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):

Greece

2. Name(s) of Contributors

Andreas Kappos and G. Panagopoulos

3. Affiliation (Organization)

University of Thessaloniki

4. Mailing address (include city and country)

University Campus, 54124, Thessaloniki, Greece

5. E-mail

ajkap@civil.auth.gr, panagop@civil.auth.gr

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

Part II: Summary of Construction Types, Vulnerability and Population

	Construction Material (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	
20											
	For other combinations, use blank fields below:										
21	16	R/C Moment Resisting Frames Old Codes - Pre 1985	1	0.35	0.1	0.05	50	25			
22	16	R/C Moment Resisting Frames Old Codes - Post 1985	0.4	0.1	0.05	0	7.5	9			
23	19	R/C Dual Structures (Frames & Shear Walls) Old Codes - Pre 1985	0.75	0.25	0.1	0.01	12.5	3			
24	19	R/C Dual Structures (Frames & Shear Walls) Old Codes - Post 1985	0.35	0.05	0.01	0	22	9			
25	1	Stone masonry	55	10	5	3	1.5	23			
26	9	Unreinforced brick masonry	7.5	1	0.1	0	5.5	30			
27											

ESTIMATES MAKING DIFFERENT ASSUMPTIONS ABOUT COLLAPSE (SEE NOTES BELOW):

16	R/C Moment Resisting Frames Old Codes - Pre 1985	15	5	2	0.05	50	25			
16	R/C Moment Resisting Frames Old Codes - Post 1985	4	0.5	0.02	0	7.5	9			
19	R/C Dual Structures (Frames & Shear Walls) Old Codes - Pre 1985	11.5	3	0.15	0	12.5	3			
19	R/C Dual Structures (Frames & Shear Walls) Old Codes - Post 1985	3	0.3	0.01	0	22	9			
1	Stone masonry	80	14	8	5	1.5	23			
9	Unreinforced brick masonry	37	4	0.6	0.2	5.5	30			

Part III: Colleagues Consulted, Additional Sources of Information Used

1 Name
Affiliation
Mailing address

e-mail

5 Additional comments

Message from first author Andreas Kappos:

I am pleased to attach the completed form for Greece (WHE_PAGER_form(AUThGreece).pdf); the work has been carried out by G.

Panagopoulos (PhD student) and myself. We have been in continuous contact with Antonios Pomonis and this has proved to be a very fruitful exchange of opinion and data. We finally decided to submit two forms for Greece (one by Antonios and one by my group) since a number of features are different in each case, notably the number of building types, as also discussed in previous e-mails (with comments from Agostino Goretti to whom I am also copying this mail). A key difference between the two greek forms is that, while Antonios has included different classes for low-rise and high-rise buildings, but only a single class for the RC structural system, we decided (taking into account different factors) to have only one height class but two classes of RC structural system, i.e. frames (with masonry infills) and dual systems (frames + RC walls, and masonry infills). Despite such differences, we are pleased to note that the reported probabilities of collapse are similar for similar classes, either RC or URM.

In addition to the above form, I include for completeness another one (WHE_PAGER_form(AUTh_heavydamage).pdf) [SEE PAGE 3 HERE], wherein you will notice a different set of probability values. The difference between the 'main' and the additional form is that the first one follows the definition of collapse adopted by PAGER, i.e. physical collapse of at least part of the building, whereas the second one adopts a broader definition of collapse (what is usually called damage state 5, in a range from 0 to 5) i.e. collapse or heavy damage, that often leads to demolition after the earthquake; from the economic point of view the two cases are almost identical, but the number of casualties differs significantly in each case. I believe that this second form is important in the sense that at least some of the forms already included in the WHE-PAGER database convey to me the impression that they are based on the broader rather than the strict definition of 'collapse'; for instance the large probability values in the turkish form are much closer to those of Greece using the broader definition. If the first, strict, definition were used the differences certainly cannot be explained solely on the basis of different quality of construction.

Finally, re. the background of our input, the probability values (in both forms of my group) are based on a re-evaluation of our statistical and hybrid (analytical+statistical) data (I attach a recent paper on our approach), a key element in this re-evaluation being the % of buildings that actually collapsed among those rated as red+purple (damage state 5) in the 1986 Kalamata database, which was the only one wherein we found this type of information.