



CONSULTING (Aust)

Dome Consulting (Aust.) Pty Ltd
481 Church St Richmond 3121

Phone +61 3 9420 9777
Fax +61 3 9420 9788
mail@dome.com.au
www.dome.com.au
ABN: 32 146 605 870

Our Ref: 10732-001

STRUCTURAL REPORT

Solar Panel Support System

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WIND ANALYSIS

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A1 - South of 30° (excluding Tasmania and Bass Straight islands), Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.22kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A1 - South of 30° (excluding Tasmania and Bass Straig
Region = A
Sub region = 1

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	42.8	1.10	0.74	NE	40.5	0.98	0.67
S	42.8	1.10	0.74	SW	45.0	1.22	0.82
E	36.0	0.78	0.53	SE	38.3	0.88	0.59
W	45.0	1.22	0.82	NW	45.0	1.22	0.82

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
NE	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
E	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
SE	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
S	0.85	38.3	10.0	2.0	1.00	1.00	1.00	38.3	0.88
SW	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10
W	1.00	45.0	10.0	2.0	1.00	1.00	1.00	45.0	1.22
NW	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A1 - South of 30° (excluding Tasmania and Bass Straight islands), Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.34kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A1 - South of 30° (excluding Tasmania and Bass Straig
 Region = A
 Sub region = 1

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
 Design working life = 50 Years AS1170.0 Table F2
 Cyclonic = N (Y)es, (N)o

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Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
 Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
 Factor for reg. C or D (F) = 1.00 Cl 3.4
 Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
 Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
 Ratio VR.s / VR = 0.82
 Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	44.9	1.21	0.82	NE	42.5	1.09	0.73
S	44.9	1.21	0.82	SW	47.3	1.34	0.91
E	37.8	0.86	0.58	SE	40.2	0.97	0.65
W	47.3	1.34	0.91	NW	47.3	1.34	0.91

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
NE	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
E	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
SE	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
S	0.85	38.3	15.0	2.0	1.05	1.00	1.00	40.2	0.97
SW	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21
W	1.00	45.0	15.0	2.0	1.05	1.00	1.00	47.3	1.34
NW	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

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Wind V4.02

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Design: (Wind Analysis WA02) Region A1 - South of 30° (excluding Tasmania and Bass Straight islands), Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.42kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A1 - South of 30° (excluding Tasmania and Bass Straig
Region = A
Sub region = 1

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

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Design wind speed (Vdes,g) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
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Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	46.2	1.28	0.86	NE	43.7	1.15	0.78
S	46.2	1.28	0.86	SW	48.6	1.42	0.96
E	38.9	0.91	0.61	SE	41.3	1.02	0.69
W	48.6	1.42	0.96	NW	48.6	1.42	0.96

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
NE	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
E	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
SE	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
S	0.85	38.3	20.0	2.0	1.08	1.00	1.00	41.3	1.02
SW	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28
W	1.00	45.0	20.0	2.0	1.08	1.00	1.00	48.6	1.42
NW	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A2 - East coast below 30°, to 50km inland, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.22kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A2 - East coast below 30°, to 50km inland

Region = A

Sub region = 2

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
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Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82

Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	42.8	1.10	0.74	NE	36.0	0.78	0.53
S	42.8	1.10	0.74	SW	45.0	1.22	0.82
E	42.8	1.10	0.74	SE	42.8	1.10	0.74
W	45.0	1.22	0.82	NW	45.0	1.22	0.82

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
NE	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
E	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
SE	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10
S	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
SW	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10
W	1.00	45.0	10.0	2.0	1.00	1.00	1.00	45.0	1.22
NW	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A2 - East coast below 30°, to 50km inland, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.34kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A2 - East coast below 30°, to 50km inland

Region = A

Sub region = 2

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
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Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	44.9	1.21	0.82	NE	37.8	0.86	0.58
S	44.9	1.21	0.82	SW	47.3	1.34	0.91
E	44.9	1.21	0.82	SE	44.9	1.21	0.82
W	47.3	1.34	0.91	NW	47.3	1.34	0.91

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
NE	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
E	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
SE	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21
S	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
SW	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21
W	1.00	45.0	15.0	2.0	1.05	1.00	1.00	47.3	1.34
NW	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A2 - East coast below 30°, to 50km inland, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.42kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A2 - East coast below 30°, to 50km inland

Region = A

Sub region = 2

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom

Design working life = 50 Years AS1170.0 Table F2

Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years

Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1

Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1

Factor for reg. C or D (F) = 1.00 Cl 3.4

Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)

Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3

Ratio VR.s / VR = 0.82

Ratio Ws / Wu = 0.68

Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	46.2	1.28	0.86	NE	38.9	0.91	0.61
S	46.2	1.28	0.86	SW	48.6	1.42	0.96
E	46.2	1.28	0.86	SE	46.2	1.28	0.86
W	48.6	1.42	0.96	NW	48.6	1.42	0.96

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
NE	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
E	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
SE	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28
S	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
SW	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28
W	1.00	45.0	20.0	2.0	1.08	1.00	1.00	48.6	1.42
NW	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A3 - Tasmania & Bass Straight islands & East coast below 30°, 50km to 200km inland, Non-temporary
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.22kPa, Ws/Wu =0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A3 - Tasmania & Bass Straight islands & East coast be
Region = A
Sub region = 3

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

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Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82

Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	45.0	1.22	0.82	NE	38.3	0.88	0.59
S	38.3	0.88	0.59	SW	40.5	0.98	0.67
E	36.0	0.78	0.53	SE	36.0	0.78	0.53
W	45.0	1.22	0.82	NW	45.0	1.22	0.82

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.85	38.3	10.0	2.0	1.00	1.00	1.00	38.3	0.88
NE	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
E	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
SE	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
S	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
SW	0.85	38.3	10.0	2.0	1.00	1.00	1.00	38.3	0.88
W	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
NW	1.00	45.0	10.0	2.0	1.00	1.00	1.00	45.0	1.22

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

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Pressures: Wu.max = 1.34kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A3 - Tasmania & Bass Straight islands & East coast be
Region = A
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Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir.(b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir.(b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	47.3	1.34	0.91	NE	40.2	0.97	0.65
S	40.2	0.97	0.65	SW	42.5	1.09	0.73
E	37.8	0.86	0.58	SE	37.8	0.86	0.58
W	47.3	1.34	0.91	NW	47.3	1.34	0.91

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir.(b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.85	38.3	15.0	2.0	1.05	1.00	1.00	40.2	0.97
NE	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
E	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
SE	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
S	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
SW	0.85	38.3	15.0	2.0	1.05	1.00	1.00	40.2	0.97
W	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
NW	1.00	45.0	15.0	2.0	1.05	1.00	1.00	47.3	1.34

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A3 - Tasmania & Bass Straight islands & East coast below 30°, 50km to 200km inland, Non-temporary
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.42kPa, Ws/Wu =0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A3 - Tasmania & Bass Straight islands & East coast be
Region = A
Sub region = 3

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	48.6	1.42	0.96	NE	41.3	1.02	0.69
S	41.3	1.02	0.69	SW	43.7	1.15	0.78
E	38.9	0.91	0.61	SE	38.9	0.91	0.61
W	48.6	1.42	0.96	NW	48.6	1.42	0.96

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.85	38.3	20.0	2.0	1.08	1.00	1.00	41.3	1.02
NE	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
E	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
SE	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
S	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
SW	0.85	38.3	20.0	2.0	1.08	1.00	1.00	41.3	1.02
W	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
NW	1.00	45.0	20.0	2.0	1.08	1.00	1.00	48.6	1.42

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A4 - North of 30°, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.10kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A4 - North of 30°
Region = A
Sub region = 4

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	40.5	0.98	0.67	NE	40.5	0.98	0.67
S	42.8	1.10	0.74	SW	42.8	1.10	0.74
E	40.5	0.98	0.67	SE	42.8	1.10	0.74
W	42.8	1.10	0.74	NW	42.8	1.10	0.74

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
NE	0.85	38.3	10.0	2.0	1.00	1.00	1.00	38.3	0.88
E	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
SE	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
S	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10
SW	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10
W	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10
NW	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

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Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A4 - North of 30°, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.21kPa, Ws/Wu =0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A4 - North of 30°
Region = A
Sub region = 4

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	42.5	1.09	0.73	NE	42.5	1.09	0.73
S	44.9	1.21	0.82	SW	44.9	1.21	0.82
E	42.5	1.09	0.73	SE	44.9	1.21	0.82
W	44.9	1.21	0.82	NW	44.9	1.21	0.82

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
NE	0.85	38.3	15.0	2.0	1.05	1.00	1.00	40.2	0.97
E	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
SE	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
S	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21
SW	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21
W	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21
NW	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

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Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A4 - North of 30°, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.28kPa, Ws/Wu =0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A4 - North of 30°
Region = A
Sub region = 4

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	43.7	1.15	0.78	NE	43.7	1.15	0.78
S	46.2	1.28	0.86	SW	46.2	1.28	0.86
E	43.7	1.15	0.78	SE	46.2	1.28	0.86
W	46.2	1.28	0.86	NW	46.2	1.28	0.86

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
NE	0.85	38.3	20.0	2.0	1.08	1.00	1.00	41.3	1.02
E	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
SE	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
S	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28
SW	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28
W	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28
NW	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A5 - Within 70km of Melbourne GPO, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.22kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A5 - Within 70km of Melbourne GPO
Region = A
Sub region = 5

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82

Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	45.0	1.22	0.82	NE	45.0	1.22	0.82
S	40.5	0.98	0.67	SW	45.0	1.22	0.82
E	38.3	0.88	0.59	SE	38.3	0.88	0.59
W	45.0	1.22	0.82	NW	45.0	1.22	0.82

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	1.00	45.0	10.0	2.0	1.00	1.00	1.00	45.0	1.22
NE	0.85	38.3	10.0	2.0	1.00	1.00	1.00	38.3	0.88
E	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
SE	0.80	36.0	10.0	2.0	1.00	1.00	1.00	36.0	0.78
S	0.85	38.3	10.0	2.0	1.00	1.00	1.00	38.3	0.88
SW	0.90	40.5	10.0	2.0	1.00	1.00	1.00	40.5	0.98
W	1.00	45.0	10.0	2.0	1.00	1.00	1.00	45.0	1.22
NW	0.95	42.8	10.0	2.0	1.00	1.00	1.00	42.8	1.10

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4:02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A5 - Within 70km of Melbourne GPO, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.34kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A5 - Within 70km of Melbourne GPO
Region = A
Sub region = 5

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	47.3	1.34	0.91	NE	47.3	1.34	0.91
S	42.5	1.09	0.73	SW	47.3	1.34	0.91
E	40.2	0.97	0.65	SE	40.2	0.97	0.65
W	47.3	1.34	0.91	NW	47.3	1.34	0.91

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	1.00	45.0	15.0	2.0	1.05	1.00	1.00	47.3	1.34
NE	0.85	38.3	15.0	2.0	1.05	1.00	1.00	40.2	0.97
E	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
SE	0.80	36.0	15.0	2.0	1.05	1.00	1.00	37.8	0.86
S	0.85	38.3	15.0	2.0	1.05	1.00	1.00	40.2	0.97
SW	0.90	40.5	15.0	2.0	1.05	1.00	1.00	42.5	1.09
W	1.00	45.0	15.0	2.0	1.05	1.00	1.00	47.3	1.34
NW	0.95	42.8	15.0	2.0	1.05	1.00	1.00	44.9	1.21

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

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Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region A5 - Within 70km of Melbourne GPO, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.42kPa, Ws/Wu = 0.68

Location - Fig 3.1(A), 3.1(B)

Location = Region A5 - Within 70km of Melbourne GPO
Region = A
Sub region = 5

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o

Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 45 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 37 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.82
Ratio Ws / Wu = 0.68 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	48.6	1.42	0.96	NE	48.6	1.42	0.96
S	43.7	1.15	0.78	SW	48.6	1.42	0.96
E	41.3	1.02	0.69	SE	41.3	1.02	0.69
W	48.6	1.42	0.96	NW	48.6	1.42	0.96

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsjt,β m/s	Wu kPa
N	1.00	45.0	20.0	2.0	1.08	1.00	1.00	48.6	1.42
NE	0.85	38.3	20.0	2.0	1.08	1.00	1.00	41.3	1.02
E	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
SE	0.80	36.0	20.0	2.0	1.08	1.00	1.00	38.9	0.91
S	0.85	38.3	20.0	2.0	1.08	1.00	1.00	41.3	1.02
SW	0.90	40.5	20.0	2.0	1.08	1.00	1.00	43.7	1.15
W	1.00	45.0	20.0	2.0	1.08	1.00	1.00	48.6	1.42
NW	0.95	42.8	20.0	2.0	1.08	1.00	1.00	46.2	1.28

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region B, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.76kPa, Ws/Wu = 0.47

Location - Fig 3.1(A), 3.1(B)

Location = Region B
Region = B

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 57 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 39 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.68
Ratio Ws / Wu = 0.47 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	54.2	1.76	0.82	NE	54.2	1.76	0.82
S	54.2	1.76	0.82	SW	54.2	1.76	0.82
E	54.2	1.76	0.82	SE	54.2	1.76	0.82
W	54.2	1.76	0.82	NW	54.2	1.76	0.82

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
NE	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
E	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
SE	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
S	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
SW	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
W	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76
NW	0.95	54.2	10.0	2.0	1.00	1.00	1.00	54.2	1.76

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region B, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 1.94kPa, Ws/Wu =0.47

Location - Fig 3.1(A), 3.1(B)

Location = Region B
Region = B

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 57 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 39 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.68
Ratio Ws / Wu = 0.47 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	56.9	1.94	0.91	NE	56.9	1.94	0.91
S	56.9	1.94	0.91	SW	56.9	1.94	0.91
E	56.9	1.94	0.91	SE	56.9	1.94	0.91
W	56.9	1.94	0.91	NW	56.9	1.94	0.91

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
NE	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
E	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
SE	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
S	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
SW	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
W	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94
NW	0.95	54.2	15.0	2.0	1.05	1.00	1.00	56.9	1.94

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

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Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region B, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Non-Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 2.05kPa, Ws/Wu = 0.47

Location - Fig 3.1(A), 3.1(B)

Location = Region B
Region = B

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = N (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 57 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 39 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (F) = 1.00 Cl 3.4
Factor for reg. C or D (F.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.68
Ratio Ws / Wu = 0.47 Crane W20 = 0.24 kPa

Design wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	58.5	2.05	0.96	NE	58.5	2.05	0.96
S	58.5	2.05	0.96	SW	58.5	2.05	0.96
E	58.5	2.05	0.96	SE	58.5	2.05	0.96
W	58.5	2.05	0.96	NW	58.5	2.05	0.96

Site wind data for non-cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
NE	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
E	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
SE	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
S	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
SW	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
W	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05
NW	0.95	54.2	20.0	2.0	1.08	1.00	1.00	58.5	2.05

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region C, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 2.58kPa, Ws/Wu = 0.46

Location - Fig 3.1(A), 3.1(B)

Location = Region C
Region = C

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = Y (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - CI 2.3

Ultimate regional wind speed (VR) = 69 m/s For a 1:500 APE - CI 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 47 m/s For a 1:25 APE.s - CI 3.2, Table 3.1
Factor for reg. C or D (Fc) = 1.05 CI 3.4
Factor for reg. C or D (Fc.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s CI 2.3
Ratio VR.s / VR = 0.68
Ratio Ws / Wu = 0.46 Crane W20 = 0.24 kPa

Design wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	65.6	2.58	1.20	NE	65.6	2.58	1.20
S	65.6	2.58	1.20	SW	65.6	2.58	1.20
E	65.6	2.58	1.20	SE	65.6	2.58	1.20
W	65.6	2.58	1.20	NW	65.6	2.58	1.20

Site wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
NE	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
E	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
SE	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
S	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
SW	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
W	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58
NW	0.95	65.6	10.0	2.0	1.00	1.00	1.00	65.6	2.58

*1 - Refer to Table 3.2 and CI 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region C, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 2.95kPa, Ws/Wu =0.46

Location - Fig 3.1(A), 3.1(B)

Location = Region C
Region = C

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = Y (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 69 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 47 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (Fc) = 1.05 Cl 3.4
Factor for reg. C or D (Fc.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.68
Ratio Ws / Wu = 0.46 Crane W20 = 0.24 kPa

Design wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	70.1	2.95	1.37	NE	70.1	2.95	1.37
S	70.1	2.95	1.37	SW	70.1	2.95	1.37
E	70.1	2.95	1.37	SE	70.1	2.95	1.37
W	70.1	2.95	1.37	NW	70.1	2.95	1.37

Site wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
NE	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
E	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
SE	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
S	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
SW	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
W	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95
NW	0.95	65.6	15.0	2.0	1.07	1.00	1.00	70.1	2.95

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region C, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 3.29kPa, Ws/Wu = 0.46

Location - Fig 3.1(A), 3.1(B)

Location = Region C
Region = C

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = Y (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - CI 2.3

Ultimate regional wind speed (VR) = 69 m/s For a 1:500 APE - CI 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 47 m/s For a 1:25 APE.s - CI 3.2, Table 3.1
Factor for reg. C or D (Fc) = 1.05 CI 3.4
Factor for reg. C or D (Fc.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s CI 2.3
Ratio VR.s / VR = 0.68
Ratio Ws / Wu = 0.46 Crane W20 = 0.24 kPa

Design wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	74.1	3.29	1.53	NE	74.1	3.29	1.53
S	74.1	3.29	1.53	SW	74.1	3.29	1.53
E	74.1	3.29	1.53	SE	74.1	3.29	1.53
W	74.1	3.29	1.53	NW	74.1	3.29	1.53

Site wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
NE	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
E	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
SE	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
S	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
SW	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
W	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29
NW	0.95	65.6	20.0	2.0	1.13	1.00	1.00	74.1	3.29

*1 - Refer to Table 3.2 and CI 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region D, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 4.19kPa, Ws/Wu = 0.36

Location - Fig 3.1(A), 3.1(B)

Location = Region D
Region = D

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = Y (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 88 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 53 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (Fd) = 1.10 Cl 3.4
Factor for reg. C or D (Fd.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.60
Ratio Ws / Wu = 0.36 Crane W20 = 0.24 kPa

Design wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	83.6	4.19	1.52	NE	83.6	4.19	1.52
S	83.6	4.19	1.52	SW	83.6	4.19	1.52
E	83.6	4.19	1.52	SE	83.6	4.19	1.52
W	83.6	4.19	1.52	NW	83.6	4.19	1.52

Site wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
NE	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
E	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
SE	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
S	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
SW	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
W	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19
NW	0.95	83.6	10.0	2.0	1.00	1.00	1.00	83.6	4.19

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

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Wind V4:02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region D, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 4.80kPa, Ws/Wu =0.36

Location - Fig 3.1(A), 3.1(B)

Location = Region D
Region = D

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = Y (Yes), (N)o Major element = Y (Yes), (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 88 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 53 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (Fd) = 1.10 Cl 3.4
Factor for reg. C or D (Fd.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.60
Ratio Ws / Wu = 0.36 Crane W20 = 0.24 kPa

Design wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	89.5	4.80	1.74	NE	89.5	4.80	1.74
S	89.5	4.80	1.74	SW	89.5	4.80	1.74
E	89.5	4.80	1.74	SE	89.5	4.80	1.74
W	89.5	4.80	1.74	NW	89.5	4.80	1.74

Site wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
NE	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
E	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
SE	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
S	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
SW	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
W	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80
NW	0.95	83.6	15.0	2.0	1.07	1.00	1.00	89.5	4.80

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Wind V4.02

Dome Consulting Aust

Design: (Wind Analysis WA02) Region D, Non-temporary structure
Importance: All other structures not included in 1,3, or 4, Life = 50 years, Cyclonic, APE = 500 years, APE.Serv = 25 years
Pressures: Wu.max = 5.35kPa, Ws/Wu =0.36

Location - Fig 3.1(A), 3.1(B)

Location = Region D
Region = D

Importance All other structures not included in 1,3, or 4

Importance level = 2 1,2,3,4,(C)ustom
Design working life = 50 Years AS1170.0 Table F2
Cyclonic = Y (Y)es, (N)o Major element = Y (Y)es, (N)o
Annual prob. of exceedance (APE) = 500 years
Annual prob. of exceed. Serv. (APE.s) = 25 years Ref. AS1170.0 - App C

Design wind speed (Vdes,q) - Cl 2.3

Ultimate regional wind speed (VR) = 88 m/s For a 1:500 APE - Cl 3.2, Table 3.1
Serv. regional wind speed (VR.s) = 53 m/s For a 1:25 APE.s - Cl 3.2, Table 3.1
Factor for reg. C or D (Fd) = 1.10 Cl 3.4
Factor for reg. C or D (Fd.s) = 1.00 (R < 50 yrs)
Minimum Ultimate speed (Vdes,θ) = 30 m/s Cl 2.3
Ratio VR.s / VR = 0.60
Ratio Ws / Wu = 0.36 Crane W20 = 0.24 kPa

Design wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa	Dir (b)	Vdes,θ m/s	Wu kPa	Ws kPa
N	94.5	5.35	1.94	NE	94.5	5.35	1.94
S	94.5	5.35	1.94	SW	94.5	5.35	1.94
E	94.5	5.35	1.94	SE	94.5	5.35	1.94
W	94.5	5.35	1.94	NW	94.5	5.35	1.94

Site wind data for cyclonic areas with APE of 1:500 years

Dir (b)	Md (*1)	VR*Md	Ave. Ht (z) m	Cat	Mz	Ms	Mt	Vsit,β m/s	Wu kPa
N	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
NE	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
E	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
SE	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
S	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
SW	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
W	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35
NW	0.95	83.6	20.0	2.0	1.13	1.00	1.00	94.5	5.35

*1 - Refer to Table 3.2 and Cl 3.3, TC interpolated

Licensee: Dome Consulting Aust

Wind Load Summary

Building Ht (m)	Region A		Region B		Region C		Region D	
	Ws - kPa	Wu - kPa	Ws - kPa	Wu - kPa	Ws - kPa	Wu - kPa	Ws - kPa	Wu - kPa
5	-0.82	-1.22	-0.82	-1.76	-1.20	-2.58	-1.52	-4.19
10	-0.82	-1.22	-0.82	-1.76	-1.20	-2.58	-1.52	-4.19
15	-0.91	-1.34	-0.91	-1.94	-1.37	-2.95	-1.74	-4.80
20	-0.96	-1.42	-0.96	-2.05	-1.53	-3.29	-1.94	-5.35

Region A & B ==> Cpe = -1.3

Region C & D ==> Cpe = -1.7

Ka = 1.0

Kp = 1.0

Kl = 1.0 (0.2b or 0.2d excluded)

Building Ht (m)	Region A		Region B		Region C		Region D	
	Ps - kPa	Pu - kPa	Ps - kPa	Pu - kPa	Ps - kPa	Pu - kPa	Ps - kPa	Pu - kPa
5	-1.07	-1.59	-1.07	-2.29	-2.04	-4.39	-2.58	-7.12
10	-1.07	-1.59	-1.07	-2.29	-2.04	-4.39	-2.58	-7.12
15	-1.18	-1.74	-1.18	-2.52	-2.33	-5.02	-2.96	-8.16
20	-1.25	-1.85	-1.25	-2.67	-2.60	-5.59	-3.30	-9.10

Kl = 2.0 (0.2b or 0.2d included).

Building Ht(m)	Region A		Region B		Region C		Region D	
	Ps (kPa)	Pu (kPa)	Ps (kPa)	Pu (kPa)	Ps (kPa)	Pu (kPa)	Ps (kPa)	Pu (kPa)
5	-2.14	-3.18	-2.14	-4.58	-4.08	-8.78	-5.16	-14.24
10	-2.14	-3.18	-2.14	-4.58	-4.08	-8.78	-5.16	-14.24
15	-2.36	-3.48	-2.36	-5.04	-4.66	-10.04	-5.92	-16.32
20	-2.50	-3.70	-2.50	-5.34	-5.20	-11.18	-6.60	-18.20

Note = Roof slope is NO less than 10 degree.*

Design Capacity of Screwed Joints:

Type 1 joint to Resist direct loads:

$$(\phi N_j) \geq N^*$$

where ϕN_j = The Design Capacity

N^* = Design Action On Joint.

$$(\phi N_j) = \phi K_1 K_{13} K_{14} K_{16} K_{17} n R_k$$

ϕ = Capacity Factor = 0.8

K_1 = The Factor for Duration of load for Joints = 1.0

K_{13} = 1.0 For Screws in Side Grain.

K_{14} = 1.0 For Screws in Single shear.

K_{16} = 1.2 where the load is applied through Metal Side Plate.

K_{17} = 1.0 For $n_a \leq 4$

n = Total Number of screws in the Joint = 1.0 (For Unit)

R_k = Characteristic Capacity - Table 4.5(A) and 4.5(B).

Max. Resist Direct loads For Screws = (Unit).

① Unseasoned Timber = (J4)

Screw Size Number							
	4	6	8	10	12	14	18
R_k	510	780	1080	1420	1790	2220	3170
ϕ_{Nj}	0.49	0.75	1.04	1.36	1.72	2.13	3.04

② Seasoned Timber = (JD4)

Screw Size Number							
	4	6	8	10	12	14	18
R_k	710	1080	1520	2020	2530	3130	4480
ϕ_{Nj}	0.68	1.04	1.46	1.94	2.43	3.01	4.30

Type 2 Joint to Resist Axial loads.

$$(\phi N_t) \geq N^*$$

where ϕN_t = The Design Capacity.

N^* = Design Action In the Axial Direction.

ϕN_t is lesser of = $\phi K_{13} l_p n Q_k$ OR $n(\phi N_{ts})$.

ϕ = Capacity Factor = 0.8

K_{13} = 1.0 For withdrawal From Side Grain.

l_p = Depth of Screw Penetration (35mm).

n = Total Number of Screws in the joint (For Unit)

Q_k = Characteristic Capacity.

ϕN_{ts} = Design Tensile Capacity of Screw

(Refer Screw Manufacturer's Specifications).

Max. Resist Axial loads For Screws.

① Unseasoned Timber (JU):

	Coach Screw Size Member					
	6	8	10	12	16	20
R_k	66	69	77	83	98	112
ϕN_j	1.85	1.93	2.16	2.32	2.74	3.14

* Ensure $\phi N_{ts} \geq \phi K_{13} l_p R_k$ As Per Manufacturer's Specifications.

② Seasoned Timber (JD4):

	Coach Screw Size Member					
	6	8	10	12	16	20
R_k	83	87	97	104	124	139
ϕN_j	2.32	2.44	2.72	2.91	3.47	3.89

* Ensure $\phi N_{ts} \geq \phi K_{13} l_p R_k$ As Per Manufacturer's Specification.

Design Capacity In Tension Perpendicular To Grain.

$$(\phi N_{tp}) \geq N_p^*$$

where ϕN_{tp} = Design Capacity In Tension.

N_p^* = Design Action.

$$\phi N_{tp} = \phi k_1 k_{11} [f'_{tp} A_{tp}]$$

ϕ = Capacity Factor = 0.8

k_1 = 1.0 (Wind Gust For Strength of Timber).

k_{11} = 0.8

f'_{tp} = Characteristic Strength = 0.6 MPa

$$A_{tp} = 38 \times (2 \times 40) = 3040 \text{ mm}^2$$

$$\begin{aligned} \phi N_{tp} &= 0.8 \times 1.0 \times 0.8 (0.6 \times 3040) \times 10^{-3} \\ &= 1.17 \text{ kN.} \end{aligned}$$

Adjustable Racking System.

Region A:

Installation Height.	Ws (kPa)	Wu (kPa)	10-15 Deg		15-60 Deg.	
Up To 10 meters	-0.82	-1.22	-1.07	-1.59	-0.74	-1.10
10 - 15 meters.	-0.91	-1.34	-1.18	-1.74	-0.82	-1.21
15 - 20 meters.	-0.96	-1.42	-1.25	-1.85	-0.86	-1.28

* Note =

For Roof Pitch 10-15 deg $\Rightarrow C_{pe} = -1.3$

For Roof Pitch 15-60 deg $\Rightarrow C_{pe} = -0.9$

Max. 1970mm Long Panels (10-15deg)		
Installation Height	Max. Support Spacing	Max. Uplift Load
10 Meters	1420 mm	4.45 kN
15 Meters	1345 mm	4.61 kN
20 Meters	1275 mm	4.65 kN

Note* :
Halve The Support Spacing where the Rake Installed at Edge Zone.

Max. 1970mm Long Panels (15-60deg)		
10 Meters	1240 mm.	2.69 kN
15 Meters	1175 mm	2.80 kN
20 Meters.	1115 mm.	2.81 kN

Region B:

Installation Height	W_s (kPa)	W_u (kPa)	10-15 deg		15-60 deg	
Up To 10 Meters	-0.82	-1.76	-1.07	-2.29	-0.74	-1.58
10-15 Meters	-0.91	-1.94	-1.18	-2.52	-0.82	-1.75
15-20 Meters	-0.96	-2.05	-1.25	-2.67	-0.86	-1.85

Max. 1970mm Long Panels (10-15 deg)

Installation Height	Max. Rail Support Spacing	Max. Up lift load
10 Meter	890mm.	4.02 kV
15 Meter	845mm	4.19 kV
20 Meter	800mm.	4.21 kV

Max. 1970mm Long Panel (15-60 deg)

10 Meter	810mm	2.52 kV
15 Meter	" " 770mm	2.65 kV
20 Meter	" " 725mm	2.64 kV

Note*: Halve The Support Spacing Where the Rake Installed at Edge Zone.

Region C:

Installation Height	W_s (kPa)	W_u (kPa)	10-15deg (W_o)	15-60deg (W_u)
Up To 10 Meters	-1.2	-2.58	-4.39	-3.35
10 - 15 Meters	-1.37	-2.95	-5.02	-3.84
15 - 20 Meters	-1.53	-3.29	-5.59	-4.28

Note* = For Roof Pitch 10-15deg $\Rightarrow C_{p,e} = 1.7$
For Roof Pitch 15-60deg $\Rightarrow C_{p,e} = 1.3$

Max. 1970mm Long Panel (10-15deg)		
Installation Height	Max. Supporting Spacing	Max. Lift up Load
10 Meter	600 mm	5.19 kN
15 Meter	570 mm	5.64 kN
20 Meter	540 mm	5.95 kN
Max. 1970mm Long Panel (15-60deg)		
10 Meter	550 mm	3.63 kN
15 Meter	520 mm	3.93 kN
20 Meter	495 mm	4.17 kN

Note* = Halve The Support Spacing Where the Rake Installed at Edge Zone.

Region D:

Installation Height	WulkPa)	10-15 deg	15-60 deg
Up To 10 Meters	-4.9	-7.12	-5.45
10-15 Meters	-4.80	-8.16	-6.24
15-20 Meters	-5.35	-9.10	-6.96

Max. 1970mm Long Panel (10-15 deg)		
Installation Height	Max. Support Spacing	Max. Lift Up load:
10 Meter	370mm	5.19 kN
15 Meter	350mm	5.63 kN
20 Meter	330mm	5.92 kN

Max. 1970mm Long Panel (15-60 deg)		
10 Meter	340mm	3.65 kN
15 Meter	320mm	3.93 kN
20 Meter	305mm	4.18 kN

Note* : Halve The Support Spacing where the Rake Installed at Edge Zone :

Adjustable Racking System Summary:

- ① 1970mm Long Panel Based On Max. Weight = 15 kg/m^2 .
- ② 1970mm long Panel Require 3 rails, top and Bottom
Fixed 200mm Min. from each end and middle rail central.
- ③ 40mm Min. Penetration Length For Screws.

Region A:

$$\text{Max. Uplift load} = 4.65 \text{ kN} \Rightarrow 4\text{-M6 Coach Screw} = 1.85 \times 4 = 7.4 \text{ kN (OK)}$$

Region B:

$$\text{Max. Uplift load} = 4.21 \text{ kN} \Rightarrow 4\text{-M6 Coach Screw} = 1.85 \times 4 = 7.4 \text{ kN (OK)}$$

Region C:

$$\text{Max. Uplift load} = 5.95 \text{ kN} \Rightarrow 4\text{-M6 Coach Screw} = 1.85 \times 4 = 7.4 \text{ kN (OK)}$$

Region D:

$$\text{Max. Uplift load} = 5.92 \text{ kN} \Rightarrow 4\text{-M6 Coach Screw} = 1.85 \times 4 = 7.4 \text{ kN (OK)}$$

Mounting System Summary:

* Wind load Only (No Snow OR Earthquake).

45m/s ; 57m/s ; 66m/s ; 80m/s.

Recommended Spacing: (in mm)

Tile Roof								
Installation Height	Region A		Region B		Region C		Region D	
	Center	Edge	Center	Edge	Center	Edge	Center	Edge
5	2130	1500	1690	1200	1380	980	1080	
10	1940	1370	1540	1090	1260	890	990	
15	1840	1230	1460	980	1190	800	940	
20	1740		1380		1130		890	

Sheet Roof								
Installation Height	Region A		Region B		Region C		Region D	
	Center	Edge	Center	Edge	Center	Edge	Center	Edge
5	2130	1110	1390	690	940	470	580	
10	1940	1010	1270	630	860	430	530	
15	1840	950	1200	590	810	400	500	
20	1740		1140		770		470	

1970mm Long Panel Based On Max Weight = 15kg/m², Require 3 Rails.

50mm Min. Penetration Length For Screws.

Fold Tri-Angle System:

Max. Ultimate Up Lift Wind Pressure = (W_u-kPa).

	Region A		Region B		Region C		Region D	
Installation Height (m)	≤15°	≤45°	≤15°	≤45°	≤15°	≤45°	≤15°	≤45°
10	-1.57	-1.10	-2.29	-1.58	-4.39	-3.35	-7.12	-5.45
15	-1.74	-1.21	-2.52	-1.75	-5.02	-3.84	-8.16	-6.24
20	-1.85	-1.28	-2.67	-1.85	-5.59	-4.28	-9.10	-6.96

Max. Ultimate Up Lift Wind Force = (kN).

	Region A & B		Region C & D	
Installation Height	Max. Spacing	Max. Wind Force	Max. Spacing	Max. Wind Force.
10	1800mm	8.12 kN	600mm.	8.42 kN
15	1500mm	7.45 kN	450mm	7.23 kN
20	1200mm	6.3 kN	450mm	8.1 kN



Min. 2-M10 Screw

$$N = 2 \times 5.2 = 10.4 \text{ kN} \\ (10 \text{ kN})$$



Min. 2-M10 Screw

$$N = 2 \times 5.2 = 10.4 \text{ (kN)} \\ (10 \text{ kN})$$

Max. Resist Axial Load For Coach Screw: (85mm Penetration):

① Unseasoned Timber (J4):

Coach Screw Size Member				
	8	10	12	16
Q _k	69	77	83	98
φ _{N_j}	4.7	5.2	5.6	6.6

② Seasoned Timber (J04):

Coach Screw Size Member				
	8	10	12	16
Q _k	87	97	104	124
φ _{N_j}	5.9	6.6	7.1	8.4

"Chemsets"

Anchor size, d_b (mm)	Working Load Limit Capacity								
	Grade 4.6 Steel Studs		Grade 5.8 Steel Studs		AISI 316 Stainless		Concrete		
	Shear, V_{as} (kN)	Tension, N_{as} (kN)	Shear, V_{as} (kN)	Tension, N_{as} (kN)	Shear, V_{as} (kN)	Tension, N_{as} (kN)	Tension, N_{ac} (kN)		
							Concrete compressive strength, f_c		
							20 MPa	32 MPa	40 MPa
M8	3.6	4.0	4.4	6.5	5.9	7.5	5.8	6.3	6.6
M10	5.8	6.3	7.1	10.3	9.3	11.9	11.9	13.1	13.7
M12	8.4	9.2	10.5	15.3	13.6	17.2	17.3	19.0	19.9
M16	15.6	17.1	19.9	29.4	25.3	32.1	27.7	30.4	31.8
M20	24.3	26.7	29.9	44.3	39.5	50.1	29.1	31.9	33.4
							33.0	36.2	37.9
M24	35.0	38.5	43.3	64.2	56.9	72.2	37.2	40.9	42.7
							48.8	53.6	56.1

*Note: For shear loads acting towards an edge or where these minimum dimensions are not achievable, please use the simplified strength limit state design process to verify capacity.

"DynaBolts"

Anchor size, d_b	Installation details			Minimum dimensions*		Shear, V_a	Working Load Limit (kN)		
	Drilled hole diameter, d_h (mm)	Anchor effective depth, h (mm)	Tightening torque, T_r (Nm)	Edge distance, e_c (mm)	Anchor spacing, a_c (mm)		Tension, N_a		
							Concrete compressive strength, f_c		
							20 MPa	32 MPa	40 MPa
M6	8	23	6	80	60	2.2	2.2	2.8	3.1
M8	10	28	10	100	70	2.9	3.0	3.8	4.2
M10	12	38	20	135	95	3.5	4.7	6.0	6.7
M10 Flanged	12	28	12	100	70	2.9	3.1	3.8	4.2
M12	16**	48	40	170	120	6.6	6.7	8.5	9.5
M16	20	63	95	220	160	10.4	8.9	11.2	12.6
M20	24	78	180	275	195	13.1	13.9	17.5	19.6

* For shear loads acting towards an edge or where these minimum dimensions are not achievable, please use the simplified strength limit state design process to verify capacity.

** Hole diameter = 15 mm for M12SS

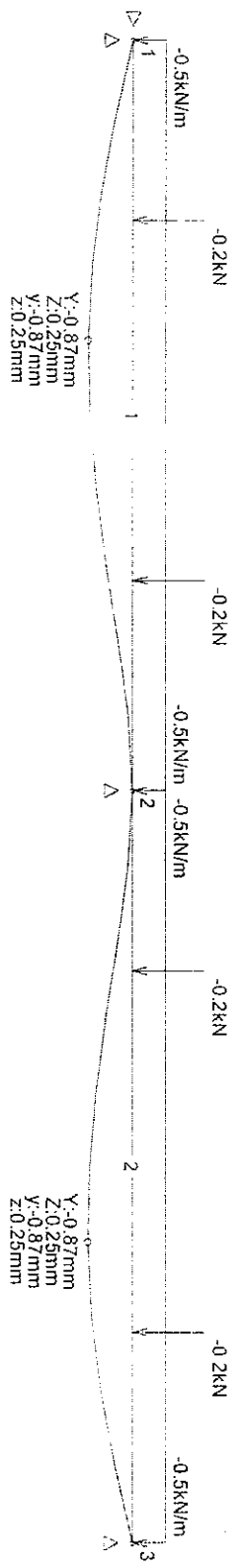
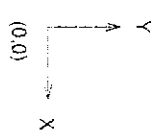
"TureBolts"

Anchor size, d_b	Installation details				Minimum dimensions*		Shear, V_a	Working Load Limit (kN)		
	Drilled hole diameter, d_h (mm)	Fixture hole diameter, d_f (mm)	Anchor effective depth, h (mm)	Tightening torque, T_r (Nm)	Edge distance, e_c (mm)	Anchor spacing, a_c (mm)		Tension, N_a		
								Concrete compressive strength, f_c		
								20 MPa	25 MPa	32 MPa
M6	6	8	24	10	45	70	2.8	1.8	2.0	2.2
			32							
M8	8	10	32	20	55	100	4.9	2.8	3.1	3.4
			54							
M10	10	12	40	35	60	120	6.8	3.8	4.3	4.7
			72							
M12	12	15	48	50	75	150	8.6	5.1	5.7	6.2
			86							
M16	16	19	64	155	100	200	14.4	7.8	8.7	9.5
			115							
M20	20	24	80	355	120	240	27.3	10.9	12.2	13.3
			145							

* For shear loads acting towards an edge or where these minimum dimensions are not achievable, please use the simplified strength limit state design process to verify capacity.

* Expand Bolts For Bracket Fix To Concrete Roof.

All load cases:
 1 (SW) G



No general restraint

Materials:
 1 ALUMINIUM

Sections:
 1 Bracket

Job: \SPHERE\ARCHDATA\DOCUMENT\STORE\10181\SG\BRACKET-1
 Units - Len: m, Sec: mm, Mat: MPa, Dens: T/m³, Temp: Celsius, Force: kN, Mom: kNm, Mass: T, Acc: g's, Trans: mm, Stress: MPa
 Scales - Frame: 1:12, Load: 0.107374, Disp: 86.73616, Moment: None, Shear: None, Axial: None, Torsion: None

ANALYSIS STATUS REPORT

Job name BRACKET-1
 Location \\SPHERE\ARCHDATA\DOCUMENTSTORE\10181\SG

Length units m
 Section property units mm
 Material strength units MPa
 Mass density units T/m³
 Temperature units Celsius
 Force units kN
 Moment units kNm
 Mass units T
 Acceleration units g's
 Translation units mm
 Stress units MPa

Nodes 3 (10000)
 Members 2 (10000)
 Plates 0 (10000)
 Restrained nodes 3 (10000)
 Nodes with spring restraints 0 (10000)
 Section properties 2 (999)
 Material properties 1 (999)
 Constrained nodes 0 (10000)
 Member offsets 0 (10000)

Node loads 0 (32765)
 Prescribed node displacements 0 (32765)
 Member concentrated loads 4 (32765)
 Member distributed forces 2 (32765)
 Member distributed torsions 0 (32765)
 Thermal loads 0 (32765)
 Member prestress loads 0 (32765)
 Plate pressure loads 0 (32765)
 Self weight load cases 1 (999)
 Combination load cases 0 (999)
 Load cases with titles 1 (999)
 Lumped masses 0 (32765)
 Spectral load cases 0 (999)

Static analysis Y
 Dynamic analysis N
 Response analysis N
 Buckling analysis Y
 Ill-conditioned N
 Non-linear convergence Y
 Frontwidth 8
 Total degrees of freedom 10
 Static load cases 1 (999)
 Mass load cases 1 (999)

NODE COORDINATES (m)

Node	X Coord	Y Coord	Z Coord
1	0.000	0.000	0.000
2	1.250	0.000	0.000
3	2.500	0.000	0.000

MEMBER DATA (deg, kNm/rad, m)
 (F=Fixed, R=Released) (*=Cable length)

Membr	Dir Angle	Dir Node	Dir Axis	Membr Node A	Node B	Sect Mat	Node A Node B	Node A Node B	Length
1	0.00		Norm	1	2	1	1 FFFFFFF FFFFFFF		1.250
2	0.00		Norm	2	3	1	1 FFFFFFF FFFFFFF		1.250

NODE RESTRAINTS (kN/m, kNm/rad)
 (F=Fixed, R=Released, S=Spring, *=General)

Node	Rest Code	X Axial Stiffness	Y Axial Stiffness	Z Axial Stiffness	X Rotation Stiffness	Y Rotation Stiffness	Z Rotation Stiffness
1	FFFFRR						
2	RRFFFF						
3	RRFFFF						

SECTION PROPERTIES (mm, mm², mm⁴, deg)

Sect	Section Name	Mark	Angle Type	Flipped	Source
1	Bracket	B1	Not applicable	No	Shape builder
5	Section 5	S5	Not applicable	No	Shape builder

Sect	Area of Section	Torsion Constant	Y-Axis Mom of In	Z-Axis Mom of In	Y-Axis Shr Area	Z-Axis Shr Area	Princ Angle
1	5.1777E+02	8.7162E+02	9.0894E+04	2.2674E+05	INFINITE	INFINITE	-12.18
5	6.9740E+03	2.1507E+05	9.6456E+06	3.8483E+07	INFINITE	INFINITE	-14.11

MATERIAL PROPERTIES (MPa, T/m³, strain/degC)

Matl	Material Name	Young's Modulus	Poisson's Ratio	Mass Density	Coeff of Expansion	Concrete Strength
1	ALUMINIUM	6.2000E+04	0.36	2.7070E+00	2.340E-05	

MEMBER CONCENTRATED LOADS (m, kN, kNm)

Load Case	Membr	Sub Axes Load	Sub Axes Sys	Load Position	X Force/ Moment	Y Force/ Moment	Z Force/ Moment
1	1	1	G	0.300	0.000	-0.200	0.000
	1	2	G	0.900	0.000	-0.200	0.000
	2	1	G	0.300	0.000	-0.200	0.000
	2	2	G	0.900	0.000	-0.200	0.000

MEMBER DISTRIBUTED FORCES (m, kN/m)

Load Case	Membr	Sub Axes Load	Sub Axes Sys	Start Position	Finish Position	X Start/ Finish	Y Start/ Finish	Z Start/ Finish
1	1	1	GI	0.000	100.000	0.000	-0.500	0.000
	2	1	GI	0.000	100.000	0.000	-0.500	0.000

SELF WEIGHT (g's)

Load Case	X-Axis Accel'n	Y-Axis Accel'n	Z-Axis Accel'n
1	0.000	-1.000	0.000

LOAD CASE TITLES

Load Case	Title
1	G

NODE DISPLACEMENTS (mm, rad)

Load case 1 (Linear): G

Node	X-Axis Transl'n	Y-Axis Transl'n	Z-Axis Transl'n	X-Axis Rotation	Y-Axis Rotation	Z-Axis Rotation
1	0.000	0.000	0.000	0.000	-0.001	-0.003
2	0.000	0.000	0.000	0.000	0.000	0.000
3	0.000	0.000	0.000	0.000	0.001	0.003

MEMBER FORCES AND MOMENTS (kN, kNm)

Load case 1 (Linear): G

Membr	Node	Axial Force	Y-Axis Shear	Z-Axis Shear	X-Axis Torsion	Y-Axis Moment	Z-Axis Moment
1	1	0.000	0.391	0.000	0.000	0.000	0.000
	2	0.000	-0.651	0.000	0.000	0.000	-0.172
	2	2	0.000	0.667	0.000	0.000	0.000
	3	0.000	-0.375	0.000	0.000	0.000	0.000

NODE REACTIONS (kN, kNm)

Load case 1 (Linear): G

Node	X-Axis Force	Y-Axis Force	Z-Axis Force	X-Axis Moment	Y-Axis Moment	Z-Axis Moment
1	0.000	0.391	0.000	0.000	0.000	0.000
2	0.000	1.318	0.000	0.000	0.000	0.000
3	0.000	0.375	0.000	0.000	0.000	0.000
Load	0.000	-2.084	0.000	0.000	0.000	-0.003
Reac	0.000	2.084	0.000	0.000	0.000	0.000
Equip	0.000E+00	0.000E+00	0.000E+00	0.000E+00	2.065E-18	1.388E-17
Resid	0.000E+00	0.000E+00	0.000E+00	0.000E+00		

BILL OF MATERIALS (m, m², T)

Membr	Sect	Qty	Section Name	Unit Length	Total Length	Unit Mass	Total Mass
1	1	2	Bracket	1.250	2.500	0.002	0.004

Total mass = 0.004
 Centre of gravity = 1.250, 0.000, 0.000

BUCKLING LOAD FACTORS

Load Case	Mode	Load Factor	Tolerance	Iterations	Node at Max Trans	Node at Max Rotn
1	1	>1000.0				