



CARDINAL FREEMAN VILLAGE, ASHFIELD EXTERNAL LIGHTING METHODOLOGY

The Cardinal Freeman Village will be provided with discretely positioned external lighting throughout the Village. Such lighting shall predominantly be concentrated on pedestrian pathways and on vehicular roadways and all key public / private interface points (e.g. gated entries to the Village and the like). There will be some select aesthetic lighting to high light site features and points of interest.

Such lighting shall generally consist of the following:

Pedestrian Pathways: Will predominantly consist of 4 meter post tops utilising a 70 watt energy efficient metal halide lamp source. This configuration will ensure maximum coverage, with higher uniformity while minimising light spill and glare. Where such pathways are in close proximity to dwellings they shall be substituted with low height bollard luminaires.

Roadways & Carparks: Will predominantly utilise 4 meter post tops utilising a 70 watt energy efficient metal halide lamp source.

Building Entrances: Shall generally consist of soffit/façade mounted luminaires implementing energy efficient fluorescent lamps. Such fittings shall generally be positioned in close proximity to the building entrance and mounted so as to minimise glare to surrounding properties while ensuring adequate lighting for safety and passive surveillance.

Residential Balconies: Shall generally consist of soffit/façade mounted luminaires implementing energy efficient lamps. Such fittings shall generally be positioned and mounted so as to minimise glare to surrounding properties.

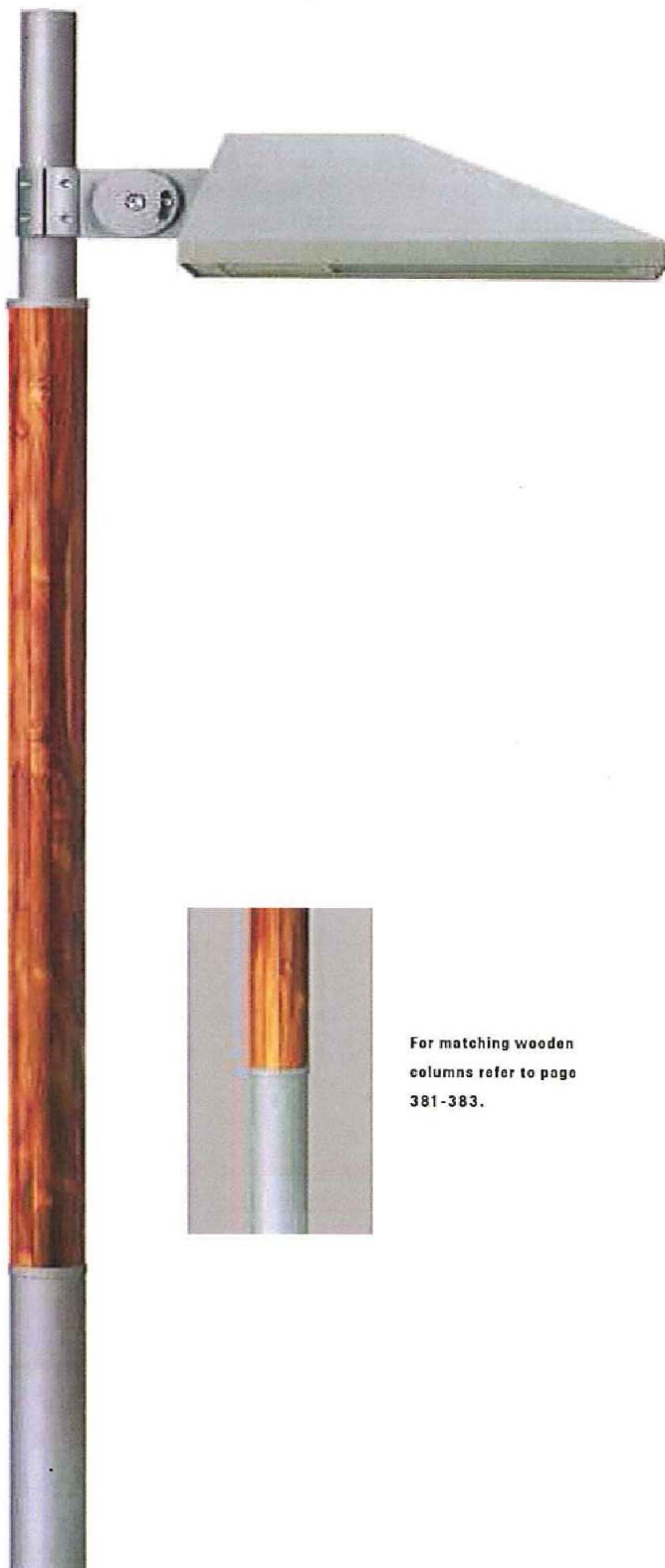
With all external lighting the fixtures and their orientation will be carefully considered so as to minimise the risk of excessive glare & spill lighting to neighbouring properties. To this end all post top luminaires will be carefully selected for their controlled photometric properties which will ensure sharp cut off angles. A brochure of the proposed We-ef light fitting is accompanying for information.

All pedestrian pathway lighting shall strictly comply with the requirements of SEPP 5 and thus provide a minimum illuminance on the pathway of 20 lux. Refer to the accompanying extract from the SEPP 5 guidelines.

All roadways and carparks will strictly comply with the requirements of the Australian Standard, AS 1158 and generally provide on average lighting level of 7 lux. Refer to the accompanying extract from AS 1158.

All external lighting shall be controlled via a combination of photoelectric cell and time switch. All external lights will automatically be activated at dusk by the photoelectric cell and typical switch off at 10pm via the time switch.

All public space lighting will be designed to respond to the CPTED guidelines for safety and passive surveillance and will be detailed at each stage by the project Landscape Architect.



For matching wooden
columns refer to page
381-383.

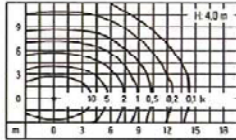
PFL200 [S] SERIES

- Post mounted luminaires
- Streetlighting distribution
- Cut-off glare control
- TC 32 W
- HII 35-400 W
- HST 70-400 W

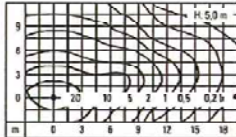
IP66. Marine grade, die-cast aluminium alloy. 5CE superior corrosion protection including PCS hardware. Powdercoat finish in grey aluminium RAL 9007, black RAL 9004 or white RAL 9016. Silicone rubber gaskets. Safety glass lens. Anodised aluminium reflector. Integral HPF or ECG control gear on hinged and 'no tool' removable tray. LPF versions are available on request.

Recommended mounting height 2,5-12,0 m, depending on lamp type selected. Matching mounting brackets to be ordered separately.

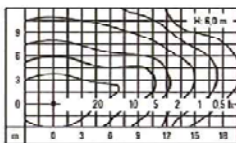
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	AREA FLOODLIGHTS	358



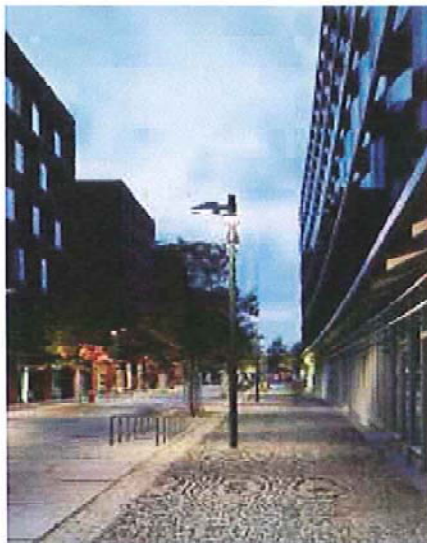
108-0421 [ECG]
PFL230 [S]
TC-TEL 32W/GX24q-3
2400 lm
6,2 kg



108-0422 [ECG]
PFL230 [S]
HIT CE 35W/G12
3800 lm
6,2 kg



108-0423 [ECG]
PFL230 [S]
HIT-CL 70W/G12
7100 lm
6,2 kg



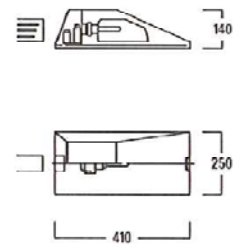
Theresienhöhe, München (D)

PFL230 [S] Streetlighting

219



Streetlighting distribution.
Typical illuminance footprint.



STREET AND AREA LIGHTING PFL230 [S]

- IP66
- Marine-grade, die-cast aluminium alloy
- 5CE superior corrosion protection
- PCS hardware
- Precision formed anodised aluminium reflector
- Integral control gear
- Detailed description, page 218
- Mounting accessories, page 226-228
- Optical accessories, page 229

(3) Common areas

Access must be provided in accordance with AS 1428.1 so that a person using a wheelchair can use common areas and common facilities associated with the development.

3 Security

Pathway lighting:

- (a) must be designed and located so as to avoid glare for pedestrians and adjacent dwellings, and
- (b) must provide at least 20 lux at ground level.

4 Letterboxes

Letterboxes:

- (a) must be situated on a hard standing area and have wheelchair access and circulation by a continuous accessible path of travel (within the meaning of AS 1428.1), and
- (b) must be lockable, and
- (c) must be located together in a central location adjacent to the street entry or, in the case of self-contained dwellings, must be located together in one or more central locations adjacent to the street entry.

5 Private car accommodation

If car parking (not being car parking for employees) is provided:

- (a) car parking spaces must comply with the requirements for parking for persons with a disability set out in AS 2890, and
- (b) 5% of the total number of car parking spaces (or at least one space if there are fewer than 20 spaces) must be designed to enable the width of the spaces to be increased to 3.8 metres, and
- (c) any garage must have a power-operated door, or there must be a power point and an area for motor or control rods to enable a power-operated door to be installed at a later date.

6 Accessible entry

Every entry (whether a front entry or not) to a dwelling, not being an entry for employees, must comply with clauses 4.3.1 and 4.3.2 of AS 4299.

7 Interior: general

Widths of internal corridors and circulation at internal doorways must comply with AS 1428.1.

8 Bedroom

At least one bedroom within each dwelling must have:

TABLE 2.6
VALUES OF LIGHT TECHNICAL PARAMETERS AND PERMISSIBLE
LUMINAIRE TYPES FOR ROADS IN LOCAL AREAS AND FOR PATHWAYS

1	2	3	4	5	6
Lighting subcategory	Light technical parameters				Permissible luminaire type (see Table 2.10)
	Average horizontal illuminance ^{a,b)} (\bar{E}_h) lux	Point horizontal illuminance ^{a,b)} (E_{Ph}) lux	Illuminance (horizontal) uniformity ^{c)} Cat. P (U_{E2})	Point vertical illuminance ^{a,b)} (E_{Pv}) lux	
P1	7	2	10	2	Type 4 where part of a road reserve or Types 2, 3, 4 or 6 elsewhere
P2	3.5	0.7	10	0.7	
P3 ^{e)}	1.75	0.3	10	0.3 ^{d)}	
P4 ^{e)}	0.85	0.14	10	N/A	
P5 ^{e)}	0.5	0.07	10	N/A	

a) These values are maintained.

b) Compliance is achieved by being greater than or equal to the applicable table value.

c) Compliance is achieved by being less than or equal to the applicable table value.

d) The vertical illuminance requirement only applies when subcategory P3 is selected for application to pathways, i.e. it does not apply for local roads.

e) In New Zealand, when the luminaires are to be supported on existing reticulation poles the subcategories P3R and P4R may be designated and the following reduced levels applied:

Subcategory	\bar{E}_h	E_{Ph}
P3R	1.25	0.15
P4R	0.7	0.07

Subcategory P5 lighting shall not be chosen for this situation.

NOTES:

- 1 Validation of the values in Columns 2 to 5 is by calculation, not field measurement. This is particularly relevant to small values in Columns 2, 3 and 5, which will typically be difficult to validate by field measurements.
- 2 See Section 3 for the design methods and requirements for use in assessing compliance with the specified light technical parameters.

TABLE 2.1

LIGHTING CATEGORIES FOR ROAD RESERVES IN LOCAL AREAS

1	2	3	4	5	6
Type of road or pathway		Selection criteria ^{a,b)}			Applicable lighting subcategory ^{c,d)}
General description	Basic operating characteristics	Pedestrian/cycle activity	Risk ^{f)} of crime	Need to enhance prestige	
Collector roads or non-arterial roads which collect and distribute traffic in an area, as well as serving abutting properties	Mixed vehicle and pedestrian traffic	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Low	Medium	P3
		Low	Low	N/A	P4
Local roads or streets used primarily for access to abutting properties, including residential properties	Mixed vehicle and pedestrian traffic	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Medium	Medium	P3
		Low	Low	N/A	P4
		Low	Low	N/A	P5 ^{e)}
Common area, forecourts of cluster housing	Mixed vehicle and pedestrian traffic	N/A	High	N/A	P1
		High	Medium	High	P2
		Medium	Low	Medium	P3
		Low	Low	N/A	P4

^{a)} The selection criteria of Columns 3 to 5 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the road will determine the applicable lighting subcategory.

^{b)} Refer to Appendix C for guidance on choosing the applicable level of each selection criteria for the environment and purpose of a lighting scheme.

^{c)} Lighting categories P3, P4 and P5 apply across the whole of the road reserve width, including the footpath. Lighting categories P1 or P2 may be selected where there is a significant risk of crime or need to enhance the prestige of the area, however, such lighting only applies over the physical extent of any formed pathway.

^{d)} Refer to the footnotes to Table 2.6 regarding modified sub-categories P3R and P4R for use in New Zealand.

^{e)} Discretionary use of subcategory P5.

Generally, subcategory P5 shall only be applied to the replacement of existing luminaires installed on existing electricity distribution poles or for the initial application of a lighting scheme where the cost to re-configure these poles limits or precludes compliance with category P4.

It is recognized however that for some authorities, category P4 could be deemed as being excessive in terms of providing adequate level of service and meeting with community expectations. In this case subcategory P5 may be used.

^{f)} The risk levels 'High', 'Medium' and 'Low' correspond to classification of the same names in HB 436.