

Character brings challenges

‘Character home’ is a popular descriptor on the real estate ads. But what headaches might be in store when planning to alter or renovate a character home of the 1920s or 1930s?

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THE BUNGALOW TYPIFIED houses of the 1920s with its pitched gable roof, wide eaves, bevel-back weatherboard cladding and rooms opening off a central hallway. Timber-framed walls were built without dwangs, with timber sarking or match lining providing both structural stability and a subsurface for wallpaper. Tongue and groove boarding was used in service rooms.

Arrival of art deco

The 1930s saw the arrival of the art deco style, characterised by stucco cladding, reduced decoration and a monopitch low-slope roof with a parapet and no eaves.

Although art deco houses looked very different from their bungalow predecessors, the internal layout was often similar. The increasing availability of sheet lining materials meant that sarking was not required and dwangs were introduced.

Few of these older houses are still in their original condition, but some of the improvements may be unsympathetic or fall below current Code requirements.

This lean-to laundry has no wall underlay, and water staining is visible on the weatherboards. Light wiring in a metal conduit needs replacing.

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Subfloor issues can include inadequate ground clearance, original timber piles and subfloor moisture. Here, the concrete step has been removed, revealing rot due to no DPC between concrete and timber.

Start with the bigger picture

Houses in the 1920s and 1930s were typically built with the 'best' rooms facing the street and service rooms at the rear.

When considering alterations, it can be helpful to look at the bigger picture. Instead of replacing the kitchen in its original location, a better outcome might be achieved by moving it. Consider the:

- orientation of living spaces for the sun
- relationship of spaces - kitchen may be remote from living room
- room sizes - often relatively small
- connection to outdoors - often limited
- bathroom facilities
- number and position of power points and light fittings
- car parking and garaging.

For new additions, also think about compliance with current Resource Management Act constraints such as yard sizes and site coverage, ground bearing capacity and hazard zoning.

Check the structure

These houses were built of native timbers that may be undersized compared to the current requirements of NZS 3604:2011 *Timber-framed buildings* but were generally stronger than the timber available today. Problems due to undersized framing may include springiness in floors and sagging roofs or ceilings.

Get a structural engineer to advise on:

- the condition of foundations and subfloor, lintels and roof framing
- strengthening and bracing requirements
- loadings, especially if walls have been removed.

Other issues to consider may include:

- sagging ceilings
- springy floors, especially if tiles are planned
- chimneys - check structural integrity and fire safety
- rot and borer
- poor weathertightness.

Look into the regulations

As well as checking compliance with current Resource Management Act requirements, a wide range of legislation must be considered:

- The New Zealand Building Code requires all existing houses undergoing alteration, as well as new houses, to have Type 1 smoke alarms installed.
- Building Code Acceptable Solution H1/AS1 sets out the required thermal performance for new construction and renovation work.
- Building Code Acceptable Solution E2/AS1 excludes:
 - direct-fixed stucco cladding
 - timber windows.
- The Acceptable Solution to clause F4 *Safety from falling* references NZS 4223.3:1999 *Glazing in buildings - Part 3: Human impact safety requirements*, which requires glazing

within 1.5 m of the floor in a wet area to be safety glass.

- Heritage preservation rules may apply.

Take the chance to improve insulation...

Houses in the 1920s and 1930s were constructed without insulation. While it is not mandatory to insulate existing houses that are not being altered, all new work must meet current standards.

When renovated spaces include new and existing construction, the extent of insulation required can be unclear.

A building consent is required to install insulation in existing exterior walls.

Consider:

- roof and wall underlay may be absent
- existing insulation (especially blown-in macerated paper) may have settled and need to be topped up or replaced
- existing foil underfloor insulation should be replaced with a bulk insulation
- bulk insulation, with wall underlay folded into the framing cavity, should be installed if none is present
- sheet insulation should be fitted clear of the back of the cladding
- with double-skin or brick veneer, ensure that the cavity is not compromised by insulation
- maintain a 25 mm clearance between roof insulation and roofing underlay.

Access can be difficult underfloor, in mono-pitch roof spaces and in exterior walls if they are not being reclad or relined.

...and improve energy efficiency

Check downlights and other fire hazards have the required clearances. Take care to avoid electrical wiring and plumbing. Also:

- install a ground vapour barrier, especially if ground clearance is limited, the soil is damp or subfloor ventilation is restricted
- fix draughts around timber windows and doors
- timber windows can be retrofitted with double glazing
- look into condensation issues with older aluminium replacement windows. ➤



A typical roof space with no roof or wall underlay, undersized native timber roof framing (with a recent extra prop) and evidence of water staining on the gable wall weatherboards.

Check the bracing

Where new work is proposed, such as an alteration that involves removing load-bearing walls or adding an extra floor, bracing calculations will be required as part of the building consent application.

Original foundations may not comply with NZS 3604:2011 Section 5: Bracing.

Wall bracing was provided by diagonal timber braces and is also likely to be well below current standards.

Until recently, it has been difficult to include the bracing potential of these walls in bracing calculations due to lack of empirical ratings. The article 'Bracing ratings' (in *Build* 144, page 24) gives bracing ratings for a variety of bracing walls commonly used in older construction. Also:

- check concrete ring foundations for damage or deterioration
- check the condition of bearer-to-pile and bearer-to-wall plate connections and wall plate to foundation wall
- remove the skirting before fixing sheet linings over sarking to achieve maximum bracing value.

Matching new to existing a challenge

Dimensions of modern building materials will differ from the original imperial sizes. This can be an issue with:

- wall framing
- weatherboards
- roofing
- interior mouldings
- tapware and plumbing fittings.

Don't forget the services

Plumbing

The original drainage pipework is unlikely to be compliant with Acceptable Solution G13/AS1 *Sanitary plumbing* or AS/NZS 3500:2003 *Plumbing and drainage*. Any new work will need to comply with either G13/AS1 or AS/NZS 3500:2003. Also check:

- the condition of original earthenware drains
- the age of the water cylinder and budget to replace it if necessary with mains pressure
- whether pipework and fittings can cope with mains pressure - it may be necessary to replace them or refit a low-pressure system
- whether the pipework is galvanised - if so, it should be replaced
- stormwater requirements with the local territorial authority, for example, ensure no stormwater flows into the sewer system.

Electrical

Establish the age and condition of the wiring and distribution board before starting work:

- Replace any remaining tough rubber-sheathed (TRS) black wiring immediately.

- Early installations of tough plastic-sheathed (TPS) cable may also be in poor condition due to deterioration of the plastic sheathing and insulation.
- The meter must be (re)located so it can be read without entering the house.
- All new lighting and power outlet circuits must be protected by RCDs.
- Don't install recessed downlights in the ceiling. Ideally, remove any already installed.

Could be health and safety issues

Asbestos

Asbestos was a component of a wide range of building materials used in the 1920s and 1930s. Examples include linoleum flooring, fibre-cement products (sheet lining and cladding, roofing shingles) and insulation materials.

If asbestos is suspected, a sample of the material should be tested. The Health and Safety in Employment Asbestos Regulations 1998 regulate working with asbestos.

Testing can be done by K2 Environmental, Dowdell and Associates, Capital Environmental Services or SGS NZ Ltd.

Lead

Oil-based paints containing lead were common until the mid-1960s. If work involves removing many layers of paint, lead paint is likely to be present, and precautions should be followed.

Lead-testing kits are available from a number of hardware stores.

Mould

Mould indicates weathertightness or ventilation issues. Take appropriate precautions to ensure that building occupants and anyone working on the building are not exposed to health hazards from mould during renovation or repair work.

If black mould is found on cellulose products, stop work immediately, as it may be harmful. Take a sample for testing before sealing off the area. Samples can be tested at Biodet Services and Airlab Ltd. ◀

For more Download *Build* 144 'Bracing ratings' from *Build* online at www.buildmagazine.org.nz. Also visit BRANZ sites www.renovate.org.nz/art-deco or www.renovate.org.nz/bungalow.