



**Development of draft protocol for testing
of structural components and systems for
use in schemes under 'Housing for all'
project of the Government of India**

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- **Ministry of Housing and Urban Poverty Alleviation has constituted the Technology Sub-Mission under the chairmanship of Joint Secretary (HFA), MoHUPA comprising of 16 members represented by State Govts., Academicians and Experts.**
- **Executive Director, BMTPC is the Member Secretary of the committee.**
- **It is envisaged that Technology Sub-mission MoHUPA and States would also partner with willing IITs, NITs and Planning & Architecture institutes for developing technical solutions, capacity building and handholding of States and Cities.**



We would like to thank the MHUPA for this opportunity to make the presentation.

Thanks are also due to all present here for sparing the time.



Given the massive scale of housing units to be completed under the scheme, it is important that certain technical tasks are taken up on priority and a basic framework for testing of components and units be made available for field engineers.



There is an urgent need to develop protocols for structural testing of components of housing units and models of prototype housing units with emphasis on natural disasters (earthquakes, tsunamis, cyclonic storms etc.).

Though there is a lot of reference material available, the tests reported have been carried out under different conditions on ‘specimens’ of different sizes, prepared under varying conditions, etc. making a direct comparison of results difficult. Similarly, data on composite units is very limited, and the problem of accounting for the difference on account of workmanship makes any comparison difficult.



Materials : cement, steel bars, etc.

Components: precast slabs, units

Systems : Walls, slabs

**Room or finally the housing unit,
and why not the building unit**



- **Define the scope of items that need to be tested under the umbrella of *structural materials, components and units***
- **Define the environment and structural loading conditions for which the materials, components and units need to be tested**
- **Identify an appropriate test method / protocol to be followed for the different materials, components and units**
- **Identify the required performance parameters for acceptance of a material, component and unit**
- **Identify the laboratories / institutions that can carry out the testing as per the laid down protocol.**



It is proposed to accomplish the above through a 'task force' comprising of all stakeholders - academics, engineers, regulators, users.



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- **To study and make a list of existing standards being followed for structural testing worldwide in the proposed area.**
- **To study current SOA and practice for structural testing to evaluate the intended performance of the various structural and nonstructural components (e.g. suggested by Federal Emergency Management Agency (FEMA), USA).**
- **To organize a workshop for preliminary discussion**
- **Propose draft protocols for structural testing to evaluate the intended performance of the various materials, structural and nonstructural components (including models of prototype housing units) against severe natural disasters (primarily earthquakes & tsunamis and cyclonic storms etc.)**
- **Dissemination through workshop and publications**



Basically create a 'menu card' approach

- Freedom to the 'user' to decide the applied loads
- Freedom to decide the 'expected performance'



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Cumulative month	1	2	3	4	5	6	7	8	9	10	11	12
Constitution of task force												
Review of existing SOA												
Workshop I (preliminary)												
Draft of protocols												
Workshop II												
Release of protocols for structural testing												



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	Item	BUDGET (in Rupees)
A.	Recurring	20,11,600
	1.Salaries/wages [#]	7,11,600
	2. Contingency/Consumables	3,00,000
	3. Travel and workshop expenses	6,00,000
	4. Others (publications, books, codes)	4,00,000
B.	Non-consumables (Equipment)	1,50,000
C.	Faculty Cost	4,50,000
	Total (A+B+C)	26,11,600
	Institute Overhead @20% (of A+B+C)	5,22,320
	Grand Total	31,33,920



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:: Thank you ::