

1.3 Modular Wall Masonry

Masonry Units

For reasons of ease of manufacture, storage, handling and construction, concrete masonry is produced in modular units.

To be able to satisfactorily design or construct a concrete masonry building or structure, it is necessary to understand the basics of masonry units:

- Modular dimensions
- Set-out
- Units available
- Construction details

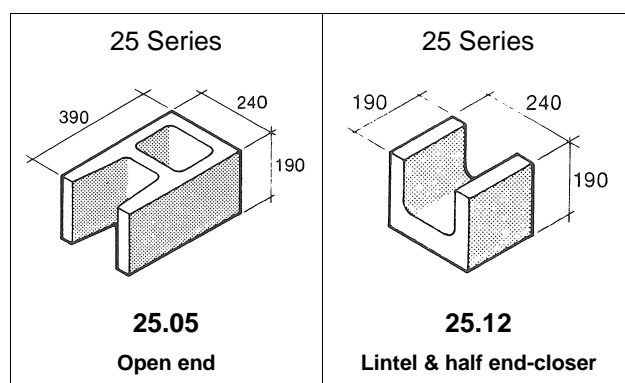
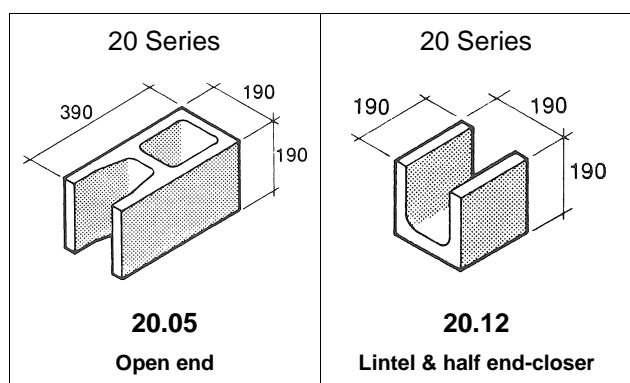
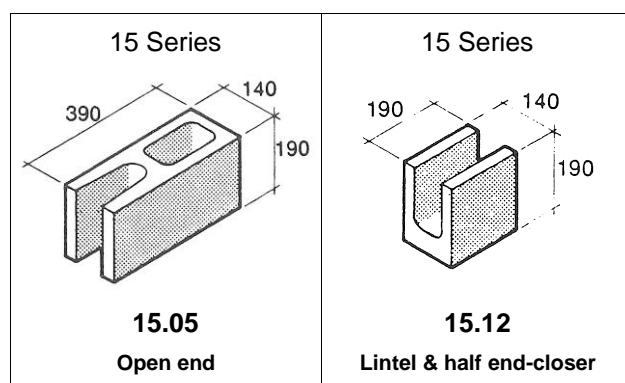
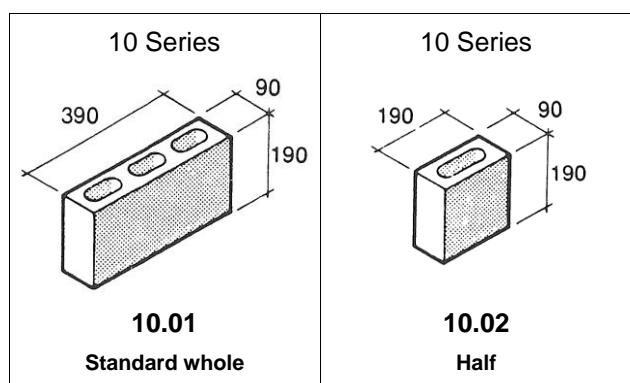
Modular Dimensions

The fundamental modular unit is 400 mm long by 200 mm high (nominal dimensions). This unit is called "the standard whole". There is also a complimentary 200 mm long by 200 mm high unit called "the half".

These units are available in four different widths – nominally:

- 100 mm (10 series)
- 150 mm (15 series)
- 200 mm (20 series) – most commonly used unit
- 250 mm (25 series)

The actual size of the units is 10 mm less than the nominal size to allow for a 10 mm mortar joint.



Set-out

The nominal modular length set-out of the units is in multiples of 200 m.

This is based on the nominal block size comprising 190 mm actual block size plus a 10 mm mortar joint.

The actual set-out dimension is 10 mm more, or 10 mm less, than the nominal set-out dimension. This is due to the addition or deduction of one mortar joint in relation to the number of masonry units as shown below.

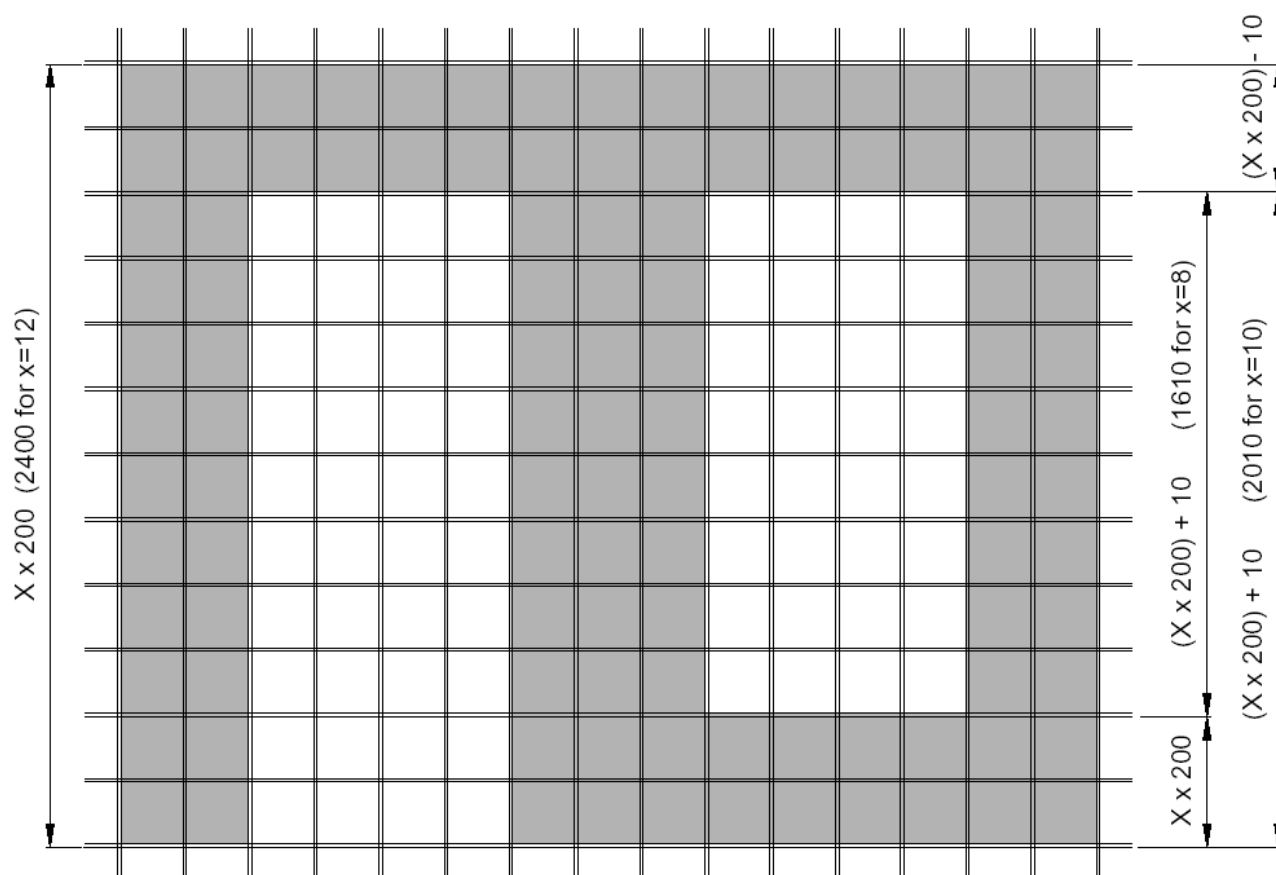


Figure 1: 200 Module Set-out: Elevation

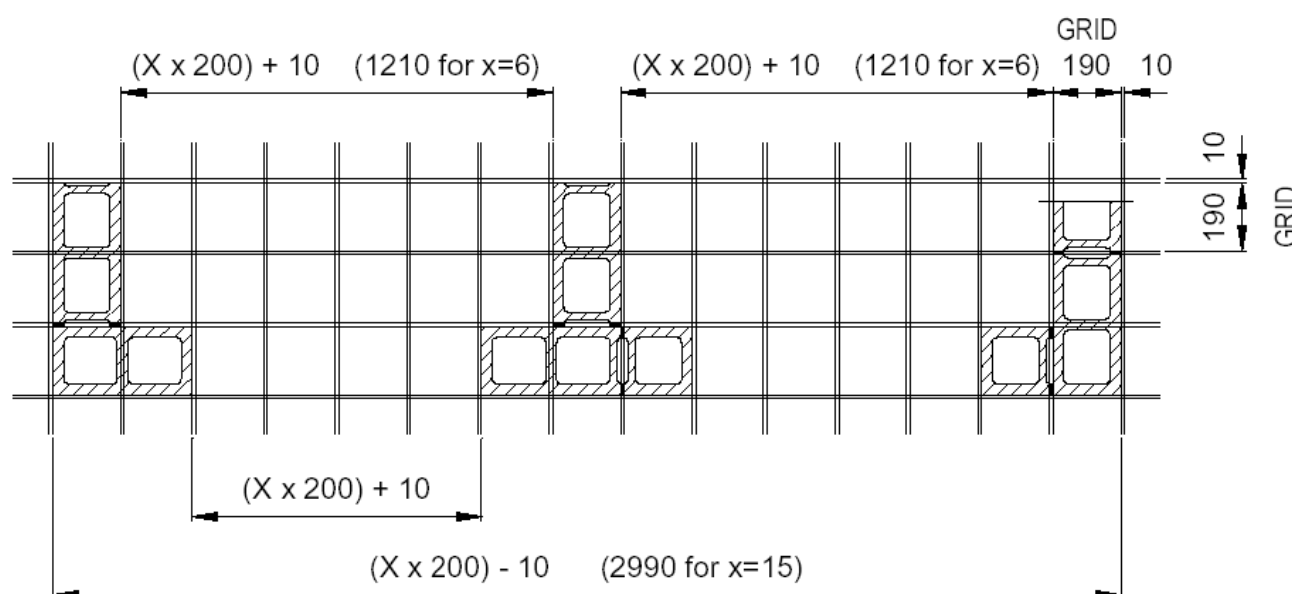


Figure 2: 20 Series Set-out: Plan

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In order not to interfere with the 200 x 200 mm module, special attention is required at corners. The 20 series corner block has one plain end. The 10, 15 and 25 series have corner blocks manufactured to fit the 200 mm module.

The set-out of internal walls with the 20 series maintains the 200 module (Figure 2). Because of their thickness, the set out of internal walls with the 15 or 25 series requires either the addition or deduction of 50 mm (Figures 3 and 4).

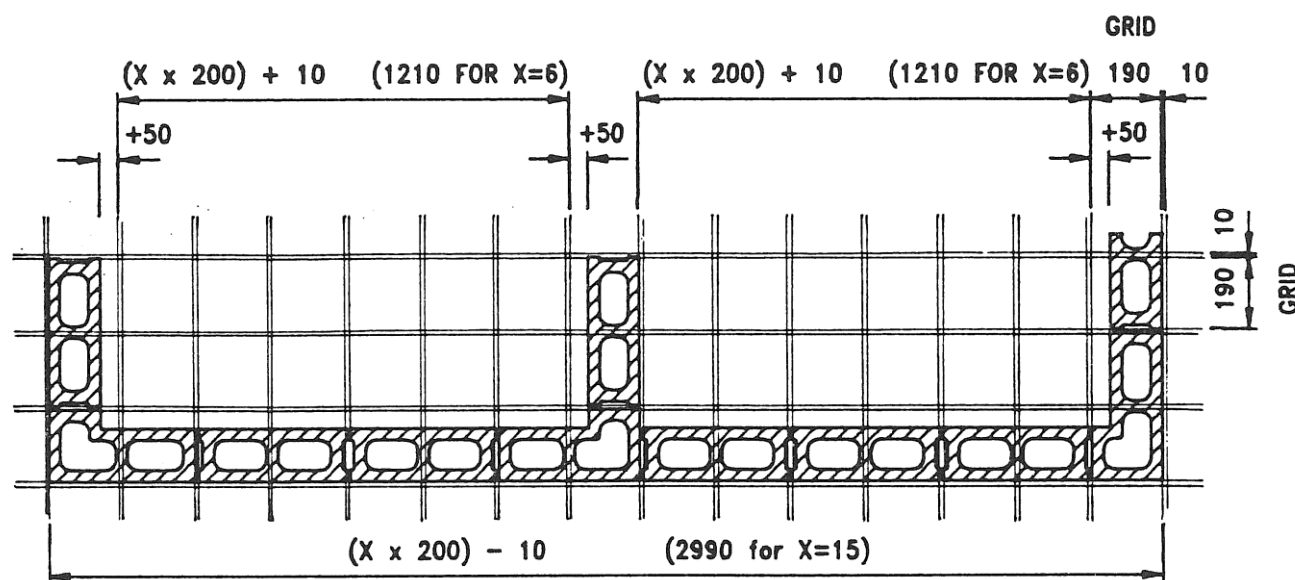


Figure 3: 15 Series Set-out: Plan

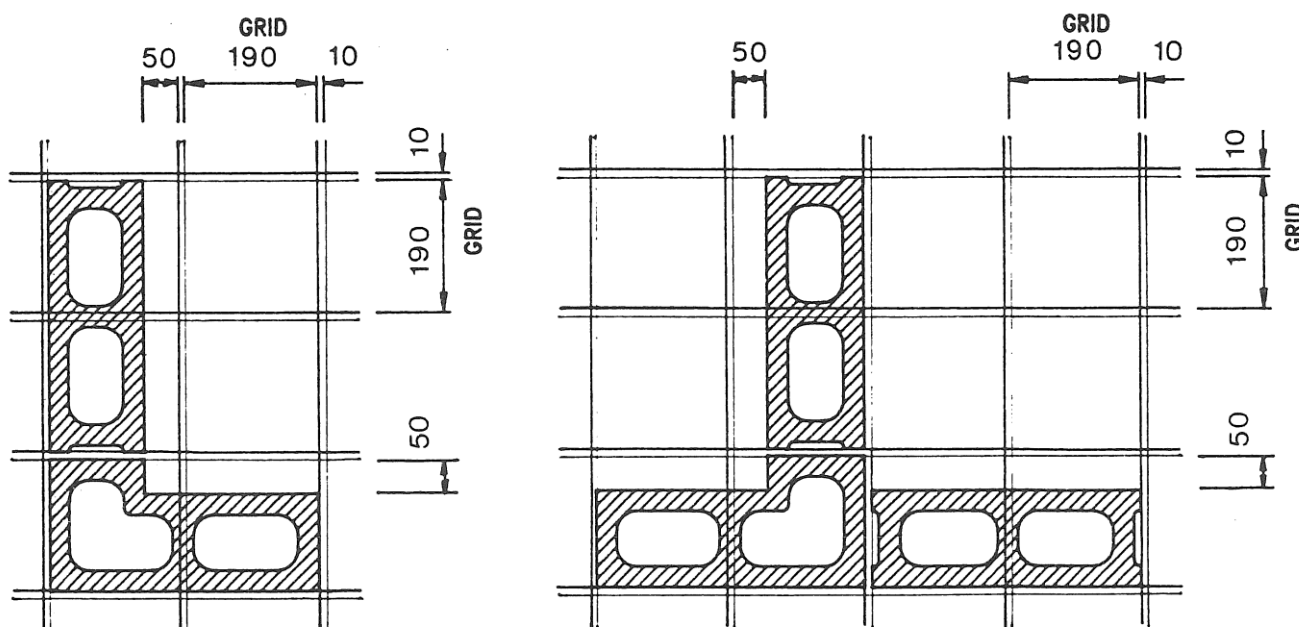


Figure 3(a): Enlarged Details of the Corner and Interior Wall of the 15 Series

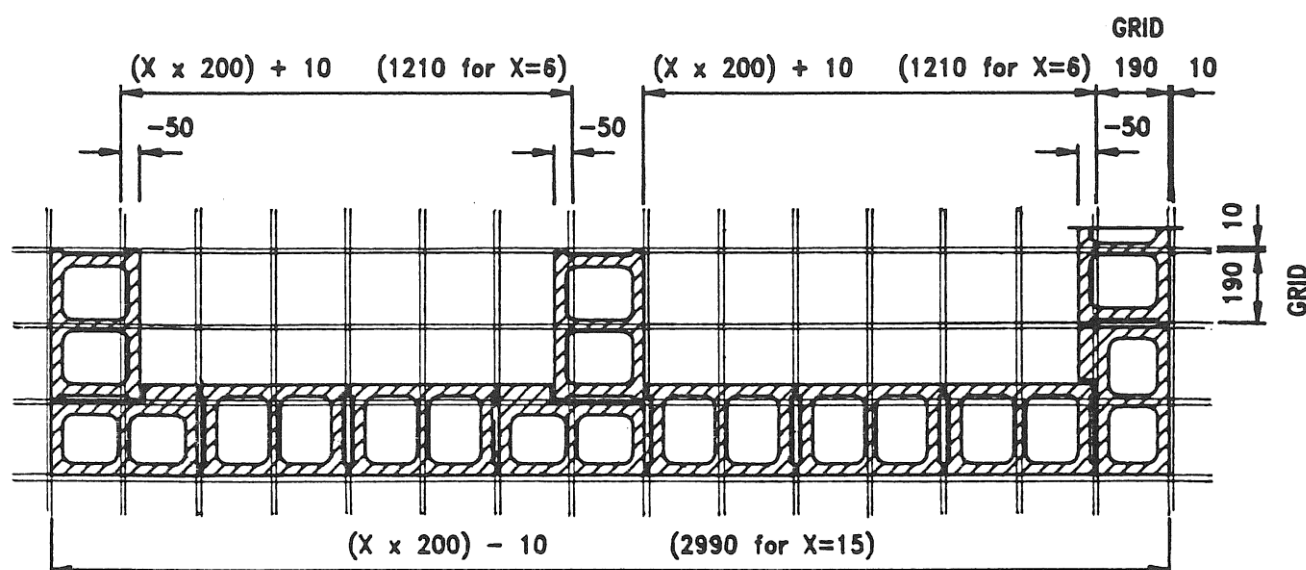


Figure 4: 25 Series Set-out: Plan

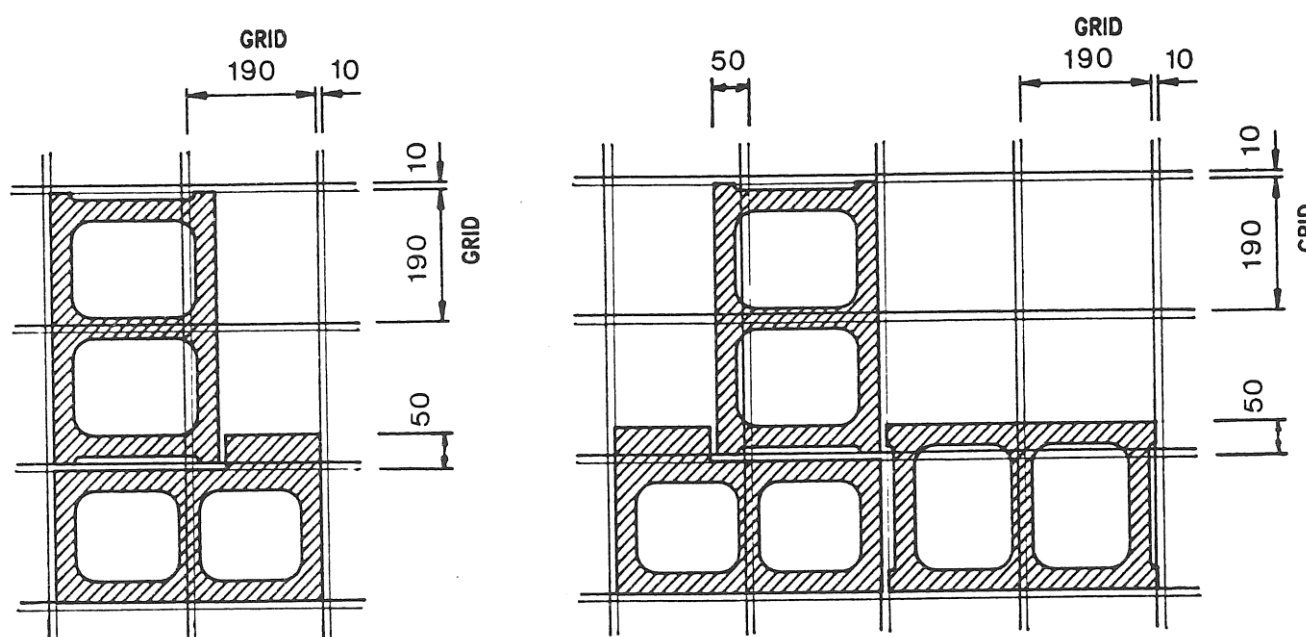


Figure 4(a): Enlarged Details of the Corner and Interior Wall of the 25 Series

Units Available

An extensive range of masonry units, including units for specific purposes, e.g. sills, is illustrated elsewhere in the "General" section of this manual. However, due to lack of demand for some units, not all are readily available.

Check the availability of particular units with local suppliers.

Construction Details

The successful detailing of modular masonry requires careful thought to be given to other building components (doors, windows, meter boxes, etc.) their finishes and fixing, and how to relate them to the modular system.

Details relate to a number of requirements, possibly including:

Type of Wall:	load bearing in-fill panel veneer cantilever
Structural Engineering:	Reinforcing concrete filling bond beams & lintels overturning resistance movement control joints
Construction Technique:	slab edge - set down/flush upstands ceiling/soffit framing external/internal finishes services and fitting insulation acoustics compatibility of materials other modular components
Local Body By-Laws:	fire resistance building heights
Weathering:	exposure
Appearance:	height of openings all uncut blocks selection of materials scale finishing trim hardware electrical switches electrical outlets fixtures
Maintenance:	cost (initial and in-use)

Satisfactory construction details depend on clearly determining the relevant requirements for the building, and then co-ordinating all the details so that these requirements are met.

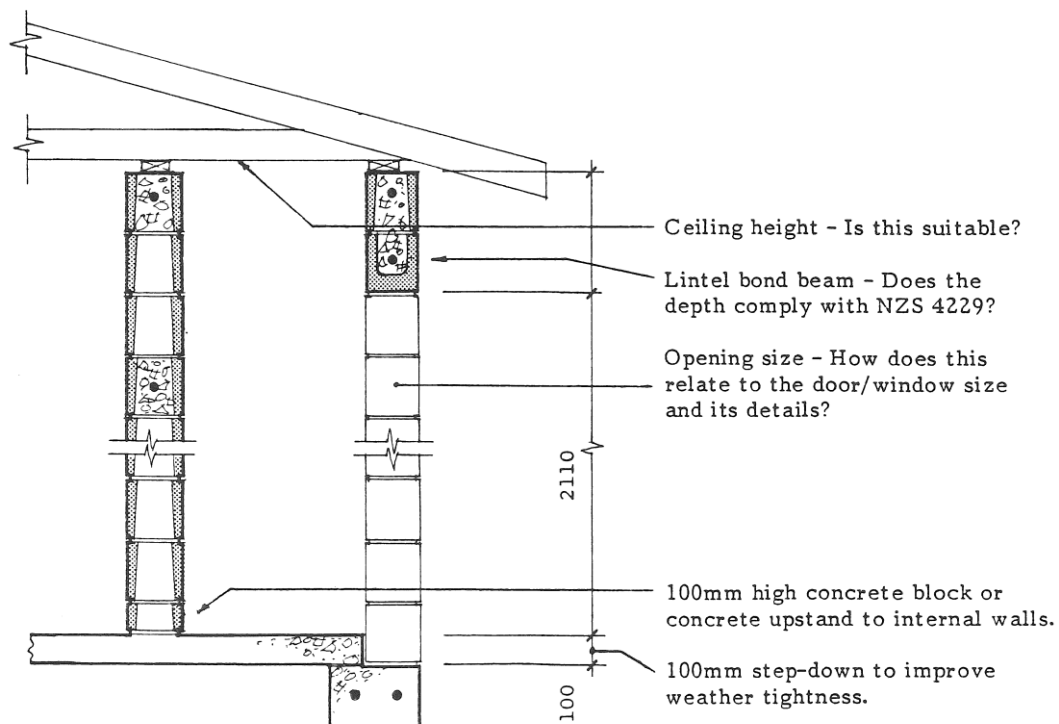
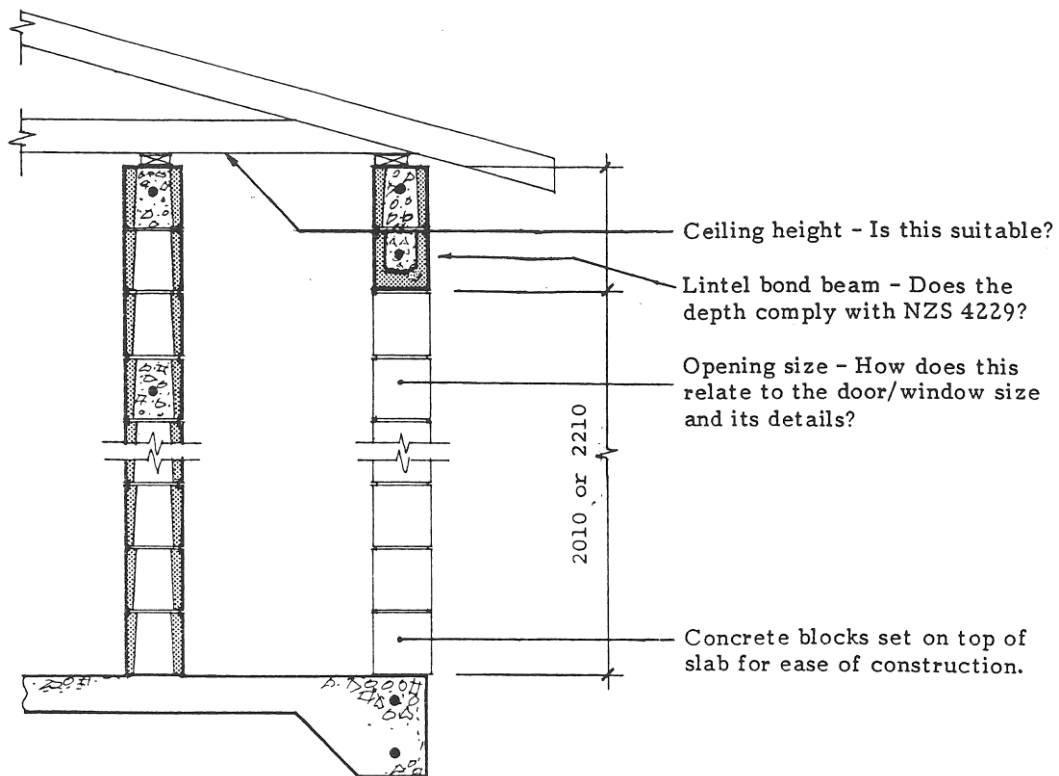
Unco-ordinated details are likely to detract visually from the building and could result in time delays and higher costs.

Assistance in determining some of these requirements can be found elsewhere in the manual and some matters need to be carefully checked – particularly structural requirements and exterior coatings.

Examples of general details are shown elsewhere in this manual, predominantly the sections entitled “Construction Details” and “Veneer Walls”.

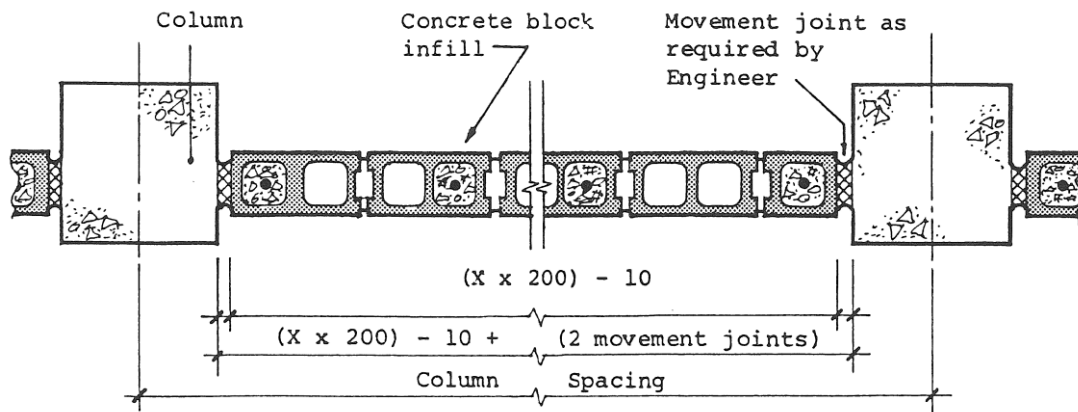
On the pages that follow, are a selection of details which illustrate the required co-ordination. These details show a range of possible solutions to some of the requirements listed above, particularly those that occur at door and window openings.

To comply with H1 of the New Zealand Building Code, thermal insulation may be required, depending on the required R-value.



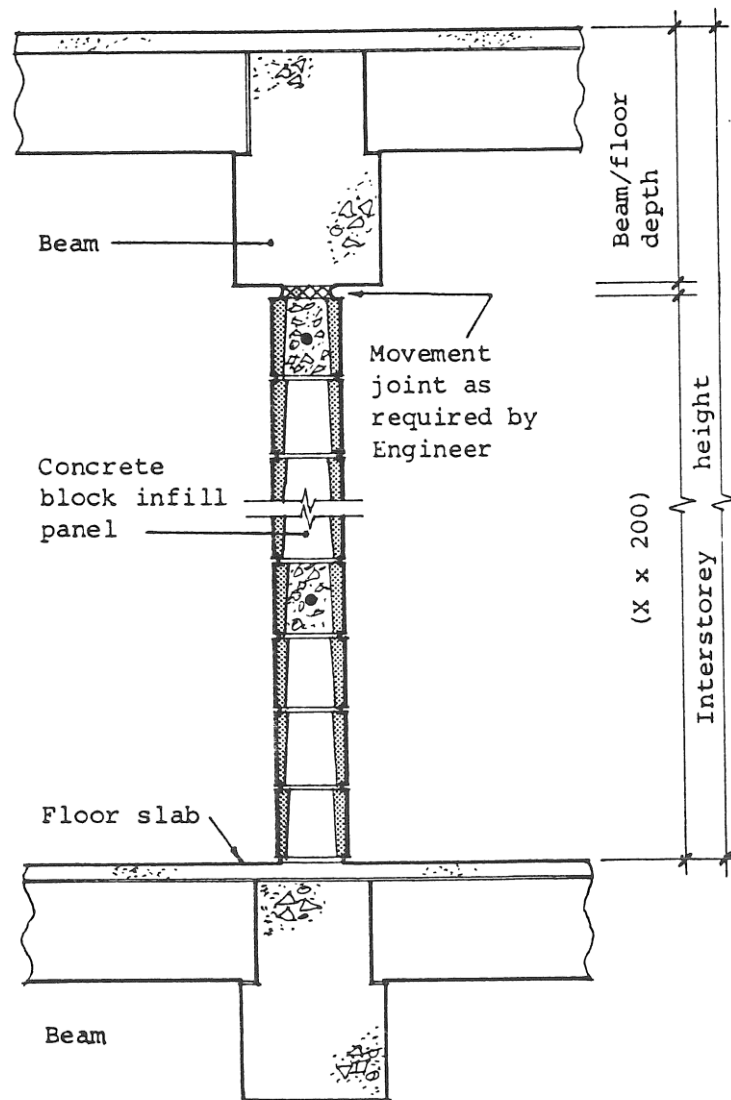
Vertical Modular Set-out

See "Construction Details" section for further illustration of co-ordination of details.

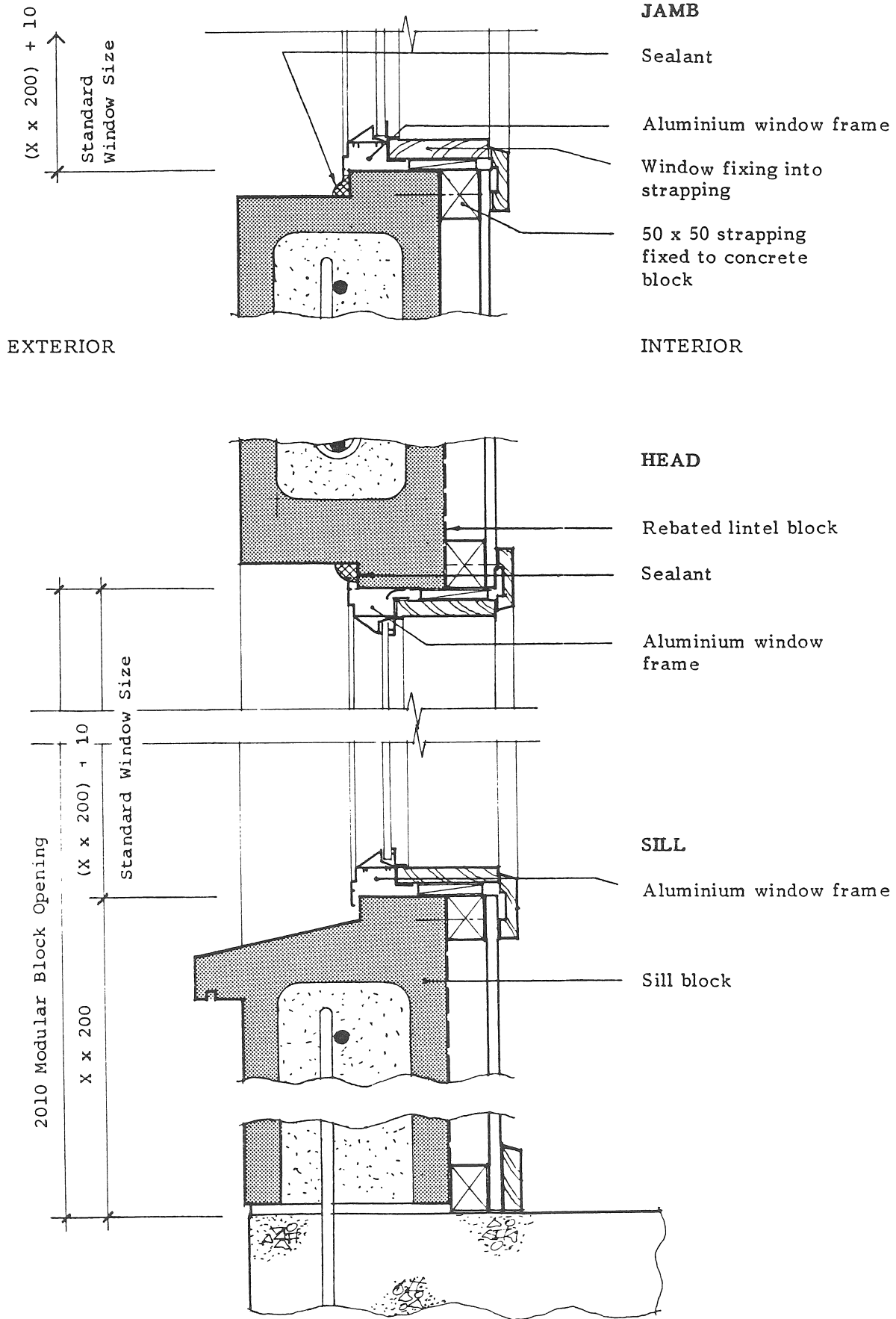


Infill Set-out: Plan

N.B. Column size to be determined in conjunction with size of infill panel, movement joints and column spacing.

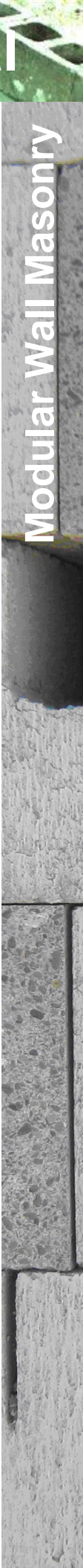


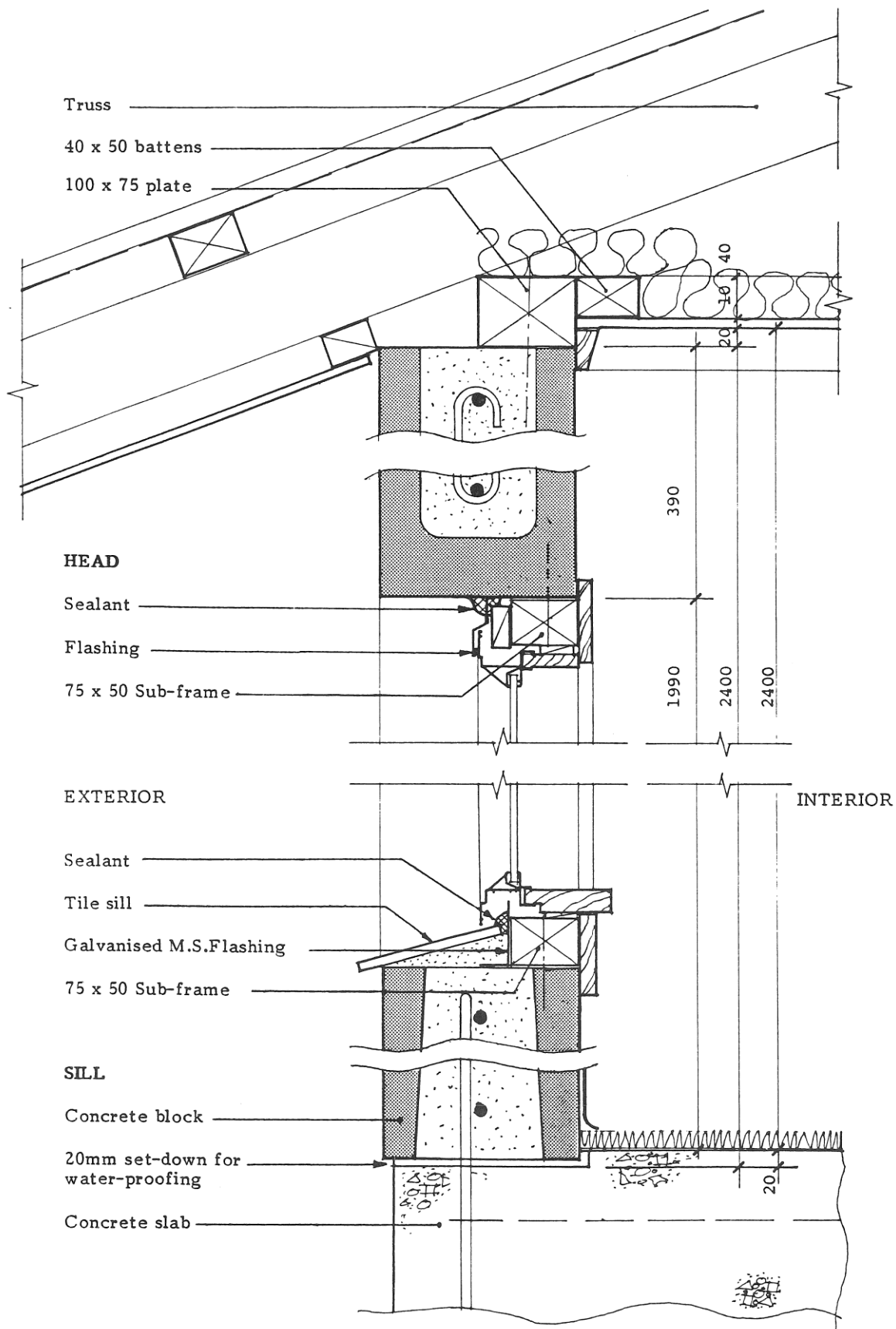
Infill Set-out: Section



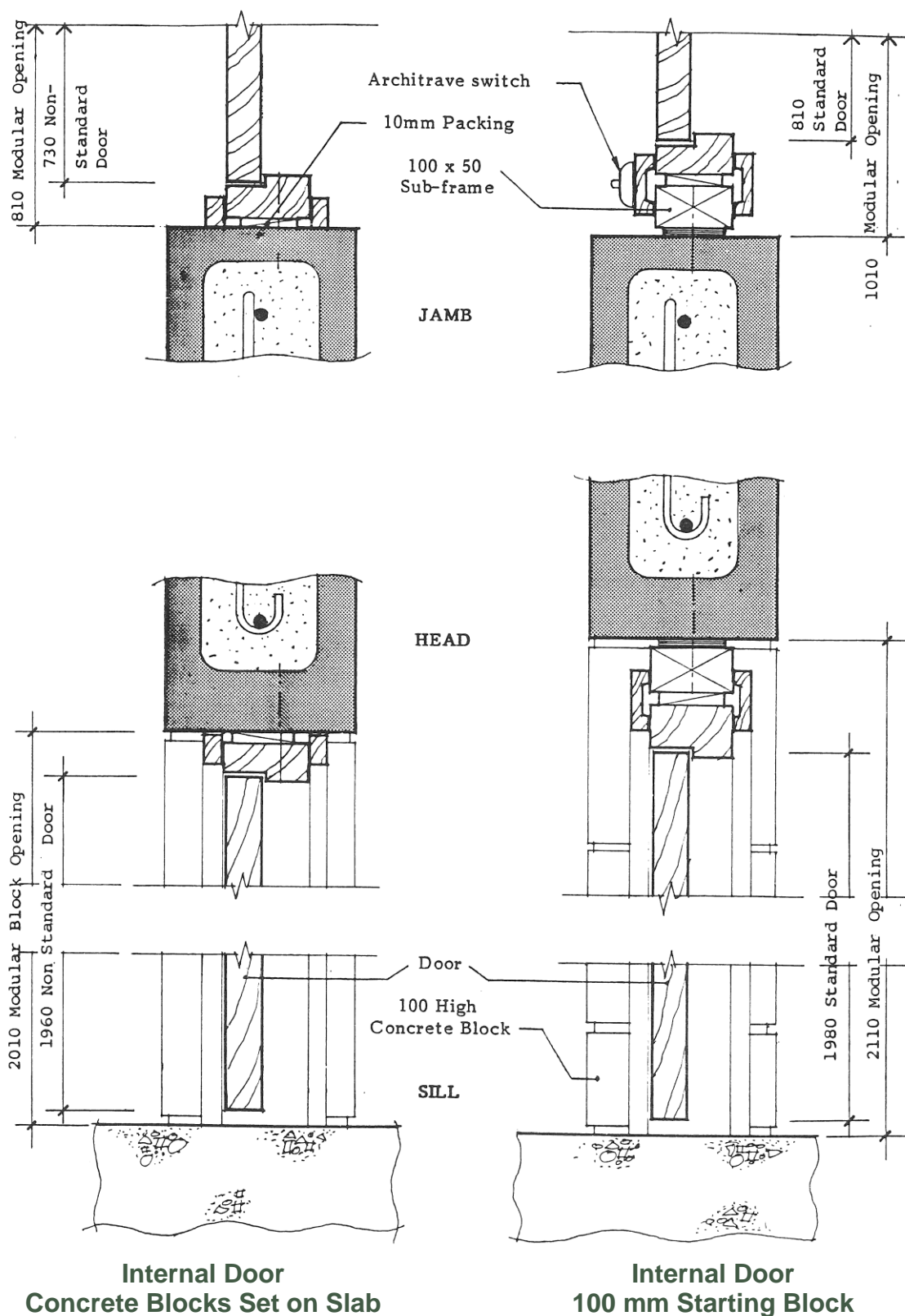
Aluminium Window with Rebated Concrete Block, Head, Jamb and Sill

Modular Wall Masonry





**Aluminium Windows in Timber Sub-frame
Concrete Block Wall Set-down into Concrete Slab**



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