



SATREPS

Science and Technology Research Partnership
for Sustainable Development Program

2. Retrofitting an Existing House

Guideline for Seismic Resilient House Construction

Joint Research Project on
Evaluation and Mitigation of Seismic Risk for Composite Masonry Buildings in Bhutan

in the framework of SATREPS
(Science and Technology Research Partnership for Sustainable Development)
2017-2023

Department of Culture
Ministry of Home and Cultural Affairs

Department of Engineering Services
Ministry of Work and Human Settlement

Mesh Wrap Retrofitting

This retrofitting method is applicable for an existing house of rammed earth and stone masonry.

Retrofitting method for heritage buildings should be designed based on cultural heritage value of the building.

Mesh Wrap Retrofitting

1. Materials:

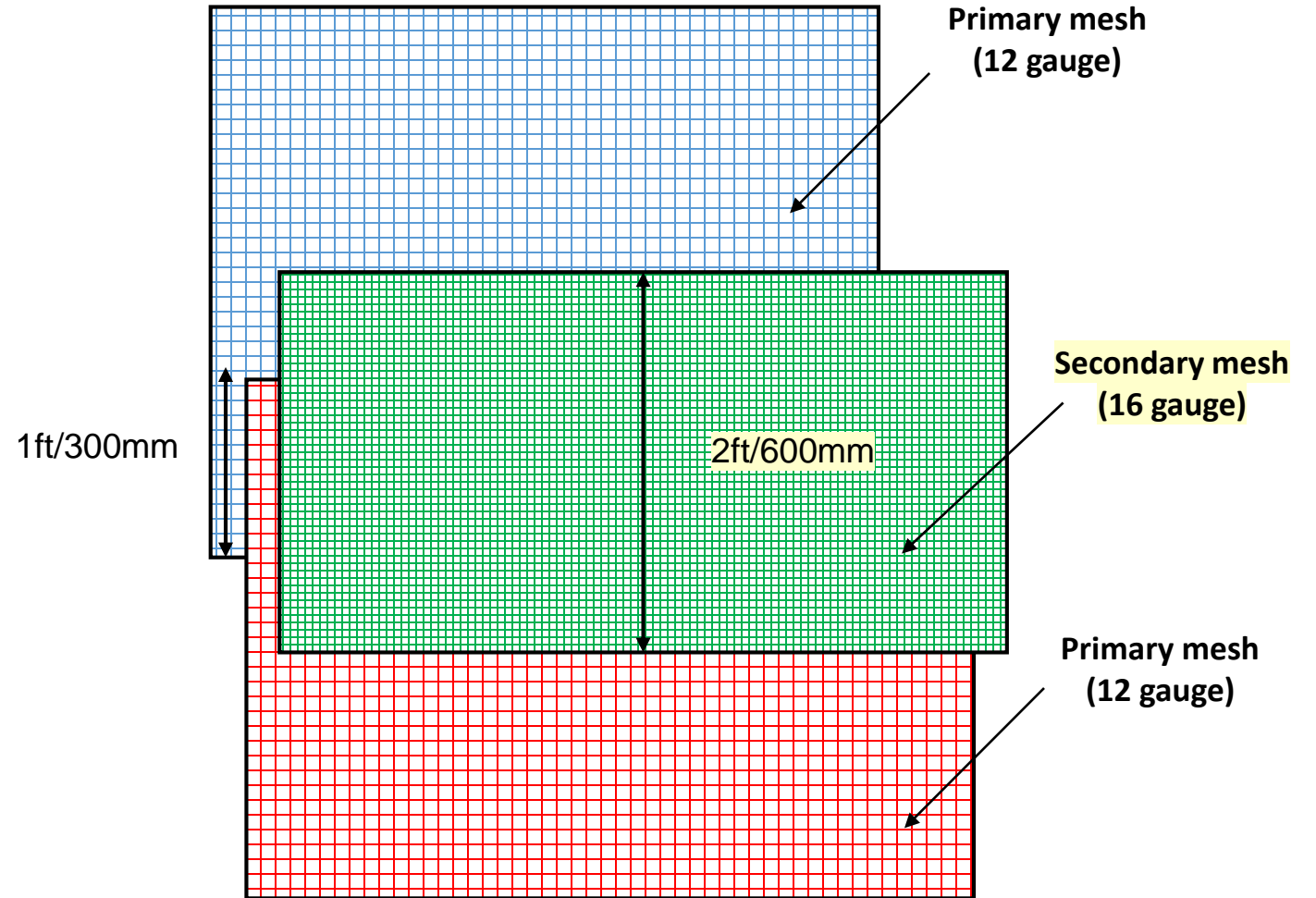
- i. Primary mesh: 12 gauge Galvanized Iron (GI) mesh
- ii. Secondary mesh: 16 gauge Galvanized Iron (GI) mesh-
- iii. Cement and sand



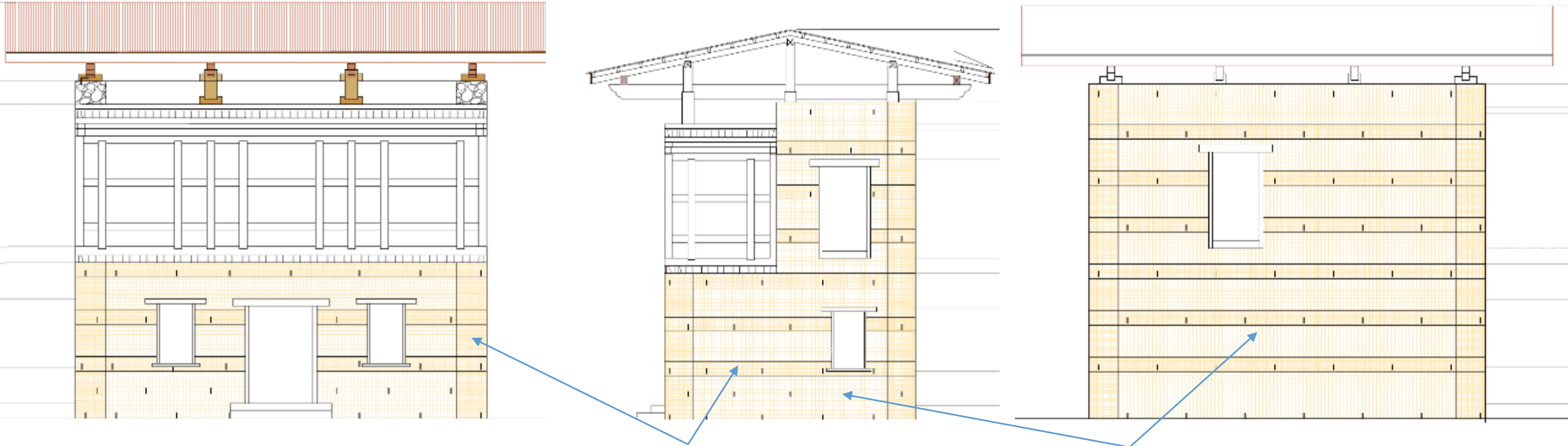
Mesh Wrap Retrofitting

2. Method:

- i. Fix the primary mesh on both faces of the walls using anchors
- ii. Fix the secondary mesh for overlapping at:
 - 4ft/ 1.2m wide at the external and internal corner
 - 2ft/ 600mm at the joints between the primary mesh
- iii. Apply two coats of cement plasters (30mm thick finished surface)



Mesh Wrap Retrofitting



Secondary mesh (16 gauge)

Primary mesh (12 gauge)

FRONT ELEVATION

SIDE ELEVATION

BACK ELEVATION

Mesh Wrap Retrofitting



1. FIXING OF WIRE MESH



2. COMPLETE WIRE MESH FIXING



Mesh on inner wall

Mesh Wrap Retrofitting

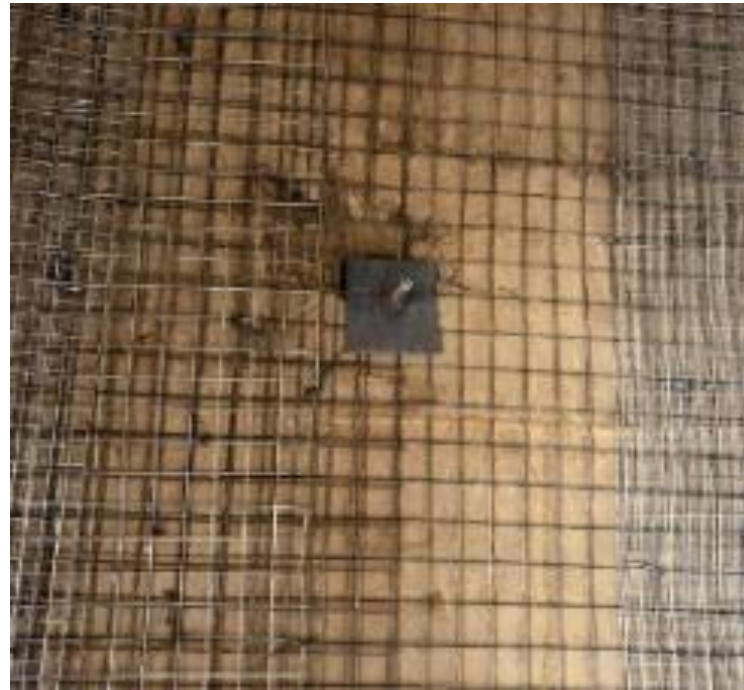
Mesh fixing details

1. For stone masonry wall



Use a dowel (8mm diameter bar of 90 degrees bent both ends) to fix the mesh on the wall

2. For rammed earth wall



Use a anchor of 12mm diameter threaded bar from inner to outer wall through a ju-shing hole (preferably 4ft/ 1.2m c/c interval), and fix using nuts and washer plates



Use also fasteners to clamp the mesh to the wall

Mesh Wrap Retrofitting



3. PLASTERING OVER MESH



4. COMPLETE VIEW