

**WHE-PAGER PROJECT: BUILDING CONSTRUCTION VULNERABILITY AND INVENTORY**

This form is divided into 3 parts:

- Part I: Contributors' Information**
- Part II: Summary of Construction Types, Vulnerability and Population**
- Part III: Colleagues Consulted, Additional Sources of Information Used**

**PART I: Contributors' Information**

1. Country or Region (if you are only responding for part of a country, please indicate which geographic region.  
 Note: the WHE strongly prefers national estimates, unless you have data that clearly apply to only one region):

Spain

2. Name(s) of Contributors

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3. Affiliation (Organization)

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4. Mailing address (include city and country)

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6. Your self-rating of expertise or confidence: On a scale of 1=low and 5=high, please estimate your level of expertise:

4.5

**Part II: Summary of Construction Types, Vulnerability and Population**

| Construction Material<br>(choose from drop-down list) | Construction Subtype (Choose from drop-down list--refer to instructions to see complete list) | Probability of collapse (%) of building type when subjected to the specified shaking intensity |                    |                   |                  | Fraction of population who LIVES in this building type |       | Fraction of population who WORKS in this building type |       | Peak average # of occupants per building |    |
|---|---|--|--------------------|-------------------|------------------|--|-------|--|-------|--|----|
|   |   | IX (-0.65-1.24g)   | VIII (-0.34-0.65g) | VII (-0.18-0.34g) | VI (-0.092-.18g) | urban  | rural | urban  | rural |  |    |
| 1   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 2   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 3   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 4   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 5   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 6   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 7   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 8   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 9   |   |  |                    |                   |                  |  |       |  |       |  |    |
| 10  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 11  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 12  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 13  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 14  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 15  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 16  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 17  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 18  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 19  |   |  |                    |                   |                  |  |       |  |       |  |    |
| 20  |   |  |                    |                   |                  |  |       |  |       |  |    |
| For other combinations, use blank fields below:       |   |  |                    |                   |                  |  |       |  |       |  |    |
| 21  | Masonry   | Unreinforced brick masonry in mud mortar   | ___                | 15                | 6.7              | 1.4  | 15%   | 23%  | 12%   | 16%                                      | 32 |
| 22  | Masonry   | Unreinforced brick masonry in cement mortar with reinforced concrete floor/roof slabs          | ___                | 11                | 6                | 1  | 31    | 36   | 18    | 18                                       | 46 |

|    |                     |  |     |   |     |   |    |    |    |    |    |
|----|---------------------|--|-----|---|-----|---|----|----|----|----|----|
| 23 | Structural concrete | Concrete moment resisting frame flat slab structure        | --- | 4 | 2   | 1 | 46 | 38 | 69 | 66 | 81 |
| 24 | Steel               | Steel moment resisting frame with brick masonry partitions | --- | 1 | 0.3 | 0 | 5  | 2  | 1  | 0  | 72 |
| 25 | Steel               | Concrete shear walls cast in-situ                          | --- | 1 | 0.3 | 0 | 2  | 0  | 0  | 0  | 65 |
| 26 | Wood                | Load-bearing timber frame with stone/brick masonry infill  | --- | 1 | 0.5 | 0 | 1  | 1  | 0  | 0  | 6  |
| 27 |                     |  |     |   |     |   |    |    |    |    |    |

### Part III: Colleagues Consulted, Additional Sources of Information Used

1 Name

Affiliation

Mailing address

e-mail

2 Name

Affiliation

Mailing address

e-mail

3 Name

Affiliation

Mailing address

e-mail

4 Sources of information you used (websites, publications, etc.) Please provide as much detail as possible.

Lantada, N. (2007) Evaluación del riesgo sísmico mediante métodos avanzados y técnicas GIS. Aplicación a la ciudad de Barcelona. PhD Thesis, Technical University of Catalonia, Barcelona (<http://tdcat.cbuc.es/>)

Bonett, R.L. (2003) Vulnerabilidad y riesgo sísmico de edificios. Aplicación a entornos urbanos en zonas de amenaza alta y moderada. PhD Thesis, Technical University of Catalonia, Barcelona (<http://tdcat.cbuc.es/>).

Moreno R. (2006) Evaluación del riesgo sísmico en edificios mediante análisis estático no lineal: Aplicación a diversos escenarios sísmicos de Barcelona. PhD Thesis, Technical University of Catalonia, Barcelona .

5 Additional comments

Other sources: Instituto Nacional de Estadística (INE) ([www.ine.es](http://www.ine.es)) and Departamento de Estadística del Ayuntamiento de Barcelona ([www.bcn.es](http://www.bcn.es))