

Foundations of Control: New Zealand Building Legislation in the 1840s

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ABSTRACT: The development of the "Raupo Houses Ordinance 1842" could be considered as the direct ancestor of today's "New Zealand Building Code." Limited in its scope and application, the Ordinance provided a short-term solution to what was hoped to be a short-term problem - the use of highly flammable material for house construction. It was not intended for application to the countryside, only to urban areas. To be effective, the Ordinance had to be adopted by each provincial council as covering a specific area. This occurred from 1842 (Auckland) to 1852 (Lyttelton and Christchurch). It was finally repealed in 1878. Not every province was happy with the Ordinance, with New Plymouth setting up its own "Thatch and Straw Building Ordinance." This paper will examine the intent, content and context of the Ordinance and its consequences on the development of future building controls.

Early New Zealand Building Legislation

Landing in a distant country for the first time, European settlers faced an immediate need for shelter. Caves or natural bush canopy might be suitable for a short time, but a more substantial construction was required. The time and effort required to fell and prepare large trees made this approach a long-term choice, and in the short term more accessible materials were required.

Raupō Houses

Raupō (*Typha orientalis*), from the same family as the biblical bulrush, is a swamp plant particularly common around the shallow edges of lakes and in swamps. Easy to collect, dry and store, it could be readily assembled into useful buildings.¹ Bunched together, thatched or neatly sewn into rows, the stems repelled water and provided a useful level of

¹ Phillipps *Māori Houses and Food Stores* p 14.

thermal insulation.

There was already a Māori tradition of using plants or smaller parts of trees, often in combination with earth.² Reed or thatching was woven into place by vines or sewn with fibre from flax or ake, and in later years fixed with wire, on a supporting timber frame.³

European settlers viewed such constructions as temporary "hovels" compared to the "well-laid-out substantially built town,"⁴ or, in the words of a later specialist, "one is impressed not by their strength, but by their frailty."⁵ Importantly this tradition enabled European settlers to obtain quickly-made constructions

² Taylor *The Maori Builds* pp 6–35.

³ Phillipps *Māori Houses and Food Stores* pp 40, 79.

⁴ "Auckland: Raupo House Bill" p 2.

⁵ Phillipps *Māori Houses and Food Stores* p 40.

that provided a water-resistant shelter.⁶

The 1883 edition of *Brett's Colonists' Guide and Cyclopaedia of Useful Knowledge* advised: that in "the majority of cases it is advisable to build first a temporary house; this is often built with raupo walls and nikau framework round saplings from the bush."⁷

Raupō houses could be of considerable size – one example from the 1880s was 90 ft (27 m) long by 36 ft (11 m) broad, built in nine days it slept 300 people. Shape was not constrained, with rectangular, circular and oval constructions being found in different locations. Raupō becomes brittle after long exposure to the weather, and requires extra protection from damage. Raupō houses were

⁶ Northcote-Bade "Early Housing in New Zealand" p 2.

⁷ Leys *Brett's Colonists' Guide and Cyclopaedia of Useful Knowledge* p 16.

not considered as durable or as warm as timber houses, although this depended on the amount of raupō used and the construction.⁸

Using modern analysis the thermal conductivity for thatch ranges from 0.07 to 0.09m°CW⁻¹ depending on material and compression,⁹ so 150mm of raupō would give a wall R-value of about 2.1m²°CW⁻¹. This is higher than the current (2014) NZBC Clause H1 Acceptable Solution minimum wall requirement of 1.9m²°CW⁻¹ in Zones 1 & 2 or 2.0m²°CW⁻¹ in Zone 3 (South Island and central North Island).¹⁰

There was limited ventilation through the "koro pihanga," a small opening with a sliding shutter, which provided an escape for smoke.¹¹ Presumably, as in British houses with a central fire, the smoke from the open fire would have deposited soot on the thatching as it escaped,¹² serving as a fungicide, insecticide and preservative. Later

⁸ Leys Brett's *Colonists' Guide and Cyclopaedia of Useful Knowledge* p 16.

⁹ Fricker & Hughes *AIRAH Technical Handbook - 3rd Edition* p 635.

¹⁰ Department of Building and Housing *Compliance Document for the New Zealand Building Code* p 11, Table 1.

¹¹ Papakura *The Old-Time Maori* pp 274, 308.

¹² *Weald & Downland Open Air Museum Guidebook* p 25.

| Year | Stone or Brick | | Wood | | Raupo | | Total |
|------|----------------|----|------|-----|-------|-----|-------|
| 1842 | 3 | 1% | 331 | 76% | 101 | 23% | 435 |
| 1843 | 9 | 2% | 447 | 77% | 126 | 22% | 582 |
| 1844 | 10 | 2% | 444 | 79% | 105 | 19% | 559 |
| 1845 | 17 | 2% | 603 | 84% | 100 | 14% | 720 |
| 1848 | 45 | 3% | 987 | 65% | 481 | 32% | 1,513 |
| 1849 | 47 | 3% | 1440 | 86% | 187 | 11% | 1,674 |
| 1851 | | | | | | | 1,938 |
| 1852 | 103 | 5% | 1937 | 86% | 157 | 7% | 2,246 |

Table 1: Auckland Building Construction (non-Māori population)

| Year | Stone | | Brick | | Wood | | Earth | | TOTAL |
|------|-------|------|-------|-----|------|-----|-------|-----|-------|
| 1845 | 3 | 0.5% | 50 | 8% | 283 | 43% | 324 | 49% | 660 |
| 1846 | 3 | 0.5% | 48 | 8% | 290 | 49% | 250 | 42% | 591 |
| 1847 | 0 | 0.0% | 54 | 10% | 311 | 55% | 196 | 35% | 561 |
| 1850 | 6 | 0.8% | 53 | 7% | 458 | 60% | 229 | 30% | 766 |

Table 2: Nelson Building Construction 1845 to 1850 (non-Māori population). Note: count includes both town and district.

on, the addition of a chimney would have controlled the fire better as well as removing the smoke, improving the indoor air quality.

European Raupō Housing

From its earliest European settlement, Auckland was a city of wood and raupō, as detailed in **Table 1** for the decade from 1842 to 1852.¹³ Numbers for specific house construction types were not published for 1851. The percentages give the proportion for

¹³ Lloyd Prichard *An Economic History of New Zealand to 1939* p 62, Table 21.

that construction material for that year. It is clear that wood and the even more flammable raupō provided the vast majority of buildings, although this declined steadily, as will be discussed later.

Raupō Houses Ordinance

By 1842 fires to houses built or thatched with raupō led the government to take action to prohibit its use in built-up areas.¹⁴ The Raupo Houses Ordinance was passed by the

¹⁴ Cochran "Styles of Sham and Genuine Simplicity" p 113.

Legislative Council on 3 March 1842. Concerned with the "lives and properties of persons residing in towns," it levied a charge of £20 per year on any building constructed wholly or in part of raupō, nīkau, toitoi, wīwī, kākano, straw, or thatch, with a fine of £100 for any new construction where the legislation had been declared to be in force. **Table 3** gives the date the Ordinance was applied to which town or borough by province.

The Ordinance was first applied in Auckland (effective 16 November 1842).¹⁵ It had an immediate effect, with a steady decline in the number of raupō houses, as can be seen in **Table 1**. There is no obvious reason for the increase of 381 raupō houses in 1848, although the number fell by 294 in the following year.

Some Wellington settlers were not happy with the legislation, suggesting it would "provoke general resistance-among a population at present orderly, loyal, and accustomed to obey the laws."¹⁶ However, as the result of a disastrous fire which started in a bake house with a thatched roof¹⁷ on the night of 9

¹⁵ Hobson "Proclamation" pp 141-142.

¹⁶ "Public Meeting" p 3.

¹⁷ Cochran "Styles of Sham and Genuine Simplicity" p 113.

| Date | Town/Borough | Effective | N.Z. Government Gazette Reference |
|-------------|--------------------------|-------------|--|
| 16 May 1842 | Auckland | 16 Nov 1842 | 18 May 1842 pp141-2 |
| 30 Mar 1843 | Wellington | 1 Oct 1843 | 5 Apr 1843 p89 |
| 23 Feb 1850 | Dunedin & Port Chalmers | 1 Jan 1851 | (New Munster) 23 Feb 1850 pp17-8 |
| 29 May 1850 | Lyttelton | | (New Munster) 25 May 1852 pp76-7 |
| 13 May 1852 | Lyttelton & Christchurch | 1 Nov 1852 | (New Munster) 25 May 1852 pp76-7 |
| 3 Jul 1852 | Lyttelton & Christchurch | 1 Feb 1853 | (New Munster) 15 Jul 1852 p102 (delay) |

Table 3: Application of Raupo House Ordinance 1842 by Province

November 1842, the Wellington Borough Council requested the Ordinance be extended to Wellington¹⁸ and this occurred just under a year later (1 October 1843).¹⁹ Response to the Ordinance provides an early example of a newspaper editorial opposing the widespread implementation of a building control, instead suggesting a more limited coverage area.²⁰

On 14 November 1843 Mathew Richmond, Wellington's Chief Police Magistrate was appointed to receive the taxes payable under the Raupo House Ordinance.²¹ The local paper requested that he use his discretionary powers and only apply the Ordinance where

¹⁸ Carman *The Birth of a City* p 102.

¹⁹ Connell, for Willoughby Shortland "Proclamation" p 89.

²⁰ "New Zealand Gazette and Wellington Spectator: Wednesday, February 22, 1843: Raupo House Ordinance" p 2.

²¹ Connell, for the Colonial Secretary "[appointment of Mathew Richmond]" p 269.

the "removal of Raupo roofs is necessary for the security of valuable property in the neighbourhood" as raupō houses and roofs were not durable and would soon need replacement.²²

The building used by the Mechanics Institute was subject to the Ordinance,²³ so the development of a new one was supported by the government.²⁴ The new hall of the Wellington Athenaeum and Mechanics' Institute, to a design of Mr E Roberts, was opened on Lambton Quay on 11 April 1850.²⁵

It took until 1851 for the Raupo House Ordinance to be applied in Dunedin and Port

²² "Raupo Act" p 2.

²³ "Mechanics' Institute: Monday, May 8, 1843" p 3.

²⁴ "Mechanics' Institute" (7 February 1844) p 3.

²⁵ "New Zealand Spectator, and Cook's Strait Guardian: Saturday, April 13, 1850: Wellington Athenæum and Mechanics' Institute" p 2.

Chalmers (1 January 1851),²⁶ and finally it was enforced in Lyttelton and Christchurch on 1 February 1853.²⁷ *Chapman's New Zealand Almanac 1860* reported the Ordinance as only applying in Auckland,²⁸ but in fact it remained in force in the provinces until its final repeal in 1878.²⁹

It could be considered that the Raupo House Ordinance was being used to force Māori to shift to European style housing. This does not appear to have been the case. Firstly, it only applied within urban areas. Secondly, local European sentiment was clear it only applied to them. One Wellington response came in a Letter to the Editor from "A Reader" declaiming the application of the Ordinance to European dwellings while excluding "the warres [sic] occupied by Natives."³⁰ When the New Plymouth Provincial Government set in place their Thatch and Straw Building Ordinance of 1858, the local newspaper complained that it excluded the town pā and

²⁶ Domett Colonial Secretary, "Proclamation" pp 17-18.

²⁷ Grey "Proclamation" (25 May 1852) V(11): 76-77; Grey "Proclamation" (15 July 1852) V(16):102.

²⁸ Chapman *Chapman's New Zealand Almanac 1860* p 15.

²⁹ "Chronological Tables of The General Statute Law of New Zealand" (1882) I:A-13.

³⁰ A Reader "To the Editor of the "New Zealand Gazette, and Wellington Spectator" p 2.

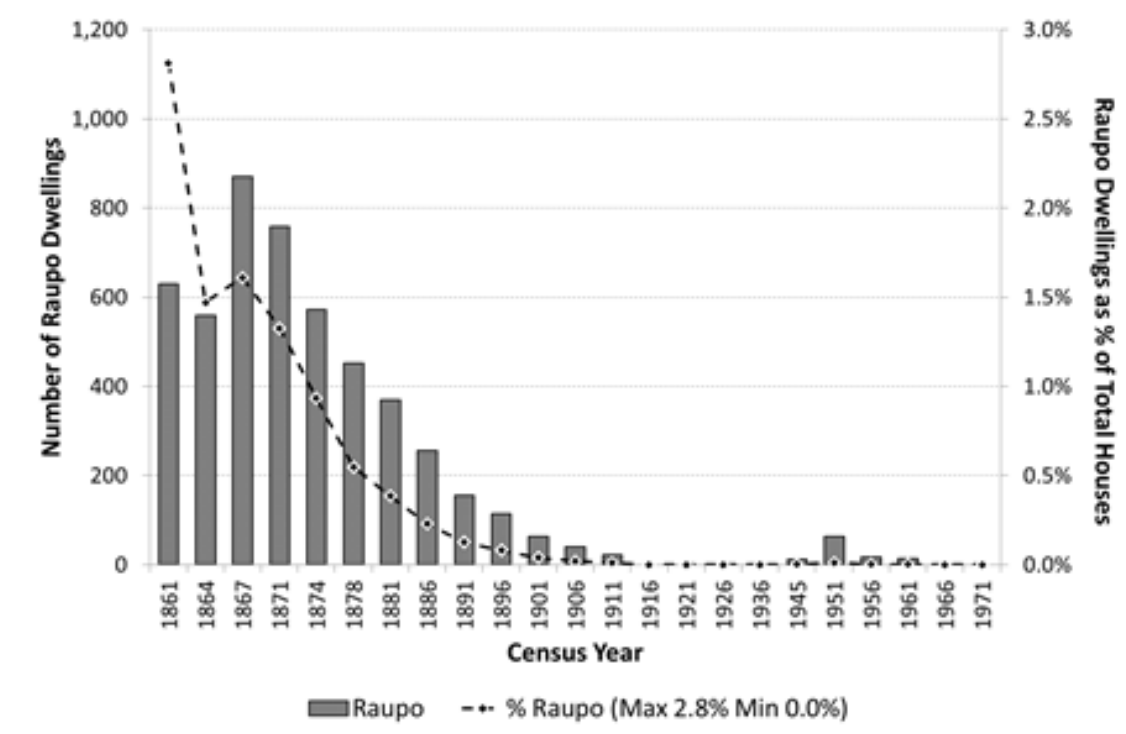


Figure 1: Raupō Dwellings 1861 to 1971

did not require the inhabitants to "exchange of their wretched raupo huts for wooden buildings."³¹ These suggest the legislation was concerned with fire safety rather than other purposes.

³¹ "The Taranaki Herald. New Plymouth, October 2, 1858" p 2.

The Future for Raupō Housing

The Ordinance may have closed down the construction of raupō-type housing in urban areas, but it certainly did not halt their use elsewhere. **Figure 1** plots the number of dwellings of raupō construction reported in the censuses from 1861 to 1971, along with the proportion of the total number of dwellings. At the peak (1861), raupō dwellings accounted for just 2.8% of all New Zealand dwellings

recorded in the census. It must be noted that, until 1951, data was only collected for European, not Māori, dwellings.

The numbers of raupō dwellings reduced in 1858 and 1861, but 1864 saw a large increase (possibly related to the gold rushes) but over the following 10 censuses the numbers reduced to 23 in 1911. In the 1956 Census the numbers increased again, peaking in 1951 at 63 dwellings, again falling. The last census to report this type of construction was 1971.

Future Housing Legislation

The Raupo House Ordinance was the first building legislation implemented in New Zealand, although it was required to be implemented by Provincial Councils before it was enforceable. The Ordinance was principally concerned with the consequences of fire in a specific type of construction which used particularly flammable materials. In the following two decades, building legislation with wider coverage was passed by the Provincial Councils of Auckland (1854), New Plymouth (1858), Canterbury (1864) and Otago (1862).³² **Table 4** provides a summary of the legislation by province, recording the

| Province | Year | Session | No. | Title |
|--------------|------|---------|-----|---|
| National | 1842 | 2 | 17 | Raupo Houses Ordinance 1842 |
| Auckland | 1854 | 1 | 13 | City Building Act 1854 |
| New Plymouth | 1858 | 6 | 7 | Thatch and Straw Building Ordinance 1858 |
| Otago | 1862 | 16 | 114 | Dunedin Building Ordinance 1862 |
| Canterbury | 1867 | 27 | 14 | Christchurch Fire Prevention Ordinance 1867 |
| National | 1867 | 2 | 24 | The Municipal Corporations Act 1867 |
| New Plymouth | 1867 | 16 | 2 | Town Buildings Roofing Ordinance 1867 |
| National | 1876 | 1 | 52 | Municipal Corporations 1876 |

Table 4: New Zealand Building Legislation by 1876

year, session and legislation number.

At the national level, the Municipal Corporations Act 1867 provided local councils with building control powers, but it was not until the Municipal Corporations 1876 that buildings were explicitly included in the by-law coverage.

The Raupo House Ordinance was only applied to urban areas in: Auckland, Wellington, Dunedin, Port Chalmers, Lyttelton and Christchurch. However, it was the first New Zealand legislation used to control building construction and brought responses that would not be surprising today – a general reluctance to spend any more than the minimum on the creation of new buildings.

³² Isaacs "Building Legislation 1840 - 1870" p 179.

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