

Table 1. Adopted fragility and consequence function for drift-sensitive components

Component	Fragility Functions			Repair/replacement cost (in USD)		
	DS1	DS2	DS3	DS1	DS2	DS3
Full-height partitions	Retamales et al. (2013) DS1, type 1c	Retamales et al. (2013) DS2, type 1c	Retamales et al. (2013) DS3, type 1c	78 (0.268)²	186 (0.101)²	345 (0.180)²
Partial-height partitions	Retamales et al. (2013) DS1, type 3	Retamales et al. (2013) DS2, type 3	Retamales et al. (2013) DS3, type 3	78 (0.268)²	186 (0.101)²	345 (0.180)²
Glazing partitions	B2023.001, DS1	B2023.001, DS2	-	1,370 (0.119)¹	B2022.001, DS1	-
Exterior glazing	B2022.001, DS1	-	-	B2022.001, DS1	-	-
Precast cladding	Baird et al. (2014) DS1, slotted connection	Baird et al. (2014) DS2, slotted connection	Baird et al. (2014) DS3, slotted connection	Baird et al. (2014) DS1, slotted connection	Baird et al. (2014) DS2, slotted connection	Baird et al. (2014) DS3, slotted connection
Stairs	C2011.011b, DS1	C2011.011b, DS2	C2011.011b, DS3	C2011.011b, DS1	C2011.011b, DS2	C2011.011b, DS3
Ceiling – 4m by 2.5m	0.72 g (0.4)²	-	-	653 (0.06)³	-	-
Ceiling – 4m by 3m	0.72 g (0.4)²	-	-	784 (0.06)³	-	-
Ceiling – 4m by 4m	0.72 g (0.4)²	-	-	1050 (0.06)³	-	-
Ceiling – 4m by 8m	0.70 g (0.4)²	-	-	2090 (0.06)³	-	-
Ceiling – 6.5m by 2m	0.46 g (0.4)²	-	-	849 (0.06)³	-	-
Ceiling – 6.5m by 8m	0.46 g (0.4)²	-	-	3400 (0.06)³	-	-
Ceiling – bracing	0.72 g (0.4)²	-	-	1880 (0.06)³	-	-
Traction elevators	D1014.011, DS1	-	-	D1014.011, DS1	-	-
Water pipe system	D2021.013b, DS1	D2021.013a, DS1	D2021.013a, DS2	D2021.012b, DS1	D2021.014a, DS1	D2021.014a, DS2
Sanitary pipe system	D2031.013b, DS1	-	-	D2031.013b, DS1	-	-
HVAC – chiller capacity	D3031.013e, DS1	-	-	153,000 (0.172)¹	-	-
HVAC – Cooling tower capacity	D3031.023e, DS1	-	-	78,000 (0.176)¹	-	-
HVAC – ducts < 6 ft ²	D3041.011c, DS1	D3041.011c, DS2	-	1,250 (0.127)¹	15,950 (0.136)¹	-
HVAC – drops and diffusers	D3041.032c, DS1	-	-	D3041.032a, DS1	-	-
HVAC – coils	D3041.001c, DS1	D3041.001c, DS2	-	D3041.001a, DS1	D3041.001a, DS2	-
HVAC – VAV boxes	D3041.041b, DS1	-	-	1,500 (0.139)¹	-	-
HVAC – air handling units	D3052.013e, DS1	-	-	MDS1 – 1,500 (0.171)¹ MDS2 – 59,000 (0.174)¹	-	-
Fire sprinklers - drops	D4011.033a, DS1	-	-	D4011.033a, DS1	-	-
Fire sprinklers - pipes	D4011.023a, DS1	D4011.023a, DS2	-	D4011.021a, DS1	D4011.021a, DS2	-
Transformers 100 to 350 kVA	D5011.013e, DS1	-	-	24,250 (0.181)¹	-	-

¹These are cases where the median values were obtained from the consequence estimation tool spreadsheet. The dispersion were obtained from PACT where available, and assumed to be 0.4 otherwise.

²These values were obtained from Dhakal et al. (2016a).

³These values were obtained from Dhakal et al. (2016b).

References

Baird A (2014). "Seismic performance of precast concrete cladding systems". PhD Dissertation, University of Canterbury, 544 pp.

Dhakal RP, MacRae GA, Pourali A and Paganotti G. (2016a). "Seismic fragility of suspended ceiling systems used in NZ based on component tests". *Bulletin of the New Zealand Society for Earthquake Engineering*, **49**(1): 45-63.

Dhakal RP, Pourali A and Saha S. (2016b). "Simplified seismic loss functions for suspended ceilings and drywall partitions". *Bulletin of the New Zealand Society for Earthquake Engineering*, **49**(1): 64-78.

Retamales R, Davies R, Mosqueda G and Filiatrault A (2013). "Experimental seismic fragility of cold-formed steel framed gypsum partition walls". *Journal of Structural Engineering*, **139**(8): 1285-1293.