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Service over and above

Steeline
Roof Drainage Design Guide

CORRUGATED, STEEL CLAD, STEEL SPAN, LOKDEK 680 **AND 700 PLUS** HI DEK 680 DRAINAGE

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Table 2 MAXIMUM RIDGE TO GUTTER LENGTHS FOR CORRUGATED (m)[1]

State	Locality	ARI (1 in 100 yrs) (mm/hr)	Slope of roof [2]								
			5°	7.5°	10°	12.5°	15°	17.5°	20°	22.5°	25°
WA	Albany	178	17	20	23	25	27	29	30	32	33
	Broome	287	11	14	15	17	18	19	20	21	22
	Bunbury	199	17	20	23	25	27	29	30	32	33
	Derby	256	12	15	17	18	20	21	22	23	24
	Geraldton	193	17	20	23	25	27	29	30	32	33
	Kalgoorlie	204	15	18	20	22	24	26	27	28	29
	Perth	172	19	23	26	29	31	33	35	36	38
	Joondalup	180	17	20	23	25	27	29	30	32	33
	Midland	163	19	23	26	29	31	33	35	36	38
	Port Hedland	230	14	16	18	20	22	23	24	25	26
	Tom Price	182	17	20	23	25	27	29	30	32	33

Notes:

[1] *Roof to gutter lengths are for roofs with no penetrations. Penetrations will decrease the roof to gutter lengths and have to be accounted for in the design of drainage systems.*

[2] *Minimum recommended roof pitch for Corrugated is 5°*

Table 3 MAXIMUM RIDGE TO GUTTER LENGTHS FOR STEEL CLAD (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]				
			2°	2.5°	5°	7.5°	10°
ACT	Canberra	193	105	117	163	196	221
	Gungahlin	179	105	117	163	196	221
	Tuggeranong	210	94	104	145	174	197
NSW	Albury	180	105	117	163	196	221
	Broken Hill	219	94	104	145	174	197
	Goulburn	156	120	133	187	224	253
	Kiama	319	65	72	101	121	136
	Newcastle	316	65	72	101	121	136
	Orange	186	105	117	163	196	221
	Sydney	262	77	85	119	142	161
	Avalon	278	70	78	109	131	148
	Campbelltown	222	94	104	145	174	197
	Penrith	244	84	93	131	157	177
	Windsor	233	84	93	131	157	177
	Tweed Heads	330	60	67	93	112	127
	Wollongong	308	65	72	101	121	136
NT	Alice Springs	239	84	93	131	157	177
	Darwin	274	77	85	119	142	161
	Katherine	250	84	93	131	157	177
QLD	Bamaga	298	70	78	109	131	148
	Brisbane	305	65	72	101	121	136
	Ipswich	278	70	78	109	131	148
	Victoria Point	320	65	72	101	121	136
	Bundaberg	340	60	67	93	112	127
	Cairns	278	70	78	109	131	148
	Cloncurry	278	70	78	109	131	148
	Innisfail	301	70	78	109	131	148
	Mackay	316	65	72	101	121	136
	Mt. Isa	260	77	85	119	142	161
	Noosa Heads	331	60	67	93	112	127
	Rockhampton	300	70	78	109	131	148
	Toowoomba	268	77	85	119	142	161
	Townsville	300	70	78	109	131	148
	Weipa	283	70	78	109	131	148
SA	Adelaide	184	105	117	163	196	221
	Gawler	158	120	133	187	224	253
	Mt. Gambier	144	140	155	218	261	295
	Murray Bridge	178	105	117	163	196	221
	Port Augusta	199	105	117	163	196	221
	Port Pirie	181	105	117	163	196	221
	Yorketown	166	120	133	187	224	253
TAS	Burnie	180	105	117	163	196	221
	Flinders Island	166	120	133	187	224	253
	Hobart	116	168	187	262	313	354
	Launceston	121	168	187	262	313	354
	Queenstown	120	168	187	262	313	354
	St. Marys	203	94	104	145	174	197
VIC	Ballarat	188	105	117	163	196	221
	Benalla	194	105	117	163	196	221
	Geelong	144	140	155	218	261	295
	Horsham	173	120	133	187	224	253
	Lakes Entrance	198	105	117	163	196	221
	Melbourne	187	105	117	163	196	221
	Hastings	145	140	155	218	261	295
	Sorrento	140	140	155	218	261	295
	Mildura	218	94	104	145	174	197
	Stawell	186	105	117	163	196	221

Table 3 MAXIMUM RIDGE TO GUTTER LENGTHS FOR STEEL CLAD (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]				
			2°	2.5°	5°	7.5°	10°
WA	Albany	178	105	117	163	196	221
	Broome	287	70	78	109	131	148
	Bunbury	199	105	117	163	196	221
	Derby	256.	77	85	119	142	161
	Geraldton	193	105	117	163	196	221
	Kalgoorlie	204	94	104	145	174	197
	Perth	172	120	133	187	224	253
	Joondalup	180	105	117	163	196	221
	Midland	163	120	133	187	224	253
	Port Hedland	230	84	93	131	157	177
	Tom Price	182	105	117	163	196	221

Notes:

[1] *Roof to gutter lengths are for roofs with no penetrations. Penetrations will decrease the roof to gutter lengths and have to be accounted for in the design of drainage systems.*

[2] *Minimum recommended roof pitch for Steel Clad is 2°.*

Table 4 MAXIMUM RIDGE TO GUTTER LENGTHS FOR STEEL SPAN (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]			
			3°	5°	7.5°	10°
ACT	Canberra	193	66	83	99	112
	Gungahlin	179	66	83	99	112
	Tuggeranong	210	59	74	88	100
NSW	Albury	180	66	83	99	112
	Broken Hill	219	59	74	88	100
	Goulburn	156	76	95	114	128
	Kiama	319	41	51	61	69
	Newcastle	316	41	51	61	69
	Orange	186	66	83	99	112
	Sydney	262	48	60	72	82
	Avalon	278	44	55	66	75
	Campbelltown	222	59	74	88	100
	Penrith	244	53	66	80	90
	Windsor	233	53	66	80	90
	Tweed Heads	330	38	47	57	64
	Wollongong	308	41	51	61	69
NT	Alice Springs	239	53	66	80	90
	Darwin	274	48	60	72	82
	Katherine	250	53	66	80	90
QLD	Bamaga	298	44	55	66	75
	Brisbane	305	41	51	61	69
	Ipswich	278	44	55	66	75
	Victoria Point	320	41	51	61	69
	Bundaberg	340	38	47	57	64
	Cairns	278	44	55	66	75
	Cloncurry	278	44	55	66	75
	Innisfail	301	44	55	66	75
	Mackay	316	41	51	61	69
	Mt. Isa	260	48	60	72	82
	Noosa Heads	331	38	47	57	64
	Rockhampton	300	44	55	66	75
	Toowoomba	268	48	60	72	82
	Townsville	300	44	55	66	75
	Weipa	283	44	55	66	75
SA	Adelaide	184	66	83	99	112
	Gawler	158	76	95	114	128
	Mt. Gambier	144	88	111	133	150
	Murray Bridge	178	66	83	99	112
	Port Augusta	199	66	83	99	112
	Port Pirie	181	66	83	99	112
	Yorketown	166	76	95	114	128
TAS	Burnie	180	66	83	99	112
	Flinders Island	166	76	95	114	128
	Hobart	116	106	133	159	180
	Launceston	121	106	133	159	180
	Queenstown	120	106	133	159	180
	St. Marys	203	59	74	88	100
VIC	Ballarat	188	66	83	99	112
	Benalla	194	66	83	99	112
	Geelong	144	88	111	133	150
	Horsham	173	76	95	114	128
	Lakes Entrance	198	66	83	99	112
	Melbourne	187	66	83	99	112
	Hastings	145	88	111	133	150
	Sorrento	140	88	111	133	150
	Mildura	218	59	74	88	100
	Stawell	186	66	83	99	112

Table 4 MAXIMUM RIDGE TO GUTTER LENGTHS FOR STEEL SPAN (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]			
			3°	5°	7.5°	10°
WA	Albany	178	66	83	99	112
	Broome	287	44	55	66	75
	Bunbury	199	66	83	99	112
	Derby	256	48	60	72	82
	Geraldton	193	66	83	99	112
	Kalgoorlie	204	59	74	88	100
	Perth	172	76	95	114	128
	Joondalup	180	66	83	99	112
	Midland	163	76	95	114	128
	Port Hedland	230	53	66	80	90
	Tom Price	182	66	83	99	112

Notes:

[1] *Roof to gutter lengths are for roofs with no penetrations. Penetrations will decrease the roof to gutter lengths and have to be accounted for in the design of drainage systems.*

[2] *Minimum recommended roof pitch for Steel Span is 3°.*

Table 5 MAXIMUM RIDGE TO GUTTER LENGTHS FOR LOKDEK 680 and 700 (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]					
			1°	2°	2.5°	5°	7.5°	10°
ACT	Canberra	193	130	182	202	282	338	382
	Gungahlin	179	130	182	202	282	338	382
	Tuggeranong	210	115	162	180	251	300	340
NSW	Albury	180	130	182	202	282	338	382
	Broken Hill	219	115	162	180	251	300	340
	Goulburn	156	148	208	231	322	386	437
	Kiama	319	80	112	124	174	208	235
	Newcastle	316	80	112	124	174	208	235
	Orange	186	130	182	202	282	338	382
	Sydney	262	94	132	147	205	246	278
	Avalon	278	87	121	135	188	225	255
	Campbelltown	222	115	162	180	251	300	340
	Penrith	244	104	145	162	226	270	306
	Windsor	233	104	145	162	226	270	306
	Tweed Heads	330	74	104	116	161	193	218
	Wollongong	308	80	112	124	174	208	235
NT	Alice Springs	239	104	145	162	226	270	306
	Darwin	274	94	132	147	205	246	278
	Katherine	250	104	145	162	226	270	306
QLD	Bamaga	298	87	121	135	188	225	255
	Brisbane	305	80	112	124	174	208	235
	Ipswich	278	87	121	135	188	225	255
	Victoria Point	320	80	112	124	174	208	235
	Bundaberg	340	74	104	116	161	193	218
	Cairns	278	87	121	135	188	225	255
	Cloncurry	278	87	121	135	188	225	255
	Innisfail	301	87	121	135	188	225	255
	Mackay	316	80	112	124	174	208	235
	Mt. Isa	260	94	132	147	205	246	278
	Noosa Heads	331	74	104	116	161	193	218
	Rockhampton	300	87	121	135	188	225	255
	Toowoomba	268	94	132	147	205	246	278
	Townsville	300	87	121	135	188	225	255
	Weipa	283	87	121	135	188	225	255
SA	Adelaide	184	130	182	202	282	338	382
	Gawler	158	148	208	231	322	386	437
	Mt. Gambier	144	173	242	270	376	451	510
	Murray Bridge	178	130	182	202	282	338	437
	Port Augusta	199	130	182	202	282	338	382
	Port Pirie	181	130	182	202	282	338	382
	Yorketown	166	148	208	231	322	386	437
TAS	Burnie	180	130	182	202	282	338	382
	Flinders Island	166	148	208	231	322	386	437
	Hobart	116	208	291	324	451	541	611
	Launceston	121	208	291	324	451	541	611
	Queenstown	120	208	291	324	451	541	611
	St. Marys	203	115	162	180	251	300	340
VIC	Ballarat	188	130	182	202	282	338	382
	Benalla	194	130	182	202	282	338	382
	Geelong	144	173	242	270	376	451	510
	Horsham	173	148	208	231	322	386	437
	Lakes Entrance	198	130	182	202	282	338	382
	Melbourne	187	130	182	202	282	338	382
	Hastings	145	173	242	270	376	451	510
	Sorrento	140	173	242	270	376	451	510
	Mildura	218	115	162	180	251	300	340
	Stawell	186	130	182	202	282	338	382

Table 5 MAXIMUM RIDGE TO GUTTER LENGTHS FOR LOKDEK 680 and 700 (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]					
			1°	2°	2.5°	5°	7.5°	10°
WA	Albany	178	130	182	202	282	338	382
	Broome	287	87	121	135	188	225	255
	Bunbury	199	130	182	202	282	338	382
	Derby	256	94	132	147	205	246	278
	Geraldton	193	130	182	202	282	338	382
	Kalgoorlie	204	115	162	180	251	300	340
	Perth	172	148	208	231	322	386	437
	Joondalup	180	130	182	202	282	338	382
	Midland	163	148	208	231	322	386	437
	Port Hedland	230	104	145	162	226	270	306
	Tom Price	182	130	182	202	282	338	382

Notes:

[1] *Roof to gutter lengths are for roofs with no penetrations. Penetrations will decrease the roof to gutter lengths and have to be accounted for in the design of drainage systems.*

[2] *Minimum recommended roof pitch for Lokdek 680* **and 700** *is 1°.*

Table 6 MAXIMUM RIDGE TO GUTTER LENGTHS FOR HI DEK 680 (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]					
			1°	2°	2.5°	5°	7.5°	10°
ACT	Canberra	193	243	340	378	527	632	714
	Gungahlin	179	243	340	378	527	632	714
	Tuggeranong	210	216	302	336	469	562	635
NSW	Albury	180	243	340	378	527	632	714
	Broken Hill	219	216	302	336	469	562	635
	Goulburn	156	277	388	432	603	722	816
	Kiama	319	149	209	233	325	389	440
	Newcastle	316	149	209	233	325	389	440
	Orange	186	243	340	378	527	632	714
	Sydney	262	176	247	275	384	460	520
	Avalon	278	162	227	252	352	421	476
	Campbelltown	222	216	302	336	469	562	635
	Penrith	244	194	272	302	422	505	572
	Windsor	233	194	272	302	422	505	572
	Tweed Heads	330	139	194	216	301	361	408
	Wollongong	308	149	209	233	325	389	440
NT	Alice Springs	239	194	272	302	422	505	572
	Darwin	274	176	247	275	384	460	520
	Katherine	250	194	272	302	422	505	572
QLD	Bamaga	298	162	227	252	352	421	476
	Brisbane	305	149	209	233	325	389	440
	Ipswich	278	162	227	252	352	421	476
	Victoria Point	320	149	209	233	325	389	440
	Bundaberg	340	139	194	216	301	361	408
	Cairns	278	162	227	252	352	421	476
	Cloncurry	278	162	227	252	352	421	476
	Innisfail	301	162	227	252	352	421	476
	Mackay	316	149	209	233	325	389	440
	Mt. Isa	260	176	247	275	384	460	520
	Noosa Heads	331	139	194	216	301	361	408
	Rockhampton	300	162	227	252	352	421	476
	Toowoomba	268	176	247	275	384	460	520
	Townsville	300	162	227	252	352	421	476
	Weipa	283	162	227	252	352	421	476
SA	Adelaide	184	243	340	378	527	632	714
	Gawler	158	277	388	432	603	722	816
	Mt. Gambier	144	323	453	504	703	842	953
	Murray Bridge	178	243	340	378	527	632	714
	Port Augusta	199	243	340	378	527	632	714
	Port Pirie	181	243	340	378	527	632	714
	Yorketown	166	277	388	432	603	722	816
TAS	Burnie	180	243	340	378	527	632	714
	Flinders Island	166	277	388	432	603	722	816
	Hobart	116	388	544	605	844	1011	1143
	Launceston	121	388	544	605	844	1011	1143
	Queenstown	120	388	544	605	844	1011	1143
	St. Marys	203	216	302	336	469	562	635
VIC	Ballarat	188	243	340	378	527	632	714
	Benalla	194	243	340	378	527	632	714
	Geelong	144	323	453	504	703	842	953
	Horsham	173	277	388	432	603	722	816
	Lakes Entrance	198	243	340	378	527	632	714
	Melbourne	187	243	340	378	527	632	714
	Hastings	145	323	453	504	703	842	953
	Sorrento	140	323	453	504	703	842	953
	Mildura	218	216	302	336	469	562	635
	Stawell	186	243	340	378	527	632	714

Table 6 MAXIMUM RIDGE TO GUTTER LENGTHS FOR HI DEK 680 and 700 (m)[1]

State	Locality	ARI (1 in 100 years) (mm/hr)	Slope of roof [2]					
			1°	2°	2.5°	5°	7.5°	10°
WA	Albany	178	243	340	378	527	632	714
	Broome	287	162	227	252	352	421	476
	Bunbury	199	243	340	378	527	632	714
	Derby	256	176	247	275	384	460	520
	Geraldton	193	243	340	378	527	632	714
	Kalgoorlie	204	216	302	336	469	562	635
	Perth	172	277	388	432	603	722	816
	Joondalup	180	243	340	378	527	632	714
	Midland	163	277	388	432	603	722	816
	Port Hedland	230	194	272	302	422	505	572
	Tom Price	182	243	340	378	527	632	714

Notes:

[1] *Roof to gutter lengths are for roofs with no penetrations. Penetrations will decrease the roof to gutter lengths and have to be accounted for in the design of drainage systems.*

[2] *Minimum recommended roof pitch for Hi Dek 680* **and 700** *is 1°.*

Table 7.1 DOWNPIPE PROPERTIES

Internal dimensions of vertical downpipe (mm)	Effective cross-section area of downpipe (mm^2)	Maximum effective cross-section area of eaves gutter for which downpipe is suitable[1] (mm^2)
90 Diameter	6350	6600
100 x 50	5006	6400
100 x 75	6750	9600

Note - applicable for gutter slope of 1:500 (or steeper).

Table 7.2 DOWNPIPE AND GUTTER SELECTION

Gutter Profile	Slotted Gutter				Unslotted Gutter			
	Effective cross-section area of gutter	Maximum roof area per down-pipe (m^2)	Minimum downpipe size (mm)		Effective cross-section area of gutter	Maximum roof area per down-pipe (m^2)	Minimum downpipe size (mm)	
			Round	Rectangular			Round	Rectangular
125 "OG"	5050	38	90 Diam.	100x50	5700	42	90 Diam.	100x50
115 QUAD	5200	41	90 Diam.	100x50	6150	45	90 Diam.	100x50
125 QUAD	6100	46	90 Diam.	100x50	6725	52	-	100x75
150 QUAD	7350	58	-	100x75	8100	64	-	100x75
FASCIA GUTTER	6350	48	90 Diam.	100x50	7000	54	-	100x75
HALF ROUND	6800	52	-	100x75	8550	70	-	100x75
S-LINE	6650	50	-	100x75	8250	68	-	100x75

Notes.

[1] *Applicable for gutter slope of 1:500 (or steeper).*

[2] *Each downpipe should not serve more than 12m of gutter length.*