

# BUILDING SERVICES—LIGHTING

This technical note looks at installing new lighting in an historic building. It covers wiring; choosing appropriate fittings, power points and switches; providing suitable levels of lighting; exterior lighting; and emergency lighting.

## Background

Historic lighting levels were much lower than today's expectations. Early lighting was minimal and often limited to one pendant fitting per room. This may not be sufficient for today's needs and the lighting in historic buildings may require upgrading. Upgrading and installing new lighting requires special care and planning to avoid impairing the character, appearance or integrity of the place.

## Before you start

It is important to develop a coordinated services strategy that minimises impact. Be aware that many older buildings were constructed with systems for natural lighting, ventilation and other services that can still be used effectively—ensure these are investigated early.

## Important evidence

Before the introduction of electricity in Queensland in the 1880s, daylight, candles, kerosene lamps and piped gaslights were the sources of light for buildings. Few historic buildings retain their original gaslight fittings. If present, they are rare significant fabric and should not be removed. Gaslight fittings may be converted to electricity and many missing parts can be located second-hand. When reusing original gas fittings as an electric lighting source, retain gas cocks and gas pipe suspension to aid understanding of how these fittings operated.

## Rewiring

Older buildings will eventually require rewiring for safety—old rubber wiring deteriorates and may create a fire risk and earthing may not meet current standards. Additional wiring to provide more light fittings and power points may be necessary.

Plan rewiring carefully to retain significant historical fittings. Discuss wiring runs with an electrician to minimise exposed wiring and to avoid cutting new holes through walls, floors and ceilings. With single-skin walls, surface-mount wiring in secondary rooms and bring through the wall into the main room to avoid visual clutter. Avoid damaging finishes and materials. If cutting into timberwork consider employing a carpenter as woodwork is outside the scope of some electricians.

Avoid drilling into important timber or masonry—use existing metal conduits or new plastic conduit painted and secured with metal saddles fixed with clouts. PVC wiring can be run around architraves and along joints in boarding and painted to match the wall colour.

## Lighting levels

When increased lighting levels are required, moderate the use of intense lighting—cold, uninviting spaces are created when lighting levels are too high.

To approximate ambient lighting levels like those found in the period before World War II, install lamps with lower light levels than the prevailing modern standards. After this time higher levels of illumination became more popular. Lower ambient light levels can be supplemented with floor or table lamps particularly for task lighting.

## Fittings

Choosing suitable fittings is important. The way a room is lit greatly affects its character especially if it retains its historic colour scheme. The design and style of the fittings also has a visual impact on the space.

Retain original fittings. Rewire, re-finish and clean them to maintain effective use. If original fittings no longer exist and there is sufficient photographic or documentary evidence, try sourcing matching fittings second-hand. If no evidence can be found it is better to install an appropriate contemporary fitting rather than a reproduction fitting.

Reproduction light fittings may provide the general impression of older fittings, but often the scale, finish and lack of detail and craftsmanship give an artificial and inappropriate appearance.

Be careful with the use of recessed down-lights. They have become popular and, although they appear to be unobtrusive, recessing them in the original fabric of the ceiling is often more damaging than installing a standard ceiling fitting.

## Power points and switches

Retain original power points and switches and rewire where necessary. Run wiring in existing cavities or conduits and minimise any new wiring when installing new points and switches. Try to group switching unobtrusively in a lesser room or passage way adjacent to a significant space.

Use power points surface mounted on timber blocks rather than cutting into timber or masonry walls. Locate points back to back on either side of a wall.

Use pull switches to avoid wall-mounted switches. Consider hanging them at different heights where two are needed close together so they are easier to distinguish in the dark.

## Emergency lighting and exit signs

Emergency and exit lighting enables building occupants to find exit paths and leave a building in the event of a fire or other emergency. Commercial, institutional and other buildings used by the public may require emergency lighting. Check building codes, standards and safety regulations for current requirements.

Install emergency lighting using minimal fixings that are reversible and positioned unobtrusively. Choose the smallest components that satisfy the requirements. Do not fix to or obscure significant fabric and decorative finishes. Conceal battery packs. It may be possible to adapt an existing fitting for use as emergency lighting.

Exit signs are by nature conspicuous. Design them to be consistent with the décor of the building to minimise their visual impact—choose appropriate casing, lettering style and colour. All signs should be sensitively located and any cabling required should be installed to minimise disturbance.

## Exterior lighting

Exterior lighting may be used to highlight an important building or to provide enhanced security. A competent lighting designer should be used to determine the best solution for a particular set of conditions.

Position light fitting and cables unobtrusively, so they do not spoil or damage the appearance of the building.

Avoid fixing exterior lighting to a building. Instead fix to free-standing poles or around the building flush with the ground surface.

## Approval to install lighting

All work to a place in the Queensland Heritage Register requires approval. Most work involving the maintenance, repair and the installation of new lighting can be undertaken under General Exemption. If the conditions of the certificate are met and the companion technical notes followed, no further approval for this work is required. If the work is not covered by these exemptions contact the department for advice.

For further information refer to General Exemption technical notes: Building services—maintenance and repairs and Building services—upgrades and installation.

## General Exemption

The General Exemption approves maintenance and repairs to lighting and associated wiring and switches including:

- repair of existing light fittings, switches and cords
- replacement of cabling and wiring using existing service routes, cavities or voids
- replacement of non-original light fittings in original and later locations
- upgrading of wiring and installation of new power boards and circuit breakers.

Some new and upgraded lighting can be installed under General Exemption including:

- modern light fittings fixed to existing ceiling or wall mounts where original fittings do not survive
- replacement fittings (second-hand equivalent to original) fixed to existing ceiling or wall mounts where documentary evidence of original is available
- new lighting in new locations in spaces that are not significant and/or fixed to non-significant fabric

- exterior lighting not fixed to the building
- new light switches, including pull switches, wired using existing cavities or conduits
- new light switches, including pull switches, with minimal new wiring where wiring is concealed and cutting or drilling is minimal.

## Lighting checklist

### Do:

- retain original fittings—rewire and clean
- retain original power points and switches—rewiring where necessary
- where original light fittings do not survive, look for early mounting blocks that may be located under new fittings on ceilings and walls
- use minimal fixings that are reversible
- minimise new fittings and holes in the ceiling
- wire and rewire in existing cavities or conduits
- minimise the extent of cutting or drilling for new wiring
- install points and switches on surface-mounted timber blocks
- use pull switches to avoid wall-mounting switches or chasing into masonry
- surface-mount wiring in secondary rooms and bring through into the main room to avoid visual clutter
- use existing metal conduits or new plastic conduit, painted and secured with metal saddles fixed with clouts to avoid cutting into important timber or masonry
- consider maintaining and/or creating light levels appropriate to the character of the spaces
- use second-hand equivalent fittings where there is photographic or documentary evidence of originals
- use modern fittings where originals do not survive and there is no photographic or documentary evidence of them
- minimise visual impact of new fittings
- locate emergency lighting discreetly
- select the smallest acceptable fitting for emergency lighting.

### Avoid:

- reproduction fittings
- use of fittings that do not suit the character of the place
- use of high levels of lighting.

### Do not:

- fix light fittings or wiring to significant fabric
- damage finishes and materials when installing light fittings and running new wiring
- attach exterior lighting to the building
- fix industrial fluorescent fittings to decorative ceilings
- fix emergency lights on older walls without concealing the battery pack.

## Warning

Many older buildings have ceilings with asbestos cement sheeting. For more information about working with asbestos, see Technical note—Asbestos.

## Acknowledgment

Some material and concepts used in this document were adapted from the Heritage Information Series published by the NSW Heritage Office.

### Disclaimer

While this document has been prepared with care, it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons should satisfy themselves independently by consulting their own professional advisors before embarking on any proposed course of action.