

UN-Habitat Sri Lanka

Sustainable Construction Using Alternative Technologies

Recycling Building Debris



About Recycling Building Debris

- Building debris is a common urban waste which is difficult to be disposed of. Building debris, if not used for land filling, is usually seen piled up along land reservations or canal banks or beaches resulting in numerous environmental problems. Problem of debris become more acute in a post disaster situations where buildings are damaged and /destroyed.
- UN-Habitat demonstrated a productive solution to the issue by recycling building debris in new construction.
- Selected hard/durable debris from demolished buildings were re-used:
 - a) in foundation screed concrete to replace portion of metal;
 - b) in foundation rubble work as plums in between rubbles and
 - c) in floor concrete to replace a portion of metal.
- In addition, the following building materials salvaged from destroyed buildings were reused in newly constructed houses: door window frames; roof timber; roofing tiles; bricks/blocks; concrete slabs and beams.

General Guidelines

- Durable, hard materials should be selected carefully and washed properly.
- Larger pieces should be broken to appropriate aggregate size by using a sledgehammer. Dust particles generated during this process, should be washed away.
- Volume of debris to be allowed in each batch of concrete should be measured using a measuring box and added to the coarse aggregate (metal or rubble) while mixing.
- In rubble work, pieces of debris can be inserted to fill voids between the rubble while maintaining the recommended proportion.

The recommended quantity of debris as a percentage of course aggregate and resulting cost savings (approx.) are noted below:

Item	Recommended % (up to)	Cost Saving
Foundation screed concrete	30%	10%
Foundation rubble work	30%	6%
Floor concrete	60%	20%

Benefits

- Re-using salvaged building materials can provide significant cost savings for homeowners.
- This contributes to create a cleaner urban environment, free from unsightly dump sites in open areas, blocked waterways, etc.
- Reduces the pressure on environmental sensitive construction resources by providing substitutes.
- Debris - once considered a menace, is now a valuable resource.