Technical Note

BUILDING SERVICES—UPGRADES AND INSTALLATION

This technical note provides information about installation and upgrades of services approved under the General Exemption Certificate—Queensland Heritage Places.

Background

The provision of services to a heritage property is essential for its effective operation. Today there is often a need to incorporate up-to-date services such as heating, air conditioning and computer facilities in a registered place. There are a variety of ways of handling these requirements without making major changes to the place.

A range of upgrading and installation of new components for services is approved under General Exemption. This work must not damage or obscure any significant fabric or block significant views to and from the place. Work to services must suit the size, scale, materials, character and design of the place.

Work on services not included in the General Exemption requires an application for a development permit or exemption certificate.

Upgrades and installations under General Exemption

Upgrading and the installation of services approved under General Exemption are:

- ceiling fans
- roof vents
- ceiling insulation
- new light switches and power points wired using existing cavities or conduits
- modern light fittings where originals do not survive
- new plumbing concealed in existing cavities, sub-floor and ceiling spaces
- telecommunications where wiring is concealed in existing cavities, sub-floor or ceiling spaces and connection points are discreetly located.

Installation of services must be guided by the Burra Charter and conserve the cultural heritage significance of the place.

Before starting

Before upgrading or installing new services, consider if the change is necessary and whether there is another way of dealing with the perceived need. Consider alternatives that may be available, for example, rather than installing air conditioning, roof vents and roof insulation may be sufficient.

When installing new services or upgrading existing services:

- minimise the visual impact of components
- use minimal and reversible fixings
- locate visible components discreetly
- choose the least damaging route for services
- minimise cutting and drilling.

Burra Charter

The Burra Charter is a nationally accepted standard for the conservation of places of cultural significance. It defines appropriate principles and procedures for undertaking work in heritage places.

Significance

To care for a place with cultural heritage significance it must be known why the place has value and what those values are before work is undertaken. Historic buildings often have qualities not found in contemporary buildings—generous room volumes with high ceilings, decorative wall and ceiling finishes, fine timber floors and joinery, all contributing to a unique or special character. When planning the installation of new services, or upgrading existing ones, it is essential to recognise what is important and special about the place and to ensure the new work does not damage these characteristics or the significant building fabric.

Fragile surfaces and fabric

Be careful of surfaces with fragile finishes or parts of the place where the fabric may be less robust. The insertion of vents and ducts, the fixing of lights, fans and switches, and the running of cabling may damage these areas.

Hazardous materials

Existing services ducts, vents and cabling may contain hazardous materials including asbestos. Seek advice if unsure what materials have previously been used.

Services installation

Services installation can cause major problems in historic buildings. Special care and planning is required to accommodate new or upgrade existing services, such as the reticulation of power, water and communications cabling. Services should be discreetly located to avoid impairing the character, appearance or integrity of the place. Always select the least damaging routes for services. New systems should be designed to minimise impact on significant fabric and spaces.

Heating and cooling

Installing or upgrading air conditioning, heating and ventilation systems in older buildings is often required to meet contemporary expectations about comfort and provide a suitable environment for equipment. Modern standards of climate control can prove detrimental to the materials and finishes in an historic building. Adapting older buildings to accommodate services needs careful planning to balance the needs of occupants and the conservation of building fabric. Be careful to minimise physical and visual damage associated with installing new or upgraded air conditioning and ventilation systems.

Air conditioning

There are three broad categories of air-conditioning systems:

- window (also known as wall or room)
- split-system
- ducted.

Window air conditioners

The installation of window air conditioners is **not approved** under General Exemption. This work damages the significant fabric of the building.

Split-system air conditioning

The upgrading of existing split-system air conditioning may be undertaken where components:

- are not located on prominent elevations (e.g. main or side elevations seen from the street)
- do not cover significant fabric (e.g. decorative friezes or plaster work)
- do not allow a build-up of moisture that could damage significant fabric
- do not remove significant fabric (use minimal fixings that are reversible); and
- are run discreetly, such as ducting.

Ducted air conditioning

When upgrading existing ducted air conditioning, components must be:

- in existing ducts, chases or shafts
- in non-significant underfloor or ceiling spaces where the system does not have a visual impact on the important character of the interior spaces
- in less visible areas (e.g. basements, car parks, secondary areas)
- on less important elevations (e.g. rear elevations not seen from the street)
- connecting to existing vents.

Fans

Ceiling and wall-mounted fans may be installed where:

- fixing to existing mounts
- fixing to non-significant fabric.

Do not attach fans to:

- significant original or fragile fabric
- decorative finishes
- fretwork vents in ceilings.

Vents

Roof vents are often an effective way to reduce the build-up of heat in a building. Roof vents may be installed:

- to concealed roofs
- in parts of the roof that are not prominent (e.g. parts not seen from the street).

Do not insert new roof vents in:

- prominent positions on a roof
- roofs where the character of the roof is significant (e.g. steeply pitched prominent roof to a church)
- slate or terracotta tiled roofs.

Insulation

Effective roof insulation can help keep your building at a constant temperature, increasing interior comfort and reducing running costs. Insulation installed in ceiling spaces can reduce the heat gain in a building by up to 35 per cent in summer. There are a variety of products on the market, all with different acoustic and thermal insulation properties. To maximise benefits, insulation must be properly installed. Seek advice from building professionals experienced in this work to ensure you select the most suitable product and installer. The installation must not damage the significant fabric of the building. Be careful to cover or protect any significant areas of the building that may be damaged during the installation.

Lighting

The quantity and quality of lighting in and around a building affects performance in the building and how the building is used and seen. Historic lighting levels were much lower than current expectations and older buildings often have a minimal number of fittings. A balance needs to be struck between user needs and what is required to keep the special characteristics of a place.

When installing new lighting:

- retain significant early fittings and switches
- wire within existing cavities and conduits
- minimise cutting and drilling for new wiring
- minimise visual impact of fittings
- do not fix to significant fabric
- use minimal fixings
- ensure fixings are reversible.

Lighting an historic building can be challenging—duplicating historic light levels and fittings is difficult. Installation of new lighting in historic buildings requires careful design as the atmosphere, messages and character of the building can be enhanced by appropriate lighting or destroyed by clumsy installations.

Upgrading should not mean abandonment of visually important fittings, switches and exposed cabling. Older switches can be re-used by incorporating microcircuit switching and cotton insulated cable is still available.

Where original fittings no longer exist and there is insufficient photographic or documentary evidence to reconstruct them, it is better to install an appropriate contemporary fitting rather than an off-the-shelf recreated one. Reproduction fittings can provide the general impression of earlier fittings but often their scale, finish, lack of detail and craftsmanship give an artificial and inappropriate appearance.

Exterior floodlighting can achieve dramatic effects, but should be used in a subtle manner for historic buildings. Exterior lighting should not attach to the building—fix to freestanding poles or around the building flush with the ground. Some local authorities allow floodlights to be attached to nearby street lighting poles.

Electricity

Upgrading the electricity in the building will probably involve rewiring and new wiring, overhauling existing power points and switches, and installing new power points and switches.

Under General Exemption, rewiring, installing new power boards and circuit breakers, and overhauling existing points and switches, may be undertaken. Installation of new wiring, points and switches may be undertaken if the wiring is concealed and original fittings are retained.

Wiring should be concealed in existing cavities or conduits. The points and switches should be installed with minimal fixings that are reversible and not fixed into fragile fabric, joinery, trim or on decorative finishes.

Plumbing

Older buildings often require upgrading of existing, or installation of new, plumbing to meet current expectations about comfort and standards of living. Under General Exemption new plumbing should be concealed in existing cavities, sub-floors and ceiling spaces. New fixtures may be installed in kitchens, bathrooms, laundries and laboratories, for example, where the existing fixtures are not original or important.

Water filters, heaters and coolers may be installed and should be fitted without damaging significant fabric. Underbench, overbench and freestanding models and refrigerators with piped, chilled and filtered water will usually require new piping and fittings. These should be run and fitted discreetly and should not damage significant floors, walls, fixtures or fittings.

Telecommunications

Telecommunications have become an integral component of modern life. Where possible install wiring and cabling in existing cavities, sub-floors or ceiling spaces. Locate connection points discreetly.

Minimise wiring and fixing and choose the least damaging routes with minimum cutting or drilling. Fixings should be minimal and reversible. Consider wireless connections to minimise wiring and fixing of components.

Solar panels, antennae and satellite dishes

Under General Exemption solar panels, antennae and satellite dishes may be installed on parts of the roof that are not prominent (e.g. parts not seen from the street).

Contact the department if you wish to install these devices in the following locations:

- on prominent positions on a roof
- roofs where the character of the roof is significant (e.g. steeply pitched prominent roof to a church)
- slate or terracotta tiled roofs.

Removing services

Many buildings accumulate redundant service components remaining from services that have been installed in an ad hoc manner. When reviewing your services consider removing extraneous parts that are not important to the place, such as unused air conditioners, redundant ducting, and pipe work, antennae and aerials that are no longer in use. Repair any damage that installation and removal of these components inflicts on the building. Original components should be retained and repaired to continue operating where possible.

Summary checklist for new and upgraded services

Do:

- retain and upgrade existing systems whenever possible
- have a regular maintenance program to extend equipment life and ensure proper performance
- retain decorative elements of significant early services systems including switch plates, grilles, radiators and fans
- use existing conduits, ducts, chases, cupboards and shafts for new systems
- design climatic control appropriate to the space
- improve energy efficiency by installing insulation in ceilings
- select less visible areas (e.g. basements, ceiling spaces, under floors) for location of services
- maintain appropriate temperature and humidity levels to meet accommodation requirements without accelerating the deterioration of the building materials
- train staff, users and/or occupants to monitor the operation of equipment and to act appropriately in the event of emergencies or breakdowns
- ensure components suit size, scale and design of place.

Do not:

- damage or remove significant fabric
- install a new system if it is not needed
- over-design a new system
- damage significant finishes, mask significant features nor alter significant spaces when installing new systems
- place condensers, solar panels, stacks, vents, plant or other equipment on visible portions of roofs or at significant locations on the site
- insert false ceilings in significant spaces to conceal ducting
- insert vents that damage significant fragile finishes or fabric
- allow condensation on windows or within walls to rot or spoil adjacent significant building materials
- make openings larger than 25mm or cut into surfaces for the insertion of wiring and cabling
- locate services on the main elevations of a building or in a prominent roof positions
- chase wiring or make ducts in plasterwork or masonry walls in important spaces
- exacerbate decay of existing significant fabric through the incorporation of chemically incompatible materials
- damage decorative finishes
- limit access for future maintenance.