

Company: Risk Management Solutions, Inc.

Purpose: This spreadsheet includes the Form V-2 ranges of change in damage (2015 ROA) using both RiskLink 17.0 (as approved on May 12, 2017) and those produced from RiskLink 18.0 (released on July 16, 2018).

Sheets:

There are 3 sheets.

The first sheet (named RMS15FormV2_RL17.0) represents the range of changes in damage generated by RiskLink 17.0.

The second sheet (named RMS15FormV2_RL18.0) represents the updated range of changes in damage generated by RiskLink 18.0.

The third sheet (named RMS15FormV2_Delta) represents the percentage change in changes in damage between the two results, calculated as $([XXXX_RL18.0] - [XXXX_RL17.0]) / [XXX_RL17.0]$.

Form V-2: Mitigation Measures and Secondary Characteristics, Range of Changes in Damage

Modeling Organization: RMS
Model Name & Version Number: RiskLink 17.0 (Build 1825)
Model Release Date: April, 2017

Individual Mitigation Measures		Percent Changes in Damage ((Reference Damage Rate - Mitigated Damage Rate)/ Reference Damage Rate) *100										
		Frame Building					Masonry Building					
		Wind Speed (MPH)					Wind Speed (MPH)					
		60	85	110	135	160	60	85	110	135	160	
	Reference Building											
Roof Strength	Braced Gable	1.8%	1.8%	0.9%	0.0%	0.0%	1.8%	1.8%	0.9%	0.0%	0.0%	
	Hip	30.9%	42.5%	36.9%	16.2%	0.0%	30.9%	42.5%	36.9%	16.2%	0.0%	
Roof Covering	Metal	6.8%	9.6%	9.1%	0.0%	0.0%	6.8%	9.6%	9.1%	0.0%	0.0%	
	ASTM D7158 Class H Shingles (150 mph)	39.0%	25.0%	5.0%	0.0%	0.0%	39.0%	25.0%	5.0%	0.0%	0.0%	
	Membrane	2.3%	2.1%	2.0%	0.0%	0.0%	2.3%	2.1%	2.0%	0.0%	0.0%	
	Nailing of Deck	8d Nails	22.5%	56.2%	44.4%	17.0%	4.8%	22.5%	56.3%	44.4%	17.0%	7.5%
		8d Nails HWS	25.0%	62.5%	51.9%	22.3%	5.8%	25.0%	62.5%	51.9%	22.3%	8.5%
10d Nails		25.0%	65.6%	55.6%	24.1%	7.7%	25.0%	65.6%	55.6%	24.1%	10.4%	
Roof-Wall Strength												
	Clips	13.0%	25.0%	23.3%	20.0%	14.2%	13.0%	25.0%	23.3%	20.0%	16.7%	
	Straps	17.4%	46.2%	43.3%	29.6%	14.2%	17.4%	46.3%	43.3%	29.6%	16.7%	
Wall-Floor Strength												
	Ties or Clips	0.0%	0.0%	15.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Straps	0.0%	0.0%	15.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Wall Foundation Strength												
	Larger Anchor or Closer Spacing	0.0%	0.0%	15.0%	15.0%	0.0%	-	-	-	-	-	
	Straps	0.0%	0.0%	15.0%	15.0%	0.0%	-	-	-	-	-	
	Vertical Reinforcing	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	
Opening Protection	Window Shutters	Structural Wood Panel	2.0%	14.2%	25.9%	15.1%	0.0%	2.0%	14.2%	25.9%	15.1%	0.0%
		Metal	5.9%	24.5%	39.8%	19.8%	0.0%	5.9%	24.5%	39.8%	19.8%	0.0%
	Door and Skylight Cover	21.6%	38.7%	44.4%	24.5%	0.0%	21.6%	38.7%	44.4%	24.5%	0.0%	
Window, Door, Skylight Strength	Windows											
		Impact Rated	11.8%	32.1%	44.4%	24.5%	0.0%	11.8%	32.1%	44.4%	24.5%	0.0%
	Entry Doors	2.0%	11.3%	16.7%	8.5%	0.0%	2.0%	11.3%	16.7%	8.5%	0.0%	
	Garage Doors	Meets Windborne	2.0%	11.3%	16.7%	8.5%	0.0%	2.0%	11.3%	16.7%	8.5%	0.0%
		Debris Requirements	2.0%	9.4%	21.3%	10.4%	0.0%	2.0%	9.4%	21.3%	10.4%	0.0%
	Sliding Glass Doors	2.0%	9.4%	21.3%	10.4%	0.0%	2.0%	9.4%	21.3%	10.4%	0.0%	
Skylight	Impact Rated	2.0%	9.4%	21.3%	10.4%	0.0%	2.0%	9.4%	21.3%	10.4%	0.0%	
Mitigation Measures In Combination		Percent Changes in Damage ((Reference Damage Rate - Mitigated Damage Rate)/ Reference Damage Rate) *100										
		Frame Building					Masonry Building					
		Wind Speed (MPH)					Wind Speed (MPH)					
		60	85	110	135	160	60	85	110	135	160	
Building	Mitigated Building	61.7%	84.9%	77.8%	50.4%	20.7%	61.7%	84.9%	77.8%	50.4%	23.0%	

Form V-2: Mitigation Measures and Secondary Characteristics, Range of Changes in Damage

Modeling Organization: RMS
Model Name & Version Number: RiskLink 18.0 (Build 1930)
Model Release Date: July, 2018

Individual Mitigation Measures		Percent Changes in Damage ((Reference Damage Rate - Mitigated Damage Rate)/ Reference Damage Rate) *100										
		Frame Building					Masonry Building					
		Wind Speed (MPH)					Wind Speed (MPH)					
		60	85	110	135	160	60	85	110	135	160	
	Reference Building											
Roof Strength	Braced Gable	1.8%	1.8%	0.9%	0.0%	0.0%	1.8%	1.8%	0.9%	0.0%	0.0%	
	Hip	30.9%	42.5%	36.9%	16.2%	0.0%	30.9%	42.5%	36.9%	16.2%	0.0%	
Roof Covering	Metal	6.8%	9.6%	9.1%	0.0%	0.0%	6.8%	9.6%	9.1%	0.0%	0.0%	
	ASTM D7158 Class H Shingles (150 mph)	39.0%	25.0%	5.0%	0.0%	0.0%	39.0%	25.0%	5.0%	0.0%	0.0%	
	Membrane	2.3%	2.1%	2.0%	0.0%	0.0%	2.3%	2.1%	2.0%	0.0%	0.0%	
	Nailing of Deck	8d Nails	22.5%	56.2%	44.4%	17.0%	4.8%	22.5%	56.3%	44.4%	17.0%	7.5%
		8d Nails HWS	25.0%	62.5%	51.9%	22.3%	5.8%	25.0%	62.5%	51.9%	22.3%	8.5%
10d Nails		25.0%	65.6%	55.6%	24.1%	7.7%	25.0%	65.6%	55.6%	24.1%	10.4%	
Roof-Wall Strength												
	Clips	13.0%	25.0%	23.3%	20.0%	14.2%	13.0%	25.0%	23.3%	20.0%	16.7%	
	Straps	17.4%	46.2%	43.3%	29.6%	14.2%	17.4%	46.3%	43.3%	29.6%	16.7%	
Wall-Floor Strength												
	Ties or Clips	0.0%	0.0%	15.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Straps	0.0%	0.0%	15.0%	15.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Wall Foundation Strength												
	Larger Anchor or Closer Spacing	0.0%	0.0%	15.0%	15.0%	0.0%	-	-	-	-	-	
	Straps	0.0%	0.0%	15.0%	15.0%	0.0%	-	-	-	-	-	
	Vertical Reinforcing	-	-	-	-	-	0.0%	0.0%	0.0%	0.0%	0.0%	
Opening Protection	Window Shutters	Structural Wood Panel	2.0%	14.2%	25.9%	15.1%	0.0%	2.0%	14.2%	25.9%	15.1%	0.0%
		Metal	5.9%	24.5%	39.8%	19.8%	0.0%	5.9%	24.5%	39.8%	19.8%	0.0%
	Door and Skylight Cover	21.6%	38.7%	44.4%	24.5%	0.0%	21.6%	38.7%	44.4%	24.5%	0.0%	
Window, Door, Skylight Strength	Windows											
		Impact Rated	11.8%	32.1%	44.4%	24.5%	0.0%	11.8%	32.1%	44.4%	24.5%	0.0%
	Entry Doors	2.0%	11.3%	16.7%	8.5%	0.0%	2.0%	11.3%	16.7%	8.5%	0.0%	
	Garage Doors	Meets Windborne	2.0%	11.3%	16.7%	8.5%	0.0%	2.0%	11.3%	16.7%	8.5%	0.0%
		Debris Requirements	2.0%	9.4%	21.3%	10.4%	0.0%	2.0%	9.4%	21.3%	10.4%	0.0%
	Sliding Glass Doors	2.0%	9.4%	21.3%	10.4%	0.0%	2.0%	9.4%	21.3%	10.4%	0.0%	
Skylight	Impact Rated	2.0%	9.4%	21.3%	10.4%	0.0%	2.0%	9.4%	21.3%	10.4%	0.0%	
Mitigation Measures In Combination		Percent Changes in Damage ((Reference Damage Rate - Mitigated Damage Rate)/ Reference Damage Rate) *100										
		Frame Building					Masonry Building					
		Wind Speed (MPH)					Wind Speed (MPH)					
		60	85	110	135	160	60	85	110	135	160	
Building	Mitigated Building	61.7%	84.9%	77.8%	50.4%	20.7%	61.7%	84.9%	77.8%	50.4%	23.0%	

