Mass Timber Construction
ARCHITECTURAL DETAILS
Nordic Structures is the leading innovator in mass timber construction. Its resource comes from responsibly managed lands within the regional boreal forest. Vertical integration, from forest to structure, bolstered by Nordic’s experienced design and development team, ensures consistent quality and unparalleled level of service.
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1.0 General

1.1 This document supersedes all previous versions. For the latest version, consult nordic.ca or contact Nordic Structures.

1.2 The information contained in this document is provided for information purposes only. This information should not be used for any application without examination and verification of its accuracy, suitability and applicability by a licensed engineer, architect or other professional. Nordic Structures does not guarantee that the information is suitable for any general or particular use, and assumes no responsibility for the use, application of and/or reference to the information.

1.3 Certain commercial products are identified in this document in order to properly represent the test procedure. In no case does such identification imply recommendations or endorsement by Nordic Structures, nor does it imply that the product or material identified is the best available for the purpose.

1.4 For more information, consult nordic.ca or contact Nordic Structures.

2.0 Fire Safety

2.1 The fire resistance rating (FRR) is determined using the design methodology specified in Annex B of CSA O86-14, Engineering design in wood. The fire resistance rating may also be determined on the basis of the results of tests conducted in conformance with CAN/ULC-S101, Fire Endurance Tests of Building Construction and Materials.

2.2 To determine the fire resistance of an element or assembly according to other assumptions than those specified in this document, consult the Nordic X-Lam technical guide or use Nordic Sizer software.

2.3 The fire performance criteria for evaluating the separating function of building elements shall be considered when required by the applicable building code.

2.4 For this purpose, among other requirements, many firestop systems suitable for mass timber are available. For more details, consult the product suppliers.

2.5 Additional references: Fire-Resistance-Tested Mass Timber Assemblies and Penetrations.
3.0 Envelope

3.1 Good thermal insulation is never arbitrary and must always be chosen according to location, area and climate.

3.2 The total thermal resistance of an assembly is calculated according to the values of thermal conductivity, $\lambda$, and thermal resistance, $R_{SI}$, indicated in the following table.

3.3 To convert the thermal resistance of the International System (RSI) [m²K/W] to the R-value [ft²Fh/BTU], divide the RSI value by 0.1761.

3.4 As stated in technical note NS-NT602-CA-en, Nordic X-Lam cross-laminated timber acts as a vapor barrier.

3.5 The use of closed cell spray polyurethane is not recommended for exterior wall assemblies made of cross-laminated timber because of its low permeability.

3.6 The study of the building envelope, including the control of condensation, the transfers of heat, air, moisture and sound, as well as the details of joining and fixing of the coverings, shall be carried out in accordance with the applicable building code.

### Thermal Resistance of Materials

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4.0 Acoustics

4.1 The Sound Transmission Class (STC) rating describes the performance of the separating wall or floor/ceiling assembly, whereas the Apparent Sound Transmission Class (ASTC) takes into consideration the performance of the separating element as well as the flanking transmission paths. Moreover, building professionals should ensure that floors are designed to minimize impact transmission. For more details, see Appendix Note A-9.11. of the NBC 2015.

4.2 The following pages present separating assemblies that may comply with the applicable building code. However, selecting an appropriate separating assembly is only one part of the solution for reducing airborne sound transmission between adjoining spaces: to fully address the sound performance of the whole system, flanking assemblies must be connected to the separating assembly. For more details, see Appendix Note A-9.11.1.4. of the NBC 2015.

4.3 Unless otherwise noted, concrete topping and prefabricated concrete topping used in assemblies have a density of 2710 kg/m$^3$.

4.4 The use of prefabricated concrete topping in floor assemblies is only required by the acoustical testing procedure.

4.5 The use of an acoustic membrane under a floor covering is recommended, especially when it is a hard surface coating (e.g. ceramic).

4.6 Unless otherwise noted, the acoustic performance values are derived from test results from a certified laboratory. Test reports are available upon request.

4.7 Additional references:
- Acoustics and Mass Timber: Room-to-Room Noise Control
- Acoustically-Tested Mass Timber Assemblies
- Acoustic Lab Testing of Typical Multi-Family Residential Wall and Floor Assemblies
# Exterior Wall

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<td>F28</td>
<td>Nordic X-Lam 175-5s</td>
<td>2.0 h</td>
<td>n.a.</td>
<td>n.a.</td>
<td>n.a.</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>F29</td>
<td>Nordic X-Lam 175-5s</td>
<td>1.5 h</td>
<td>n.a.</td>
<td>n.a.</td>
<td>64</td>
<td>n.a.</td>
<td>53</td>
</tr>
<tr>
<td>F30</td>
<td>Nordic X-Lam 175-5s</td>
<td>1.5 h</td>
<td>n.a.</td>
<td>n.a.</td>
<td>66</td>
<td>n.a.</td>
<td>60</td>
</tr>
<tr>
<td>F31</td>
<td>Nordic X-Lam 175-5s</td>
<td>1.5 h</td>
<td>n.a.</td>
<td>n.a.</td>
<td>59</td>
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<td>53</td>
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<tr>
<td>F32</td>
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<td>1.5 h</td>
<td>n.a.</td>
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<td>56</td>
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<td>1.5 h</td>
<td>n.a.</td>
<td>n.a.</td>
<td>59</td>
<td>n.a.</td>
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<td>n.a.</td>
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<td>65</td>
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<td>n.a.</td>
<td>n.a.</td>
<td>65</td>
<td>n.a.</td>
<td>62</td>
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<td>Detail</td>
<td>Product</td>
<td>Fire-resistance rating</td>
<td>Thermal resistance</td>
<td>Acoustic ratings</td>
<td>Drawing</td>
<td>Date</td>
<td>Page</td>
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<td>FRR</td>
<td>RSI, R</td>
<td>STC, ASTC, IIC, AIIC</td>
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<tr>
<td>R1</td>
<td>Nordic X-Lam 105-3s</td>
<td>1.0 h</td>
<td>7.9, 45</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2300</td>
<td>2020-02-01</td>
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<tr>
<td>R2</td>
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<td>1.5 h</td>
<td>8.2, 47</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2301</td>
<td>2020-02-01</td>
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<tr>
<td>R3</td>
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<td>1.0 h</td>
<td>7.9, 45</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2302</td>
<td>2020-02-01</td>
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<tr>
<td>R4</td>
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<td>1.5 h</td>
<td>8.2, 47</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2303</td>
<td>2020-02-01</td>
<td>4.4</td>
</tr>
<tr>
<td>R5</td>
<td>Nordic X-Lam 175-5s</td>
<td>1.5 h</td>
<td>7.5, 43</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2304</td>
<td>2020-02-01</td>
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<tr>
<td>R6</td>
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<td>2.0 h</td>
<td>7.7, 44</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2305</td>
<td>2020-02-01</td>
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<td>R7</td>
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<td>2.0 h</td>
<td>7.7, 44</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2306</td>
<td>2020-02-01</td>
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<td>1.5 h</td>
<td>7.5, 43</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2307</td>
<td>2020-02-01</td>
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<td>R9</td>
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<td>2.0 h</td>
<td>7.7, 44</td>
<td>n.a., n.a., n.a., n.a.</td>
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<td>2020-02-01</td>
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<td>R10</td>
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<td>1.0 h</td>
<td>7.8, 45</td>
<td>n.a., n.a., n.a., n.a.</td>
<td>NS-DA2309</td>
<td>2020-02-01</td>
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</table>
NORDIC X-LAM
CROSS-LAMINATED TIMBER

Nordic X-Lam cross-laminated timber is made of at least three orthogonal layers of graded sawn lumber that are laminated by gluing with structural adhesives.

SLABS AND PANELS
Layup combinations
89-3s, 105-3s,
143-5s, 175-5s,
197-7s, 213-7l, 244-7s, 244-7l
and 267-9l
Maximum sizes
2.70 × 19.5 m (106-1/4 in. × 64 ft)
Stress grade
E1 (L 1950Fb and T No. 3/Stud)
NORDIC LAM+
GLUED-LAMINATED TIMBER

Nordic Lam+ glued-laminated timber of architectural appearance grade consists of small wood laminations bonded together in parallel using structural adhesives.

BEAMS AND COLUMNS

Widths*
38, 86, 137, 184, 215, 241, 292, 346, 395, 448, 502, 552 and 603 mm

Depths*
From 67 to 2435 mm
(2-5/8 to 95-7/8 in.)

Lengths*
Up to 24.4 m (80 ft)

Stress grade
24F-ES/NPG

* Larger sizes available upon request

DECKING

Thicknesses*
38, 44, 54 and 89 mm
(1-1/2, 1-3/4, 2-1/8 and 3-1/2 in.)

Widths
203, 305 and 406 mm
(8, 12 and 16 in.)

Lengths
Up to 18.9 m (62 ft)

Stress grades
ES11, except 89 mm thickness in 20F-ES/CPG

* Larger sizes available upon request
EXTERIOR WALL
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
<th>1 h</th>
</tr>
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<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>6.7 / 38</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)
- AIR GAP 19 mm
- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- WOOD FURRING 38 mm X 89 mm @ 610 mm O.C.
- 2 ROWS OF STONE WOOL INSULATION 89 mm EA.
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- 1 ROW OF STONE WOOL INSULATION 89 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm

---

**Title:** Exterior Wall

**Category:** Architecture, Assembly

**Drawing:** NS-DA2000-CA-en

**Scale:** 1:10

**Date:** 2020-02-01

**Page:** 1.1
Fire-resistance rating: FRR (\(^{a}\)) 30 min

Thermal resistance: RSI / R 4.8 / 27

Acoustic ratings: STC / ASTC IIC / AIIC n.a. / n.a.

---

\(^{a}\) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- Cladding (up to the designer)
- Air gap 19 mm
- Wood studs 38 mm X 89 mm @ 610 mm O.C.
- Wood furring 38 mm X 89 mm @ 610 mm O.C.
- 2 rows of stone wool insulation 89 mm ea.
- Air barrier membrane
- Nordic X-LAM 105 mm
**Exterior Wall**

**Architecture, Assembly**

**NS-DA2002-CA-en**

<table>
<thead>
<tr>
<th><strong>Fire-resistance rating</strong></th>
<th>FRR (^{(a)})</th>
<th>1 h</th>
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<td><strong>Thermal resistance</strong></td>
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<td>5.0 / 28</td>
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<tr>
<td><strong>Acoustic ratings</strong></td>
<td>STC / ASTC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
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</tbody>
</table>

\(^{(a)}\) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)
- AIR GAP 19 mm
- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- WOOD FURRING 38 mm X 89 mm @ 610 mm O.C.
- 2 ROWS OF STONE WOOL INSULATION 89 mm EA.
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
- WOOD FURRING 19 mm @ 610 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
**Fire-resistance rating** | FRR \(^{(a)}\) | 30 min  
--- | --- | ---  
**Thermal resistance** | RSI / R | 3.7 / 21  
**Acoustic ratings** | STC / ASTC | n.a. / n.a. | IIC / AIIC | n.a. / n.a.  
\(^{(a)}\) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)  
- AIR GAP 19 mm  
- WOOD STUDS 38 mm X 64 mm @ 610 mm O.C.  
- WOOD FURRING 38 mm X 64 mm @ 610 mm O.C.  
- 2 ROWS OF STONE WOOL INSULATION 64 mm EA.  
- AIR BARRIER MEMBRANE  
- NORDIC X-LAM 105 mm
<table>
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<td>Fire-resistance rating</td>
<td>FRR (a) 1 h</td>
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<tr>
<td>Thermal resistance</td>
<td>RSI / R 4.0 / 22</td>
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<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
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(a) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)
- AIR GAP 19 mm
- WOOD STUDS 38 mm X 64 mm @ 610 mm O.C.
- WOOD FURRING 38 mm X 64 mm @ 610 mm O.C.
- 2 ROWS OF STONE WOOL INSULATION 64 mm EA.
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
- WOOD FURRING 19 mm @ 610 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
**Fire-resistance rating**

| FRR (a) | 30 min |

**Thermal resistance**

| RSI / R | 2.9 / 16 |

**Acoustic ratings**

| STC / ASTC | n.a. / n.a. |
| IIC / AIIC | n.a. / n.a. |

---

**CLADDING (UP TO THE DESIGNER)**

- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- 1 ROW OF STONE WOOL INSULATION 89 mm
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm

---

(a) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.
### Fire-resistance rating

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<thead>
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<th>FRR &lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>1 h</th>
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### Thermal resistance

|             | RSI / R | 3.1 / 18 |

### Acoustic ratings

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<td>n.a. / n.a.</td>
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</table>

<sup>(a)</sup> The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)
- AIR GAP 19 mm
- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- 1 ROW OF STONE WOOL INSULATION 89 mm
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
- WOOD FURRING 19 mm @ 610 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
**Exterior Wall**

- **CLADDING (UP TO THE DESIGNER)**
- **AIR GAP 19 mm**
- **WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.**
- **SPRAYED POLYURETHANE FOAM 89 mm**
- **AIR BARRIER MEMBRANE**
- **NORDIC X-LAM 105 mm**

---

**Fire-resistance rating**

<table>
<thead>
<tr>
<th>FRR (a)</th>
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**Thermal resistance**

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**Acoustic ratings**

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(a) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.
<table>
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<td>FRR (^{(a)}) 1 h</td>
</tr>
<tr>
<td>Thermal resistance</td>
<td>RSI / R 3.7 / 21</td>
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<tr>
<td>Acoustic ratings</td>
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\(^{(a)}\) The fire-resistance rating is based on an effective length of 3 m and on a
concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)
- AIR GAP 19 mm
- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- SPRAYED POLYURETHANE FOAM 89 mm
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
- WOOD FURRING 19 mm @ 610 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating  FRR (a)  30 min

Thermal resistance  RSI / R  5.8 / 33

Acoustic ratings  STC / ASTC  IIC / AIIC  n.a. / n.a.

a) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- CLADDING (UP TO THE DESIGNER)
- AIR GAP 19 mm
- WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.
- WOOD FURRING 38 mm X 140 mm @ 610 mm O.C.
- 1 ROW OF STONE WOOL INSULATION 89 mm
- 1 ROW OF STONE WOOL INSULATION 140 mm
- AIR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
### Fire-resistance rating

<table>
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### Thermal resistance

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### Acoustic ratings

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<td>n.a. / n.a.</td>
<td>n.a. / n.a.</td>
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</tbody>
</table>

(a) The fire-resistance rating is based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- **CLADDING (UP TO THE DESIGNER)**
- **AIR GAP 19 mm**
- **WOOD STUDS 38 mm X 89 mm @ 610 mm O.C.**
- **WOOD FURRING 38 mm X 140 mm @ 610 mm O.C.**
- **1 ROW OF STONE WOOL INSULATION 89 mm**
- **1 ROW OF STONE WOOL INSULATION 140 mm**
- **AIR BARRIER MEMBRANE**
- **NORDIC X-LAM 105 mm**
- **WOOD FURRING 19 mm @ 610 mm O.C.**
- **1 TYPE X GYPSUM BOARD 15.9 mm**
### Fire-resistance rating

<table>
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### Thermal resistance

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<th>RSI / R</th>
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</table>

### Acoustic ratings

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<tbody>
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<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
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</table>

(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.


- NORDIC X-LAM 105 mm
Fire-resistance rating  | FRR (a)  | 1 h / 1 h
Thermal resistance  | RSI / R  | n.a. / n.a.

Acoustic ratings  | STC (b) / ASTC  | 58 / n.a.
                  | IIC / AIIC     | n.a. / n.a.

a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- 1 TYPE X GYPSUM BOARD 15.9 mm
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- WOOD STUDS 38 mm X 64 mm @ 610 mm O.C.
- NORDIC X-LAM 105 mm
- WOOD STUDS 38 mm X 64 mm @ 610 mm O.C. OFF-CENTERED FROM THE OTHER ROW OF WOOD STUDS
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
P3

**Partition NS-DA2102-CA-en**

- 214 mm

**Title**: Partition

**Category**: Architecture, Assembly

**Drawing**: NS-DA2102-CA-en

**Scale**: 1:10

**Date**: 2020-02-01

**Page**: 2.3

**Fire-resistance rating**: FRR (a) 1 h / 1 h

**Thermal resistance**: RSI / R n.a. / n.a.

**Acoustic ratings**: STC / ASTC 53 / n.a.

LIC / AIIC n.a. / n.a.

---

**a)** The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- 1 TYPE X GYPSUM BOARD 15.9 mm
- RESILIENT CHANNELS 12.7 mm @ 406 mm O.C. INSTALLED HORIZONTALLY
- NORDIC X-LAM 105 mm
- WOOD STUDS 38 mm X 64 mm @ 610 mm O.C.
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
NORDIC LAM+
NORDIC X-LAM

Architecture, Assembly

2020-02-01

Title
Partition

Category
DETAILS

Datescale
1:10

Drawings
Partition NS-DA2103-CA-en

Fire-resistance rating
FRR (a) 1 h / 1 h

Thermal resistance
RSI / R n.a. / n.a.

Acoustic ratings
STC (b) / ASTC 37 / n.a.

a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- 1 TYPE X GYPSUM BOARD 15.9 mm
- RESILIENT CHANNELS 12.7 mm @ 406 mm O.C. INSTALLED HORIZONTALLY
- NORDIC X-LAM 105 mm
- RESILIENT CHANNELS 12.7 mm @ 406 mm O.C. INSTALLED HORIZONTALLY
- 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating | FRR (a)  | 30 min / 1 h  
Thermal resistance | RSI / R | n.a. / n.a.  
Acoustic ratings | STC (b) / ASTC | 37 / n.a.  
IIC / AIIC | n.a. / n.a.

a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.


- NORDIC X-LAM 105 mm
- RESILIENT CHANNELS 12.7 mm @ 406 mm O.C. INSTALLED HORIZONTALLY
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Fire-resistance rating FRR (\text{a})\</td>
<td>30 min / 1 h</td>
</tr>
<tr>
<td>Thermal resistance RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings STC / ASTC</td>
<td>n.a. / 47</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- NORDIC X-LAM 105 mm
- AIR GAP 12.7 mm
- WOOD STUDS 38 mm X 64 mm @ 406 mm O.C.
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
<th>1 h / 1 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>n.a. / 50</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- 1 TYPE X GYPSUM BOARD 15.9 mm
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- WOOD STUDS 38 mm X 64 mm @ 406 mm O.C.
- AIR GAP 12.7 mm
- NORDIC X-LAM 105 mm
- AIR GAP 12.7 mm
- WOOD STUDS 38 mm X 64 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating  | FRR (a)  | 1 h / 1 h  
Thermal resistance  | RSI / R  | n.a. / n.a.  
Acoustic ratings    | STC / ASTC | IIC / AIIC | n.a. / 54 / n.a.  

(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 300 kN/m.

- 1 TYPE X GYPSUM BOARD 15.9 mm
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- WOOD STUDS 38 mm X 64 mm @ 406 mm O.C.
- AIR GAP 12.7 mm
- NORDIC X-LAM 105 mm
- AIR GAP 12.7 mm
- WOOD STUDS 38 mm X 64 mm @ 406 mm O.C.
- 1 ROW OF MINERAL WOOL INSULATION 64 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
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<tr>
<th>Characteristic</th>
<th>Specified</th>
<th>Rated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire-resistance rating</td>
<td>FRR (^{(a)})</td>
<td>1.5 h / 1.5 h</td>
</tr>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>37 / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- NORDIC X-LAM 175 mm
Fire-resistance rating | FRR \(^{(a)}\) | 1.5 h / 2.5 h
--- | --- | ---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | 53 / n.a.
| IIC / AIIC | n.a. / n.a.

\(^{(a)}\) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 35 mm @ 406 mm O.C. INSTALLED VERTICALLY
- 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 38 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
Fire-resistance rating | FRR (a) | 2.5 h / 2.5 h
---|---|---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | 71 / n.a.
  | IIC / AIIC | n.a. / n.a.

(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
- METAL STUDS (26 GAUGE) 31 mm X 92 mm @ 406 mm O.C.
- 1 ROW OF FIBREGLASS INSULATION OF TYPE "ROSE FIBERGLAS ECOTOUCH" 92 mm
- AIR GAP 19 mm
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 35 mm @ 406 mm O.C. INSTALLED VERTICALLY
- 1 ROW OF FIBREGLASS INSULATION OF TYPE "ROSE FIBERGLAS ECOTOUCH" 38 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
2.12

<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
<th>2.5 h / 2.5 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>53 / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
- RESILIENT CHANNELS 12.7 mm @ 406 mm O.C. INSTALLED HORIZONTALLY
- PLYWOOD STRIPS 12.7 mm @ 406 mm O.C.
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 35 mm @ 406 mm O.C. INSTALLED VERTICALLY
- 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 38 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
Fire-resistance rating | FRR | 2.5 h / 2.5 h
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | 53 / n.a.
| IIC / AIIC | n.a. / n.a.

a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 35 mm @ 406 mm O.C. INSTALLED VERTICALLY
- 1 ROW OF FIBREGLASS INSULATION OF TYPE "ROSE FIBERGLAS ECOTOUCH" 38 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
Architecture, Assembly

Fire-resistance rating | FRR (a) | 2.5 h / 2.5 h
--- | --- | ---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | 65 / n.a.
IIC / AIIC | n.a. / n.a.

(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- 1 TYPE C GYPSUM BOARD 12.7 mm
- METAL STUDS (26 GAUGE) 31 mm X 64 mm @ 406 mm O.C.
- 1 ROW OF STONE WOOL INSULATION OF TYPE “ROXUL AFB” 64 mm
- AIR GAP 19 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 35 mm @ 406 mm O.C. INSTALLED VERTICALLY
- 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 38 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
Fire-resistance rating | FRR (a) | 2.5 h / 1.5 h
--- | --- | ---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | 62 / n.a.
| IIC / AIIC | n.a. / n.a.

(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- 1 TYPE C GYPSUM BOARD 12.7 mm
- METAL STUDS (26 GAUGE) 31 mm X 64 mm @ 406 mm O.C.
- 1 ROW OF STONE WOOL INSULATION OF TYPE “ROXUL AFB” 64 mm
- AIR GAP 19 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
- NORDIC X-LAM 175 mm
Fire-resistance rating

FRR\(^{(a)}\) 2.5 h / 2.5 h

Thermal resistance

RSI / R n.a. / n.a.

Acoustic ratings

STC / ASTC 61 / n.a.
IIC / AIIC n.a. / n.a.

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(a) The fire-resistance ratings on each side of the partition are based on an effective length of 3 m and on a concentric specified uniform load of 800 kN/m.

- 1 TYPE C GYPSUM BOARD 12.7 mm
- METAL STUDS (26 GAUGE) 31 mm X 64 mm @ 406 mm O.C.
- 1 ROW OF STONE WOOL INSULATION OF TYPE “ROXUL AFB” 64 mm
- AIR GAP 19 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
- NORDIC X-LAM 175 mm
- 2 TYPE X GYPSUM BOARDS 15.9 mm EA.
FLOOR 3
Fire-resistance rating  | FRR (a) | 1.5 h
--- | --- | ---
Thermal resistance  | RSI / R | n.a. / n.a.
Acoustic ratings  | STC / ASTC | 39 / n.a.
 | IIC / AIIC | 27 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- NORDIC X-LAM 175 mm
### Fire-resistance rating

<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR&lt;sup&gt;(a)&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.5 h</td>
</tr>
</tbody>
</table>

### Thermal resistance

<table>
<thead>
<tr>
<th>Thermal resistance</th>
<th>RSI / R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

### Acoustic ratings

<table>
<thead>
<tr>
<th>Acoustic ratings</th>
<th>STC&lt;sup&gt;(b)&lt;/sup&gt; / ASTC</th>
<th>IIC&lt;sup&gt;(b)&lt;/sup&gt; / AIIC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>64 / n.a.</td>
<td>59 / n.a.</td>
</tr>
</tbody>
</table>

<sup>a</sup> The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.


- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - RESILIENT METALLIC HANGERS 100 mm
  - METAL TRACKS @ 406 mm O.C. MIN
  - SOUNDPROOFING MATERIAL 100 mm
- 2 TYPE X GYPSUM BOARDS 12.7 mm EA.
Fire-resistance rating | FRR (a) | 2 h
--- | --- | ---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | n.a. / n.a. | IIC / AIIC | n.a. / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- UNDERLAY OF TYPE "FERMACELL 2E32" 30 mm OR "PERMABASE" WITH "SONOPAN"
- NORDIC X-LAM 175 mm
- NORDIC JOIST 200 mm @ 610 mm O.C.
- SOUNDPROOFING MATERIAL 89 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire-resistance rating</td>
<td>FRR (a) 1.5 h</td>
</tr>
<tr>
<td>Thermal resistance</td>
<td>RSI / R n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC n.a. / 47</td>
</tr>
</tbody>
</table>

(a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- FLOATING FLOOR 10 mm
- UNDERLAY OF TYPE “INSONOBOIS” 3 mm
- 2 UNDERLAYS OF TYPE “FIBEROCK” 15.9 mm EA.
- UNDERLAY OF TYPE “INSONOMAT” 15 mm
- NORDIC X-LAM 175 mm
Fire-resistance rating | FRR (a) | 2 h
---|---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | n.a. / 59
IIC / AIIC | n.a. / 61

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- Floating Floor 10 mm
- Underlay of Type “Insonobois” 3 mm
- 2 Underlays of Type “Fiberock” 15.9 mm EA.
- Underlay of Type “Insonomat” 15 mm
- Nordic X-Lam 175 mm
- Suspended Ceiling:
  - Resilient Metallic Hangers 200 mm @ 1200 mm O.C.
  - Metal Tracks @ 600 mm O.C.
  - 2 Rows of Stone Wool Insulation of Type “Roxul” (40 kg/m³) 89 mm EA.
  - 1 Type X Gypsum Board 15.9 mm
- FLOATING FLOOR 10 mm
- UNDERLAY OF TYPE 'INSONOBOS' 3 mm
- 2 UNDERLAYS OF TYPE 'FIBEROCK' 15.9 mm EA.
- UNDERLAY OF TYPE 'INSONOMAT' 15 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - RESILIENT METALLIC HANGERS 200 mm @ 1200 mm O.C.
  - METAL TRACKS @ 600 mm O.C.
  - 2 ROWS OF STONE WOOL INSULATION OF TYPE 'ROXUL' (40 kg/m³) 89 mm EA.
  - 1 TYPE X GYPSUM BOARD 15.9 mm
  - 1 REGULAR GYPSUM BOARD 12.7 mm

Acoustic ratings:
- STC / ASTC: n.a. / n.a.
- IIC / AIIC: n.a. / 58

Fire-resistance rating FRR (a) 2 h

Notes:
- The fire-resistance rating is based on a span of 5.75 m and a specified uniform load of 4.75 kPa.
Fire-resistance rating | FRR \(^{(a)}\) | 2 h
---|---|---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC | n.a. / 54
| IIC / AIIC | n.a. / 56

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- FLOATING FLOOR 10 mm
- UNDERLAY OF TYPE “INSONOBOIS” 3 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - RESILIENT METALLIC HANGERS 200 mm @ 1200 mm O.C.
  - METAL TRACKS @ 600 mm O.C.
  - 2 ROWS OF STONE WOOL INSULATION OF TYPE “ROXUL” (40 kg/m³) 89 mm EA.
  - 1 TYPE X GYPSUM BOARD 15.9 mm
  - 1 REGULAR GYPSUM BOARD 12.7 mm
Fire-resistance rating  | FRR (a)  | 2 h |
--- | --- | --- |
Thermal resistance  | RSI / R  | n.a. / n.a. |
Acoustic ratings  | STC / ASTC  | n.a. / 53 |
                      | IIC / AIIC  | n.a. / 52 |

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- FLOATING FLOOR 10 mm
- UNDERLAY OF TYPE “INSONOBOIS” 3 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - RESILIENT METALLIC HANGERS 100 mm @ 1200 mm O.C.
  - METAL TRACKS @ 600 mm O.C.
  - 1 ROW OF STONE WOOL INSULATION OF TYPE “ROXUL” (40 kg/m³) 89 mm EA.
  - 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire-resistance rating</td>
<td>FRR (^{(a)}) 1.5 h</td>
</tr>
<tr>
<td>Thermal resistance</td>
<td>RSI / R n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC (^{(b)}) / ASTC 62 / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC (^{(b)}) / AIIC 59 / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.


- GYPSUM FIBREBOARD OF TYPE "FERMACELL" 25 mm
- UNDERLAY OF TYPE "ISOVER EP3" 20 mm
- 2 LAYERS OF PELLETS AND HONEYCOMB CORE OF TYPE "FERMACELL" 30 mm EA.
- KRAFT PAPER UNDERLAY
- NORDIC X-LAM 175 mm
Fire-resistance rating  
<table>
<thead>
<tr>
<th>FRR (a)</th>
<th>2 h</th>
</tr>
</thead>
</table>

Thermal resistance  
| RSI / R | n.a. / n.a. |

Acoustic ratings  
| STC / ASTC | n.a. / 61 |
| IIC / AIIC | n.a. / 50 |

---

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CONCRETE TOPPING (2000 kg/m³) 38 mm
- WOOD FIBRE ACOUSTIC PANEL OF TYPE “BP ECO-LOGICAL” 12.7 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - RESILIENT METALLIC HANGERS 100 mm @ 1200 mm O.C.
  - METAL TRACKS @ 600 mm O.C.
  - 1 ROW OF STONE WOOL INSULATION OF TYPE “ROXUL” (40 kg/m³) 89 mm
  - 1 TYPE X GYPSUM BOARD 15.9 mm
  - 1 REGULAR GYPSUM BOARD 12.7 mm

---
Fire-resistance rating: FRR (A) 1.5 h

<table>
<thead>
<tr>
<th>Thermal resistance</th>
<th>RSI / R</th>
<th>n.a. / n.a.</th>
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</thead>
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<tr>
<th>Acoustic ratings</th>
<th>STC / ASTC</th>
<th>55 / n.a.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>51 / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- ENGINEERED WOOD FLOOR 10 mm
- UNDERLAY OF TYPE "ROBERTS SOFT STRIDE" 2 mm
- CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE "INSONOMAT" 15 mm
- NORDIC X-LAM 175 mm
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
<th>2 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
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<td>Acoustic ratings</td>
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<td>IIC / AIIC</td>
<td>56 / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “OWENS CORNING QUIÉTUDE” 9 mm
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 90 mm @ 610 mm O.C.
- 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 92 mm
- FURRING CHANNELS 16 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (^{(a)})</th>
<th>2 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>69 / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>54 / n.a.</td>
</tr>
</tbody>
</table>

\(a\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CONCRETE TOPPING 38 mm
- TAR FIBREBOARD 10 mm
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 90 mm @ 610 mm O.C.
- 1 ROW OF FIBREGLASS INSULATION OF TYPE "ROSE FIBERGLAS ECOTOUCH" 92 mm
- FURRING CHANNELS 16 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
<th>2 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>69 / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>58 / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- ENGINEERED WOOD FLOOR 10 mm
- UNDERLAY OF TYPE “ROBERTS SOFT STRIDE” 2 mm
- CONCRETE TOPPING 38 mm
- TAR FIBREBOARD 10 mm
- NORDIC X-LAM 175 mm
- Z-CHANNELS (26 GAUGE) 90 mm @ 610 mm O.C.
- 1 ROW OF FIBREGLASS INSULATION OF TYPE "ROSE FIBERGLAS ECOTOUCH" 92 mm
- FURRING CHANNELS 16 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating | FRR \(^{(a)}\) | 1.5 h
Thermal resistance | RSI / R | n.a. / n.a.

Acoustic ratings
<table>
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<tr>
<th>STC / ASTC</th>
<th>IIC / AIIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>72 / n.a.</td>
<td>65 / n.a.</td>
</tr>
</tbody>
</table>

\(a\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “OWENS CORNING QUIÉTUDE” 9 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - METALLIC HANGERS 65 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C.
  - FURRING CHANNELS 22 mm @ 406 mm O.C.
  - 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 92 mm
  - 2 TYPE C GYPSUM BOARDS 12.7 mm EA.
Fire-resistance rating  FRR (a)  1.5 h 

Thermal resistance  
RSI / R  n.a. / n.a. 

Acoustic ratings  
STC / ASTC  73 / n.a.  
IIC / AIIC  66 / n.a.  

(a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “OWENS CORNING QUIÉTUDE” 9 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - METALLIC HANGERS 52 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C.
  - FURRING CHANNELS 22 mm @ 406 mm O.C.
  - 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 92 mm
  - RESILIENT CHANNELS 13 mm @ 610 mm O.C.
  - 2 TYPE C GYPSUM BOARDS 12.7 mm EA.
Fire-resistance rating  | FRR (a)  | 1.5 h  
Thermal resistance  | RSI / R  | n.a. / n.a.  
Acoustic ratings  | STC / ASTC  | 72 / n.a.  
IIC / AIC  | 62 / n.a.  

(a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “OWENS CORNING QUIÉTUDE” 9 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - METALLIC HANGERS 52 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C.
  - FURRING CHANNELS 22 mm @ 406 mm O.C.
  - 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 92 mm
  - RESILIENT CHANNELS 13 mm @ 610 mm O.C.
  - 1 TYPE C GYPSUM BOARD 12.7 mm
Fire-resistance rating | FRR \(^{(a)}\) | 1.5 h
---|---|---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC \(^{(b)}\) / ASTC | 75 / n.a.
| IIC \(^{(b)}\) / AIIC | 66 / n.a.

\[(a)\] The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

\[(b)\] Acoustic performance based on a CLT thickness of 131 mm.

- FLOATING FLOOR 9 mm
- UNDERLAY OF TYPE “ACOUSTITECH PREMIUM” 3 mm
- PREFABRICATED CONCRETE TOPPING 38 mm
- TAR FIBREBOARD 10 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - METALLIC HANGERS 145 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C.
  - FURRING CHANNELS 22 mm @ 406 mm O.C.
  - 1 ROW OF FIBREGLASS INSULATION OF TYPE “ROSE FIBERGLAS ECOTOUCH” 92 mm
  - 2 TYPE C GYPSUM BOARDS 12.7 mm EA.
Fire-resistance rating  | FRR (a) | 1 h  
Thermal resistance  | RSI / R | n.a. / n.a.  
**Acoustic ratings**  | STC / ASTC | 52 / n.a.  
| IIC / AIIC | 51 / n.a.  

a) The fire-resistance rating is based on a span of 4 m and on a specified uniform load of 4.75 kPa.

- CARPET TILES 7 mm
- PREFABRICATED CONCRETE TOPPING (2310 kg/m³) 70 mm
- UNDERLAY OF TYPE "INSONOMAT" 15 mm
- NORDIC LAM DECKING 89 mm
Fire-resistance rating  |  FRR \(^{(a)}\)  | 2 h

Thermal resistance  |  RSI / R  | n.a. / n.a.

Acoustic ratings  |  STC / ASTC  | 61 / n.a.
                 |  IIC / AIIC  | 55 / n.a.

\(a\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- 2 ROWS OF PANELS OF TYPE “HUBER ENGINEERED WOOD ADVANTECH” 36 mm EA.
- UNDERLAY OF TYPE “GENIEMAT FF” 25 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - BRACKETS OF TYPE “GENIECLIP LB” 111 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C. FIXED AT THE BOTTOM OF THE BRACKETS
  - FURRING CHANNELS 22 mm @ 610 mm O.C.
  - 1 ROW FIBREGLASS INSULATION OF TYPE “JOHNS MANVILLE UNFACED BATT R13” 89 mm
  - 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating  FRR (a)  2 h
Thermal resistance  RSI / R  n.a. / n.a.
Acoustic ratings  STC / ASTC  58 / n.a.
  IIC / AIIC  58 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- VINYL TILES FLOORING 4 mm
- UNDERLAY OF TYPE “GENIEMAT RST05” 5 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - BRACKETS OF TYPE “GENIECLIP LB” 111 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C. FIXED AT THE BOTTOM OF THE BRACKETS
  - FURRING CHANNELS 22 mm @ 610 mm O.C.
  - 1 ROW OF FIBREGLASS INSULATION OF TYPE “JOHNS MANVILLE UNFACED BATTS R13” 89 mm
  - 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating  | FRR \(^{(a)}\)  | 2 h  
Thermal resistance  | RSI / R  | n.a. / n.a.  
Acoustic ratings  | STC / ASTC  | 57 / n.a.  
| IIC / AIIC  | 54 / n.a.  

\(^{(a)}\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- VINYL TILES FLOORING 4 mm
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - BRACKETS OF TYPE "GENIECLIP LB" 111 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C. FIXED AT THE BOTTOM OF THE BRACKETS
  - FURRING CHANNELS 22 mm @ 610 mm O.C.
  - 1 ROW OF FIBREGLASS INSULATION OF TYPE "JOHNS MANVILLE UNFACED BATTs R13" 89 mm
  - 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating  FRR (a)  2.5 h

Thermal resistance  RSI / R  n.a. / n.a.

Acoustic ratings  STC / ASTC  n.a. / 54
     IIC / AIIC  n.a. / 53

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- FLOATING FLOOR 10 mm
- UNDERLAY OF TYPE "INSONOBOIS" 3.5 mm
- TOPPING OF TYPE "MAXXON GYP-CRETE" (2050 kg/m³) 19 mm
- ENTANGLED FILAMENT MAT OF TYPE "MAXXON ACOUSTI-MAT 1" 5 mm
- NORDIC X-LAM 175 mm
- RESILIENT CHANNELS 13 mm @ 610 mm O.C.
- 1 TYPE X GYPSUM BOARD OF TYPE "QUIETROCK" 15.9 mm
- SUSPENDED DRYWALL GRID SYSTEM OF TYPE "ARMSTRONG":
  - METALLIC HANGERS 380 mm
  - T-CHANNELS 43 mm @ 1220 mm O.C.
  - 1 ROW OF STONE WOOL INSULATION OF TYPE "ROXUL"
    (40 kg/m³) 75 mm
  - 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating | FRR (a) | 2 h
---|---|---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC (b) / ASTC | 62 / n.a.
 | IIC (b) / AIIC | 59 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- GYPSUM FIBERBOARD OF TYPE “FERMACELL” 25 mm
- UNDERLAY OF TYPE “ISOVER EP3” 20 mm
- 2 LAYERS OF PELLETS AND HONEYCOMB CORE OF TYPE “FERMACELL” 30 mm EA.
- KRAFT PAPER UNDERLAY
- NORDIC X-LAM 175 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
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<tr>
<th>Property</th>
<th>Value</th>
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<td>FRR (^{(a)}) 1.5 h</td>
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<tr>
<td>Thermal resistance</td>
<td>RSI / R n.a. / n.a.</td>
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<td>Acoustic ratings</td>
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<td></td>
<td>IIC / AIIC (^{(a)}) n.a. / &gt; 50</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.


- CARPET OR FLOATING FLOOR 10 mm
- RESILIENT UNDERLAY (RUBBER OR FELT) 3 mm
- TOPPING, AT LEAST 76 kg/m² (I.E. CONCRETE OR OF TYPE “MAXXON GYP-CRETE”)
- RESILIENT UNDERLAY (RUBBER 10 mm, FELT 18 mm, OR WOOD FIBERBOARD 12 mm)
- NORDIC X-LAM 175 mm
Fire-resistance rating | FRR \(^{(a)}\) | 2 h  
Thermal resistance | RSI / R | n.a. / n.a.  
Acoustic ratings | STC / ASTC \(^{(b)}\) | n.a. / > 50  
IIC / AIIC \(^{(b)}\) | n.a. / > 50  

\(a\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.


- CARPET OR FLOATING FLOOR 10 mm
- RESILIENT UNDERLAY (RUBBER OR FELT) 3 mm
- TOPPING, AT LEAST 76 kg/m² (I.E. CONCRETE OR OF TYPE “MAXXON GYP-CRETE”)
- RESILIENT UNDERLAY (RUBBER 10 mm, FELT 18 mm, OR WOOD FIBERBOARD 12 mm)
- NORDIC X-LAM 175 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating | FRR (a) | 1.5 h
--- | --- | ---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC / ASTC (b) | n.a. / > 45
| IIC / AIIC (b) | n.a. / > 45

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CARPET OR FLOATING FLOOR 10 mm
- RESILIENT UNDERLAY (RUBBER OR FELT) 3 mm
- PREFABRICATED TOPPING, AT LEAST 25 kg/m² (20 mm OF TYPE “FERMACELL” OR OF TYPE “FIBREROCK”)
- RESILIENT UNDERLAY (RUBBER 10 mm, FELT 18 mm, OR WOOD FIBERBOARD 12 mm)
- NORDIC X-LAM 175 mm
Fire-resistance rating: FRR \(^{(a)}\) 2 h

Thermal resistance: RSI / R n.a. / n.a.

Acoustic ratings:
- STC / ASTC \(^{(b)}\) n.a. / > 45
- IIC / AIIC \(^{(b)}\) n.a. / > 45

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- CARPET OR FLOATING FLOOR 10 mm
- RESILIENT UNDERLAY (RUBBER OR FELT) 3 mm
- PREFabricATED TOPPING, AT LEAST 25 kg/m\(^2\) (20 mm OF TYPE “FERMACELL” OR OF TYPE “FIBREROCK”)
- RESILIENT UNDERLAY (RUBBER 10 mm, FELT 18 mm, OR WOOD FIBERBOARD 12 mm)
- NORDIC X-LAM 175 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
**Fire-resistance rating**  
FRR (a) 1.5 h

**Thermal resistance**  
RSI / R  
n.a. / n.a.

**Acoustic ratings**  
STC (b) / ASTC  
64 / n.a.  
IIC (b) / AIIC  
53 / n.a.

(a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

(b) Acoustic performance based on a CLT thickness of 131 mm.

- PREFABRICATED CONCRETE TOPPING 38 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm x 64 mm @ 610 mm O.C.
- SILICA SAND (#71) 50 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- POLYETHYLENE SHEETING 6 mil
- NORDIC X-LAM 175 mm
Fire-resistance rating

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<thead>
<tr>
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<th>1.5 h</th>
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Thermal resistance

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Acoustic ratings

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<th>STC (b) / ASTC</th>
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<td>66 / n.a.</td>
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</tbody>
</table>

(a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

(b) Acoustic performance based on a CLT thickness of 131 mm.

- PREFABRICATED CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “REGUPOL SONUS WAVE” 17 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- SILICA SAND (#71) 50 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- POLYETHYLENE SHEETING 6 mil
- NORDIC X-LAM 175 mm
<table>
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<tr>
<th>Fire-resistance rating</th>
<th>FRR (^{(a)})</th>
<th>1.5 h</th>
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</thead>
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<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC (^{(b)}) / ASTC</td>
<td>59 / n.a.</td>
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<tr>
<td></td>
<td>IIC (^{(b)}) / AIIC</td>
<td>53 / n.a.</td>
</tr>
</tbody>
</table>

**a)** The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

**b)** Acoustic performance based on a CLT thickness of 131 mm.

- UNDERLAY OF TYPE “FERMACELL 2E31” 30 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- SILICA SAND (#71) 50 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- POLYETHYLENE SHEETING 6 mil
- NORDIC X-LAM 175 mm
Fire-resistance rating | FRR (a) | 1.5 h

Thermal resistance | RSI / R | n.a. / n.a.

Acoustic ratings | STC (b) / ASTC | 56 / n.a.
IIC (c) / AIIC | 50 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.
b) Acoustic performance based on a CLT thickness of 131 mm.

- UNDERLAY OF TYPE “SONODECK INSULFLOOR” 25 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- SILICA SAND (#71) 50 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- POLYETHYLENE SHEETING 6 mil
- NORDIC X-LAM 175 mm
<table>
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<tr>
<th><strong>Fire-resistance rating</strong></th>
<th>FRR (^{(a)})</th>
<th>1.5 h</th>
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<td>RSI / R</td>
<td>n.a. / n.a.</td>
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<tr>
<td><strong>Acoustic ratings</strong></td>
<td>STC (^{(b)}) / ASTC</td>
<td>59 / n.a.</td>
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<tr>
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<td>IIC (^{(b)}) / AIIC</td>
<td>54 / n.a.</td>
</tr>
</tbody>
</table>

\(^{(a)}\) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

\(^{(b)}\) Acoustic performance based on a CLT thickness of 131 mm.

- PREFABRICATED CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “REGUPOL SONUS WAVE” 17 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- NORDIC X-LAM 175 mm

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**Nordic Structures**

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<td>2020-02-01</td>
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Fire-resistance rating | FRR<sup>(a)</sup> | 1.5 h
---|---|---
Thermal resistance | RSI / R | n.a. / n.a.
Acoustic ratings | STC<sup>(b)</sup> / ASTC | 60 / n.a.
| IIC<sup>(b)</sup> / AIIC | 54 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.
b) Acoustic performance based on a CLT thickness of 131 mm.

- PREFABRICATED CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “REGUPOL SONUS WAVE” 17 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- 1 ROW OF FIBERGLASS INSULATION 65 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- NORDIC X-LAM 175 mm
<table>
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<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Fire-resistance rating</td>
<td>FRR (a) 1 h</td>
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<td>Thermal resistance</td>
<td>RSI / R n.a. / n.a.</td>
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<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC 65 / n.a., IIC / AIIC 59 / n.a.</td>
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</table>

(a) The fire-resistance rating is based on a span of 4 m and on a specified uniform load of 4.75 kPa.

- PREFABRICATED CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “REGUPOL SONUS WAVE” 17 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- SILICA SAND (#71) 50 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- POLYETHYLENE SHEETING 6 mil
- NORDIC LAM DECKING 89 mm
Fire-resistance rating  FRR\(^{(a)}\)  1.5 h

Thermal resistance  RSI / R  n.a. / n.a.

Acoustic ratings  STC\(^{(b)}\) / ASTC  56 / n.a.
   IIC\(^{(b)}\) / AIIC  52 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.
b) Acoustic performance based on a CLT thickness of 131 mm.

- UNDERLAY OF TYPE “FERMACELL 2E31” 30 mm
- PREFABRICATED CONCRETE TOPPING (2350 kg/m\(^3\)) 70 mm
- UNDERLAY OF TYPE “REGUPOL SONUS WAVE” 25 mm
- NORDIC X-LAM 175 mm
Fire-resistance rating FRR\(^{(a)}\) 1.5 h
Thermal resistance RSI / R n.a. / n.a.
Acoustic ratings STC\(^{(b)}\) / ASTC 57 / n.a.
IIC\(^{(b)}\) / AIIC 51 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.
b) Acoustic performance based on a CLT thickness of 131 mm.

- LAMINATED FLOORING 8 mm
- UNDERLAY OF TYPE “ACOUSTITECH PREMIUM” 3 mm
- PREFABRICATED CONCRETE Topping (2350 kg/m\(^3\)) 70 mm
- RIGID SHEATHING BOARD OF TYPE “ROXUL COMFORTBOARD IS” 32 mm
- NORDIC X-LAM 175 mm
Fire-resistance rating  |  FRR (a)  |  1.5 h  
Thermal resistance  |  RSI / R  |  n.a. / n.a.  
Acoustic ratings  |  STC (b) / ASTC  |  57 / n.a.  
|  IIC (b) / AIIC  |  51 / n.a.  

(a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

(b) Acoustic performance based on a CLT thickness of 131 mm.

- LAMINATED FLOORING 8 mm
- UNDERLAY OF TYPE “ROBERTS SOFT STRIDE” 2 mm
- PREFABRICATED CONCRETE TOPPING (2350 kg/m³) 70 mm
- RIGID SHEATHING BOARD OF TYPE “ROXUL COMFORTBOARD IS” 32 mm
- NORDIC X-LAM 175 mm
Fire-resistance rating: FRR (a) 1.5 h

Thermal resistance: RSI / R n.a. / n.a.

Acoustic ratings: STC (b) / ASTC 57 / n.a.
IIC (b) / AIIC 51 / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.
b) Acoustic performance based on a CLT thickness of 131 mm.

- HARDWOOD FLOORING OF TYPE “TORLYS EVEREST PREMIER” 10 mm
- UNDERLAY OF TYPE “ROBERTS SOFT STRIDE” 2 mm
- PREFABRICATED CONCRETE TOPPING (2350 kg/m³) 70 mm
- RIGID SHEATHING BOARD OF TYPE “ROXUL COMFORTBOARD IS” 32 mm
- NORDIC X-LAM 175 mm
Fire-resistance rating | FRR (a) | 1.5 h
--- | --- | ---
Thermal resistance | RSI / R | n.a. / n.a.

Acoustic ratings
| STC (b) / ASTC | 60 / n.a. |
| LII (b) / AIIC | 58 / n.a. |

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.
b) Acoustic performance based on a CLT thickness of 131 mm.

- LAMINATED FLOORING 8 mm
- UNDERLAY OF TYPE “ROBERTS SOFT STRIDE” 2 mm
- PREFABRICATED CONCRETE TOPPING 38 mm
- UNDERLAY OF TYPE “REGUPOL SONUS WAVE” 17 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- 1 ROW OF FIBERGLASS INSULATION 65 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- NORDIC X-LAM 175 mm
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<tr>
<th>Fire-resistance rating</th>
<th>FRR&lt;sup&gt;(a)&lt;/sup&gt;</th>
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<td>Thermal resistance</td>
<td>RSI / R</td>
<td>n.a. / n.a.</td>
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<td>Acoustic ratings</td>
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<td>IIC / AIIC</td>
<td>62 / n.a.</td>
</tr>
</tbody>
</table>

<sup>(a)</sup> The fire-resistance rating is based on a span of 4 m and on a specified uniform load of 4.75 kPa.

- LAMINATED FLOORING 8 mm
- UNDERLAY TYPE "ROBERTS SOFT STRIDE" 2 mm
- PREFABRICATED CONCRETE TOPPING 38 mm
- UNDERLAY TYPE "REGUPOL SONUS WAVE" 17 mm
- TONGUE AND GROOVE OSB SHEATHING 18 mm
- WOOD RAFTERS 38 mm X 64 mm @ 610 mm O.C.
- SILICA SAND (#71) 50 mm
- RUBBER MEMBRANE BANDS 10 mm UNDER RAFTERS
- POLYETHYLENE SHEETING 6 mil
- NORDIC LAM DECKING 89 mm
Fire-resistance rating

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<th>FRR (a)</th>
<th>1 h</th>
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Thermal resistance

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Acoustic ratings

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<tr>
<th>STC / ASTC</th>
<th>n.a. / n.a.</th>
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<tbody>
<tr>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 3.5 m and on a specified uniform load of 4.5 kPa.

- TWO-LAYER ELASTOMERIC MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANurate INSULATION 89 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
### Fire-resistance rating

| FRR (a) | 1.5 h |

### Thermal resistance

| RSI / R | 8.2 / 47 |

### Acoustic ratings

| STC / ASTC | n.a. / n.a. |
| IIC / AIIC | n.a. / n.a. |

(a) The fire-resistance rating is based on a span of 3.5 m and on a specified uniform load of 4.5 kPa.

- TWO-LAYER ELASTOMERIC MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANurate INSULATION 89 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
- FURRING CHANNELS 16 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
<th>1 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>7.9 / 45</td>
</tr>
<tr>
<td></td>
<td>STC / ASTC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 3.5 m and on a specified uniform load of 4.5 kPa.

- THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANURATE INSULATION 89 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 105 mm
**Fire-resistance rating**

| FRX | 1.5 h |

**Thermal resistance**

| RSI / R | 8.2 / 47 |

**Acoustic ratings**

| STC / ASTC | n.a. / n.a. |
| IIC / AIIC | n.a. / n.a. |

*a) The fire-resistance rating is based on a span of 3.5 m and on a specified uniform load of 4.5 kPa.*

- **THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING**
- **ROOFING UNDERLAY (UP TO THE DESIGNER)**
- **2 ROWS OF POLYISOCYANURATE INSULATION 89 mm EA.**
- **VAPOUR BARRIER MEMBRANE**
- **NORDIC X-LAM 105 mm**
- **FURRING CHANNELS 16 mm @ 406 mm O.C.**
- **1 TYPE X GYPSUM BOARD 15.9 mm**
Fire-resistance rating: FRR (a) 1.5 h
Thermal resistance: RSI / R 7.5 / 43
Acoustic ratings: STC / ASTC n.a. / n.a.
IIC / AIIC n.a. / n.a.

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- TWO-LAYER ELASTOMERIC MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANURATE INSULATION 76 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 175 mm
<table>
<thead>
<tr>
<th>Fire-resistance rating</th>
<th>FRR&lt;sup&gt;(A)&lt;/sup&gt;</th>
<th>2 h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance</td>
<td>RSI / R</td>
<td>7.7 / 44</td>
</tr>
<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- TWO-LAYER ELASTOMERIC MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANURATE INSULATION 76 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 175 mm
- FURRING CHANNELS 16 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
<table>
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<tr>
<th>Fire-resistance rating</th>
<th>FRR (a)</th>
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<tbody>
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<tr>
<td>Acoustic ratings</td>
<td>STC / ASTC</td>
<td>n.a. / n.a.</td>
</tr>
<tr>
<td></td>
<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- TWO-LAYER ELASTOMERIC MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANURATE INSULATION 76 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 175 mm
- SUSPENDED CEILING:
  - METALLIC HANGERS 145 mm
  - CHANNEL IRONS 38 mm @ 1220 mm O.C.
  - FURRING CHANNELS 22 mm @ 406 mm O.C.
  - SOUNDPROOFING MATERIAL 92 mm
- 1 TYPE X GYPSUM BOARD 15.9 mm
Fire-resistance rating  |  FRR (a)  |  1.5 h  
Thermal resistance  |  RSI / R  |  7.5 / 43  
Acoustic ratings  |  STC / ASTC  |  n.a. / n.a.  
IIC / AIIC  |  n.a. / n.a.  

a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANurate INSULATION 76 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 175 mm
**Fire-resistance rating**

<table>
<thead>
<tr>
<th>FRR&lt;sup&gt;(a)&lt;/sup&gt;</th>
<th>2 h</th>
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**Thermal resistance**

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**Acoustic ratings**

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<th>STC / ASTC</th>
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<td>IIC / AIIC</td>
<td>n.a. / n.a.</td>
</tr>
</tbody>
</table>

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a) The fire-resistance rating is based on a span of 5.75 m and on a specified uniform load of 4.75 kPa.

- THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANURATE INSULATION 76 mm EA.
- VAPOUR BARRIER MEMBRANE
- NORDIC X-LAM 175 mm
- FURRING CHANNELS 16 mm @ 406 mm O.C.
- 1 TYPE X GYPSUM BOARD 15.9 mm
### Fire-resistance rating

| FRR<sup>(a)</sup> | 1 h |

### Thermal resistance

| RSI / R | 7.8 / 44 |

### Acoustic ratings

| STC / ASTC | n.a. / n.a. |
| IIC / AIIC | n.a. / n.a. |

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*Note: The fire-resistance rating is based on a span of 4 m and on a specified uniform load of 4.75 kPa.*

- TWO-LAYER ELASTOMERIC MEMBRANE ROOFING
- ROOFING UNDERLAY (UP TO THE DESIGNER)
- 2 ROWS OF POLYISOCYANurate INSULATION 89 mm EA.
- VAPOUR BARRIER MEMBRANE
- PLYWOOD 12.7 mm
- NORDIC LAM DECKING 89 mm