



Through Stones and Regular Courses



Improving Adobe



Roll Test (Pucp/Ciid, 1995)

alternative for choosing the soil; using both hands, make a little mud roll. If the length of the roll is between 5 to 15 cm, the soil is adequate. If the roll is less than 5 cm, the soil must not be used. If the unbroken roll is longer than 15 cm, sand must be added. (CTAR/COPASA 2002).

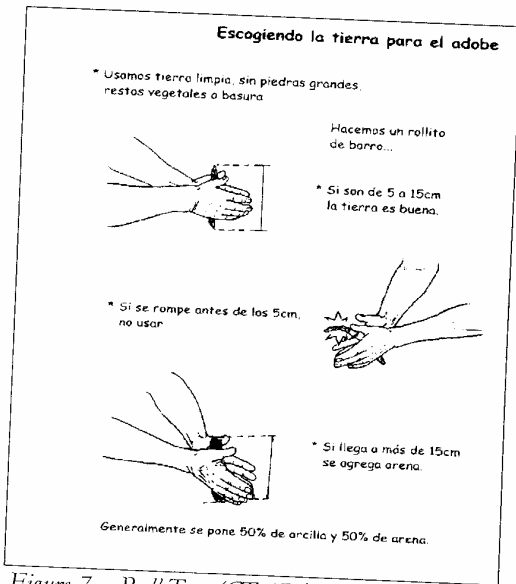


Figure 7 – Roll Test (CTAR/COPASA, 2002)

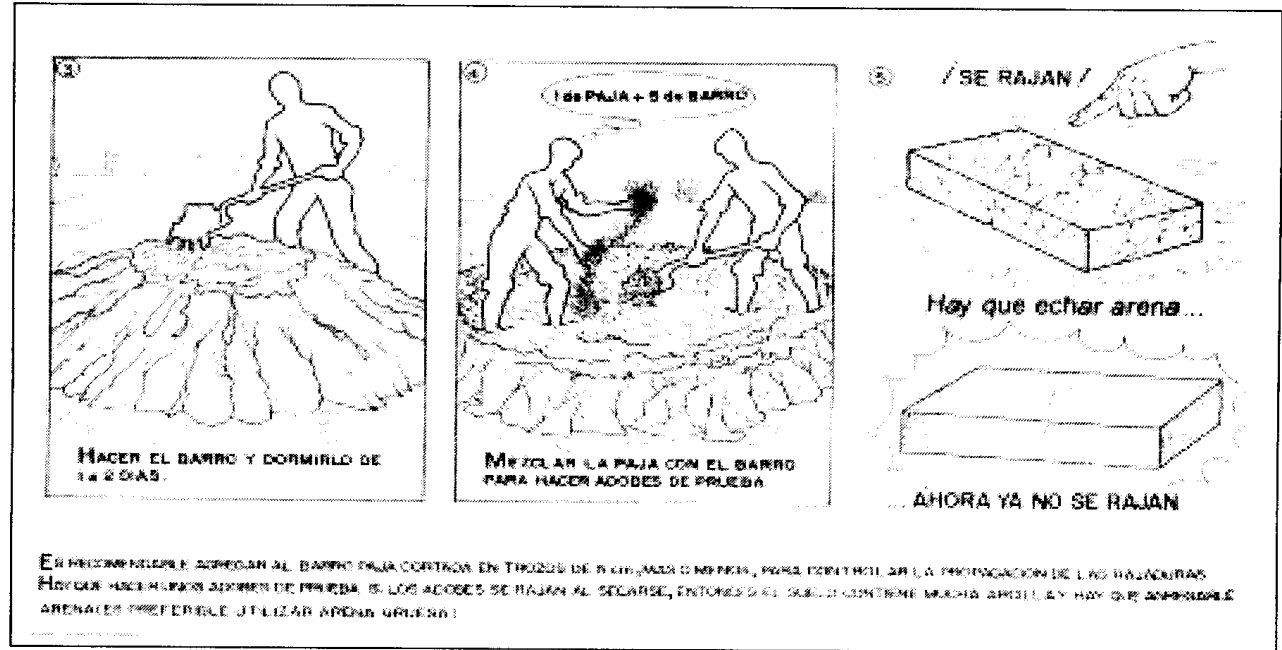


Figure 8 – Control of Microcracking by Adding Straw (PUCP/CIID, 1995)

Social Supervision

- School and Community Focus
 - SMC, PTA, Shura/Community managed construction process
- Community ownership of development
- Quick delivery/decentralization
- Maintenance and sustainability

Implementation Arrangements: Technical Supervision

- C-DOC > Central technical team at Department of Construction/MOE
 - » ARCHITECTS, STRUCTURAL ENG, WATER & SANITARY ENG, QUANTITY SURVEYOR, IT SPECIALIST (11)
- P-DOC > Provincial Technical team at PED
 - » ARCH or ENG, SUPERVISORS (3)
- D-DOC > Maintenance Technician at DED
 - » SUPERVISOR (1)
 - Integration into DOCES & TM / PRR
 - Logistics and Incentives Support