

### Design Criteria for Span Tables:

Values in the maximum allowable span tables provided herein are subject to the following general criteria and additional criteria shown on individual span tables sheets. Values in span tables are based on the same engineering methodology and calculation algorithms used for U-Builder and are provided here for reference.

#### Building Assumptions

- Building Risk Category: II
- Mean Roof Height: 30ft
- Roof Pitch: 0°-45°
- Site Elevation: 0 ft

#### Wind Design Assumptions

- Wind loads used are based on ASCE 7-22 Sec. 29.4.4
- Exposure Category B, C, or D
- Basic Wind Speed = 90 – 180 mph
- Level terrain. Topographic factor,  $k_{zt} = 1.0$
- $\gamma_E = 1.0$  for 'Interior' spans,  $\gamma_E = 1.5$  for 'Exposed' spans (ASCE 7-22, Fig. 29.4-7)

#### Snow Design Assumptions

- Ground Snow Load = 0-100 psf
- Exposure Factor coefficients of Partially Exposed condition
- Thermal Factor = 1.2
- Results based on uniform snow load

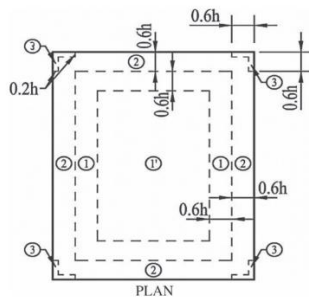
#### Seismic Design Assumptions

- 0.2-s Spectral Response Acceleration
- $S_s = 1.25$  and 3 with  $S_{D5} = 1, 2.4$  respectively per criteria shown on individual span tables sheets.
- $S_1 = 0.5, S_{D1} = 0.6$
- Seismic site class D

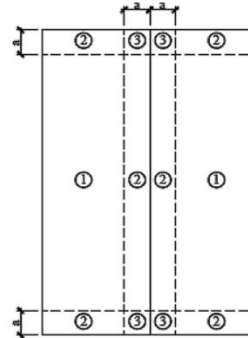
## Span Tables

### Array Assumptions

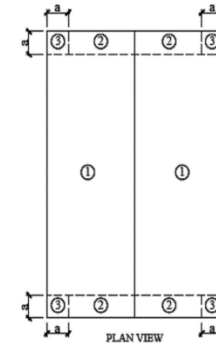
- Module orientation and Rail direction per criteria shown on individual span tables sheets.
- Maximum module dimensions of 40.1" x 67" (~19 sq.ft, 47.65 lbs) and 41" x 80" (~23 sq.ft, 58.6 lbs) per criteria shown on individual span tables sheets.
- Minimum distance between modules and roof edge is at least twice the module height above roof surface.
- Modules are parallel to roof surface and maximum height above roof surface is 5" to 10" depending on attachment type.
- Gaps between module rows and columns is 0.25" in to 1" depending on clamp type.
- 'Exposed' spans as defined in ASCE 7-22 sec. 29.4.4 shall be used when any part of an exposed module or panel is attributed to that span.
- The most restrictive of all roof zone spans shall be used when any part of the module is attributed to that span.
- Zone should be considered as per ASCE 7-22 Fig. 30.3-2A to 30.3-2D



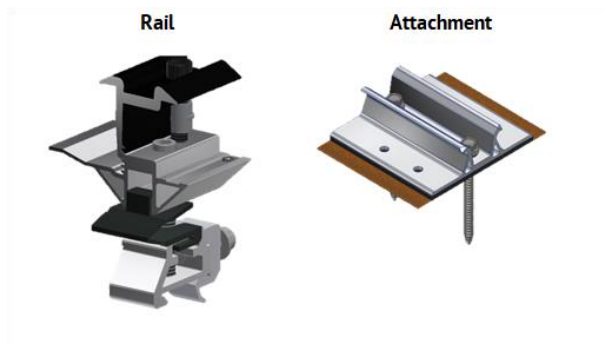
Gable Roofs  $\theta \leq 7^\circ$



Gable Roofs  $7^\circ < \theta \leq 27^\circ$



Gable Roofs  $27^\circ < \theta \leq 45^\circ$



Micro Rail - DtD Rafter

| Ground Snow Load (psf) |       | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |    |    |     |    |  |
|------------------------|-------|------------------------|-----------------------|----------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|----|----|-----|----|--|
|                        |       |                        |                       |                | 90                     |     |     |     |     |     | 95  |     |     | 100 |     |     | 105 |     |     | 110 |     |     | 115 |     |     | 120 |     |     | 130 |     |     | 140 |     |     | 150 |     |     | 160 |    |     | 170 |    |    | 180 |    |  |
|                        |       |                        |                       |                | Roof Wind Zone         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |    |    |     |    |  |
|                        |       |                        |                       |                | 1                      | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2  | 3   |     |    |    |     |    |  |
| 0                      | B     | 0-7                    | Interior              | 106            | 106                    | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 104 | 106 | 106 | 98  | 106 | 104 | 74  | 106 | 89  | 57  | 105 | 72  | 46  | 96  | 59  | 37  | 79 | 49  | 31  | 66 | 41 | 26  |    |  |
|                        |       |                        | Exposed               | 106            | 106                    | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 106 | 92  | 106 | 105 | 77  | 106 | 99  | 65  | 106 | 88  | 56  | 106 | 76  | 49  | 97  | 59  | 38  | 77  | 47  | 30  | 61  | 39  | 24  | 50  | 32  | 20  | 42 | 27  | 18  | 35 | 23 | 16  |    |  |
|                        |       | 7-20                   | Interior              | 107            | 107                    | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 100 | 107 | 107 | 73  | 107 | 97  | 54  | 107 | 72  | 41  | 102 | 55  | 33  | 84 | 44  | 26  | 65 | 35 | 22  |    |  |
|                        |       |                        | Exposed               | 107            | 107                    | 107 | 107 | 107 | 107 | 105 | 107 | 107 | 97  | 107 | 107 | 77  | 107 | 103 | 63  | 107 | 95  | 52  | 107 | 78  | 44  | 102 | 56  | 33  | 80  | 42  | 26  | 59  | 33  | 21  | 46  | 26  | 18  | 36  | 22 | 16  | 30  | 19 | 14 |     |    |  |
|                        |       | 20-27                  | Interior              | 107            | 107                    | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 104 | 107 | 106 | 84  | 107 | 91  | 61  | 107 | 67  | 46 | 103 | 52  | 37 | 92 | 41  | 30 |  |
|                        |       |                        | Exposed               | 107            | 107                    | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 106 | 107 | 107 | 98  | 107 | 105 | 81  | 107 | 98  | 66  | 107 | 68  | 47  | 102 | 50  | 36  | 85  | 38  | 28  | 67  | 30  | 22  | 55  | 25 | 19  | 45  | 21 | 17 |     |    |  |
|                        | 27-45 | Interior               | 108                   | 108            | 108                    | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 99  | 108 | 100 | 78  | 108 | 84  | 61 | 102 | 67  | 48 | 86 | 55  | 39 |  |
|                        |       | Exposed                | 108                   | 108            | 108                    | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 105 | 108 | 108 | 98  | 108 | 108 | 85  | 108 | 108 | 85  | 62  | 101 | 65  | 47  | 78  | 51  | 37  | 58  | 41  | 30  | 45 | 34  | 24  | 36 | 28 | 20  |    |  |
|                        | C     | 0-7                    | Interior              | 106            | 106                    | 106 | 106 | 106 | 106 | 106 | 106 | 98  | 106 | 106 | 84  | 106 | 102 | 72  | 106 | 96  | 61  | 106 | 83  | 53  | 101 | 64  | 41  | 84  | 51  | 33  | 67  | 42  | 26  | 55  | 35  | 22  | 45  | 29  | 19 | 38  | 25  | 17 |    |     |    |  |
|                        |       |                        | Exposed               | 106            | 102                    | 71  | 106 | 92  | 59  | 106 | 78  | 50  | 102 | 67  | 42  | 95  | 58  | 37  | 82  | 50  | 32  | 71  | 44  | 28  | 55  | 35  | 22  | 44  | 28  | 19  | 36  | 23  | 16  | 30  | 20  | 14  | 25  | 17  | 12 | 21  | 15  | 11 |    |     |    |  |
|                        |       | 7-20                   | Interior              | 107            | 107                    | 107 | 107 | 107 | 107 | 107 | 107 | 107 | 101 | 107 | 107 | 107 | 87  | 107 | 107 | 70  | 107 | 100 | 58  | 107 | 88  | 49  | 107 | 62  | 36  | 91  | 47  | 28  | 66  | 36  | 22  | 51  | 29  | 19  | 40 | 24  | 17  | 33 | 20 | 15  |    |  |
|                        |       |                        | Exposed               | 107            | 107                    | 107 | 107 | 107 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |     |     |    |    |     |    |  |

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| Ground Snow Load (psf) | Wind Exposure Category | Roof Tilt Angle (deg) | Panel Exposure | Basic Wind Speed (mph) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |  |  |  |  |
|------------------------|------------------------|-----------------------|----------------|------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|--|--|
|                        |                        |                       |                | 90                     |     |     | 95  |     |     | 100 |     |     | 105 |     |     | 110 |     |     | 115 |     |     | 120 |     |     | 130 |     |     | 140 |     |     | 150 |     |     | 160 |     |     | 170 |     |     | 180 |     |     |    |  |  |  |  |  |
|                        |                        |                       |                | Roof Wind Zone         |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |  |  |  |  |
|                        |                        |                       |                | 1                      | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   | 1   | 2   | 3   |     |     |     |    |  |  |  |  |  |
| 0                      | B                      | 0-7                   | Interior       | 136                    | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 125 | 136 | 136 | 117 | 136 | 127 | 105 | 136 | 114 | 94  | 130 | 105 | 75  | 118 | 96  | 61  | 109 | 80  | 51  | 101 | 67  | 43 |  |  |  |  |  |
|                        |                        |                       | Exposed        | 136                    | 136 | 136 | 136 | 136 | 136 | 123 | 136 | 136 | 114 | 136 | 129 | 107 | 136 | 120 | 101 | 136 | 113 | 92  | 134 | 107 | 80  | 118 | 97  | 62  | 107 | 78  | 49  | 98  | 64  | 40  | 83  | 53  | 34  | 69  | 44  | 30  | 58  | 38  | 26 |  |  |  |  |  |
|                        |                        | 7-20                  | Interior       | 136                    | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 136 | 125 | 136 | 136 | 117 | 136 | 130 | 104 | 136 | 114 | 88  | 136 | 103 | 68  | 118 | 90  | 53  | 108 | 72  | 43  | 100 | 58  | 36 |  |  |  |  |  |
|                        |                        |                       | Exposed        | 136                    | 136 | 136 | 136 | 136 | 122 | 136 | 136 | 113 | 136 | 133 | 106 | 136 | 121 | 99  | 136 | 113 | 86  | 136 | 106 | 73  | 119 | 92  | 54  | 107 | 69  | 42  | 97  | 54  | 34  | 75  | 43  | 30  | 60  | 36  | 26  | 49  | 31  | 23  |    |  |  |  |  |  |
|                        |                        | 20-27                 | Interior       | 137                    | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 120 | 137 | 123 | 108 | 137 | 111 | 98  | 137 | 101 | 76  | 123 | 85  | 60  | 114 | 68  | 49 |  |  |  |  |  |
|                        |                        |                       | Exposed        | 137                    | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 137 | 122 | 137 | 135 | 114 | 137 | 122 | 107 | 137 | 114 | 101 | 137 | 102 | 78  | 122 | 82  | 59  | 111 | 63  | 46  | 102 | 50  | 36  | 90  | 40  | 32  | 74  | 34  | 28  |    |  |  |  |  |  |
|                        | 27-45                  | Interior              | 138            | 138                    | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 135 | 138 | 136 | 117 | 138 | 120 | 107 | 134 | 110 | 98  | 118 | 101 | 79  | 108 | 90  | 65  |    |  |  |  |  |  |
|                        |                        | Exposed               | 138            | 138                    | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 | 138 |    |  |  |  |  |  |
|                        | C                      | 0-7                   | Interior       | 136                    | 136 | 136 | 136 | 136 | 129 | 136 | 136 | 118 | 136 | 135 | 111 | 136 | 125 | 104 | 136 | 117 | 98  | 136 | 111 | 87  | 123 | 100 | 67  | 111 | 84  | 53  | 102 | 69  | 43  | 90  | 57  | 36  | 75  | 48  | 31  | 63  | 41  | 28  |    |  |  |  |  |  |
|                        |                        |                       | Exposed        | 136                    | 125 | 104 | 136 | 116 | 97  | 136 | 108 | 82  | 125 | 102 | 70  | 117 | 95  | 60  | 110 | 83  | 53  | 104 | 73  | 46  | 91  | 58  | 36  | 73  | 47  | 31  | 59  | 38  | 27  | 49  | 33  | 23  | 41  | 29  | 20  | 35  | 26  | 18  |    |  |  |  |  |  |
|                        |                        | 7-20                  | Interior       | 136                    | 136 | 136 | 136 | 136 | 130 | 136 | 136 | 118 | 136 | 136 | 110 | 136 | 127 | 103 | 136 | 117 | 96  | 136 | 110 | 81  | 125 | 99  | 60  | 111 | 77  | 46  | 101 | 60  | 36  | 83  | 48  | 31  | 66  | 39  | 28  | 54  | 33  | 25  |    |  |  |  |  |  |
|                        |                        |                       | Exposed        | 136                    | 127 | 102 | 136 | 116 | 91  | 136 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |  |  |  |  |  |

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