

DRAFT

RANGEFORD
VILLAGES

KINGSCOTE PLACE

EXTERNAL LIGHTING DESIGN STRATEGY

30th JULY 20206



Whichelo
DESIGN STUDIO

RETIREMENT + WELLNESS + LIGHTING



PROJECT GOALS

This will be a development that respects biodiversity, the achievable goal is to balance **owners' safety, accessibility, comfort, and security** and at the same time protecting wildlife habitats and minimising light pollution.





HOW THIS WILL BE ACHIEVED

1. We will Follow the Principle of "**Darkness First**"

- Illuminate only areas that genuinely require lighting.
- Avoid lighting green spaces, habitat areas, watercourses, and boundary vegetation unless done with consideration.
- Maintain dark corridors that allow wildlife movement across the site.

2. Having a deep understanding of the **Local Ecology**

- Bat commuting and foraging routes,
- Nesting birds.
- Hedgehogs and small mammals.
- Invertebrates such as moths and pollinators.
- Existing trees, hedgerows, ponds, and grassland habitats.

3. Using the **Right Light Levels**

- Consistent lighting on footpaths.
- Avoid over-lighting communal spaces.
- We will minimise contrasts between bright and dark areas to aid older people's visual adaptation.
- Design to relevant standards such as those published by British Standards Institution and the Institution of Lighting Professionals.



4. Select **Warm Colour Temperatures** for Light Sources

The use of Blue-rich white light will be avoided as this has a greater ecological impact

We are Proposing:

- 1800°K–2700°K warm white LEDs.
- Amber bat and insect tolerant LEDs in particularly sensitive ecological areas and near the site boundary
- We will not use cool white (>3000K) throughout the development.

Benefits of this approach:

- Less disruption to bats.
- Reduced attraction of insects.
- More comfortable nighttime environment for owners as they move around the village
- It will create a visual warmth that will enhance the building materials and





5. Prevent **Light Spill**

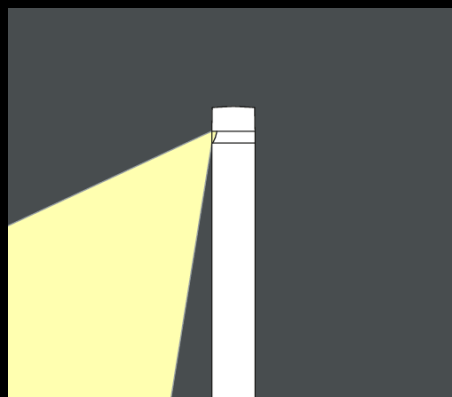
Lighting will only be directed where needed.

We will Use:

- Fully shielded luminaires.
- Flat-glass fittings.
- Precise optical control.
- Low mounting heights where appropriate.

The following will be Avoided:-

- Upward lights unless well controlled or contained below building soffits
- Uncontrolled Illumination of tree canopies unless using close offset narrow beam tree trunk grazing.
- Spill onto hedgerows, ponds, and adjacent countryside.



6. Protect **Bat** Habitat

These will be a prime consideration across this site, bats are legally protected and often the most significant lighting-sensitive species.

We are ensuring particular care is taken for lighting around:

- Hedgerows.
- Woodland edges.
- Water features.
- Mature trees.
- Known roost locations.

Where bat corridors exist:

- lighting levels will be set below recommended ecological thresholds and use warm white and amber lighting that is less impactful to bat ecology
- We will maintain unlit routes wherever possible in line with the provided ecological surveys and Bat Conservation Trust Guidelines.
- Use directional lighting and physical screening.



7. Employing Smart Controls

Lighting should operate only when required.

Our approach to lighting across the site will utilize the following methods to limit excess lighting:

- Motion sensors.
- Presence detection.
- Time scheduling.
- Scene setting dimming with astronomical clock control
- Curfews for non-essential lighting.

For example:

- Primary access routes may remain lit.
 - Secondary paths will be dimmed to low levels and then levels increased when movement is detected.
- This balanced avoids areas becoming uninviting if left totally unlit

Consider Owners & Visitors Needs

Retirement housing presents specific challenges.

The village owners age range will mean greater enthesiis is needed to provide:

- Better facial recognition.
- Good colour rendering.
- Reduced glare.
- Clear wayfinding that uses integral downlighting onto signage
- Use concealed low glare light fittings to enhanced perception of changes in level.

The design will therefore provide:

- Uniform illumination were appropriate.
- Good vertical illumination at entrance points.
- Illuminated landmarks, wayfinding and signage.
- Minimal glare from fittings to avoid disorientation an



9. Reduce **Glare**

Glare can be particularly problematic for older adults.

We will mitigate these issues by:-

- Shielded luminaires.
- Lower intensity point sources.
- Appropriate mounting heights.
- Careful positioning relative to seating areas and windows.

The Benefits of this are improved comfort, safer walking conditions, and reduced disturbance to wildlife.

10. **Integrate Lighting** with Landscape Design

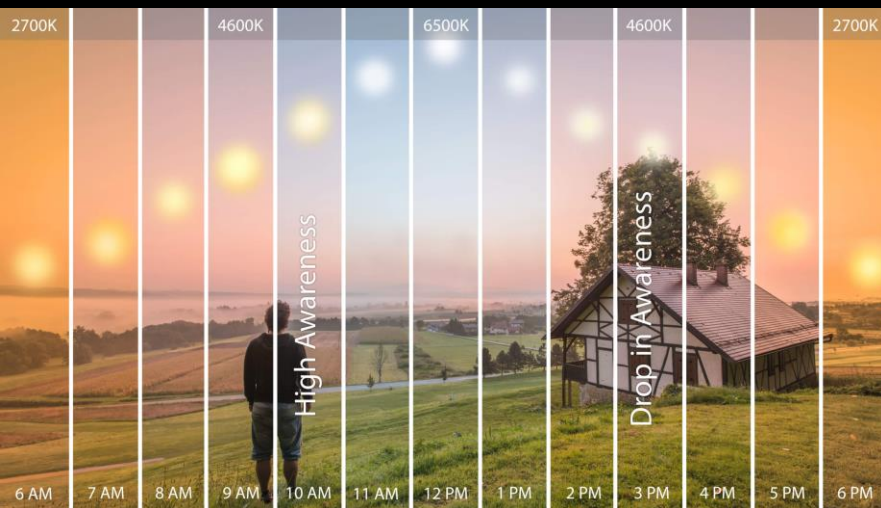
We have ensured that Lighting and Ecology should be designed together.

Examples of this holistic approach are:

- Locate key access paths away from sensitive habitats.
- Use planting to screen light.
- Create deliberately dark habitat zones.
- Preserve ecological connectivity across the site.

A landscape-led approach often achieves better outcomes than trying to mitigate impacts later.





11. Minimise Effects on Owners' Circadian Rhythms

Good lighting should support healthy sleep patterns.

We will be utilizing the following to promote this approach:

- Warm-colour lighting
- Lower lighting levels near bedroom windows.
- Minimising direct light intrusion into dwellings.
- Automatic dimming overnight.

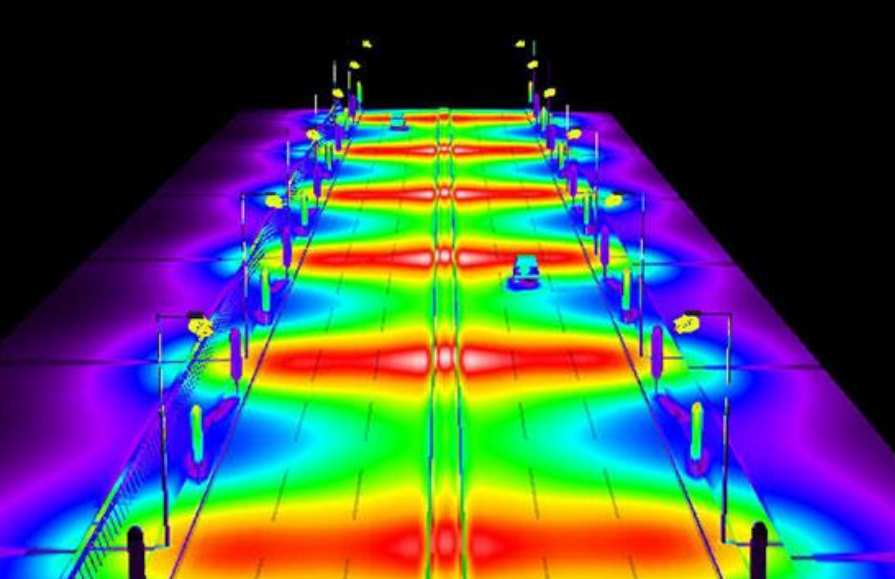
This benefits both residents and wildlife.

12. Measure and Verify Performance

This biodiversity-sensitive scheme will include the use of the following benchmarks:

- Lighting calculations.
- Spill-light analysis.
- Ecological review.
- Post-installation checks.
- Ongoing maintenance plans.

This will ensure the installed scheme performs as intended rather than becoming brighter over time through replacement or adjustment.

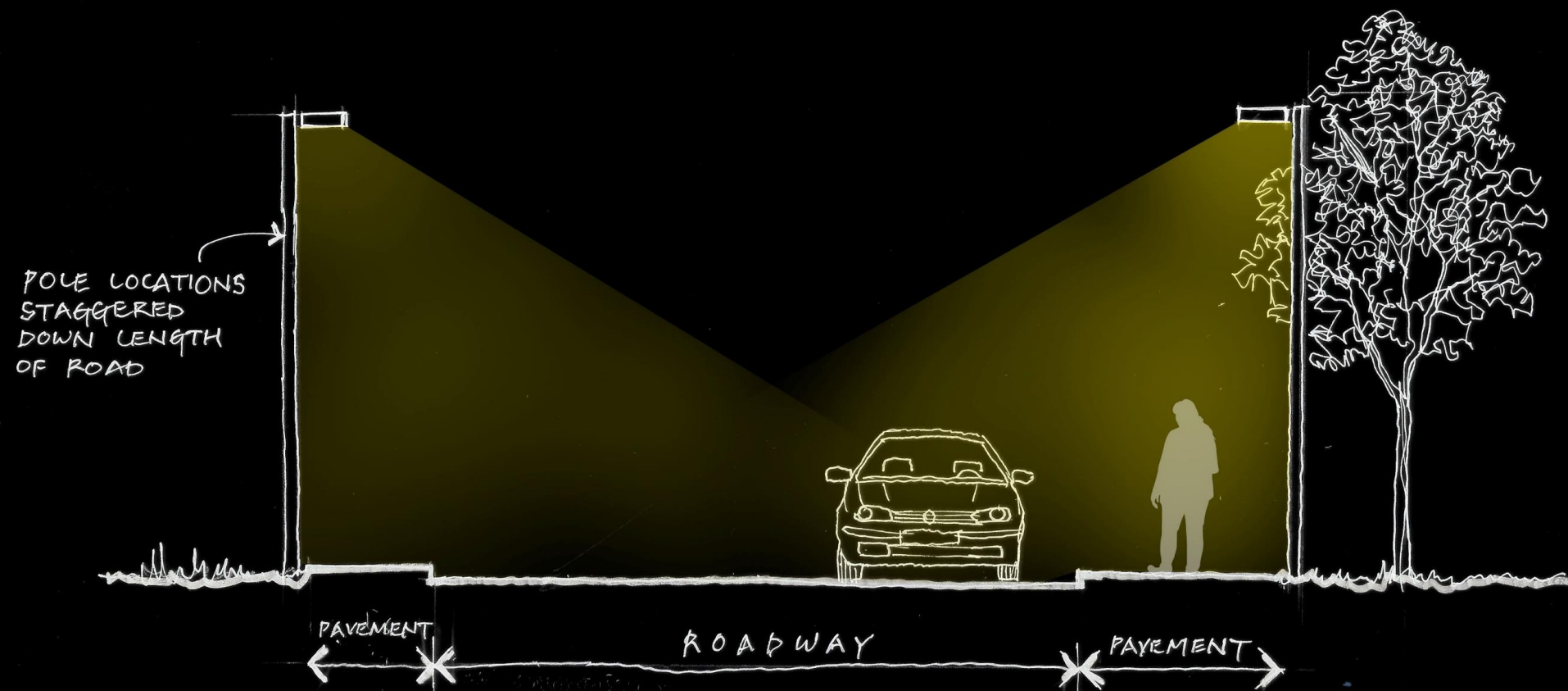
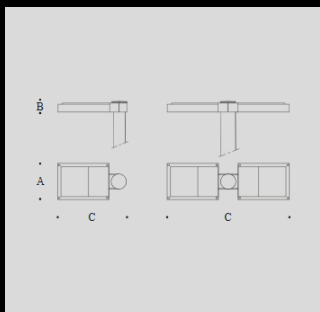




PLAN FOR GENERIC LIGHTING ZONES AND LANDSCAPE FEATURE LOCATIONS ONLY – REFER TO LANDSCAPE ARCHITECTS REPORT FOR DETAILED LAYOUT

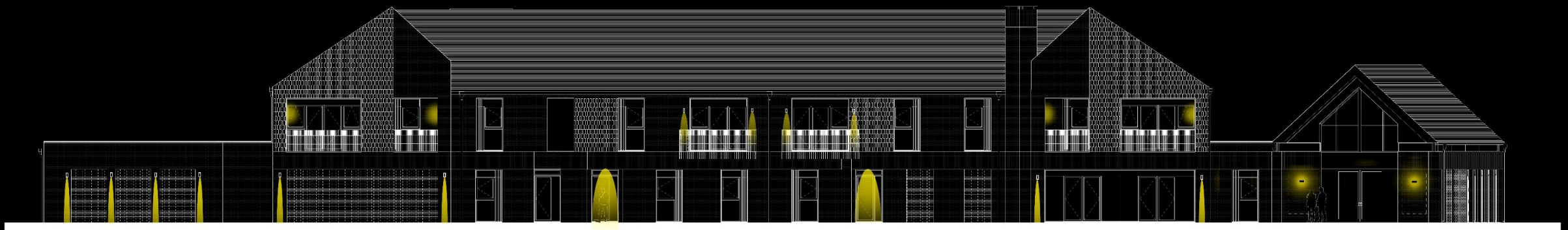
LOCATION PLAN TO BE UPDATED IN LINE WITH LANDSCAPE ARCHITECTS FINAL LAYOUT - TBC

SITE LIGHTING ZONES AND FEATURES LOCATION PLAN

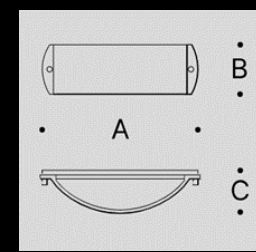


MAIN VEHICLE ACCESS ROUTE ROADWAYS INTO THE VILLAGE TO BE LIT WITH 5M POLE MOUNTED
 'DARK SKY' APPROVED LED HEAD WITH NO NEGLIGIBLE UPWARD LIGHT PROJECTION.
 (LUMINOUS FLUX IN THE UPPER HALF-SPACE < 1%)
 FITTING SPACED ON ALTERNATE SIDES OF THE ROAD
 BUG SAFE TECHNOLOGY WILL ALLOW THE FITTING TO HAVE MINIMAL IMPACT ON THE LOCAL
 ECOLOGY (INSECTS AND BATS)
 LIGHTING TO DIM TO EXTRA WARM WHITE (AMBER) COLOUR 1,800deg.K – 2,700deg.K

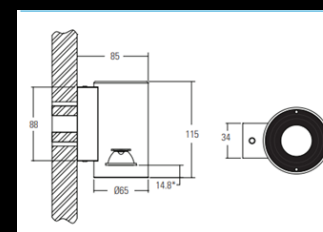
MAIN VEHICLE ACCESS ROUTES



EAST ELEVATIONS

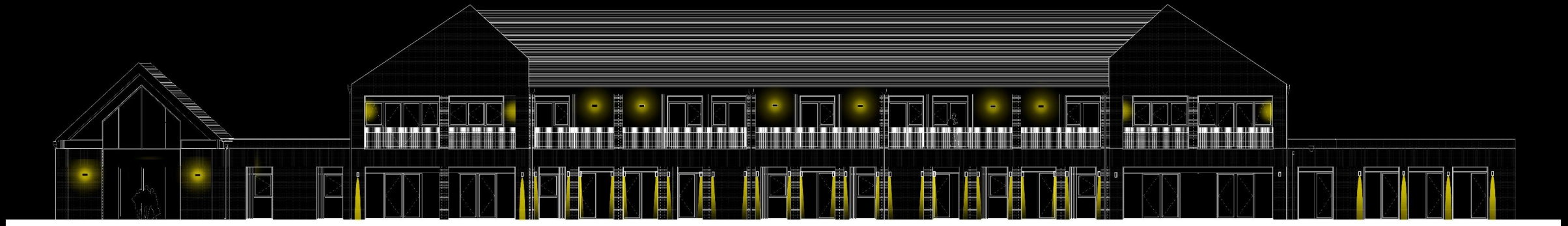


FIRST FLOOR BALCONIES – LIT WITH WALL MOUNTED UP/DOWNLIGHT SET ONTO SIDEWALLS OF RECESSED BALCOMY WITH SHIELDED WARM WHITE (2,700deg.K) LED LIGHT SOURCE – ALL CONTROLLED BY APPRTMENT OWNERS

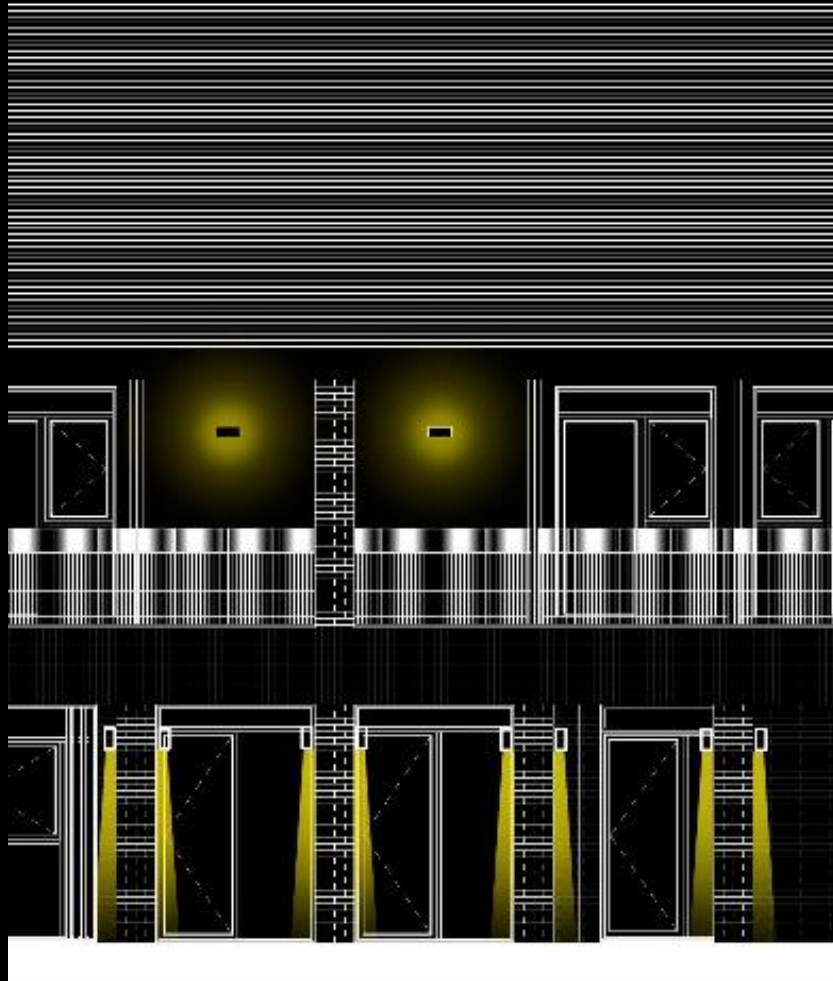


GROUND FLOOR GLAZED OPENINGS LIT EITHER SIDE WITH NARROW BEAM LED WALL MOUNTED DOWNLIGHTS–WARM WHITE (2,700deg.K) LED LIGHT SOURCE

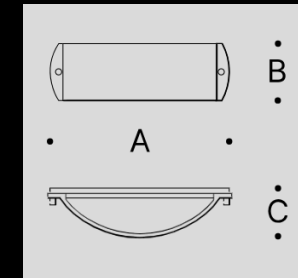
CENTRAL FACILITY BUILDING ELEVATIONS



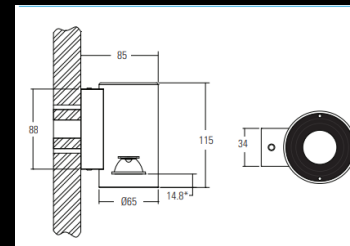
WEST ELEVATIONS



TYPICAL BAY

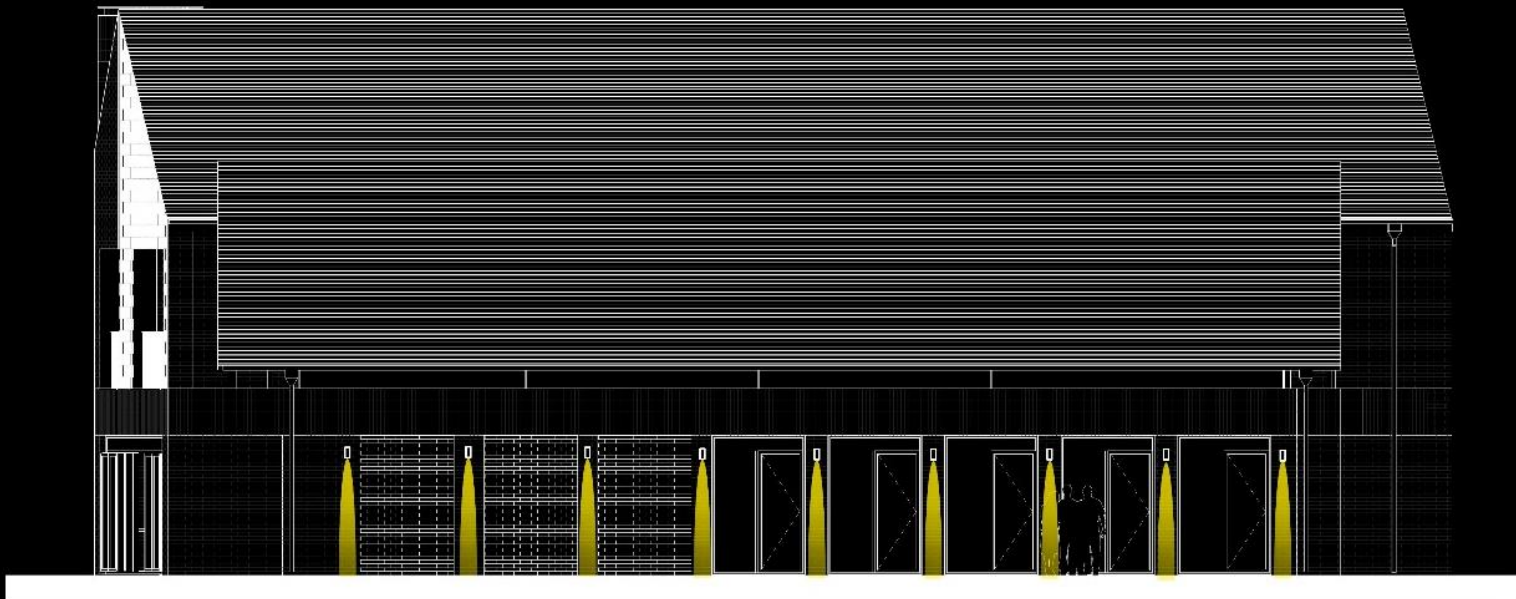


FIRST FLOOR BALCONIES LIT WITH WALL MOUNTED UP/DOWNLIGHT WITH
SHEILDLED LED LIGHT SOURCE
WARM WHITE (2,700deg.K) LED LIGHT SOURCE

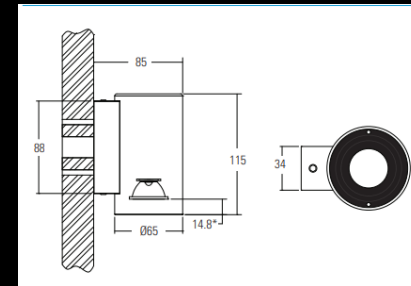


GROUND FLOOR COLONNADE TO BE
HIGHLIGHTED WITH NARROW BEAM WALL
MOUNTED LED DOWNLIGHTS HAVING
WARM WHITE (2,700deg.K) LED LIGHT
SOURCE

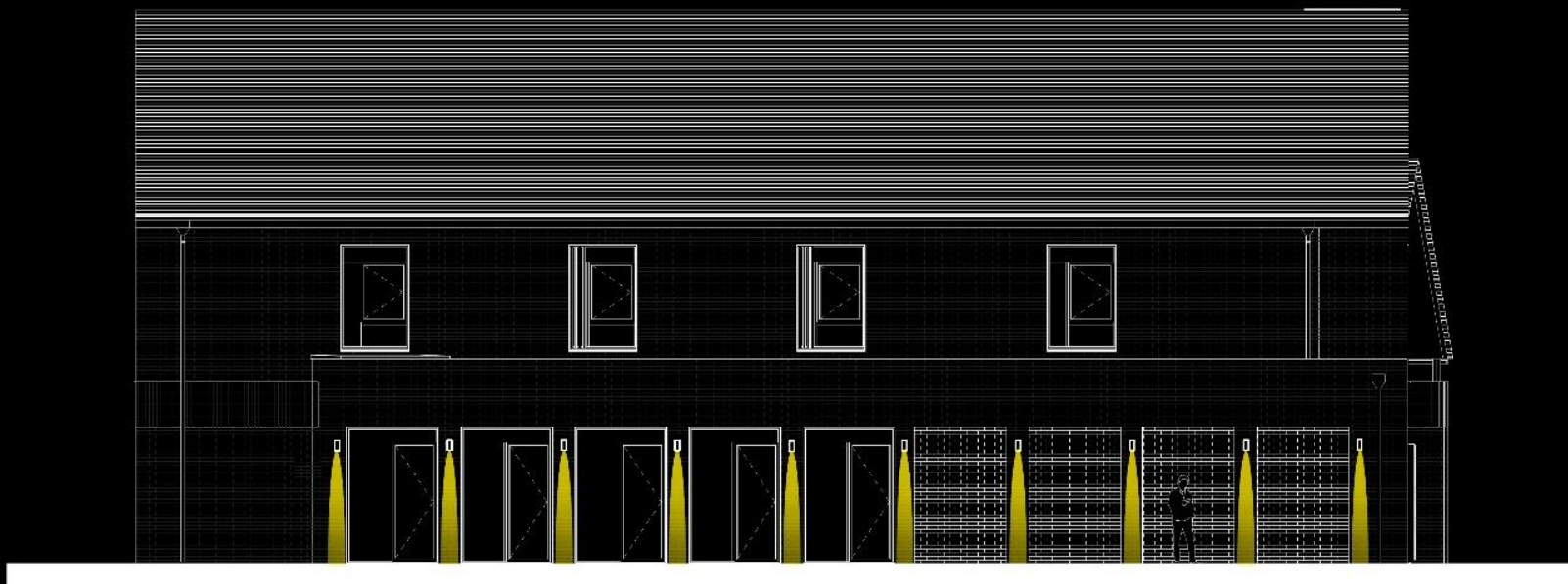
CENTRAL FACILITY BUILDING ELEVATIONS



NORTH ELEVATIONS

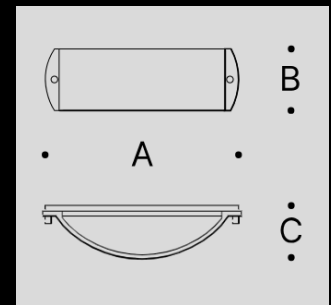


GROUND FLOOR BRICKWORK PIERS
BETWEEN FENESTRATIONS TO BE
HIGHLIGHTED WITH NARROW BEAM WALL
MOUNTED DOWNLIGHTS
(WARM WHITE 2,700deg.K LIGHT SOURCE)



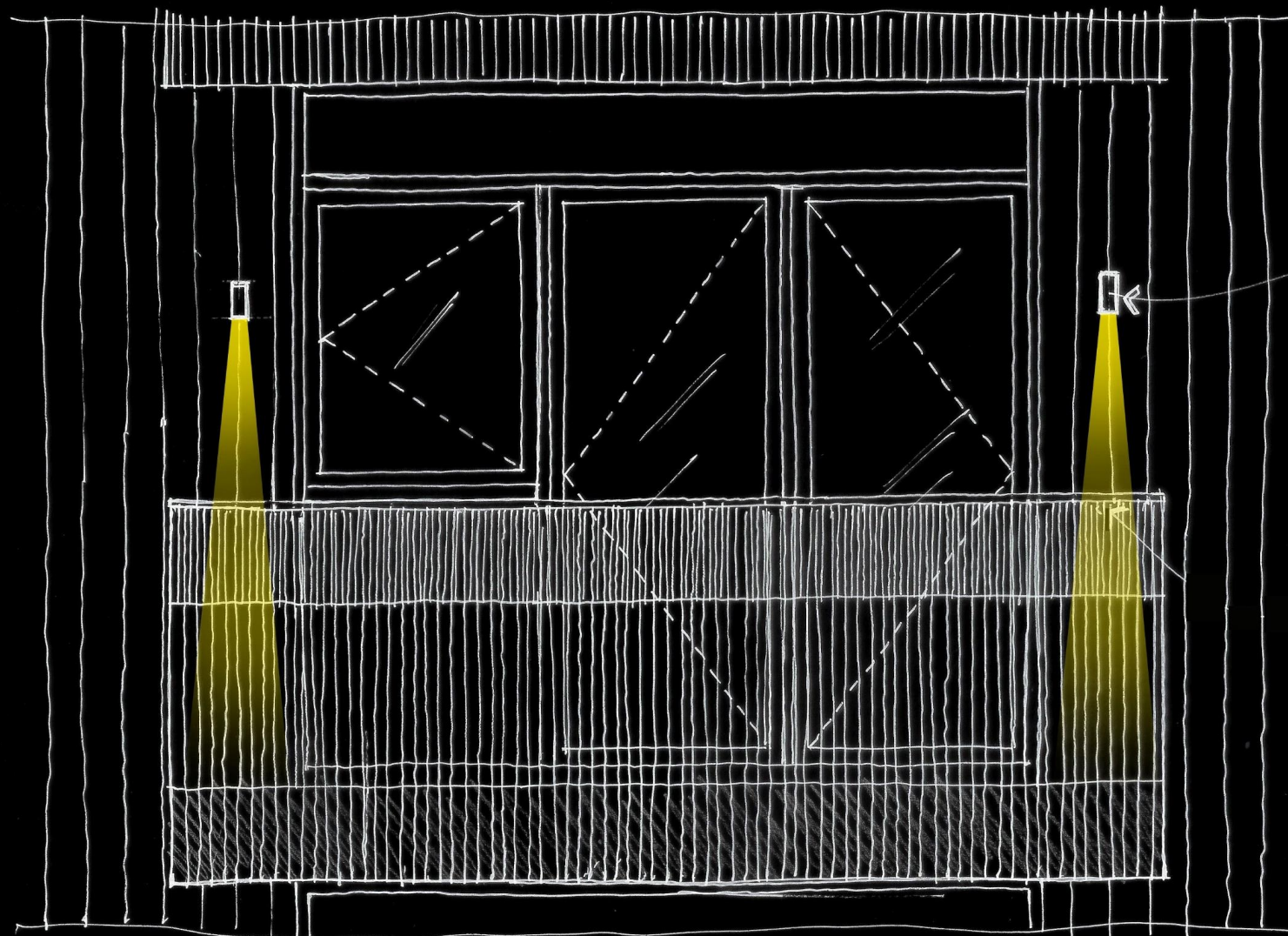
SOUTH ELEVATIONS

CENTRAL FACILITY BUILDING ELEVATIONS



PORCHES WILL HAVE A WALL MOUNTED LUMINAIRE WITH SHIELDED UP / DOWN LIGHT DISTRIBUTION TO ACT AS A LOCATION MARKER FOR OWNER AND VISTORS – ENTRANCE DOORS AND ACCESS CONTROL POINTS WILL BE HIGHLIGHTED WITH RECESSED DOWNLIGHTS MOUNTED INTO THE CANOPY SOFFIT

TYPICAL ACCOMMODATION BLOCKS ENTRANCES

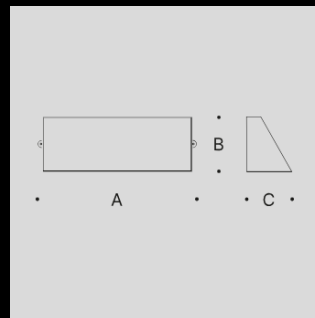


PAIR OFF
WALL MOUNTED
LED DOWNLIGHTS
SWITCHED BY
APARTMENT
OWNERS.

BALCONIES LIT WITH WALL MOUNTED LUMINAIRE HAVING DOWNWARD
LIGHT PROJECTION ONLY – WARM COLOUR TEMPERATURE LIGHT SOURCES
(2,700 deg.K) WILL ENSURE MINIMAL IMPACT ON WILDLIFE WHERE
BALCONIES ARE CLOSE TO MORE SENSITIVE ECOLOGICAL ZONES

ACCOMMODATION BLOCK BALCONIES

SKETCH TO BE ADDED ONCE DETAIL OF BIN STORES ARE KNOWN



BIN STORES ENTRANCE ILLUMINATED WITH
WALL MOUNTED LUMINAIRE WITH
DOWNWARD LIGHT PROJECTION ONLY – ALL
CONTROLLED VIA A PIR SO AREA IS ONLY LIT
WHEN NEEDED

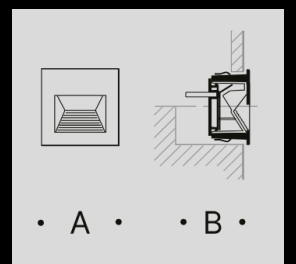
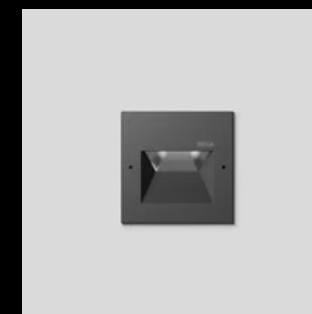
BIN STORES



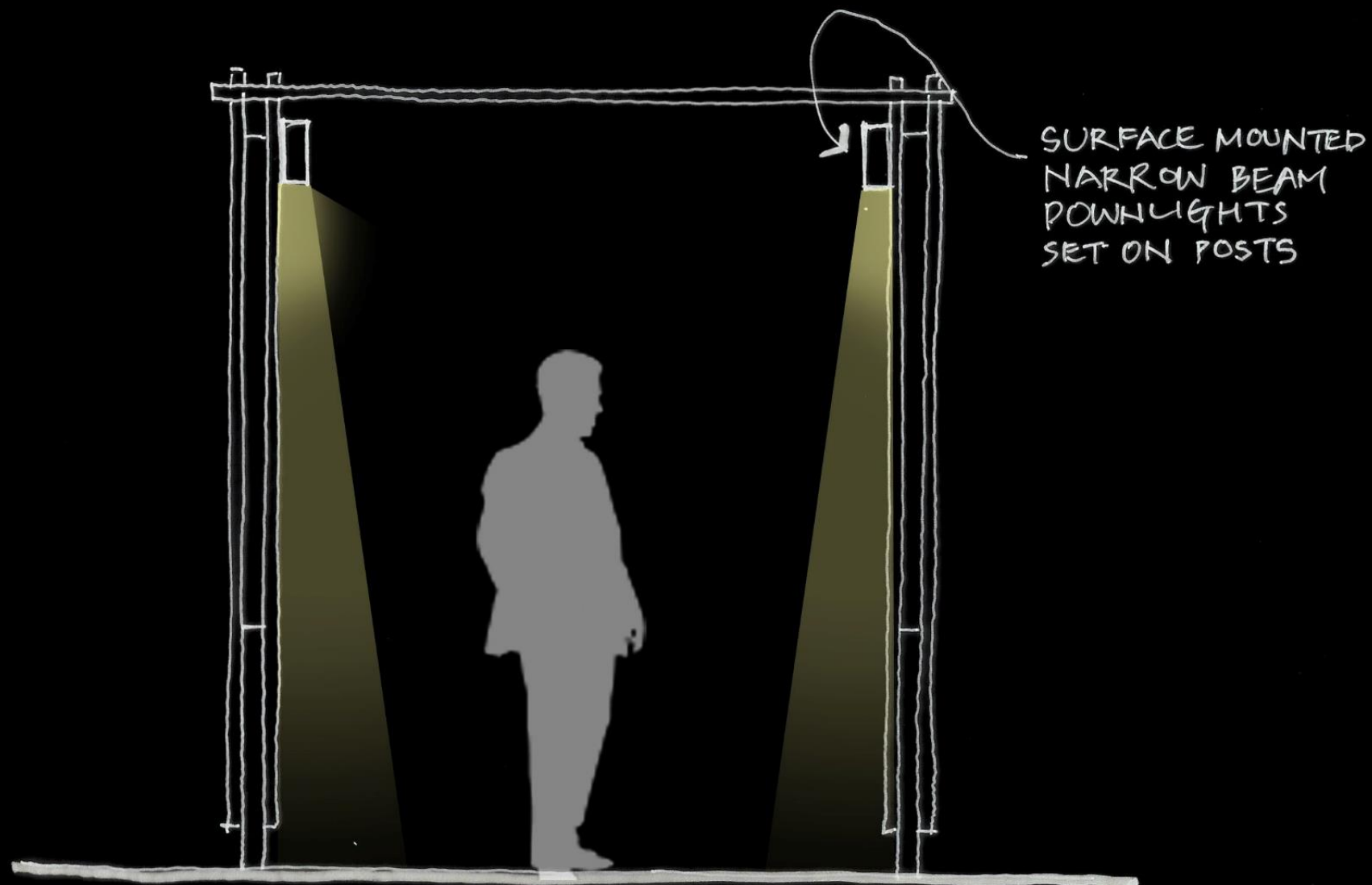
STEPS ILLUMINATED WITH RECESSED GROUND WASHING MARKER LIGHT – WITH SHIELDED OPTICS TO MINIMISE ANY UPWARDLIGHT SPILL



ALTERNATIVE LIGHTING APPROACH TO CHANGE OF LEVELS USING CONCEALED LINEAR LED

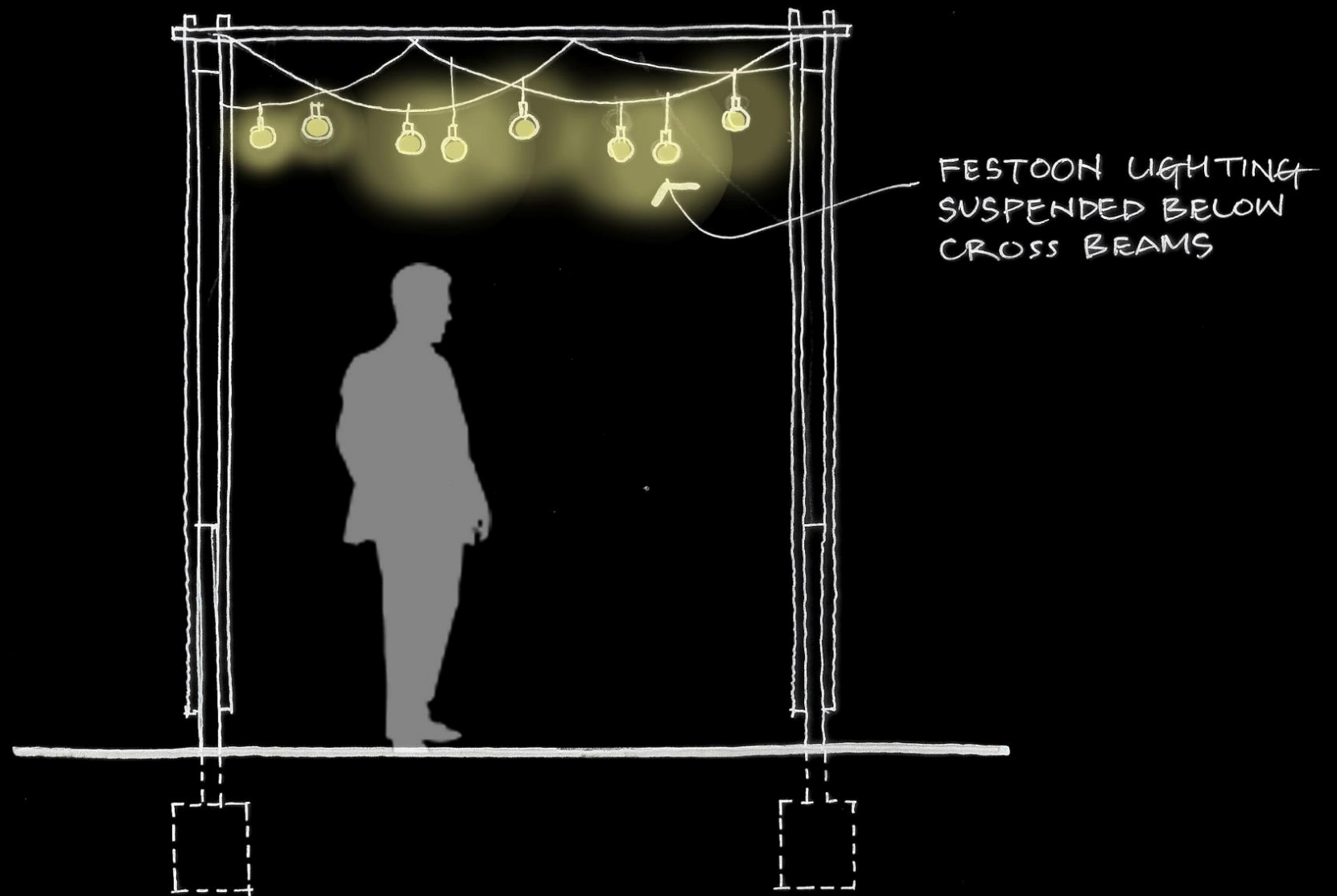


STEPS



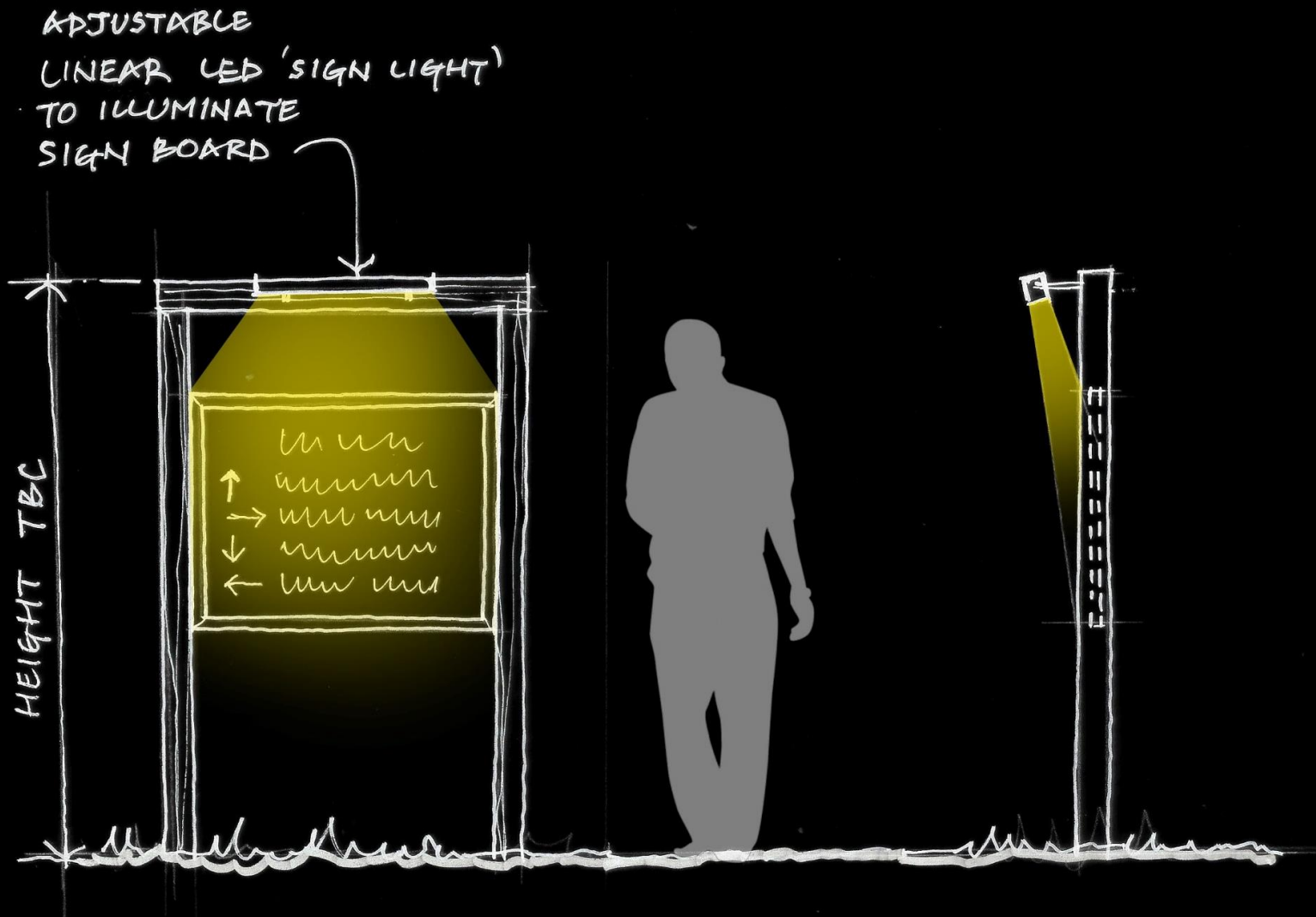
PERGOLA - SURFACE MOUNTED DOWNLIGHTS SET ONTO TIMBER UPRIGHTS TO ILLUMINATE THE PERGOLA STRUCTURE AND PROVIDE MARKER POINTS WITHIN THE LANDSCAPE

PERGOLAS

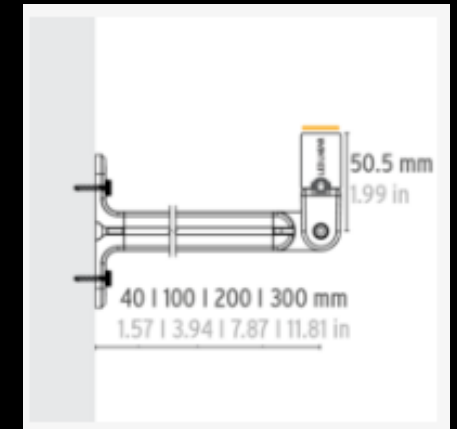


PERGOLA - FEESTOON LIGHTING USED FOR SUMMERTIME EVENING DINING ONLY – EXTRA WARM COLOUR TEMPERTURE LIGHTS (2.200deg.K) WILL REDUCE IMPACT ON LOCAL INSECT AND BAT POPULATIONS

PERGOLAS ADJACENT TO THE CENTRAL FACILITY BUILDING



WAYFINDING SIGNAGE WITH INTEGRAL LINEAR LED FITTINGS TO DOWNLIGHT ONTO FACE OF SIGN. THIS ENSURES POTENTIAL MISALIGNMENT OF LIGHT SOURCE / SIGN AND AVOIDS UPLIGHTING WHERE UNCONTROLLED LIGHT SPILL IS AN ISSUE

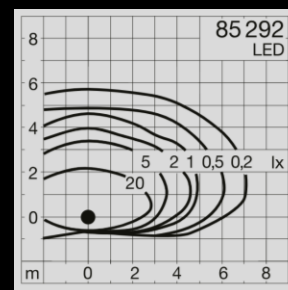
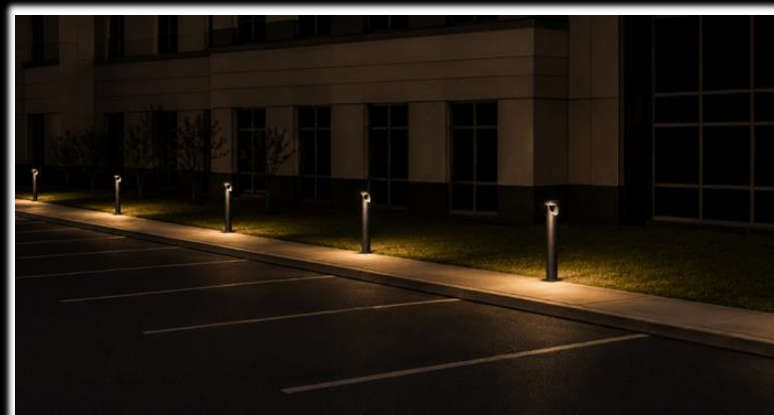


LINEAR LED PROFILE WITH BRACKET ARM ARRANGEMENT



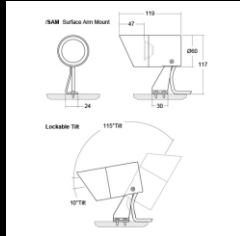
SECONDARY INTERNALLY ILLUMINATED SIGNAGE TO IDENTIFY INDIVIDUAL ACCOMMODATION BLOCK

WAYFINDING SIGNAGE



LOW LEVEL BOLLARDS WITH 180 deg. LIGHT OUTPUT AND NO UPWARD LIGHT SPILL USED TO ILLUMINATE PAVEMENT AND HELP DEFINE PARKING BAYS – FITTINGS MOUNTED SO LIGHT PROJECTS AWAY FROM ADJACENT ACCOMMODATION BLOCKS

PAVEMENTS AND PARKING BAYS



FEATURE TREES

CAREFULL ATTENTION WILL BE TAKEN INTO LIGHTING FEATURE TREES WITHIN THE DEVELOPMENT – CLOSE OFFSET NARROW BEAM SPOTLIGHTS WITH ANTI-GLARE COWLS WILL BE USED TO MINIMISE LIGHT POLLUTION STRAP FIXINGS TO TREE TRUNKS WILL ENSURE LIGHT IS GRAZED UP THE TREE TRUNK RATHER THAN BEING WIDELY DISPERSED

WARM WHITE (2,700deg.K) LED LIGHT SOURCE WILL ENSURE MINIMAL ECOLOGICAL IMPACT

FEATURE TREE UPLIGHTING



PLANTING SIMPLY LIT AND SILHOUTTED ONTO SLEEPER
RETAINING WALLS BY COWLED SPOTLIGHTS WITH EARTH
SPIKES SET WITHIN THE PLANTING – CAREFULL ATTENTION
WILL BE MADE TO AIMING TO AVIOD GLARE TO ADJACENT
ACCOMMODATION AND UPWARD LIGHT PROJECTION
WARM WHITE (2,200 – 2,800deg.K LED)

TERRACED LANDSCAPE
BETWEEN COTTAGE BLOCKS



WE WANT OUR VILLAGE OWNERS TO STAY FIT AND ACTIVE THROUGHOUT THE YEAR – ACCESS TO XXX

LOW LEVEL TIMBER BOLLARDS WITH 180 deg. DOWNWARD LIGHT OUTPUT AND NO UPWARD LIGHT SPILL USED TO ILLUMINATE PATHS AND WALKWAY – LIGHTING CONTROL SYSTEM TO ENSURE LIGHTING IS ONLY ACTIVE WHEN NEEDED



GREEN WALKWAYS

STATUTORY AND GUIDELINE RESOURCES

1. **CIBSE LG6 – The Exterior Environment** (primary design guide)
2. **BS EN 12464-2:2024** (outdoor workplace lighting)
3. **BS 5489-1:2020** (roads and public amenity areas)
4. **ILP GN01 – Reduction of Obtrusive Light**
5. **ILP GN08/18 – Bats and Artificial Lighting**
6. **BS 8300** (inclusive design)
7. **National Planning Policy Framework (NPPF)**
8. **Wildlife and Countryside Act 1981 and Habitats Regulations 2017** (where ecological impacts are relevant)

Building façades and circulation routes—**CIBSE LG6**, **BS EN 12464-2**, **ILP GN01**, and **ILP GN08/18** as the core documents that together address recommended lux levels, light pollution, and ecological considerations.

