

Cable Calculations ~ Public Lighting

Project Name Clonburriss K1 REV E
Project Number 22047

Midi Pillar ~ MP 1							
Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	9	0.40	235	0.22	0.24	0.10%
2	7.3	5	0.23	117		0.07	0.03%
3	7.3	3	0.14	109		0.04	0.02%
Circuit	Z_E Ω	Conductor resistance Ω	CPC resistance Ω	Z_S Ω	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm^2)
1	1	0.93	0.93	2.86	80.5	6	6
2	1	0.46	0.46	1.92	119.5	6	6
3	1	0.43	0.43	1.86	123.6	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.

The voltage drop on each circuit is below the allowed maximum.

The minimum sized cable for exterior lighting permissible under I.S. 10101:2020 is 6mm^2 in ducting underground.

It is the duty of the electrical contractor to calculate the appropriate fuse size.

Approximate Total Cable (m) = 1900

Midi Pillar ~ MP 2

Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	5	0.19	107	0.16	0.05	0.02%
2	7.3	8	0.33	248		0.21	0.09%
3	7.3	1	0.05	29		0.00	0.00%
Circuit	$Z_E \Omega$	Conductor resistance Ω	CPC resistance Ω	$Z_S \Omega$	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm ²)
1	1	0.42	0.42	1.85	124.6	6	6
2	1	0.98	0.98	2.96	77.7	6	6
3	1	0.11	0.11	1.23	187.1	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.

Midi Pillar ~ MP 3

Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	4	0.18	177	0.20	0.08	0.04%
2	7.3	4	0.18	151		0.07	0.03%
3	7.3	5	0.32	174		0.14	0.06%
Circuit	$Z_E \Omega$	Conductor resistance Ω	CPC resistance Ω	$Z_S \Omega$	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm ²)
1	1	0.70	0.70	2.40	95.9	6	6
2	1	0.60	0.60	2.19	104.9	6	6
3	1	0.69	0.69	2.37	96.9	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.

Midi Pillar ~ MP 4

Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	2	0.29	57	0.11	0.04	0.02%
2	7.3	2	0.09	47		0.01	0.00%
Circuit	$Z_E \Omega$	Conductor resistance Ω	CPC resistance Ω	$Z_S \Omega$	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm^2)
1	1	0.23	0.23	1.45	158.6	6	6
2	1	0.19	0.19	1.37	167.7	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.

Midi Pillar ~ MP 5

Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	2	0.06	101	0.14	0.02	0.01%
2	7.3	6	0.29	178		0.13	0.06%
3	7.3	3	0.13	103		0.03	0.01%
Circuit	$Z_E \Omega$	Conductor resistance Ω	CPC resistance Ω	$Z_S \Omega$	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm^2)
1	1	0.40	0.40	1.80	127.9	6	6
2	1	0.70	0.70	2.41	95.6	6	6
3	1	0.41	0.41	1.81	126.8	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.

Midi Pillar ~ MP 6

Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	3	0.15	91	0.12	0.03	0.02%
2	7.3	3	0.13	75		0.02	0.01%
3	7.3	3	0.14	81		0.03	0.01%
Circuit	$Z_E \Omega$	Conductor resistance Ω	CPC resistance Ω	$Z_S \Omega$	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm^2)
1	1	0.36	0.36	1.72	133.8	6	6
2	1	0.30	0.30	1.59	144.4	6	6
3	1	0.32	0.32	1.64	140.3	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.

Management Midi Pillar ~ MMP 1

Circuit	Tabulated Voltage drop (cable)	Total luminaires on circuit	Design current (I_B)	Total circuit length	kVA for pillar	Voltage drop	Voltage drop percentage
1	7.3	1	0.05	24	0.01	0.00	0.00%
Circuit	$Z_E \Omega$	Conductor resistance Ω	CPC resistance Ω	$Z_S \Omega$	Fault current Amp	Circuit fuse (I_N) Amp	Cable CSA (mm^2)
1	1	0.09	0.09	1.19	193.3	6	6

Note that circuit length includes an extra 10m per column to allow for turns, access and other potential issues. **PF** taken as 0.8
CPC CSA to be equivalent, or greater than, line conductor CSA.

It is the duty of the electrical contractor to undertake appropriate electrical safety tests and to certify the electrical installation.