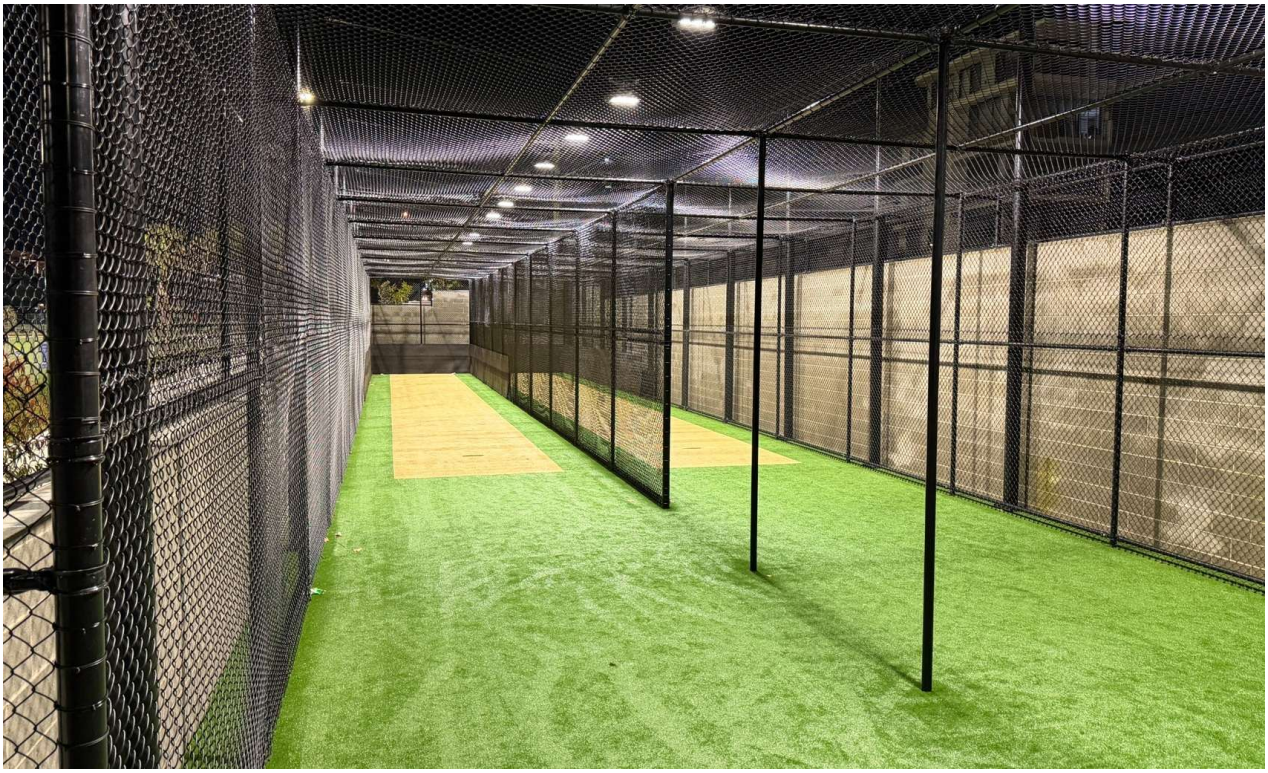
TECHNICAL WHITE PAPER / SPORTS LIGHTING

Overhead lighting for netted practice areas

Cricket practice nets and baseball batting cages
A case study of Seymour Shaw Park, Miranda, NSW

Trent Dutton FIES RLP
Managing Director, Rubidium Light Pty Ltd | November 2026



Completed cricket practice enclosure viewed along the pitch axis. The luminaire row is above the roof mesh and follows the centreline between the lanes.

Where external pole-mounted floodlights must project through single or several layers of side netting at shallow angles, overhead luminaires offer superior control of the light reaching the ball. Rubidium Light recommends assessing an overhead layout first for enclosed cricket practice nets and baseball batting cages.

At Seymour Shaw Park, Sutherland Shire Council's two outdoor practice pitches share an enclosure with double-layer chain-wire perimeter fencing. With external pole-mounted floodlights, the illuminance delivered to each wicket would depend on the angle at which each beam intersects the fence, the relative alignment of the two layers and, for some paths, the intervening lane divider.

Rubidium Light designed a single longitudinal row of catenary-mounted luminaires above the common centreline. The principal light paths enter through the roof mesh, bypassing the double side screens. This paper examines the optical basis for that decision, the calculated horizontal and vertical illuminance in each lane, and the implications for glare, ball visibility and field verification.

Why overhead lighting is preferred

For multi-lane enclosure, the decisive question is where the light enters. Seymour Shaw still uses poles to support the catenaries. The distinction is between a luminaire suspended over the lanes and one on an external pole aimed through the side fencing.

Design consideration	Overhead luminaires above the roof net	Pole-mounted floodlights outside the enclosure
Mesh traversed	Principal rays can enter each lane through its roof panel. A shared central row can reduce reliance on the side screens.	A beam entering through the side may traverse two perimeter layers and a divider. The far lane can receive a different fraction of the same beam.
Ball in flight	Overlap from successive luminaires can illuminate the ball from both longitudinal directions. Check for weak vertical illuminance directly beneath a narrow-beam luminaire.	Cross-light can produce good vertical illuminance where the beam path is clear. At grazing incidence the side mesh can attenuate the very rays that provide it.
Glare and spill	Downward aiming can limit high-angle emission. Check the luminaire aperture against elevated ball trajectories and against the release point at the far end.	Setback and aiming may permit glare control from outside the cage. Check direct views past the net, bright mesh and spill towards paths or residences.
Structure and access	Allow for span sag, wind displacement, upward net deflection and removal of a luminaire without compromising containment.	External poles can simplify servicing and keep equipment clear of ball impact. Footings, retaining walls and access routes must accommodate the required positions.
Energy and operation	Compare power and annual operating hours at the required maintained performance, including individual-lane switching if specified.	Make the same comparison with all luminaires needed to achieve the brief. Include adjacent field lighting if the nets depend on it.

Magnitude of the optical advantage

For a beam that would contribute 100 lx at a receiver with no screen, Figure 4 gives about 88 lx through one layer at normal incidence and 48 lx through two layers at 75° from the screen normal, averaged over mesh offsets. To deliver the same illuminance along those two paths, the external floodlight would need about 1.8 times the luminous intensity towards that receiver, at equal distance and receiver orientation. Each luminaire contributes along a different path, so this ratio applies only to the beam considered.

Basis for selecting between layouts

Assess both arrangements on the same surveyed geometry, calculation grids, maintained criteria, switching states and operating hours. Compare minimum vertical illuminance, uniformity, player sightlines, obtrusive light and access costs. An external pole with a clear path over the side screens may perform well. A low roof with insufficient impact clearance can rule out an overhead installation. The project record contains no matched pole-layout calculation or measured head-to-head trial at Seymour Shaw.

Scheduled energy use at Seymour Shaw and MacDonald Park South

The two project schedules give the full-output load of the dedicated cricket-net luminaires. The comparison assumes 1,000 operating hours at each site and excludes oval lighting, standby power and auxiliary loads. [3, 14, 15]

Project and mounting arrangement	Luminaire schedule	Connected load	Energy at 1,000 h
Seymour Shaw Park · overhead catenary	10 × 151 W	1.51 kW	1,510 kWh
MacDonald Park South · 12 m external poles	4 × 920 W	3.68 kW	3,680 kWh

Seymour Shaw's scheduled load is 2.17 kW lower, or 59% below MacDonald Park South's. At 1,000 full-output hours the difference is 2,170 kWh. The Seymour Shaw tender model predicts 440 lx and 428 lx between stumps with precinct lighting operating. MacDonald Park South predicts 215 lx across its ground-level cricket-net grid with the oval lights off. To determine the equivalent pole-mounted load at Seymour Shaw, assess both layouts on the same grids and in the same switching state against the same illuminance, uniformity and glare criteria. [2, 14]

Seymour Shaw Park case study

Changes in ground level, perimeter retaining walls and adjacent paths constrain external pole locations. Two poles of equal height above their respective footings can have different mounting heights relative to the pitch. The relevant design dimensions are luminaire elevation above the finished playing surface, lateral setback and clearance above the retaining-wall crest. [1, 2, 4]

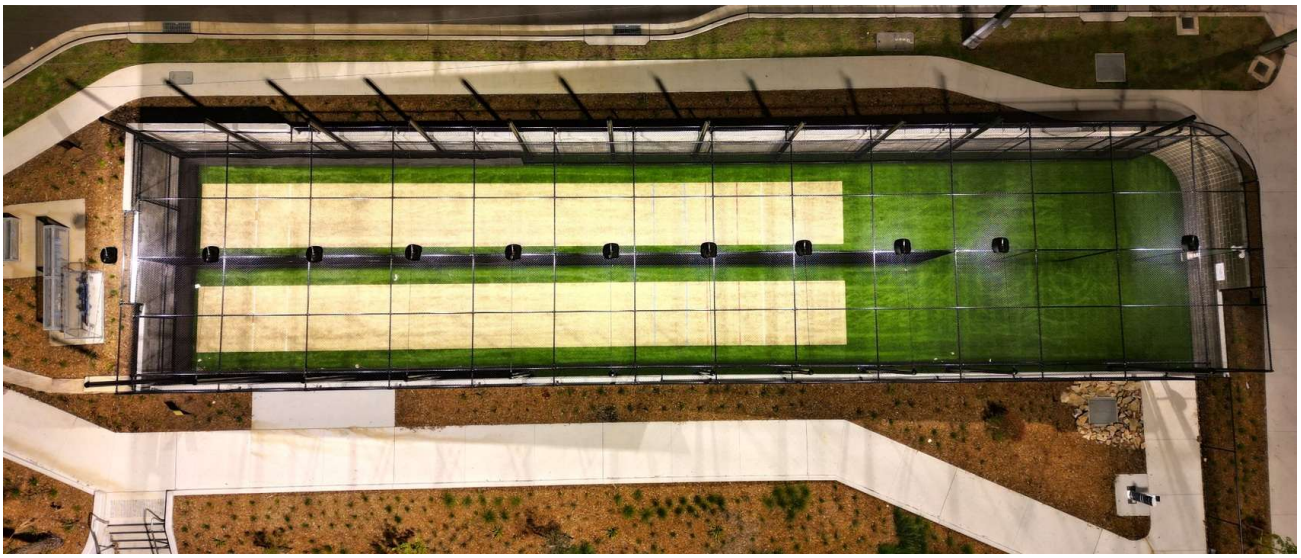


Figure 1. Plan view of the two practice lanes. Each transverse span carries one luminaire above the common longitudinal centreline.

External and overhead light paths

For a side-mounted floodlight, trace the direct path from the luminaire to each calculation point. A ray entering through the sidewall intersects both perimeter screens. A ray reaching the far lane may also intersect the central divider. Changes in pole elevation or setback can move the point of entry from the sidewall to the roof. The incidence angle and number of screens traversed therefore vary within a single beam.

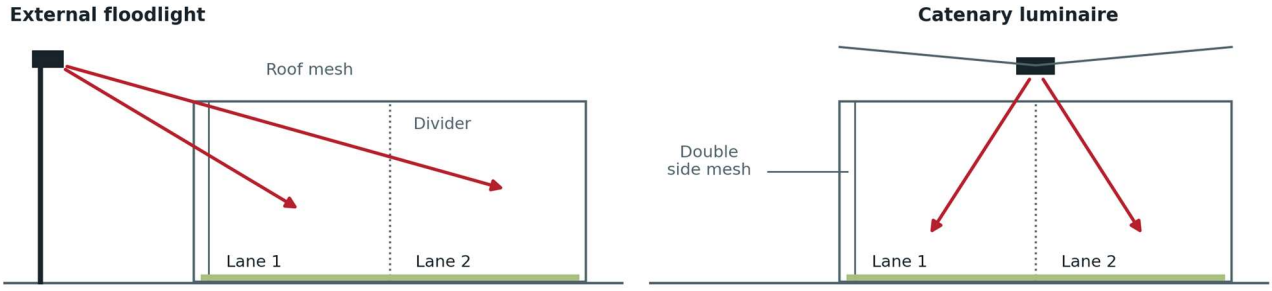


Figure 2. Transverse sections showing representative direct light paths from an external floodlight and a centreline catenary luminaire. Dimensions and ray angles are schematic.

With the centreline arrangement, the principal rays to either wicket enter through the roof mesh at a lower angle to its normal than a grazing ray entering through a sidewall. The longitudinal spacing also allows adjacent luminaires to illuminate the ball from opposite directions along the pitch, contributing to vertical illuminance towards the bowler and the batter. Roof framing and the top of the divider can still obstruct individual paths.

Directional transmittance of chain-wire screens

The nominal open-area ratio describes the proportion of a panel occupied by apertures in a specified projection. For direct light, the aperture that matters is the one projected perpendicular to the incident ray. Its area depends on both the angle of incidence and the azimuth of the ray relative to the diamond mesh.

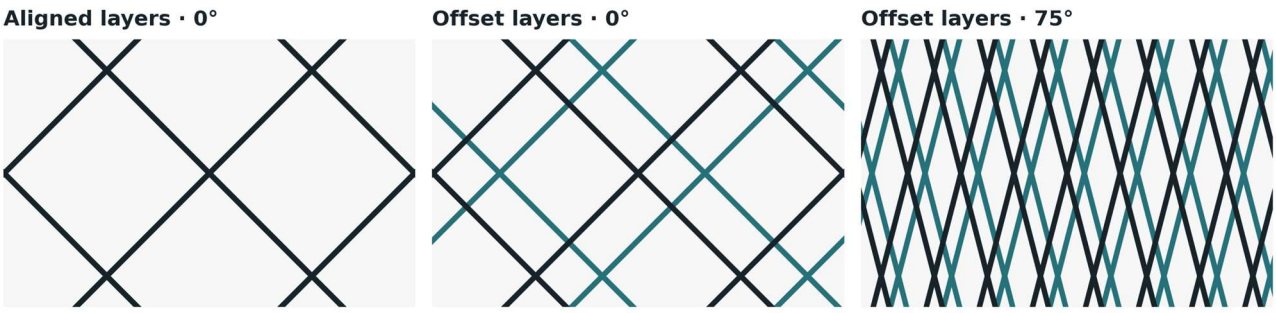


Figure 3. Projected wire silhouettes for two idealised screens. The first two views are at normal incidence. The third is at 75° to the screen normal, equivalent to 15° to its plane. Dark and teal lines identify the two layers.

Projected aperture of a single layer

At oblique incidence, the projected centre-to-centre spacing contracts across the direction of view. The projected width of a round wire continues to occupy part of that spacing, reducing the clear aperture. The two diagonal wire families respond differently if the incident azimuth changes. In chain wire, the depth of the weave, knuckles, lacing and coating thickness also affect the projected obstruction. Laboratory studies of architectural metal screens confirm that angular transmittance depends on the specimen geometry and orientation. [8]

Relative displacement between layers

Where the projected silhouettes coincide, the rear wire adds little further obstruction. Where the rear wire projects into an aperture of the front screen, it intercepts additional flux. For parallel screens separated by a normal distance s, the ray intersects the second screen at a lateral displacement of $s \tan \theta$, where θ is measured from the screen normal. At $s = 40$ mm and $\theta = 75°$, the displacement is approximately 149 mm. Even a modest change in direction can change which wires overlap.

Spatial variation within the enclosure

Panel bow, tension, joints and relative rotation alter the local alignment of the two screens. A luminaire with a finite emitting area produces a penumbra, and overlapping beams can soften individual wire shadows. Posts and rails can still produce local illuminance minima. The principal modelling uncertainty is the as-installed geometry at each beam intersection.

Ball-to-background luminance contrast

Illuminance on the pitch and the luminance contrast of the ball are separate quantities. Wire can attenuate light incident on the ball while reflecting light towards the batter. As a white ball passes in front of illuminated mesh or roof framing, its contrast against the background can fall even where horizontal illuminance on the pitch is high. Assess this effect from the batter's eye position along the delivery trajectory. [6]

Sensitivity of transmittance to incidence angle

For two idealised mesh layers of 3 mm diameter wire at 50 mm centres, the calculated mean direct transmittance decreases from 78% at normal incidence to 48% at 75° from the normal. These values apply to the model geometry and are averaged over the relative lateral positions of the two layers.

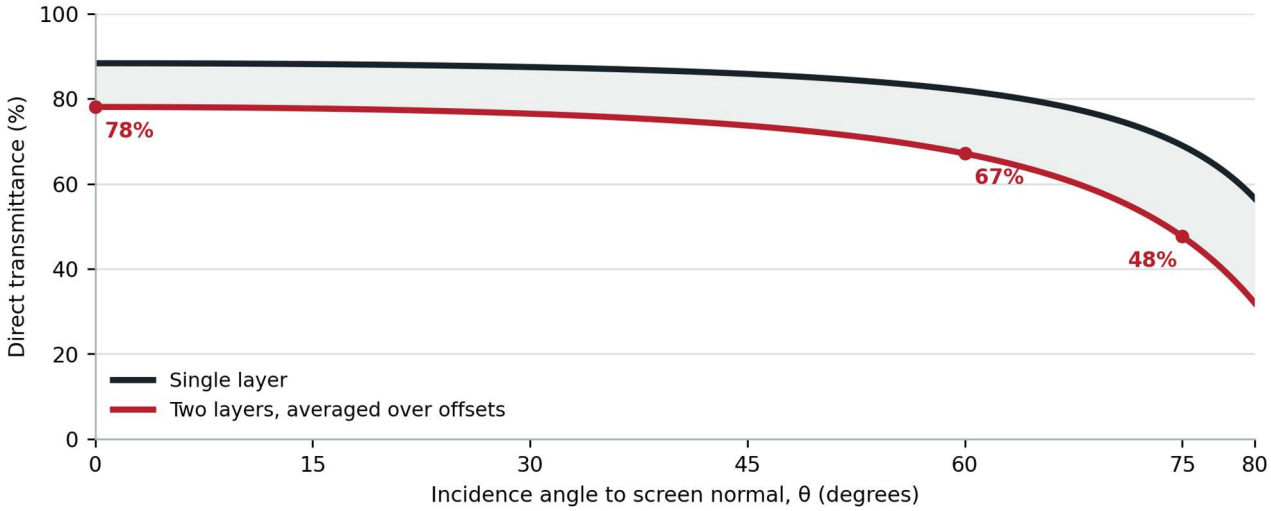


Figure 4. Calculated direct transmittance for collimated light. The two-layer curve is the mean over uniformly distributed offsets in the screen plane. Mesh dimensions, offsets and transmittance at Seymour Shaw Park were not measured for this example.

Model geometry and calculation

Each screen comprises two orthogonal families of straight, opaque, circular wires. The wire diameter is d and the centre spacing p is measured perpendicular to each family. The incident azimuth bisects the two wire directions. Under these conditions, the projected fraction obstructed by each family is f, the single-layer transmittance is T_1, and the mean two-layer transmittance is $\langle T_2 \rangle$.

$$f = (d/p)\,\sqrt{[1 + \tan^2(\theta)/2]} \qquad T_1 = [\max(0,\, 1 - f)]^2 \qquad \langle T_2 \rangle = T_1^2$$

At 75°, a single layer transmits approximately 69% of the incident direct flux. A pair with exactly coincident projected silhouettes also transmits 69%. Averaging the two-layer result over relative positions gives 48%. Weave depth, supports, reflection and scattering are excluded from this geometric model.

Effect of a uniform allowance on calculated uniformity

Multiplying all grid values by a common factor reduces the minimum and the mean in the same proportion, leaving E_{min}/E_{av} unchanged. In the enclosure, the angular loss varies by luminaire and calculation point. Greater attenuation at an already low point can reduce uniformity as well as average illuminance.

Application to the photometric model

Use the intensity distribution and orientation of each luminaire to calculate its direct contribution at each receiver. Apply the directional transmittance of the intersected screen assembly to that contribution before summing over luminaires. Treat interreflected light separately. Where the model resolves the wire geometry explicitly, applying an additional mesh factor would double-count the loss. Retain separate allowances for lumen depreciation and luminaire dirt depreciation.

Cricket criteria for outdoor practice pitches

AS 2560.1:2018 establishes the general sports-lighting principles. AS 2560.2:2021, incorporating Amendment 1:2022, sets out the light technical parameters for outdoor practice pitches in clause 2.4.2. The catenary layout uses a longitudinal distribution of luminaires comparable to an indoor practice facility. The applicable activity classification remains outdoor cricket practice. [5, 6]

Training classification and ball colour

The required maintained average horizontal illuminance between stumps ranges from 100 lx for Class VI to 1,000 lx for Class I. The intermediate values are 200 lx (V), 300 lx (IV), 500 lx (III) and 750 lx (II). Select the training class with the operator by reference to the intended users and level of play. Cricket Australia's outdoor guidance is based on a white ball and also recognises a pink ball. Where red-ball practice is proposed, review the intended ball colour, background and lighting conditions with the sporting authority. [5, 6]

Assessment parameter	Class IV outdoor practice criteria
Stump-to-stump area	Maintained $E_{h,av} \geq 300$ lx. $E_{h,min}/E_{h,av} \geq 0.70$.
Run-up area	Maintained $E_{h,av} \geq 90$ lx (30% of 300 lx). $E_{h,min}/E_{h,av} \geq 0.30$.
Vertical illuminance	Maintained $E_{v,min} \geq 100$ lx in both directions of play. Maximum adjacent-point gradient ratio 1.67 over 2 m.
Glare and colour rendering	Maximum glare rating (GR) 45. Minimum general colour rendering index (R_a) 65.

Table 1. Selected Class IV criteria from AS 2560.2, Table 2.4.3. Class IV is adopted here as a reference for comparison. The records reviewed do not identify the operator's adopted training class.

Mounting height and luminaire exclusion sectors

Clause 2.4.2.4.2 recommends both a distance-dependent mounting height and a minimum luminaire height of 6 m. Drawing E001 specifies a C1 mounting height of 5.7 m. The 6 m dimension on E112 refers to the support poles. The scheduled luminaire height is therefore 0.3 m below the recommended minimum. The distance-dependent criterion also requires assessment against the location of the furthest luminaire. [3, 5]

Assess Figure 2.4.6 in plan against the longitudinal axis of each wicket. At the opposite end of the enclosure, a centreline luminaire may appear close to the bowler's release point in the batter's field of view. Document angular separation, the prescribed glare rating calculations and the design rationale for departures from the recommended arrangement. GR and the direct view of a luminaire during ball tracking address different aspects of glare. [5]

Seymour Shaw calculated illuminance and glare rating

Rubidium Light's tender calculation dated 9 April 2025 gives average horizontal illuminances of 440 lx in Net 1 and 428 lx in Net 2 between stumps. The corresponding minimum-to-average uniformities are 0.91 and 0.90. The run-ups have lower average illuminance and lower uniformity than the stump-to-stump areas in both lanes. [2]

Horizontal parameter	Net 1	Net 2	Class IV criterion
Wicket $E_{h,av}$	440 lx	428 lx	≥ 300 lx
Wicket minimum, maximum	400 / 492 lx	386 / 481 lx	—
Wicket uniformity $E_{h,min}/E_{h,av}$	0.91	0.90	≥ 0.70
Run-up $E_{h,av}$	228 lx	214 lx	≥ 90 lx
Run-up minimum, maximum	138 / 389 lx	122 / 376 lx	—
Run-up uniformity $E_{h,min}/E_{h,av}$	0.60	0.57	≥ 0.30

Table 2. Tender calculations for each lane. The paired values are the minimum and maximum horizontal illuminances in lux. A dash indicates that no separate criterion for that pair is tabulated here. [2, 5]

Vertical parameter or GR	Net 1	Net 2	Class IV criterion
$E_{v,min}$, directions 1 / 2	169 / 231 lx	172 / 208 lx	≥ 100 lx per direction
Maximum gradient ratio, 1 / 2	1.35 / 1.24	1.34 / 1.33	≤ 1.67 over 2 m
Maximum calculated GR	31	31	≤ 45

Table 3. Directions 1 and 2 correspond to the E_{v1} and E_{v2} calculation grids on the tender drawing. GR is the maximum across the reported observer results for the lane. [2]

Interpretation and limits of the calculation

In Net 1, the minimum vertical illuminance is 169 lx in direction 1 and 231 lx in direction 2. The two minima need not occur at the same point. Their difference illustrates why vertical illuminance must be assessed in both directions of play. In Net 2, the 122 lx horizontal minimum in the run-up identifies a location for comparison with commissioning measurements.

The calculated results meet the Class IV numerical criteria shown in Tables 2 and 3. Both wicket averages are below the 500 lx Class III criterion. The tender sheet reports a precinct operating scenario. It gives neither a separate net-lighting contribution nor a verified mesh transmittance. No net-specific commissioning measurements were identified in the records reviewed. Installed performance with the net luminaires operating independently therefore remains unverified.

Catenary installation and optical distribution

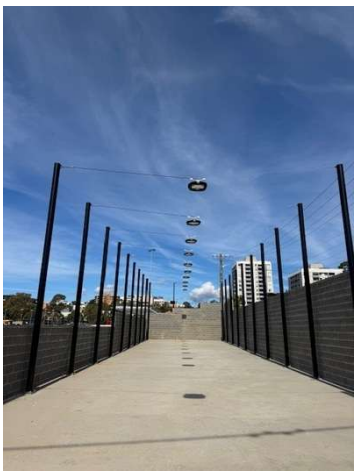


Figure 5. Construction-stage view of the transverse catenaries and shared luminaire row, prior to installation of the roof mesh.

Luminaire schedule and connected load

Drawing E001 schedules the AEC ITALO 2 UB TS suspended LED area luminaire at 151 W and a correlated colour temperature (CCT) of 4,000 K. Drawing E112 shows ten C1 positions, each supported on a transverse catenary between 6 m poles. The nominal connected load for the ten scheduled luminaires is 1.51 kW. [3, 9]

The longitudinal spacing allows adjacent beams to overlap in each lane. The enclosure has no solid ceiling to provide a substantial reflected component. Consequently, the distribution of direct luminous intensity along the pitch is particularly important. A narrow downward distribution can produce adequate horizontal illuminance and still deliver insufficient vertical illuminance on the bowler-facing or batter-facing plane.

Energy use of two documented cricket net designs

Seymour Shaw's two lanes share a 1.51 kW overhead row. For comparison, the City of Joondalup's 2020 MacDonald Park South proposal uses four 12 m poles. Its cricket-net scene energises four 920 W floodlights with the oval lights switched off. The table applies the same full-output hours to both schedules and excludes standby and auxiliary loads. [3, 14, 15]

Operating condition	Seymour Shaw · overhead	MacDonald Park South · poles
Luminaire schedule	10 × 151 W	4 × 920 W
Total input	1.51 kW	3.68 kW
Two-hour session	3.02 kWh	7.36 kWh
500 h per year	755 kWh	1,840 kWh
1,000 h per year	1,510 kWh	3,680 kWh
1,500 h per year	2,265 kWh	5,520 kWh

Joondalup calculated 215 lx average across its ground-level cricket-net grid. Seymour Shaw calculated 440 lx and 428 lx over the stump-to-stump areas. The grids and briefs differ. Isolating the energy effect of luminaire position requires both layouts to satisfy the same criteria on the same site. [2, 14]

Energising Seymour Shaw's shared row for one lane draws the same power as lighting both. Independently switched poles could use less energy for one lane if that mode satisfies the brief. Check annual use against logged hours and metered circuit energy or measured input power for each state.

Luminaire photometry and critical sightlines

Assess mounting height, spacing and orientation using photometric data for the specified optic and driver setting. For left- and right-handed batters, examine the sightline to the bowler at release and the ball against the roof on elevated trajectories. Review the transition from the run-up to the wicket separately. Specular reflections from wet wire and the luminance of the retaining wall can alter ball-to-background contrast. Verify R_a independently of CCT. Where high-speed video is required, assess temporal light modulation at the intended output settings and validate image quality at the specified frame rate and exposure. [5, 6]

Structural interfaces and ball impact

Coordinate cable pretension, sag, wind deflection, cyclic loading and support reactions with the structural engineer. Reference mounting height to the finished pitch surface. Establish clearance between the luminaire, supply cable and roof net under ball-impact deflection, and verify restraint of the complete suspended assembly. AEC lists IP66 ingress protection and IK09 enclosure impact resistance for this luminaire family. Cricket-ball impact and net deflection require a separate assessment of the installed assembly. [3, 6, 9, 10]

Application to baseball batting cages

A hitter must acquire the ball at the pitcher's release or the machine outlet and track it to the strike zone. An overhead layout can avoid perimeter and divider netting while delivering light along that flight path. The row position and optic must suit the hitter's view at home plate.

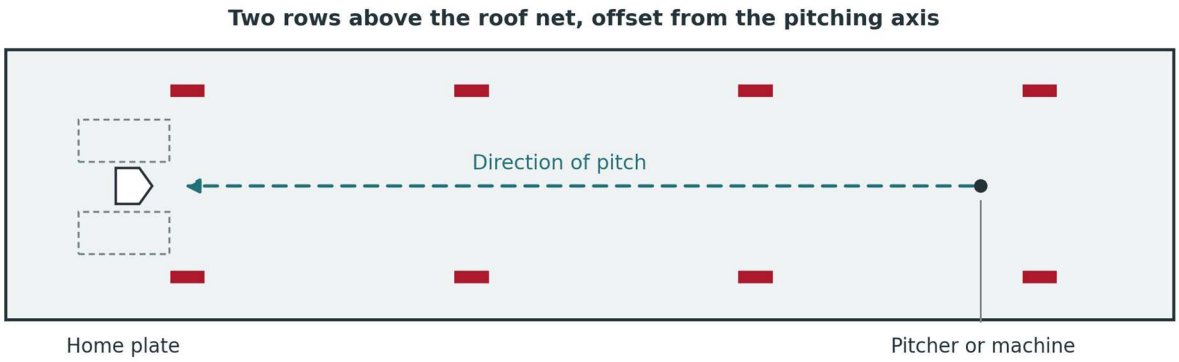


Figure 6. Concept for a single batting tunnel, shown in plan. The two offset rows illustrate one arrangement to test. Symbols indicate luminaires above the roof net. Positions and spacings are schematic.

Light on the ball and the release background

Model the release position, mid-flight corridor and strike zone for the intended pitching distances and release heights. Check vertical illuminance on planes facing home plate to assess light on the side of the ball visible to the hitter. Check the reciprocal orientation for a pitcher or coach tracking a batted return. Inspect the release background from both batter's boxes. A bright aperture directly behind the release point can impair contrast even with adequate illuminance at the plate.

Row location, protective screens and net deflection

Test a central row against offset or paired rows above the roof. Use the actual pitching machine, L-screen and impact-net positions, including any movable lane divider or end curtain. The L-screen protects the pitcher or feeder and can cast a local shadow near release. Knotted or flexible netting has different aperture, twine depth and deflection from chain wire. Establish its own directional transmittance and the maximum displaced-net envelope before setting luminaire clearance. [11, 12]

Baseball design brief and acceptance

Agree the user level, live pitching and machine settings, ball colour, coaching or camera requirements, and operating modes with the club. Set maintained horizontal and vertical illuminance, uniformity, glare assessment and measurement grids for that use. Baseball Australia addresses field lighting and tunnel protection separately. The Seymour Shaw Class IV values and cricket grid are specific to cricket. ANSI/IES RP-6-24 provides supplementary sports-lighting guidance for non-professional facilities. [5, 11–13]

Commission with screens and nets in their operating positions. Take the agreed horizontal and directional vertical readings, then review representative pitches from both batter's boxes under each switching mode. Evaluate glare ratings in the design calculation. The baseball application is a design recommendation derived from the enclosure optics. Seymour Shaw provides the cricket case study.

Field verification for the Seymour Shaw cricket nets

The verification condition is the completed enclosure with roof mesh, perimeter screens, divider, gates and playing surfaces in their normal operating positions. Reproduce the design grid in each lane and identify the switching state for every set of measurements. The following procedure separates the contribution of the net lighting from the effect of the adjacent fields. [5, 6]

Assessment	Field verification procedure
Operating conditions	Record luminaire type, operating output, orientation, mounting height, catenary sag, mesh condition, weather and meter calibration. Allow output to stabilise. Measure ambient illuminance with net and field luminaires off, then test the nets independently. Record the combined condition if the facilities operate concurrently.
Horizontal illuminance	Measure at playing-surface level on the clause 2.4.2.3 grid shown in Figure 2.4.5. Report individual readings, average, minimum and minimum-to-average uniformity separately for each wicket and run-up. Identify supplementary points at obstructions and between luminaires separately from the standard grid statistics.
Vertical illuminance and sightlines	At each prescribed point, position the detector 1 m above the playing surface with its sensing face vertical. Measure facing the bowler, then the batter. For each direction, report the minimum vertical illuminance and the maximum adjacent-point gradient ratio over 2 m. Visually assess the bowler's release point and elevated ball trajectories from each crease.
Design reconciliation	Compare measured values with an initial-output calculation for the same switching state. Assess maintained performance using the documented maintenance factor. Investigate the spatial pattern of discrepancies and retain the survey as a baseline for seasonal testing and verification after alterations.

Measurement of directional mesh transmittance

Mount a representative screen assembly between a stable source and detector. Hold the source–detector geometry fixed. Record unscreened, single-layer and double-layer readings at the installed interlayer separation. Vary incidence angle and azimuth over the range applicable to the roof and sidewalls. Translate the rear panel through one repeat period in two axes. Average readings over several mesh openings to limit sampling bias from individual wire shadows.

For each angular setting, determine the screened and open illuminances with the source energised, then subtract the corresponding source-off background for each configuration. Under conditions of negligible reflection and scattering, their ratio estimates the direct transmittance:

$$T = (E_{screened,on} - E_{screened,off}) / (E_{open,on} - E_{open,off})$$

Repeat the open measurement to check source drift. Report the mean and range for each angle and alignment. A pitch measurement alone cannot separate mesh attenuation from luminaire output, aiming error or interreflection.

Obtrusive light and asset management



Figure 7. Oblique view of the enclosure, adjoining paths and road. The difference between pitch and receiver elevations affects the direct view of the luminaires and illuminated mesh.

Receiver elevations and obtrusive light

Model surveyed pitch, retaining-wall, path, road and receiver elevations. Apply the relevant AS/NZS 4282:2023 limits for environmental zone and operating period, including vertical illuminance at receivers, luminous intensity towards receivers, threshold increment for road users and upward light as applicable. The Seymour Shaw precinct analysis includes residential receivers and several road viewing directions. For independent net bookings, assess both net-only and concurrent field operation, including visibility of the enclosure from higher ground. [2, 7]

Switching and electrical coordination

The construction drawings identify a dedicated cricket-net distribution board, column junction boxes and booking-controlled gate access. Coordinate lighting controls with booking periods, curfew and egress. Both lanes share the luminaire row. Assess the effect of one luminaire outage and any proposed single-lane switching mode before adopting operating restrictions. Confirm isolation, protection, bonding where applicable, flexible supply connections, surge protection and maintenance access with the electrical designer. [3, 10]

Maintenance and change control

Record the installed optic, driver current, luminaire tilt, clamp orientation, catenary sag and net clearances at handover. Provide for luminaire access or lowering while maintaining ball containment and protecting the playing surface. Inspect suspension hardware, corrosion, strain relief and net tension. Following re-netting, a sight-screen change or a luminaire substitution, reassess the affected operating modes. Matching input wattage alone does not preserve the luminous intensity distribution.

Seymour Shaw design outcome

The shared catenary allows both wickets to receive direct light through the roof mesh without traversing the double side screens. The tender model predicted stump-to-stump minimum-to-average uniformities of 0.91 and 0.90. Net-only field measurements, with the completed roof and divider in position, provide the basis for verifying horizontal and vertical illuminance. A sightline review at each crease complements the calculated glare ratings.

Recommendation for netted practice facilities

For new cricket nets and baseball batting cages with layered side screens, develop the overhead layout first. Its principal advantage is the ability to bypass the side mesh and control light distribution within each lane. Give preference to the arrangement that maintains directional illumination on the ball through release and interception while keeping luminaires clear of critical sightlines and the displaced roof net.

The owner's acceptance brief should identify the sport, operating modes, maintenance assumptions and receiver grids before procurement. Require a net-inclusive design calculation, documented overhead clearances and a field survey with the cage in its playing configuration. These records allow the operator to verify performance after installation and after any change to the netting or luminaire optics.

Project records and technical references

Design and construction records

[1] Sutherland Shire Council. Seymour Shaw Park sports facilities upgrade and Stage 2 opening, August 2026. Council identifies the cricket nets, new lighting and upgraded sporting precinct. Council project

[2] Rubidium Light. Seymour Shaw Stage 2 Sports Lighting Upgrade, Miranda NSW. Cricket Nets Results, drawing LUC01513-E01-5, revision B, 9 April 2025, tender issue. The net grid and calculation summary on this sheet are the source of Tables 2 and 3. The Stage 2 obtrusive-light analysis sheet covers the broader precinct.

[3] Jones Nicholson. Seymour Shaw Park Upgrade Stage 2, N0230499, electrical construction set. E001 Notes & Legend, revision N, luminaire C1. E112 Electrical Plan Area 2, revision J, cricket net detail. E030 and E031, electrical schematics. The schedule and plan establish the specified equipment and nominal mounting arrangement.

[4] Rubidium Light. Project design account and four supplied site photographs, including construction, night-time interior and aerial views. Lighting design by Rubidium Light. Electrical installation by Hix Electrical.

Standards and published technical guidance

[5] Standards Australia. AS 2560.1:2018, Sports lighting, Part 1, General principles. AS 2560.2:2021, Part 2, Specific applications, with Amendment 1:2022. Outdoor practice pitches are covered in clause 2.4.2, Tables 2.4.3–2.4.4 and Figures 2.4.5–2.4.6. Part 1 Part 2 Amendment

[6] Cricket Australia. Community Cricket Facility Guidelines (2023). Guidance Note 03, Outdoor Training Facilities, and Guidance Note 06, Floodlighting. The outdoor-training table relates class to user group. Guidance notes

[7] Standards Australia / Standards New Zealand. AS/NZS 4282:2023, Control of the obtrusive effects of outdoor lighting. Standard

[8] Mainini, A. G. et al. (2014). Spectral light transmission measure of metal screens for glass façades and assessment of their shading potential. Energy Procedia 48, 1292–1301. The paper reports angular tests on architectural screens. Figure 4 in this white paper is an independent geometric illustration. Research paper

[9] AEC Illuminazione. ITALO 2 URBAN TS, suspended LED luminaire. Product-family data and mounting arrangement. Project wattage, colour temperature and mounting height are from record [3]. Technical data

[10] AS/NZS 3000:2018, Electrical installations (Wiring Rules), and AS/NZS 1170.2:2021, Structural design actions, Part 2, Wind actions. Apply applicable amendments and coordinate the final electrical and structural design with the responsible practitioners. Wiring Rules Wind actions

[11] Baseball Australia. Australian Championships Technical Norms, clauses 22.2.4 and 22.2.6–22.2.8. Field lighting, practice screens and batting-tunnel protection. Technical norms

[12] Baseball Queensland. Official Tournament Technical Norms, Masters 2026, version 1.1, clauses 20.2.6–20.2.8. Tournament provisions for protective screens and impact netting. Masters technical norms

[13] Illuminating Engineering Society. ANSI/IES RP-6-24, Recommended Practice: Lighting Sports and Recreational Areas. Supplementary guidance on sports-lighting design, uniformity and field measurements. IES publication

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[15] City of Joondalup. Minutes of the Ordinary Meeting of Council, 18 August 2020. Proposed mounting heights and cricket practice lighting brief for MacDonald Park South. Council minutes