

ShakeCast Documentation 3.0

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MBT Fragility

Summary: HAZUS Model Building Fragility Table

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High-code fragilities for HAZUS model building types

Table 1. High-code fragilities for HAZUS model building types.

FACILITY TYPE	DESCRIPTION	METRIC	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA
W1H	Wood, Light Frame	PGA	26	0.64	55	0.64	128	0.64	201	0.64
W2H	Wood	PGA	26	0.64	56	0.64	115	0.64	208	0.64

Commercial										
S1LH	Steel Moment Frame, Low Rise	PGA	19	0.64	31	0.64	64	0.64	149	0.64
S1MH	Steel Moment Frame, Mid Rise	PGA	14	0.64	26	0.64	62	0.64	143	0.64
S1HH	Steel Moment Frame, High Rise	PGA	10	0.64	21	0.64	52	0.64	131	0.64
S2LH	Steel Brace Frame, Low Rise	PGA	24	0.64	41	0.64	76	0.64	146	0.64
S2MH	Steel Brace Frame, Mid Rise	PGA	14	0.64	27	0.64	73	0.64	162	0.64
S2HH	Steel Brace Frame, High Rise	PGA	11	0.64	22	0.64	65	0.64	160	0.64
S3H	Steel Light Frame	PGA	15	0.64	26	0.64	54	0.64	100	0.64
S4LH	Steel Frame Shear Wall, Low Rise	PGA	24	0.64	39	0.64	71	0.64	133	0.64
S4MH	Steel Frame Shear Wall, Mid Rise	PGA	16	0.64	28	0.64	73	0.64	156	0.64
S4HH	Steel Frame Shear Wall, High Rise	PGA	13	0.64	25	0.64	69	0.64	163	0.64
C1LH	Concrete Moment Frame, Low Rise	PGA	21	0.64	35	0.64	70	0.64	137	0.64
C1MH	Concrete Moment Frame, Mid Rise	PGA	15	0.64	27	0.64	73	0.64	161	0.64
C1HH	Concrete Moment Frame, High Rise	PGA	11	0.64	22	0.64	62	0.64	135	0.64
C2LH	Concrete Shear Wall,	PGA	24	0.64	45	0.64	90	0.64	155	0.64

MHH	Mobile Homes	PGA	11	0.64	18	0.64	31	0.64	60	0.64
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Moderate-code fragilities for HAZUS model building types

Table 2. Moderate-code fragilities for HAZUS model building types.

FACILITYTYPE	DESCRIPTION	METRIC	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA
W1M	Wood, Light Frame	PGA	24	0.64	43	0.64	91	0.64	134	0.64
W2M	Wood Commercial	PGA	20	0.64	35	0.64	64	0.64	113	0.64
S1LM	Steel Moment Frame, Low Rise	PGA	15	0.64	22	0.64	42	0.64	80	0.64
S1MM	Steel Moment Frame, Mid Rise	PGA	13	0.64	21	0.64	44	0.64	82	0.64
S1HM	Steel Moment Frame, High Rise	PGA	10	0.64	18	0.64	39	0.64	78	0.64
S2LM	Steel Brace Frame, Low Rise	PGA	20	0.64	26	0.64	46	0.64	84	0.64
S2MM	Steel Brace Frame, Mid Rise	PGA	14	0.64	22	0.64	53	0.64	97	0.64
S2HM	Steel Brace Frame, High Rise	PGA	11	0.64	19	0.64	49	0.64	102	0.64
S3M	Steel Light Frame	PGA	13	0.64	19	0.64	33	0.64	60	0.64
S4LM	Steel Frame Shear Wall, Low Rise	PGA	19	0.64	26	0.64	41	0.64	78	0.64
S4MM	Steel Frame Shear Wall, Mid Rise	PGA	14	0.64	22	0.64	51	0.64	92	0.64
S4HM	Steel Frame Shear Wall, High Rise	PGA	12	0.64	21	0.64	51	0.64	97	0.64
C1LM	Concrete Moment Frame, Low	PGA	16	0.64	23	0.64	41	0.64	77	0.64

	Rise									
C1MM	Concrete Moment Frame, Mid Rise	PGA	13	0.64	21	0.64	49	0.64	89	0.64
C1HM	Concrete Moment Frame, High Rise	PGA	11	0.64	18	0.64	41	0.64	74	0.64
C2LM	Concrete Shear Wall, Low Rise	PGA	18	0.64	30	0.64	49	0.64	87	0.64
C2MM	Concrete Shear Wall, Mid Rise	PGA	15	0.64	26	0.64	55	0.64	102	0.64
C2HM	Concrete Shear Wall, High Rise	PGA	12	0.64	23	0.64	57	0.64	107	0.64
PC1M	Precast Concrete Tiltup Wall	PGA	18	0.64	24	0.64	44	0.64	71	0.64
PC2LM	Precast Concrete Frames, Low Rise	PGA	18	0.64	25	0.64	40	0.64	74	0.64
PC2MM	Precast Concrete Frames, Mid Rise	PGA	15	0.64	21	0.64	45	0.64	86	0.64
PC2HM	Precast Concrete Frames, High Rise	PGA	12	0.64	19	0.64	46	0.64	90	0.64
RM1LM	Reinforced Masonry with Wood, Low Rise	PGA	22	0.64	30	0.64	50	0.64	85	0.64
RM1MM	Reinforced Masonry with Wood, Mid Rise	PGA	18	0.64	26	0.64	51	0.64	103	0.64
RM2LM	Reinforced Masonry with Precast Concrete, Low Rise	PGA	20	0.64	28	0.64	47	0.64	81	0.64

RM2MM	Reinforced Masonry with Precast Concrete, Mid Rise	PGA	16	0.64	23	0.64	48	0.64	99	0.64
RM2HM	Reinforced Masonry with Precast Concrete, High Rise	PGA	12	0.64	20	0.64	48	0.64	101	0.64
MHM	Mobile Homes	PGA	11	0.64	18	0.64	31	0.64	60	0.64

Low-code fragilities for HAZUS model building types

Table 3. Low-code fragilities for HAZUS model building types.

FACILITY TYPE	DESCRIPTION	METRIC	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA
W1L	Wood, Light Frame	PGA	20	0.64	34	0.64	61	0.64	95	0.64
W2L	Wood Commercial	PGA	14	0.64	23	0.64	48	0.64	75	0.64
S1LL	Steel Moment Frame, Low Rise	PGA	12	0.64	17	0.64	30	0.64	48	0.64
S1ML	Steel Moment Frame, Mid Rise	PGA	12	0.64	18	0.64	29	0.64	49	0.64
S1HL	Steel Moment Frame, High Rise	PGA	10	0.64	15	0.64	28	0.64	48	0.64
S2LL	Steel Brace Frame, Low Rise	PGA	13	0.64	17	0.64	30	0.64	50	0.64
S2ML	Steel Brace Frame, Mid Rise	PGA	12	0.64	18	0.64	35	0.64	58	0.64
S2HL	Steel Brace Frame, High Rise	PGA	11	0.64	17	0.64	36	0.64	63	0.64
S3L	Steel Light Frame	PGA	10	0.64	13	0.64	20	0.64	38	0.64
S4LL	Steel Frame Shear Wall, Low Rise	PGA	13	0.64	16	0.64	26	0.64	46	0.64

S4ML	Steel Frame Shear Wall, Mid Rise	PGA	12	0.64	17	0.64	31	0.64	54	0.64
S4HL	Steel Frame Shear Wall, High Rise	PGA	12	0.64	17	0.64	33	0.64	59	0.64
S5LL	Steel Frame Unreinforced Wall, Low Rise	PGA	13	0.64	17	0.64	28	0.64	45	0.64
S5ML	Steel Frame Unreinforced Wall, Mid Rise	PGA	11	0.64	18	0.64	34	0.64	53	0.64
S5HL	Steel Frame Unreinforced Wall, High Rise	PGA	10	0.64	18	0.64	35	0.64	58	0.64
C1LL	Concrete Moment Frame, Low Rise	PGA	12	0.64	15	0.64	27	0.64	45	0.64
C1ML	Concrete Moment Frame, Mid Rise	PGA	12	0.64	17	0.64	32	0.64	54	0.64
C1HL	Concrete Moment Frame, High Rise	PGA	10	0.64	15	0.64	27	0.64	44	0.64
C2LL	Concrete Shear Wall, Low Rise	PGA	14	0.64	19	0.64	30	0.64	52	0.64
C2ML	Concrete Shear Wall, Mid Rise	PGA	12	0.64	19	0.64	38	0.64	63	0.64
C2HL	Concrete Shear Wall, High Rise	PGA	11	0.64	19	0.64	38	0.64	65	0.64
C3LL	Concrete Unreinforced Wall, Low Rise	PGA	12	0.64	17	0.64	26	0.64	44	0.64
C3ML	Concrete Unreinforced Wall, Mid Rise	PGA	11	0.64	17	0.64	32	0.64	51	0.64
C3HL	Concrete Unreinforced	PGA	9	0.64	16	0.64	33	0.64	53	0.64

MHL	Mobile Homes	PGA	11	0.64	18	0.64	31	0.64	60	0.64
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Pre-code fragilities for HAZUS model building types

Table 4. Pre-code fragilities for HAZUS model building types.

FACILITYTYPE	DESCRIPTION	METRIC	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA	ALPHA	BETA
W1P	Wood, Light Frame	PGA	18	0.64	29	0.64	51	0.64	77	0.64
W2P	Wood Commercial	PGA	12	0.64	19	0.64	37	0.64	60	0.64
S1LP	Steel Moment Frame, Low Rise	PGA	9	0.64	13	0.64	22	0.64	38	0.64
S1MP	Steel Moment Frame, Mid Rise	PGA	9	0.64	14	0.64	23	0.64	39	0.64
S1HP	Steel Moment Frame, High Rise	PGA	8	0.64	12	0.64	22	0.64	38	0.64
S2LP	Steel Brace Frame, Low Rise	PGA	11	0.64	14	0.64	23	0.64	39	0.64
S2MP	Steel Brace Frame, Mid Rise	PGA	10	0.64	14	0.64	28	0.64	47	0.64
S2HP	Steel Brace Frame, High Rise	PGA	9	0.64	13	0.64	29	0.64	50	0.64
S3P	Steel Light Frame	PGA	8	0.64	10	0.64	16	0.64	30	0.64
S4LP	Steel Frame Shear Wall, Low Rise	PGA	10	0.64	13	0.64	20	0.64	36	0.64
S4MP	Steel Frame Shear Wall, Mid Rise	PGA	9	0.64	13	0.64	25	0.64	43	0.64
S4HP	Steel Frame Shear Wall, High Rise	PGA	9	0.64	14	0.64	27	0.64	47	0.64
S5LP	Steel Frame Unreinforced Wall, Low Rise	PGA	11	0.64	14	0.64	22	0.64	37	0.64

S5MP	Steel Frame Unreinforced Wall, Mid Rise	PGA	9	0.64	14	0.64	28	0.64	43	0.64
S5HP	Steel Frame Unreinforced Wall, High Rise	PGA	8	0.64	14	0.64	29	0.64	46	0.64
C1LP	Concrete Moment Frame, Low Rise	PGA	10	0.64	12	0.64	21	0.64	36	0.64
C1MP	Concrete Moment Frame, Mid Rise	PGA	9	0.64	13	0.64	26	0.64	43	0.64
C1HP	Concrete Moment Frame, High Rise	PGA	8	0.64	12	0.64	21	0.64	35	0.64
C2LP	Concrete Shear Wall, Low Rise	PGA	11	0.64	15	0.64	24	0.64	42	0.64
C2MP	Concrete Shear Wall, Mid Rise	PGA	10	0.64	15	0.64	30	0.64	50	0.64
C2HP	Concrete Shear Wall, High Rise	PGA	9	0.64	15	0.64	31	0.64	52	0.64
C3LP	Concrete Unreinforced Wall, Low Rise	PGA	10	0.64	14	0.64	21	0.64	35	0.64
C3MP	Concrete Unreinforced Wall, Mid Rise	PGA	9	0.64	14	0.64	25	0.64	41	0.64
C3HP	Concrete Unreinforced Wall, High Rise	PGA	8	0.64	13	0.64	27	0.64	43	0.64
PC1P	Precast Concrete Tiltup Wall	PGA	11	0.64	14	0.64	21	0.64	35	0.64
PC2LP	Precast Concrete Frames, Low Rise	PGA	10	0.64	13	0.64	19	0.64	35	0.64
PC2MP	Precast Concrete	PGA	9	0.64	13	0.64	24	0.64	42	0.64

	Frames, Mid Rise									
PC2HP	Precast Concrete Frames, High Rise	PGA	9	0.64	13	0.64	25	0.64	43	0.64
RM1LP	Reinforced Masonry with Wood, Low Rise	PGA	13	0.64	16	0.64	24	0.64	43	0.64
RM1MP	Reinforced Masonry with Wood, Mid Rise	PGA	11	0.64	15	0.64	28	0.64	50	0.64
RM2LP	Reinforced Masonry with Precast Concrete, Low Rise	PGA	12	0.64	15	0.64	22	0.64	41	0.64
RM2MP	Reinforced Masonry with Precast Concrete, Mid Rise	PGA	10	0.64	14	0.64	26	0.64	47	0.64
RM2HP	Reinforced Masonry with Precast Concrete, High Rise	PGA	9	0.64	13	0.64	27	0.64	50	0.64
URMLP	Unreinforced Masonry, Low Rise	PGA	13	0.64	17	0.64	26	0.64	37	0.64
URMMP	Unreinforced Masonry, Mid Rise	PGA	9	0.64	13	0.64	21	0.64	38	0.64
MHP	Mobile Homes	PGA	8	0.64	11	0.64	18	0.64	34	0.64

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Tags:

troubleshooting (tag_troubleshooting)

shakecast_v3 (tag_shakecast_v3)

