

Copyright © Agrément South Africa, October 2017

**Subject:**  
**NOVATOP Solidwood Building System**

The master copy of this document appears on the website:  
<http://www.agrement.co.za>

**Certificate holder:**  
**AGROP Nova a.s.**

**Ptensky Dvorek 99, Pteni, 79843**  
**Telephone: 082 575 9931 Fax: 011 837 6242**  
**E-mail: [novatop@agrop.cz](mailto:novatop@agrop.cz)**

**Validity**

Users of any Agrément certificate should check its status: all currently valid certificates are listed on the website. In addition, check whether the certificate is [Active or Inactive](#).

The certificate holder is in possession of a confirmation certificate attesting to his status.



**SANS 10400:** *The application of the National Building Regulations.*

**Quick guide**

Contents	<a href="#">page 4</a>
Preamble	<a href="#">page 5</a>
Conditions of certification	<a href="#">page 6</a>
Assessment	<a href="#">page 8</a>
Compliance with the National Building Regulations	<a href="#">page 8</a>
Technical description	<a href="#">page 12</a>
Technical drawings	<a href="#">page 16</a>

**Uses**

The certificate covers the use of NOVATOP Solidwood Building System in all areas of South Africa for the erection of single- and double-storey buildings for occupancy classes set out below (**SANS 10400 PART A : Table 1 of Regulation A (20) (1)**):

- place of instruction (A3)
- moderate and low-risk commercial service buildings (B2 and B3)
- low and moderate risk industrial (D2 and D3)
- large shop (F1)
- small shop and wholesaler's store (F2 and F3)
- offices and day clinics (G1)
- dormitory (H2)
- domestic residence (semi-detached houses or row houses) (H3)
- dwelling house (detached houses) and related outbuildings (H4).

P O Box 395      Pretoria      0001  
Telephone      012 841 3708  
Fax      012 841 2539  
e-mail      [agrement@csir.co.za](mailto:agrement@csir.co.za)  
<http://www.agrement.co.za/>

NB: Construction of double-storey buildings are always the responsibility of a professional engineer or approved competent person.

This certificate and Agrément South Africa's assessment apply only to NOVATOP Solidwood Building System buildings that are designed, manufactured and erected as described and illustrated in this certificate, and where the terms and conditions of certification are complied with.

## General description

**SANS 10005:** *The preservative treatment of timber*

**SANS 1288:** *Preservative treated timber*

NOVATOP Solidwood Building System are single- and double-storey structures that utilise factory produced wall, NOVATOP element suspended floor decking and roof panels. The untreated timber must be preserved with Light Organic Preservatives (LOSP) that conforms to the requirements of **SANS 10005** and the treated timber with **SANS 1288**.

Foundations and surface beds are conventional and designed by a professional engineer or approved competent person and so are the construction of double-storey buildings.

The external wall panels are 206.5 mm or 246.5 mm thick (nominal dimensions) manufactured in length of up to 6000 mm and widths of up to 2500 mm. The wall panels consist of a 84 mm or 124 mm thick NOVATOP solidwood core lined externally with 12.5 mm Gypsum board, insulated externally with 80 mm tongue and groove Pavatherm-Combi board (145 kg/m<sup>3</sup>) and 30 mm x 50 mm vertical battens with spacing's of 545 mm or 575 mm (depending on thickness used). The vertical battens are fixed to the external face of the Pavatherm-Combi board onto which external cladding will later be attached.

Internal wall panels consist of 84 mm thick NOVATOP solidwood panel fixed to 100 mm x 50 mm x 0.6 mm galvanised steel U-channel studs at 600 mm centres encapsulating a 100 mm thick tongue and groove Pavetherm-Combi board (50 kg/m<sup>3</sup>) lined with 12.5 mm Gypsum board.

NOVATOP element suspended floor decking consists of two x 27 mm thick NOVATOP solidwood panels with transverse and longitudinal ribs spaced at 200 mm centres with width of up to 200 mm to engineer's specification.

Roof panels are made of hollow ribbed NOVATOP solidwood panels filled with mineral wool and five layers of NOVATOP solidwood panels clad with light- or medium-weight cladding. Window and door frames are installed into pre-cut openings in accordance with good building practices.

Plumbing can be pre-fixed or surface mounted onto the composite panels. Electrical conduits are surface mounted.

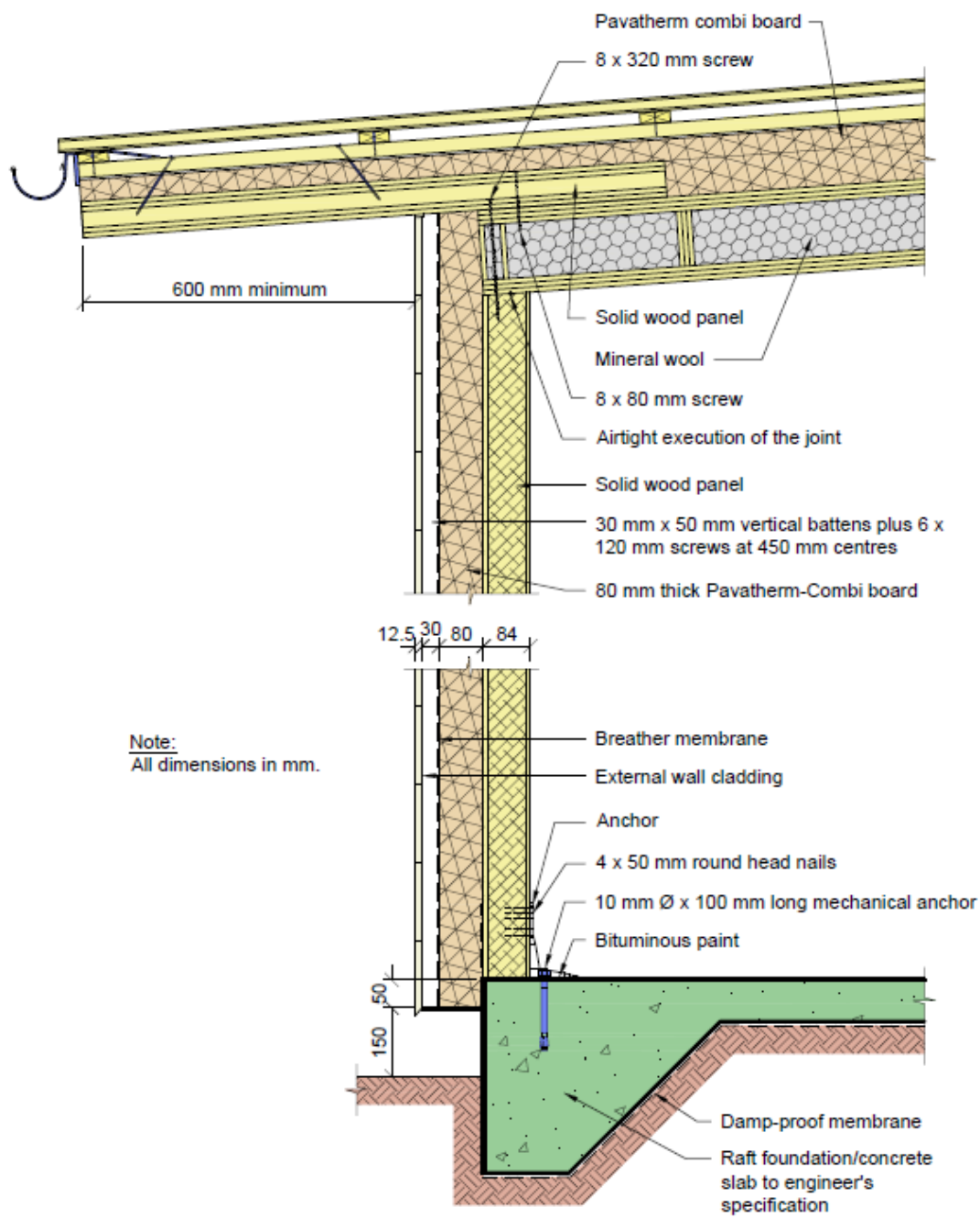


Figure 1: Typical vertical section through external wall

# CONTENTS

## PREAMBLE

## PART 1: CONDITIONS OF CERTIFICATION

## PART 2: ASSESSMENT

Scope of assessment

Assessment

Compliance with the National Building Regulations

Table 1: Performance

Table 2: Habitability

Table 3: Quality management system

## PART 3: TECHNICAL DESCRIPTION

### **General description**

### **Manufacturing**

### **Handling, transportation and storage**

### **Erection**

Foundation and surface bed

Walling

NOVATOP element suspended floor decking

Roof construction

Fittings

Windows and doors

Services

Maintenance

### **Technical drawings**

## PREAMBLE

This certificate is issued by Agrément South Africa in terms of the powers granted to it by the Minister of Public Works. This certificate:

- has been granted after a technical appraisal of the performance of NOVATOP Solidwood Building System for the [uses](#) covered by the certificate,
- is independent of any patent rights that may or may not subsist in the subject of the certificate, and
- does not relieve the certificate holder from the obligation to obtain the prior approval of the building authority concerned for the use of the subject.

Agrément South Africa considers that the quality and performance of NOVATOP Solidwood Building System will be satisfactory provided that the requirements stipulated in this certificate are adhered to. However, Agrément South Africa does not on behalf of itself, or the State, or any of its employees or agents guarantee such quality or performance.

Responsibility for compliance with the requirements of this certificate and the quality of the finished buildings resides with the certificate holder.

No action for damages, or any other claim whatsoever, lies against Agrément South Africa, its members, the State or any of its employees should the said components and materials fail to comply with the standard set out in this certificate.

Building authorities or users who are in any doubt about any detail or variation, should contact [Agrément South Africa](#).

The validity of this certificate is reviewed every three years. The certificate shall remain valid as long as Agrément South Africa is satisfied that:

- the certificate holder complies with the general and specific conditions of certification and the technical requirements stipulated in the certificate
- the performance-in-use of the subject is acceptable, and
- any changes in building legislation, regulations, relevant standards or Agrément performance criteria have not invalidated the technical assessment which formed the basis of certification.

Agrément South Africa reserves the right to withdraw the certificate at any time, should reasonable cause exist.

Notices affecting the validity of this certificate will be published in the *Government Gazette*.

## PART 1: CONDITIONS OF CERTIFICATION

Licensee - any person or company appointed by the certificate holder and registered with Agrément South Africa to construct NOVATOP Solidwood Building System buildings in accordance with this certificate and authorised by him to claim compliance with the certificate. It is the certificate holder's responsibility to ensure that the licensee carries out the works in compliance with this certificate and in accordance with the approved quality system.

NOVATOP Solidwood Building System described in this certificate must:

- be designed, manufactured and erected by the certificate holder
- be erected by licensee
- be constructed in accordance with the technical description (see [Part 3](#)) and the certificate holder's detailed specifications and quality management document and
- comply with the Conditions of Certification.

A competent person appointed by the certificate holder must ensure that the preservative treatment of timber shall comply with the South African National Standards (SANS) and all other relevant regulations.

Novatop Solidwood Building System is a combination of innovative and conventional construction methods. A change to any one aspect could result in one or more of the other aspects no longer complying with Agrément South Africa's performance criteria. For these reasons, no change may be made to Novatop Solidwood Building System as described and illustrated in this certificate unless such change is approved in writing by Agrément South Africa before it is implemented.

AGROP Nova a.s. shall be responsible for the accuracy of the information contained within the Material Data Sheets, Technical Data Sheets and Material Performance Specifications, and all other information pertaining to the supply and application of the NOVATOP Solidwood Building System. AGROP Nova a.s. shall submit a COA (Certificate of Analysis) and COC (Certificate of Compliance) in terms of the requirements stipulated in **SANS 17050-1** Suppliers declaration of conformity when requested by Agrément South Africa in accordance with the documentation requirements of **SANS 17050-2**. Should AGROP Nova a.s. change or substitute any ingredient in the formulation of the product in question, then a notification shall be addressed to Agrément South Africa immediately.

**SANS 17050-1**, Conformity assessment-Supplier's declaration of conformity Part 1: General requirements

**SANS 17050-2**, Conformity assessment-Supplier's declaration of conformity Part 2: Supporting documentation

### NOVATOP Solidwood Building System

Tested and approved fit for purpose when constructed as specified in

**CERTIFICATE 2017/547**



### General conditions

#### Marking

A plaque of at least 100 mm x 75 mm dimensions, with Agrément South Africa's identification logo together with the number of this certificate, as depicted, must be fixed at an appropriate position to an external wall of all NOVATOP Solidwood Building System's buildings.

#### Validity

The continued validity of this certificate is subject to a satisfactory review by Agrément South Africa every three years.

### Quality monitoring

The certificate holder is required to participate in Agrément South Africa's post-certification quality management system, which requires:

- that the certificate holder shall maintain and continuously implement the quality management system approved by Agrément South Africa in the assessment of the NOVATOP Solidwood Building System
- the certificate holder to notify Agrément South Africa within 30 days of any change of address of a factory and any new factories brought into operation by the certificate holder, for the purpose of manufacturing the subject of the certificate
- the certificate holder at any time of commencement of each contract, to provide Agrément South Africa with construction sites or structures on which the subject is to be used
- the cooperation of the certificate holder in facilitating post-certification quality monitoring by Agrément South Africa or its authorised agents.

### Reappraisal

- must be requested by the certificate holder prior to implementing changes to the building system
- will be required by Agrément South Africa if there are relevant changes to the National Building Regulations or to Agrément criteria.

This certificate may be withdrawn if the certificate holder or a registered licensee fails to comply with these requirements.

### Requirements of Supplement to certificates that must be met

The [Supplement to certificates: good building practice](#) (revised 2001) applies to those conventional aspects of NOVATOP Solidwood Building System that have not been specifically assessed (see Part 2: *Scope of assessment* on next page). Cognisance should be taken of the recommendations contained in the *Supplement to certificates* to ensure that an acceptable standard of construction is consistently maintained.

On behalf of the Board of Agrément South Africa

Signed

The conventional aspects of the construction are subject to the rules of good building practice (typically as described and illustrated in Agrément South Africa's [Supplement to certificates](#) and in the *Home building manual Parts 1, 2 & 3* issued by the National Home Builders Registration Council), and must comply with the National Building Regulations.

Chairperson  
27 October 2017

## PART 2: ASSESSMENT

### Scope of assessment

This assessment applies to those innovative aspects of NOVATOP Solidwood Building System described in [Part 3](#) of the certificate. It also applies to those conventional aspects of the building system which, in the opinion of Agrément South Africa, are influenced by the innovative aspects. The innovative aspects referred to are:

- the use of NOVATOP solidwood wall panel to cast wall, NOVATOP element suspended floor decking and roof panels
- the use of 80 mm tongue and groove Pavatherm-Combi board, and vertical battens to insulate the wall.

The assessment was based on:

- documentation provided by the applicant
- inspections of the applicant's completed project
- known behavior of the materials used in the building system and
- the applicant's quality management system.

### Assessment

In the opinion of Agrément South Africa, NOVATOP Solidwood Building System as described in the certificate is suitable for the construction of buildings of the [types specified](#) (page 1).

The performance in use of buildings erected with this system will be such that they will satisfy:

- the relevant requirements for safety and health prescribed by Agrément South Africa
- the requirements of the National Building Regulations, where stated in Table 1
- Agrément South Africa's performance criteria and requirements for durability and habitability.

Agrément South Africa's detailed comments on the assessment are set out in Tables 1, 2 and 3 below. Each aspect of performance was assessed by experts in that field.

For details see Agrément South Africa's . [Assessment criteria: building and walling systems](#)

Republic of South Africa. **National Building Regulations**, Government Notice No. R. 711, Government Gazette No 34586, Pretoria, South Africa, 09 September 2011.

### Compliance with the National Building Regulations

The innovative aspects of NOVATOP Solidwood Building System must comply with the National Building Regulations as set out in Table 1. Any regulation not specifically referred to is considered to be outside the scope of this certificate and must be applied by the local authority in the normal manner.



**Table 1: Performance**

Aspects of performance	Opinion of Agrément South Africa	National Building Regulations satisfied
<b><i>Fitness-for-purpose of materials used</i></b>	The materials described in Part 3 meet the requirements of the regulations.	A13(1)(a) <i>Materials</i>
<b><i>Behaviour in fire</i></b>	The wall panels and NOVATOP element suspended floor decking are classified as type FR (non-combustible) with a fire resistance rating of 60 minutes, provided partition and dividing walls contain no services or services penetrations.	<p>K4 <i>Walls</i>                      J1(1)b <i>Floors</i>                      L2 <i>Roofs</i></p> <p>T1 (1) (b) and (c) are satisfied as far as the walls are concerned.</p> <p>Comments made in <i>Supplement to certificates</i> must be taken into account when building plans are scrutinised by local authorities, to check compliance with Regulations T1 (1)(a), T1(1)(d) with regard to spread of smoke, and T1(1)(e).</p> <p>Deemed-to-satisfy rules TT5.1 (c) and TT5.2 (c) of Section 3 of <b>SANS 10400</b> have been met.</p> <p>With regard to safety distances, external walls are classified as type FR (non-combustible), as defined in deemed-to-satisfy rule TT2.1 (a) of Section 3 of <b>SANS 10400</b>, and the safety distances as set out in the relevant rules of Part T can therefore be applied.</p>
<b><i>Structural performance</i></b>	Satisfactory, provided the requirements of this certificate are complied with.	<p>J1(1) (a) <i>Floors</i>                      K1, K4 <i>Walls</i>                      L1 (b) and (c) <i>Roofs</i></p> <p>Regulations B1(1) and (2) are deemed to be satisfied when NOVATOP Solidwood Building System is built in accordance with the technical description see Part 3. When these rules are not complied with, the structural design of each building is the responsibility of a professional engineer or approved competent person and deemed-to-satisfy rule BB4 of <b>SANS 10400</b> is applicable.</p> <p>Regulations H1(1) and (2), <i>Foundations</i>, are deemed to be satisfied as follows:</p> <ul style="list-style-type: none"> <li>• H1 (1) on non-problematic soils</li> <li>• H1 (2) in all buildings where the foundations are designed by a professional engineer or approved competent person and deemed-to-satisfy rule HH1(a) applies.</li> </ul>

**Table 2: Habitability**

Aspects of performance	Opinion of Agrément South Africa	Explanatory notes
<p><b>Water penetration and rising damp</b></p>	<p>Satisfactory. NOVATOP Solidwood Building System meets Agrément South Africa’s criteria for resistance to rainwater penetration and rising damp throughout South Africa.</p> <p>NB: A water-impermeable cladding should be used on the facade</p>	<p>K2 (1) <i>Walls</i> J1 (2) <i>Floors</i> L1 (b) <i>Roofs</i></p>
<p><b>Thermal performance and energy usage</b></p>	<p>Satisfactory. External walls were assessed as having R-value of 2.827 m<sup>2</sup>K/W and 2.720 m<sup>2</sup>k/W for roof panel.</p> <div data-bbox="371 913 715 1146" style="border: 1px solid green; padding: 5px;"> <p><b>SANS 10400 XA-2011: The application of the National Building Regulations Part X: Environmental sustainability Part XA: Energy usage in buildings</b></p> </div>	<p>When neither artificial heating nor cooling is applied to 53 m<sup>2</sup> NOVATOP Solidwood Building System dwellings with insulated roofs, minimum and maximum temperatures will be similar to those occurring in standard buildings.</p> <p>The annual energy requirement and energy demand of a 53 m<sup>2</sup> NOVATOP Solidwood Building System dwellings with roofs of sheet metal or concrete tiles was determined using BSIMAC (version 9) software and provided they are insulated in accordance with the requirements of Clauses 4.4.5.3 and 4.4.5.4 of <b>SANS 10400 XA</b>, their performance was assessed as being equivalent to that of standard brick house meeting the requirements of Clause 4.2.1 b) of <b>SANS 10400 XA</b>.</p> <p>NOVATOP Solidwood Building System roofs must be always insulated.</p>
<p><b>Condensation</b></p>	<p>Satisfactory. When insulated ceilings are installed, NOVATOP Solidwood Building System performs better than the standard brick house.</p>	<p>Condensation is generally a problem in the <a href="#">Southern Coastal Condensation Problem Area</a> (SCCP Area). Agrément South Africa requires that the minimum standard of performance be equivalent to that of the standard brick dwelling which is itself not immune to condensation problems.</p>
<p><b>Acoustic performance</b></p>	<p>Satisfactory. Agrément South Africa’s performance criteria for sound attenuation between dwellings and adjacent rooms have been met.</p> <div data-bbox="391 1877 683 2004" style="border: 1px solid green; padding: 5px;"> <p><b>SANS 10218: Part 1: Acoustical properties of buildings.</b></p> </div>	<p>Agrément South Africa’s opinion is based on a theoretical analysis of the frequency-weighted sound reduction index, R<sub>w</sub>. The <i>in-situ</i> airborne sound insulation that is likely to be obtained for a dwelling is 45 dB (DnT,w).</p> <p>This value meet Agrément South Africa’s criteria and most of the recommended sound insulation values set out in <b>SANS 10218: Part 1</b>.</p> <p>A description of the degree of acoustic privacy that can be expected between specific rooms for various degrees of sound insulation is given in <a href="#">Supplement to certificates</a>.</p>

**Table 2: Habitability (continued)**

<b>Durability</b>	Satisfactory. Durability of NOVATOP Solidwood Building System will be satisfactory provided adequate and regular maintenances are applied.	Agrément South Africa’s opinion is based on knowledge of the materials and from experience gained in the evaluation of building systems of a similar nature.  Attack from insects may have severe detrimental effects to the performance of the elements. Standards, regulations and recommendations in force at the place of use should be observed.
-------------------	--	---

**Table 3: Quality management system**

<b>Aspects of performance</b>	<b>Opinion of Agrément South Africa</b>	<b>Explanatory notes</b>
<b>Quality management system</b>	The certificate holder’s quality management system complies with Agrément South Africa’s quality management system requirements. If properly applied, it will ensure that quality in manufacture and erection of NOVATOP Solidwood Building System will be maintained consistently.	Agrément South Africa’s requirements are based on <b>SANS/ISO 9001</b> .  <div data-bbox="839 920 1254 1048" style="border: 1px solid green; padding: 5px; margin: 10px 0;"> <b>SANS/ISO 9001: Quality management systems – Requirements.</b> </div>

## PART 3: TECHNICAL DESCRIPTION

### General description

NOVATOP Solidwood Building System are single- and double-storey structures that utilise factory produced wall, NOVATOP element suspended floor decking and roof panels. The untreated timber must be preserved with Light Organic Preservatives (LOSP) that conforms to the requirements of **SANS 10005** and the treated timber with **SANS 1288**.

Foundations and surface beds are conventional and designed by a professional engineer or approved competent person and so are the construction of double-storey buildings.

The external wall panels are 206.5 mm or 246.5 mm thick (nominal dimensions) manufactured in length of up to 6000 mm and widths of up to 2500 mm. The wall panels consist of a 84 mm or 124 mm thick NOVATOP solidwood core lined externally with 12.5 mm Gypsum board, insulated externally with 80 mm tongue and groove Pavatherm-Combi board (145 kg/m<sup>3</sup>) and 30 mm x 50 mm vertical battens with spacing's of 545 mm or 575 mm (depending on thickness used). The vertical battens are fixed to the external face of the Pavatherm-Combi board onto which external cladding will later be attached.

Internal wall panels consist of 84 mm thick NOVATOP solidwood panel fixed to 100 mm x 50 mm x 0.6 mm galvanised steel U-channel studs at 600 mm centres encapsulating a 100 mm thick tongue and groove Pavetherm-Combi board (50 kg/m<sup>3</sup>) lined with 12.5 mm Gypsum board.

NOVATOP element suspended floor decking consists of two x 27 mm thick NOVATOP solidwood panels with transverse and longitudinal ribs spaced at 200 mm centres with width of up to 200 mm to engineer's specification.

Roof panels are made of hollow ribbed NOVATOP solidwood panels filled with mineral wool and five layers of NOVATOP solidwood panels clad with light- or medium-weight cladding. Window and door frames are installed into pre-cut openings in accordance with good building practices.

Plumbing can be pre-fixed or surface mounted onto the composite panels. Electrical conduits are surface mounted.

### Manufacturing

NOVATOP Solidwood Building System wall panels are manufactured by AGROP Nova a.s. in Czech Republic.

The NOVATOP solidwood panels are manufactured from dried spruced lamellas which are cut into the required size and glued together in layers to determine the final thickness of the wall panel. Once glued together the wall panels are then cold pressed and inspected for evenness. After drying, the wall panels are then cut into required sizes using CNC machine that operates according to the CAD data to produce wall, roof and NOVATOP element for suspended floor decking.

### Handling, Transportation & Storage

The wall panels are packaged for shipping depending on the risk associated with the routing and handling.

The panels must be transported under conditions that protect their original properties. Due to the heavy weights of the wall panels, cranes and special vehicles (forklift trucks) are suitable for handling. During handling, it is necessary to ensure protection of the packaging material, surfaces and edges of the wall panels to avoid damage.

The wall panels must be stored in an enclosed, dry space and positioned horizontally and off the ground, on wooden slats. After the removal of the protective casing, they must be carefully covered, preferably with a sheet material. The wall panels must be protected from adverse weather conditions, even on the construction site, and stored for only the necessary time. It is essential to avoid exposing of the wall panels to rain and flowing water. For the protection against water, dirt and excessive solar radiation, tarps are recommended.

### Erection

#### Foundation and surface bed

Foundation and surface bed designs are the responsibility of a registered professional competent engineer who classifies the site in accordance with the site class designation set out in Table 3 of the South African Institute of Engineering Geologists (**SAIEG**) publication titled *Guidelines for Urban Engineering Geological Investigations*.

In abnormal or problematic ground conditions, foundations are designed by a professional engineer in accordance with the requirements of **SANS 10161** and constructed accordingly.

A damp-proof membrane in accordance with **SANS 952** or one covered by a valid Agrément certificate is laid on the compacted fill under the surface bed. Concrete used shall be in accordance with the relevant provisions of **SANS 10100-1** and **SANS 10100-2** (reinforced concrete).

#### Walling

The surface bed below all wall panels are coated with a 0.5 mm thick coating of a bituminous emulsion paint complying with **SANS 317**.

**SANS 10161:** *The design of foundations for buildings.*

**SANS 952:** *Polymer film for damp-proofing and waterproofing in buildings*

**SANS 10100-1:** *The structural use of concrete Part 1: Design*

**SANS 10100-2:** *The structural use of concrete Part 2: Materials and execution of work*

**SANS 317:** *Industrial bitumen*

NOVATOP solidwood wall panels are placed in position starting from the corner and are secured with 4 mm Ø x 50 mm round head nails into a 30 mm x 30 mm x 2.5 mm galvanised L-channel base plate anchored to the concrete foundation using 10 mm Ø x 100 mm bolts at 600 mm centres. All joints are made with 100 mm longitudinal overlap and butt joint provided with airtight tape or filling. External corners are fixed with 8 mm Ø x 220 (160/100/50) inter crossing screws spaced at 500 mm. All vertical joints are left with admitted joint or are puttied and regrind to cover the connecting screws.

Once all wall panels are positioned, the external walls are then lined externally with 12.5 mm Gypsum board, insulated externally with 80 mm tongue and groove Pavatherm-Combi board (145 kg/m<sup>3</sup>) and 30 mm x 50 mm vertical battens with spacing's of 545 mm or 575 mm (depending on thickness used). The vertical batten are fixed to external face of the Pavatherm-Combi board onto which external cladding will later be attached. Once completed the underneath of the insulation is then covered with galvanised steel or PVC mesh against insects.

### **NOVATOP element suspended floor decking**

The NOVATOP element suspended floor decking consists of two x 27 mm thick NOVATOP solidwood panel with transverse and longitudinal ribs spaced at 200 mm centres with widths of 200 mm. The floor slab is anchored to the ground wall panel with 8 mm Ø x 320 mm round head nail and 8 mm Ø x 75 mm round head nail to top wall panel. The wall panel are then anchored to the from the bottom and top side by means of galvanized L-channel plate secured with a 4 mm Ø x 50 mm round head nails. Externally the joint are covered with airtight tape.

All dimensions used are depended on NOVATOP element suspended floor decking and roof overhang.

### **Roof construction**

Roof panels are constructed from 45 mm or 60 mm hollow ribbed NOVATOP solidwood wall panels filled with mineral wool fixed to the wall panel with 8 mm Ø x 100 mm screws which is then covered with five layers of NOVATOP solidwood wall panel fixed with 8 mm Ø x 75 mm screws clad with light- or medium-weight roof cladding.

### **Fittings**

Light- and medium-weight fittings with a maximum weight of 23 kg are fixed to the wall either with toggle bolts or expanding anchor bolts.

Heavy-weight fittings (>64 kg) are floor-mounted or fixed to special framing members incorporated within the wall panels to support these fittings.

### **Windows and doors**

Window and door frames are installed into pre-cut openings in accordance with good building practices.

### **Services**

Plumbing and electrical conduits can be pre-fixed or surface mounted onto the composite panels. Services should not be fitted to partition and dividing walls.

### **Maintenance**

Proper maintenance must be applied following the guidelines as set out in the certificate holder's installation manual. NOVATOP solidwood must be treated against termite and wood borer attack and fungal decay, and treatment shall be in accordance with **SANS 10005**.

## Technical drawings

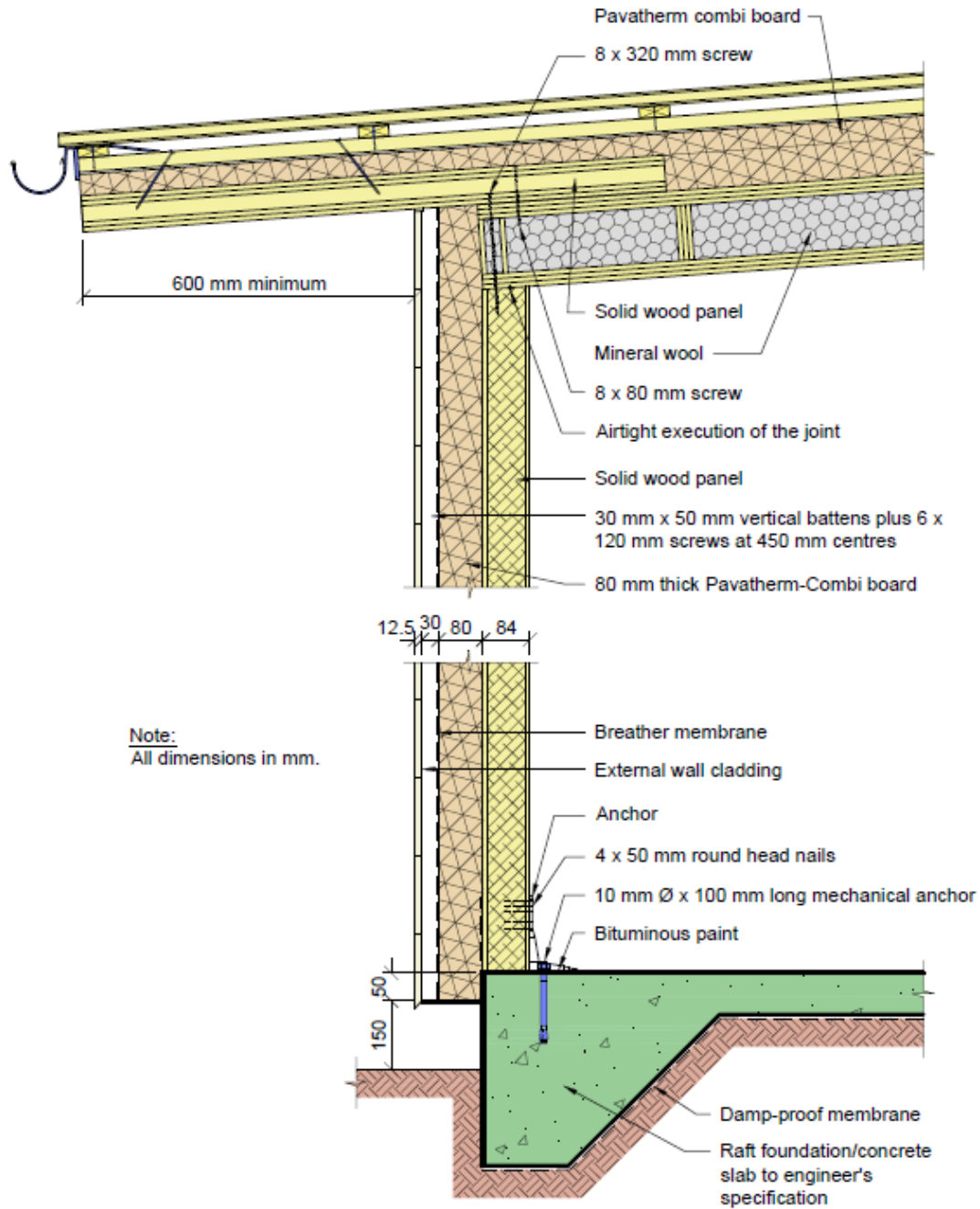
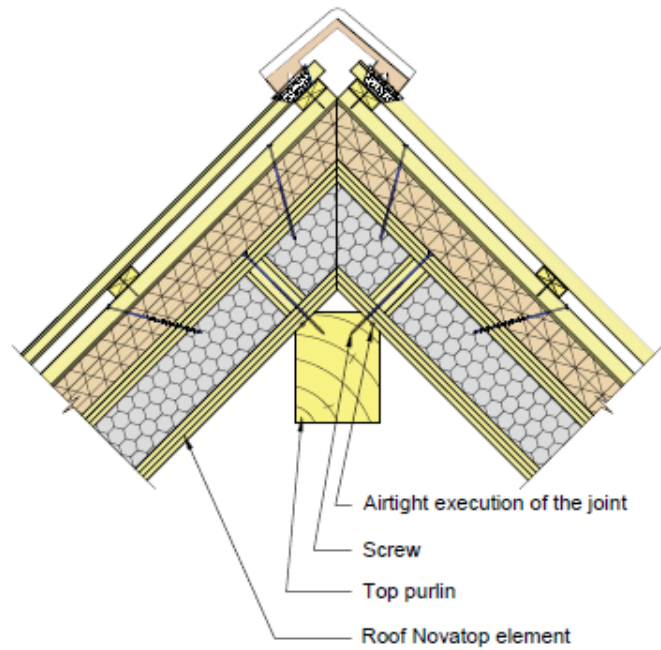
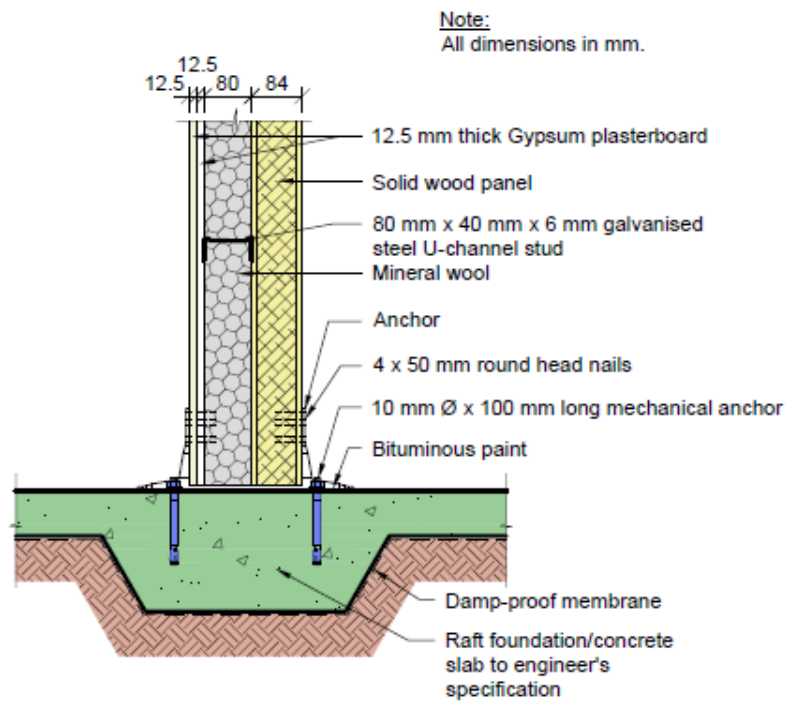


Figure 1: Typical vertical section through external wall





(a) Roof connection with a top purlin - Novatop element



(b) Typical section through internal wall

Figure 2: Typical vertical section through roof and internal wall

Note:  
All dimensions in mm.

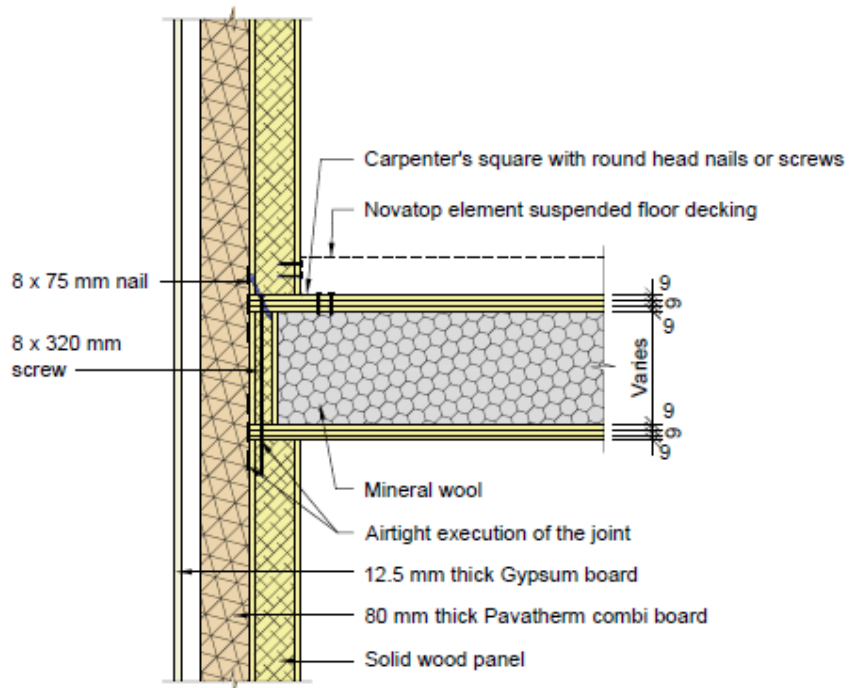
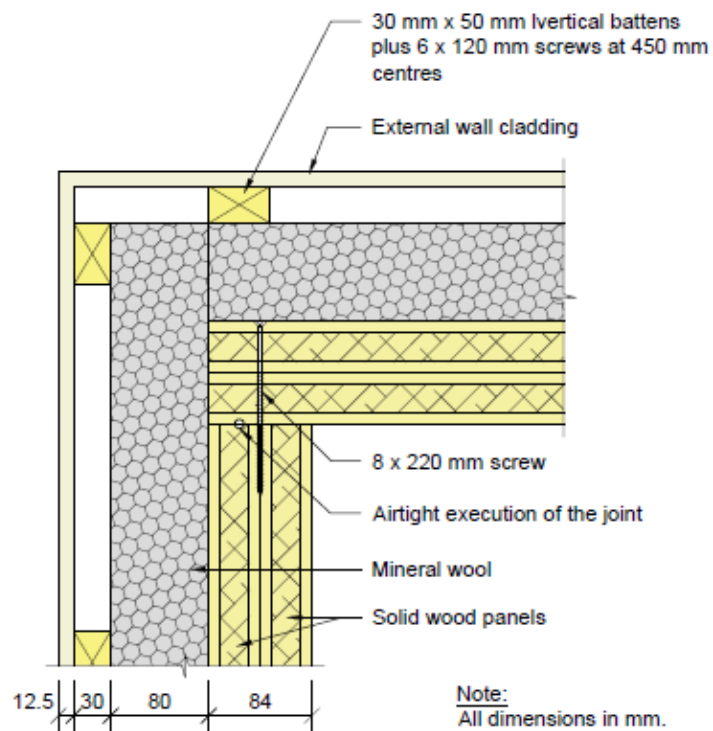
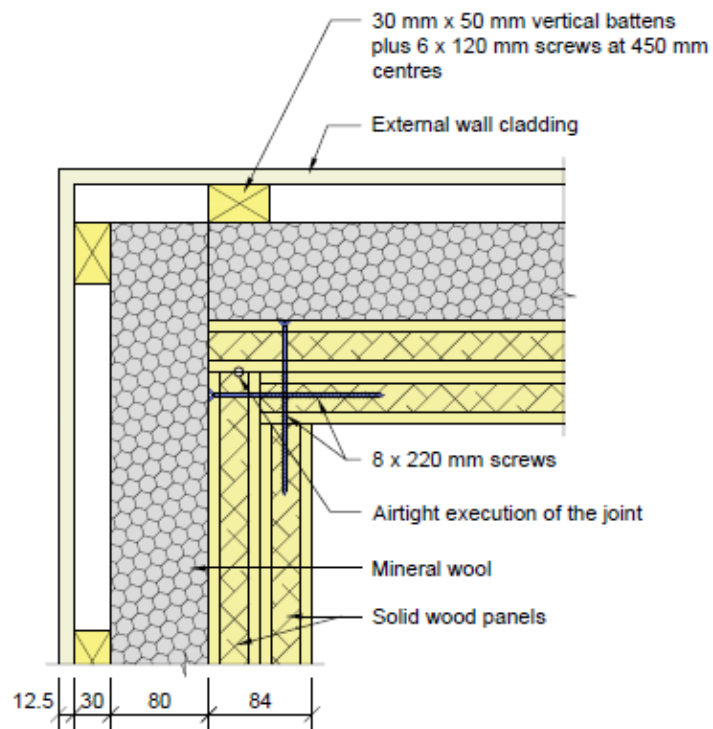


Figure 3: Typical vertical section through connection of an external wall with the floor



(a) Butted joint



(b) Joint with overlap

Figure 4: Horizontal sections through corner junctions

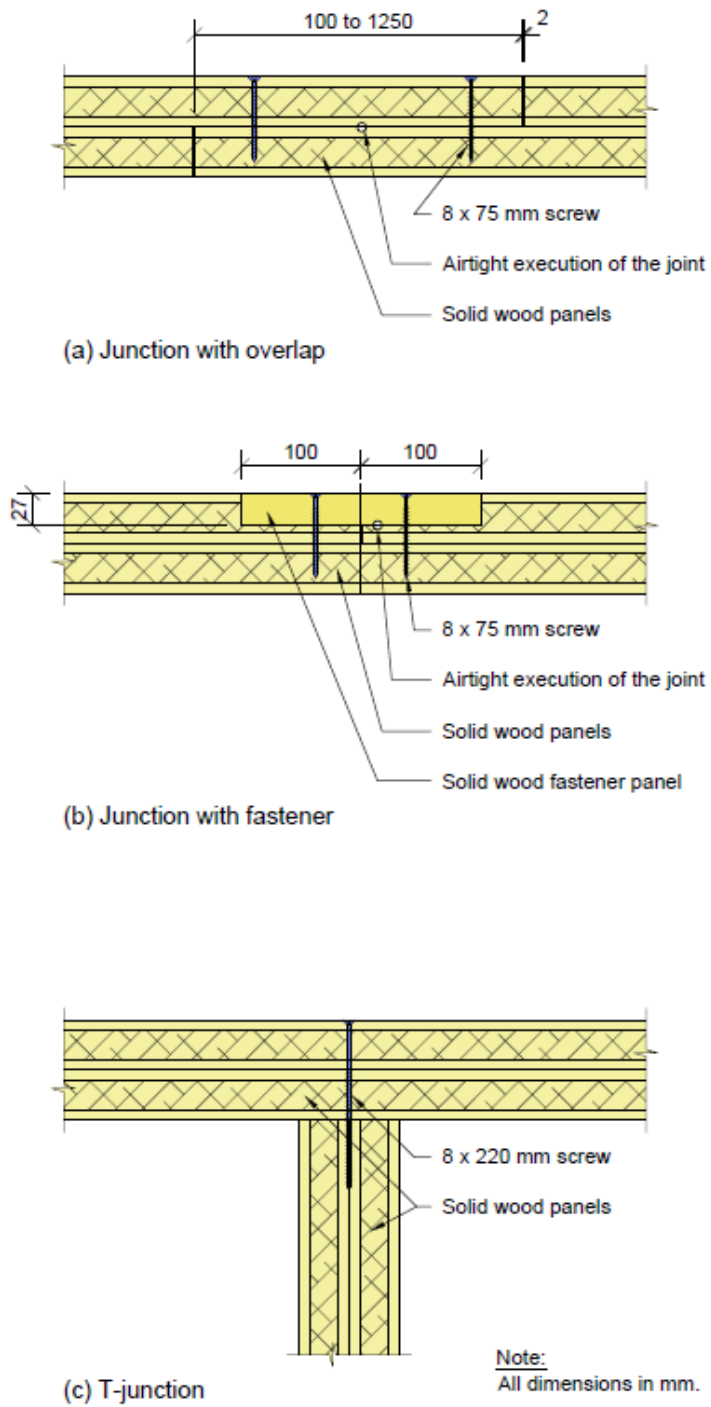
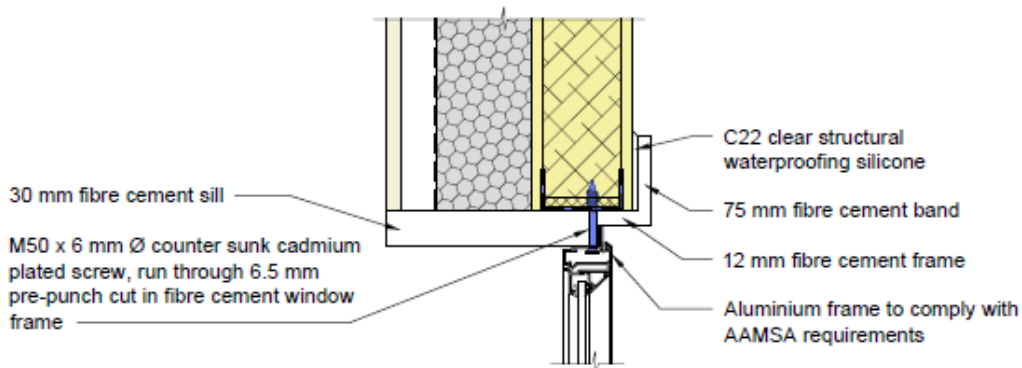
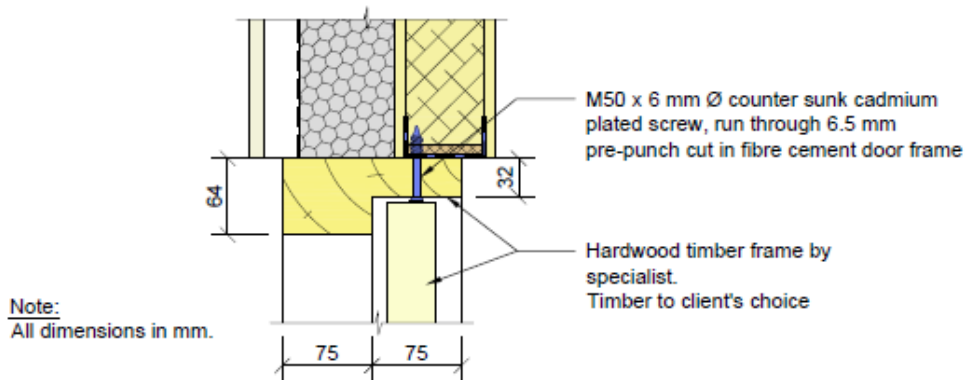


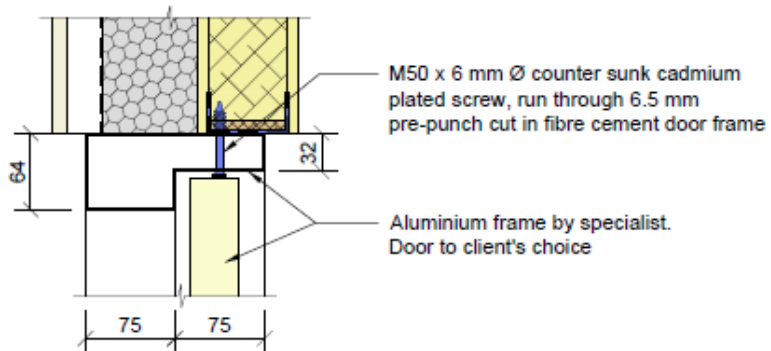
Figure 5: Horizontal sections through longitudinal and T- junctions



(a) Vertical section through window

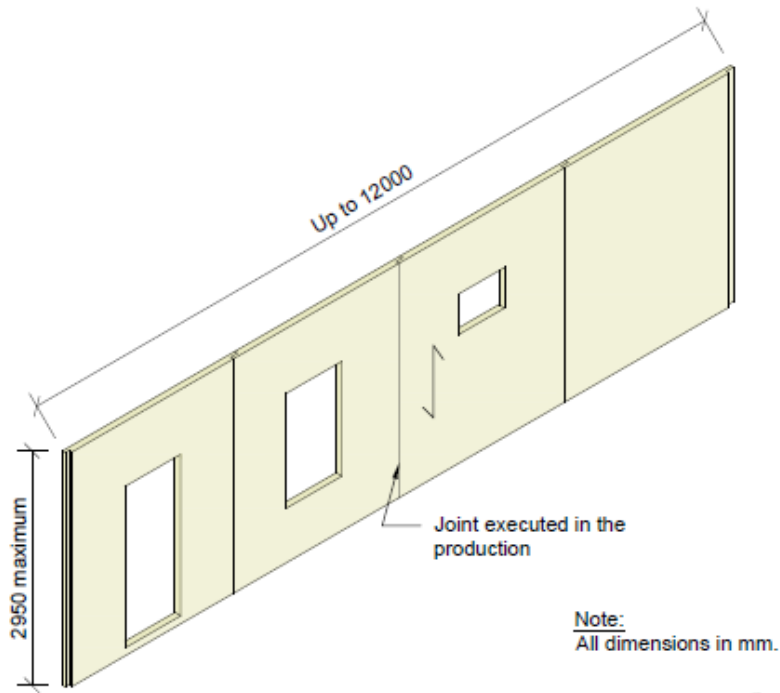


(b) Vertical section through timber door frame

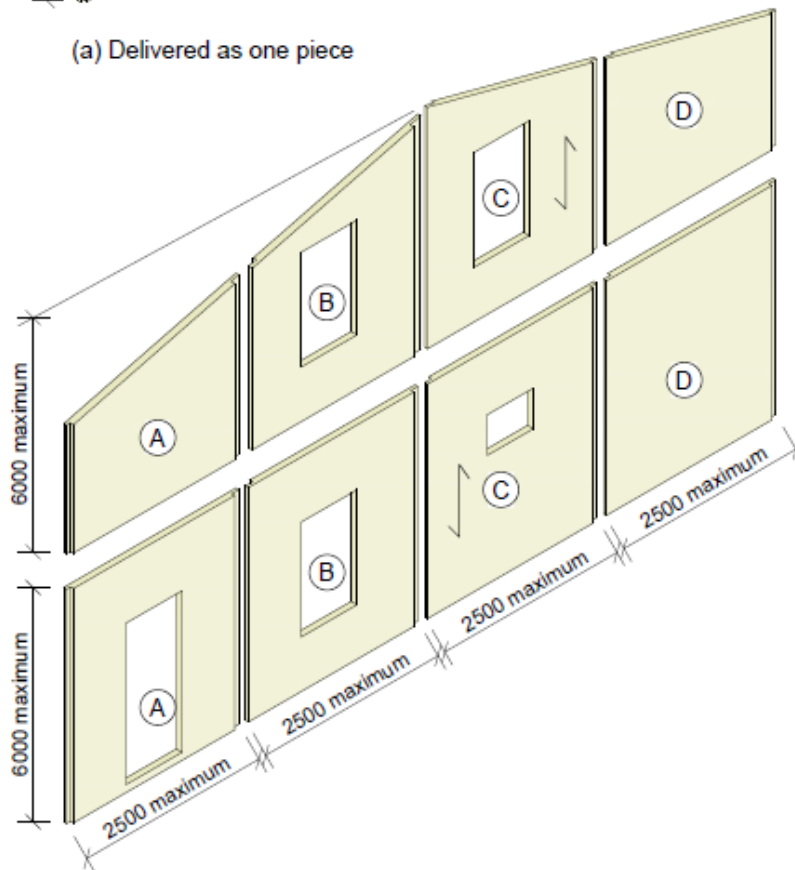


(c) Vertical section through aluminium door frame

Figure 9: Typical window and door details



(a) Delivered as one piece



(b) Delivered in parts

Figure 7: Typical completion diagrams