

"Earthquake Resistant Building Construction Training Conduction Procedure, 2072"

Preamble:

Whereas, there is a need of the Earthquake Resistance Training of Trainers to the working technicians and Craftsmen related to building construction works given through different institutions and for bringing the uniformity on the curriculum, expatiation, duration, and service as well as fixing the facility of the trainings to Craftsmen, this *Earthquake Resistance Building Construction Training Conduction Procedure, 2072 (2015)* has been prepared.

Chapter – 1

Introductory

1) Short Title and commencement:

1. This Procedures may be called as the "*Earthquake Resistance Building Construction Training Conduction Procedures, 2015*)"
2. This Procedure shall come into force from the date of approval from the Secretary level of the Government of Nepal.

2) Definitions:

Unless the subject or the content otherwise requires, in this procedure:

- (a) "Ministry" means the Ministry of Urban Development.
- (b) "Department" means Department of Urban Development and Building Construction.
- (c) "Division Office" means Division Offices under the Department of Urban Development and Building Construction.
- (d) "Procedure" means *Earthquake Resistance Building Construction Training Conduction Procedures, 2015*)
- (e) "Different agency/Institutions" means those governmental/semi-governmental and non-governmental agency/institutions who conduct earthquake resistant training.

Chapter – 2

- 3) **Approval needed for training conduction:** Any agency/institutions if wanted to run the earthquake resistant training, they have to get preapproval from the Department of Urban Development and Building Construction or concerned Division Office with detailed proposal and agenda.
- 4) **Training curriculum and details:** The curriculum of training and expatriation related to earthquake resistant building construction should be according to the curriculum and expatriation prepared by the Department of Urban Development and Building Construction under Ministry of Urban Development, Government of Nepal.
- 5) **Methodology for participants selection:** The selection of the participants of the Training for Earthquake Resistant Building Construction should be made by Urban Development and Building Construction Department or the training provider organizations with issuing prior public notice of 7 days through local agency. On the basis of their current actions and priority of their application, the participants shall be selected.
- 6) **Training Duration:** The duration of the Trainers' Training on Earthquake Resistant Building Construction shall be of 7 working days and the duration of Craftsmen Training shall be of 5 working days.
- 7) **Training Schedule:** The training schedule for the trainers of Earthquake Resistant Building Construction shall be according to annex 1 and the schedule for Craftsmen training shall be according to annex 2.
- 8) **Other provisions relating to training:** There shall be following formats of respective annexes to follow on the training related to earthquake resistant building construction:
 - Participants' Registration form (Annex 3)
 - Trainers and guests list registration booklet (Annex 4)
 - Daily attendance booklet (Annex 5 and 5 A)
 - Sample of certificate (Annex 6)
 - Report on activities related to training (Annex 7)
 - List of necessary materials and tools for practical exercise (Annex 8)
- 9) **Compulsory presence:** Participants must be present compulsorily in all the sessions throughout the training period. Otherwise s/he shall not be given the certificate of training and allowances for participation.

- 10) Place for the conduction of practical knowledge class: Practical knowledge related class on earthquake resistant training is to be conducted in the courtyard of concerned Municipality/VDC office or related Division Offices of Urban Development and Building Construction Department.
- 11) Provision of roster keeping: For the Trainers on Earthquake Resistant Building Construction Training, trained technicians shall be kept in roster in Urban Development and Building Construction Department and the list of Technicians trained from different agency/institutions should be sent to Urban Development and Building Construction department by the concerned agency/institutions. The roster shall be updated on the basis of time-duration.
- 12) List of Craftsmen trained on craftsmanship: The list of Craftsmen trained on Earthquake Resistant shall be developed by Urban Development and Building Construction Department or the Division Offices under it and the list of Technicians trained Craftsmen from different agency/institutions should be sent to Urban Development and Building Construction department or concerned Division Office by the concerned agency/institutions. The roster shall be updated on the basis of time-duration and there shall be managed to be at least a trained craftsman now onwards in the construction of building and houses.
- 13) Training Monitoring / Facilitation Committee: There shall be a Central Instruction Committee at departmental level to conduct training on Earthquake Resistant Training Curriculum and to resolve the obstacles faced during the conduction.

Central Instruction Committee:-

- (A) Deputy Director-General, Building Division, Urban Development and Building Construction Department – Coordinator
- (A) C.D.E., Residence and Building Division, Ministry of Urban Development- Member
- (B) C.D.E. Residence Division, Department of Urban Development and Building Construction- Member
- (C) Deputy Secretary, Municipality Management Division, Ministry of Federal Affairs and Local Development- Member
- (D) Chairman or Secretary General of Nepal Engineering Association – Member
- (E) Chief/ Training Coordinator of concerned Training conducting agency- Member
- (F) Chief of Building Code Section, Department of Urban Development and Building Construction- Member Secretary

And, there shall be District Level Facilitation Committee to facilitate the conduction of trainings at district level as follows:

District Level Facilitation Committee:-

- (A) Division Chief, concerned Division Office, Department of Urban Development and Building Construction – Coordinator**
- (B) Engineer, District Technical Office- Member**
- (C) Technical representative of Municipality/ V.D.C. – Member**
- (D) Responsible representative of concerned training conducting agency- Member**
- (E) Engineer, concerned Division Office, Department of Urban Development and Building Construction- Member Secretary**

Chapter:- 3

14. Allowance and Facility:- The allowance to be provided for Trainers, Participants, Commentators, Coordinator, Assistant and minimum remuneration of reports regarding earthquake resistant building construction should be according to the Operation Manual, 2070 of the Ministry of Finance under the Government of Nepal.

Annex -1: Programme Schedule of Training for Trainers

Time		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
9:00	9:15	Registration	Previous Day's review	Previous Day's review	Previous Day's review	Previous Day's review	Previous Day's review	Previous Day's review
9:15	10:45	Opening Ceremony and Pretest	Building configuration, site selection	Exercise in 205	Load Bearing Structure Earthquake Resistant Detailing Site Visit	Adult learning	Architecture Design Requirement	Exercise in Training Delivery
10:45	11:00	Tea time	Tea time	Tea time	Tea time	Tea time	Tea time	Tea time
11:00	12:30	Earthquake basics and Effects of Earthquake	Behavior of Earthquake in RCC structure	Exercise Presentation Evaluation	Seismic load Calculation, NBC 105 VS IS 1893	Presentation style	Structure Design Procedure	Exercise in Training Delivery
12:30	13:15	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
13:15	14:45	Earthquake resistance design and construction philosophy	Load and load calculation, conformation of Element Size	Behavior of Earthquake resistant component in Masonry Building	Quality Control	Seismic Damage Assessment in RCC structure	Exercise in Training Delivery	Exercise in Training Delivery
14:45	16:15	Earthquake Preparedness	Detailing of RCC Ductile requirements	MRT 202 and Guidelines 203	Strengthening maintenance	Sanitary and Fire safety Design Requirements	Exercise in Training Delivery	Role of Masons in Earthquake Resistance construction
16:15	16:30	Tea Time	Tea time	Tea time	Tea time	Tea time	Tea time	Tea time
16:30	18:00	Nepal Building Code: Status and Implementation Strategy	MRT 205	Exercise 203	Retrofitting Techniques	Training management	Frame Structure Earthquake Resistance Details Site Visit	Training Evaluation and closing

Annex -2: Programme Schedule of 5 days Training for Craftsmen on Earthquake Resistant Building Construction

Time		Day 1	Day 2	Day 3	Day 4	Day 5
9:30	10:00	Participant Registration	Previous Day's review	Previous Day's review	Previous Day's review	Previous Day's review
10:00	10:45	1.Possibility of Earthquake and Nepal: Orientation	Practice on structure, system and shape	Load Bearing construction Technology: Exercise	RCC construction Technology: Exercise	Earthquake Retrofitting: Exercise
10:45	11:30	Possibility of Earthquake and Nepal: Orientation	Practice on structure, system and shape	Load Bearing construction Technology: Exercise	RCC construction Technology: Exercise	Construction Materials , their qualities and construction standard
11:30	11:45	Tea time	Tea time	Tea time	Tea time	Tea time
11:45	12:30	Introduction, Expectation collection, Pretest	5. Weaknesses of current construction methodology	Load Bearing construction Technology: Exercise	Wooden and bamboo house construction Technology	Alternative construction materials and technology
12:30	13:15	2.Earthquake Risk Reduction and Preparedness	Load Bearing construction Technology: Exercise	Load Bearing construction Technology: Exercise	Periodic repair and maintenance of houses	Building codes and role of mason
13:15	14:00	Tiffin	Tiffin	Tiffin	Tiffin	Tiffin
14:00	14:45	Video	Load Bearing construction Technology: Exercise	RCC construction Technology: Exercise	Earthquake Retrofitting: Exercise	Video on Shake Table
14:45	15:15	3.Selection of site of house	Load Bearing construction Technology: Exercise	RCC construction Technology: Exercise	Earthquake Retrofitting: Exercise	Training closing test
15:30	15:45	Tea Time	Tea Time	Tea Time	Tea Time	Tea Time
15:45	16:30	4.Structure,	Load Bearing	RCC construction	Earthquake	Training Evaluation and

Daily Attendance Form

[illegible]

Annex- 6 Sample of Certificate

Participant partner's/donor's
logo

Participant partner's/donor's
logo

Logo of Govt. of Nepal



Certificate

This is certified that Mr./Ms/Mrs
participated/assisted in the five days training on Earthquake Resistant Building Construction for craftsmen
jointly organized by the Department of Urban Development and Building Construction
&.....Fromto.....

Partner/Donor

Partner/Donor

Dept. of Urban Dev. and Building Const.

Annex -7 Training Activities Reporting Format Training Activities Report

Training Programme No:

Name of the Training Programme					
Venue of the Training					
	G.P.S.				
Date					
Supporting Scheme					
Number of Participants (Carpenter, Mason etc)	Development and number of participants				
	Mason	Carpenter	Iron worker	Other	Total
Geographical wideness					
Resource Persons	Coordinator				
	Team Members				
Coordinator of External Party				Contact No:	
Description of daily activities					
Day	Activities	Special Supervision			
1					
2					
3					
4					
5					
Problem, Lesson, Monitoring					
Problem	Main problems felt in conducting Training Programme				
Lesson	Lesson learnt				
Monitoring					
Other					

Annex 8: List of necessary materials and tools for exercise

Consumable Materials

Serial number	Materials	Unit	Estimated Quantity
1	Iron Rod 1 2 line	K.G.	90
2	Iron Rod 3 line	K.G.	65
3	Iron Rod 4 line	K.G.	200
4	Iron Rod 5 line	K.G.	60
5	Binding Rope	K.G.	7
6	Concrete Block customary measurement	Piece	250
7	Bricks	Piece	700
8	Stone for wall	Small Trolley	1
9	Sand (Low quality can be used)	Small Trolley	1
10	Normal wood (6'length x 4x5" any cheaper wood can be used)	Piece	10
11	Normal wood 7' Length x 1.5x3"	Piece	12
12	Normal wood 7'length x 1.5x1.5"	Piece	7
13	Nails 3"	K.G.	1.5
14	Nails 2"	K.G.	1.5
15	Metal bandage of T and L shapes as per sample	Number	10

Reusable Tools

Serial number	Tools	Unit	Estimated Quantity
1	Measuring Bell	Number	4
2	Trowel Big	Number	4
3	Hammer 2 K.G.	Number	4
4	Hammer 3 K.G.	Number	4
5	Measuring Tape (15 Feet)	Number .	4

6	Shovel	Number	4
7	Tagari (Bolt)	Number	4
8	Saw (Wood cutter)	Number	4
9	Hammer to pull out nails	Number	4
10	Chisel, stone chisel (middle Size)	Number	4
11	Mallet (Mugro)	Number	4
12	Die for rod curving 2 line	Number	4
13	Die for rod curving 3 line	Number	4
14	Die for rod curving 4 line	Number	4
15	Die for rod curving 5 line	Number	4
16	Five Kilo Big Hammer	Number	2
17	Pincers for catching iron rod	Number	4
18	Pick	Number	4
19	Khudal (Spade)	Number	2
20	Spirit level	Number	4
21	Hacksaw for iron cutting	Number	4
22	12 inches File	Number	2
23	Pliers	Number	4
24	Scissors (For cutting corrugated sheet)	Number	4
25	Pipe of ¾ inch with 1.5 feet length for curving rod	Number	16
26	Rod cutting of 2-5 thread (suta)	Number	4
27	Half inch handy Auger for making hole in the wood	Number	2