House levelling with real long-term benefits

SMARTLIFT
SYSTEMS LTD

OUTSTANDING RESULTS

SmartLift professionally re-levels and repairs foundations in commercial and residential buildings, specialising in earthquake-damaged properties in Christchurch and Canterbury.

The SmartLift repair methodology has developed the most accurate house re-levelling systems in the market. In fact, this patented process was designed specifically for earthquake-damaged houses in Christchurch. The locally owned and operated company has a 100% success rate with every house lifting job they have completed.

SmartLift does something no other system can do.

The significant benefit with SmartLift's system is that it remains adjustable. Not only does it re-level foundations and floors to millimetre accuracy, the installed system can be re-adjusted as often as required, for the life of the home. This means that in the event of future seismic activity, the house can be re-levelled with minimum expense, labour and distress to the home owners. Unlike other house lifting systems, heavy exterior claddings and roofing materials, kitchens, bathrooms, and most tiled areas, can stay in place throughout the process. With a SmartLift system, home owners not only have peace of mind that the job has been completed successfully, but also know it has actually increased the value of the home.

This benefit is available only through SmartLift.

SmartLift holds the patent on its lifting process, meaning that no other business can use the same process. Furthermore, SmartLift is proudly ISO 9001 certified for Commercial and Residential Foundation and Floor Levelling, a grading that is recognised in more than 150 countries. It means the company must meet stringent quality control standards and face regular audits and reviews of its processes and standards from qualified third-party assessors.

DEVELOPED IN CHRISTCHURCH.

FOR CHRISTCHURCH. BY CHRISTCHURCH.

Long-term advantages over traditional house levelling and lifting systems.

THE SMARTLIFT SYSTEM

SmartLift offers many advantages over traditional house levelling and lifting systems.

- Allows a building to be re-levelled multiple times once installed
- Is designed and engineered especially for Christchurch houses
- Can lift single or two-storey houses of heavy weight
- Can lift multiple apartments with heavy internal fire walls
- Suitable for a full consent or exempt activity, meaning the Council consent process is streamlined
- Increases foundation bearing area up to 300%, reducing risk of future damage
- Is proven in the commercial sector, having the ability to lift heavy factory walls and floors
- Contractors and engineers supply PS1, PS3, PS4
- Allows plumbing or drainage repairs to be made under a house once lifted to level
- Is suitable for reinforced and un-reinforced concrete floors
- Can be used to fix lateral spread
- Gives high accuracy with re-levelling to millimetre tolerances
- Efficient – most jobs are completed in 10 - 14 working days
- Increases the value of a property after installation
- Guarantees continuing insurance or reinsurance

Advanced and accurate house re-levelling systems.

CASE STUDY 1

Parklands

Land Zone	**TC3**
Year Built	**1975**
Floor Area	**110 sqm**
Land Area	**530 sqm**
Foundation Type	**B**
Roofing Type	**Lightweight metal tiles**
Cladding Type	**Heavy Summerhill Stone**
Floor Level Difference	**136mm**

The eastern suburb of Parklands suffered widespread earthquake damage. This house is typical of the suburb in age, type of damage it sustained, and classification of the land it is built on. Assessment showed the foundation had settled 138mm, causing moderate damage to the Summerhill Stone veneer and minor cracks to the perimeter foundation beam.

The repair strategy was to use a mechanical lift off concrete jacking pads. To create jacking points, patio, steps, fences and paths were first removed. Every second jacking point was excavated, then concreted. Remaining jacking points then received the same treatment. Tension bars were fitted along both sides of the foundation beam to "squeeze" up the cracks. The perimeter foundation was then jacked to height, bearers simultaneously lifted and, where required, new bearers installed. After final levels were taken, the perimeter beam was continuously excavated to allow reinforcing and 25MPA concrete to fill all cavities. Lastly, the cracks in the veneer, which had closed up on re-levelling, were ground out and repointed.

REPAIR PROCESS

01: Entire foundation packed and jacks removed for void fill

02: Where lift was over 100mm, piles were packed with an extra bearer spanning at least two piles

03: Tension bars pulled foundation together closing up cracks

CASE STUDY 2

Avondale

Land Zone	**TC3**
Year Built	**1975**
Floor Area	**80 sqm**
Land Area	**655 sqm**
Foundation Type	**C**
Roofing Type	**Lightweight metal tiles**
Cladding Type	**Heavy Summerhill Stone**
Floor Level Difference	**168mm**

The concrete slab under this house was out of level by up to 168mm over the length of the house, more than the amount recommended for re-levelling. The brick veneer looked as if it would need replacing and ground conditions were poor. However, the concrete slab proved to be in good enough condition for a re-levelling and mechanical lift methodology was chosen.

The front patio and rear steps were removed to access the foundation. Jacking points were excavated at each corner and at 2m intervals between corners before pads were constructed. Core holes of 100mm diameter were drilled through the slab from inside and 300mm diameter holes at internal jacking points so the void beneath could be filled.

All cracks that were present in the foundation were repaired with epoxy resin. Lifting caused gaps in the brick veneer to close up, negating the need for recladding, and cracks in mortar were ground out and repointed. The foundation was solid plastered. On completion, the floor level varied only 6mm over the whole house.

04: Jacked and supported foundation.

05: Concrete slab lifted at same time as foundation. Void fill poured.

06: DPM reinstated and concrete slab core holes sealed.

SMARTLIFT
SYSTEMS LTD

326a Papanui Road
Christchurch 8052
p 03 928 2695
e info@smartlift.net.nz
www.smartlift.net.nz