

1 World Housing Type #

1.1 Building Type: _____

1.1.1 Indigenous name for the housing type: _____

1.2 Country: _____

1.3 Region(s) Where Found: (Provide the name(s) of the region(s) where this housing type exists; the region might indicate state, province or a similar political entity; if possible, indicate percentage this housing type as a fraction of the entire housing stock in the region.)

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1.4 Summary: (Provide a brief summary of the housing type; the summary should include the description of building function, structural strengths and deficiencies, and expected seismic performance.)

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1.5 How long has this construction type been practiced?

Less than 25 years
26-50 years
51-75 years
76-100 years
101-200 years
More than 200 years

1.7 Building Occupancy: Select all that apply

Residential, unknown type
Single dwelling
Multi-unit, unknown type
Residential, 2 units (duplex)
Residential, 3-4 units
Residential, 5-9 units
Residential, 10-19 units
Residential, 20-49 units
Residential, 50+ units
Temporary lodging
Institutional housing
Mobile home
Informal housing
Mixed Residential/Commercial
Other

Additional comments (e.g. specific year construction type started being practiced)

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2 **Structural Features**

2.1 Typical Number of Stories: _____

2.2 Plan Shape: (Select the typical shape of a building plan for this construction type)

Unknown plan shape
Square, solid
Square, with an opening in plan
Rectangular, solid
Rectangular, with an opening in plan
L-shape
Curved, solid (e.g. circular, elliptical, ovoid)
Curved, with an opening in plan
Triangular, solid
Triangular, with an opening in plan
Polygonal, solid (e.g. trapezoid, pentagon, hexagon)
Polygonal, with an opening in plan
E-shape
H-shape
S-shape
T-shape
U- or C-shape
X-shape
Y-shape
Irregular plan shape
Other

Additional comments on plan shape: (If Other selected above, please describe.)

2.3 Type of Structural System: Select all that apply

Material	Type of Load-Bearing Structure	Subtypes
Masonry	Stone Masonry Walls	Rubble stone (field stone) in mud/lime mortar or without mortar (usually with timber roof)
		Massive stone masonry (in lime/cement mortar)
	Earthen/Mud/Adobe/Rammed Earthen Walls	Mud walls
		Mud walls with horizontal wood elements
		Adobe block walls
		Rammed earth/Pile construction
	Unreinforced masonry walls	Brick masonry in mud/lime mortar
		Brick masonry in mud mortar with vertical posts
		Brick masonry in lime/cement mortar
		Concrete block masonry in cement mortar
	Confined masonry	Clay brick/tile masonry with wooden posts and beams
		Clay brick masonry with concrete posts/tie columns and beams
		Concrete blocks, tie columns and beams
	Reinforced masonry	Stone masonry in cement mortar
		Clay brick masonry in cement mortar
		Concrete block masonry in cement mortar
Structural concrete	Moment resisting frame	Flat slab structure
		Designed for gravity loads only, with URM infill walls
		Designed with seismic effects, with URM infill walls
		Designed with seismic effects, with structural infill walls
	Structural wall	Dual system - Frame with shear wall
		Moment frame with in-situ shear walls
		Moment frame with precast shear walls
	Precast concrete	Moment frame
		Prestressed moment frame with shear walls
		Large panel precast walls
		Shear wall structure with walls cast in-situ
		Shear wall structure with precast wall panel structure
Steel	Moment-resisting frame	With brick masonry partitions
		With cast in-situ concrete walls
		With lightweight partitions
	Braced frame	Concentric connections in all panels
		Eccentric connections in a few panels
	Structural wall	Bolted plate
		Welded plate
Wooden structures	Load-bearing timber frame	Thatch
		Walls with bamboo/reed mesh and post (Wattle and Daub)
		Masonry with horizontal beams/planks at intermediate levels
		Post and beam frame (no special connections)
		Wood frame (with special connections)
		Stud wall frame with plywood/gypsum board sheathing
		Wooden panel walls
Other	Seismic protections systems	Building protected with base-isolation
		Building protected with seismic dampers
	Hybrid systems	Other
Other		

Additional comments on structural system: (If Other selected, please explain. If there is more than one type of structural system, please explain.)

2.3.1 Gravity load-bearing systems: (Describe the key elements)

2.3.2 Lateral load-resisting systems: (Describe the key elements)

2.4 Type of infill wall material (if applicable)

2.5 Type of Foundation: (Select all that apply)

Shallow Foundation: Wall or column embedded in soil, without footing
Shallow Foundation: Rubble stone, fieldstone isolated footing
Shallow Foundation: Rubble stone, fieldstone strip footing
Shallow Foundation: Reinforced concrete isolated footing
Shallow Foundation: Reinforced concrete strip footing
Shallow Foundation: Mat foundation
Shallow Foundation: No foundation
Deep Foundation: Reinforced concrete bearing piles
Deep Foundation: Reinforced concrete skin friction piles
Deep Foundation: Steel bearing piles
Deep Foundation: Wood piles
Deep Foundation: Steel skin friction piles
Deep Foundation: Cast in place concrete piers
Deep Foundation: Caissons
Other Foundation

Additional comments on foundation: (If other selected, please explain. If there is more than one foundation type, please explain)

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2.6 Type of Floor System: (Select all that apply)

No elevated or suspended floor system (single-storey building)
Masonry floor, unknown
Vaulted masonry floor
Shallow-arched masonry floor
Composite cast-in-place reinforced concrete and masonry floor system
Earthen floor, unknown
Concrete floor, unknown
Cast-in-place beamless reinforced concrete floor
Precast concrete floor with reinforced concrete topping
Precast concrete floor without reinforced concrete topping
Metal floor, unknown
Metal beams, trusses, or joists supporting light flooring
Metal floor beams supporting precast concrete slabs
Composite steel deck and concrete slab
Wooden floor, unknown
Wooden beams or trusses and joists supporting light flooring
Wooden beams or trusses and joists supporting heavy flooring
Wood-based sheets on joists or beams
Plywood panels or other light-weight panels for floor
Other floor system

Additional comments on floor system: (e.g. is floor diaphragm rigid or flexible?)

2.7 Type of Roof System and Roofing Material: (Select all that apply)

Roof material, unknown
Masonry roof, unknown
Vaulted masonry roof
Shallow-arched masonry roof
Composite masonry and concrete roof system
Earthen roof, unknown
Vaulted earthen roof
Concrete roof, unknown
Cast-in-place beamless reinforced concrete roof
Cast-in-place beam-supported reinforced concrete roof
Precast concrete roof with reinforced concrete topping
Precast concrete roof without reinforced concrete topping
Metal roof, unknown
Metal beams or trusses supporting light roofing
Metal roof beams supporting precast concrete slabs
Composite steel roof deck and concrete slab
Wooden roof, unknown
Wooden structure with light roof covering
Wooden beams or trusses with heavy roof covering
Wood-based sheets on rafters or purlins
Plywood panels or other light-weight panels for roof
Bamboo, straw or thatch roof
Inflatable or tensile membrane roof
Fabric roof, other
Roof system, other

Additional comments on roof system: (e.g. is roof diaphragm rigid or flexible?)

3 Building Construction Process

3.1 Is this construction type addressed by codes/standards? ____YES ____NO

3.1.1 If yes, provide the title of the code or standard and the year when the first code/standard addressing this type of construction had been issued? Include any applicable codes.

3.1.2 If yes, are the code provisions followed in the construction process?

____YES ____NO

3.2 Are building permits required? ____YES ____NO

3.3 Explain unit construction cost: per m² of built-up area expressed using a currency used in the region, and, if possible, an equivalent amount in \$US in the brackets e.g. 200 Rs/m² (5 \$US/m²) (When calculating the conversion between local currency and U.S. dollars, please use the market rate if it is different from the official rate))

4.1 Typical number of inhabitants? Day _____ Night _____

Very low-income class (very poor)
Low-income class (poor)
Middle-income class
High-income class (rich)

Rich = top 20% of the population

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_____ YES _____ NO

5 Earthquake Performance During Past Earthquakes

5.1 Damage patterns observed in past earthquakes for this construction type:

5.2 Seismic Deficiency: Structural System (Frames, walls, etc.)

5.3 Seismic Deficiency: Foundation

5.4 Seismic Vulnerability Rating: Prior to filling out the information required in the table below, please read the Guidelines here:

<http://www.world-housing.net/wp-content/uploads/2015/06/Seismic-Vulnerability-Rating.pdf>

(Select one- use symbols listed in the Notes below the table)

	High Vulnerability (Very Poor Seismic Performance) A	B	Medium Vulnerability C	D	E	Low Vulnerability (Excellent Seismic Performance) F
Seismic Vulnerability Class						

Notes:

o = Expected seismic vulnerability class

/- = Probable vulnerability range –lower bound

-/ = Probable vulnerability range-upper bound

Once you have determined the seismic vulnerability class for this construction type, copy the above symbols: o, /-, and -/ as appropriate and place them into the table.

Additional comments (e.g. explain how this vulnerability rating was assigned)

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Appendix 1: General Information Images

File Location	
File Caption	
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Appendix 2: References

Citation	
File Location	
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File Location	

Appendix 3: Authors

Author 1 Name	
Author 1 Title	
Author 1 Affiliation	
Author 1 Location	
Author 1 Email	
Author 2 Name	
Author 2 Title	
Author 2 Affiliation	
Author 2 Location	
Author 2 Email	
Author 3 Name	
Author 3 Title	
Author 3 Affiliation	
Author 3 Location	
Author 3 Email	
Author 4 Name	
Author 4 Title	
Author 4 Affiliation	
Author 4 Location	
Author 4 Email	
Author 5 Name	
Author 5 Title	
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Author 5 Location	
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Appendix 4: Reviewer

Reviewer 1 Name	
Reviewer 1 Title	
Reviewer 1 Affiliation	
Reviewer 1 Location	
Reviewer 1 Email	
Reviewer 2 Name	
Reviewer 2 Title	
Reviewer 2 Affiliation	
Reviewer 2 Location	
Reviewer 2 Email	

Last Updated: _____

PAGER-STR (Jaiswal and Wald 2008): _____

For more information regarding the PAGER-STR number, see

http://www.world-housing.net/wp-content/uploads/2015/07/Jaiswal_Wald_2008_14WCEE_PAGER_Inventory.pdf

GEM Tax-T (Brzav et al. 2012): _____

For more information regarding the PAGER-STR number, see

http://www.world-housing.net/wp-content/uploads/2012/12/BuildingTaxonomyV2_Overview-INTERIM.pdf