



European Technical Assessment **ETA 20/0260** of 26/08/2024

I General Part

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011:

Eurofins Expert Services Oy

Trade name of the construction product

Sewatek SWT-100 Fire Acrylic

Sewatek SWT-105 Expanding Fire Acrylic

Product family to which the construction product belongs

Fire Stopping and Fire Sealing Products

Manufacturer

**Sewatek Oy
Sepäntie 4
FI-07230 Askola
Finland**

Manufacturing plant

Plant 1 and Plant 2

This European Technical Assessment contains

34 pages including 3 Annex which form an integral part of this assessment

This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of

**European Assessment Document
EAD 350454-00-1104, edition September 2017**

This version replaces

ETA 20/0260 issued on March 15, 2023

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II Specific Part

1 Technical description of the product

Sewatek expanding SWT-100 and strongly expanding SWT-105 are fire acrylic mastics. They are intended to use for sealing pipes, cables and cable bundles that penetrate fire rated walls and floors. Sewatek mastics can be used with flexible or rigid constructions or CLT/LVL-constructions.

Sewatek fire acrylic mastics can be mounted as a single unit or as a group. Penetrations are classified as a group of penetration seals (clusters) or a single penetration seal. Fire resistance class of a cluster is allowed to extend to an equivalent single penetration seal but not vice versa. Minimum distances between penetration devices are given in Annex 1.

2 Specification of the intended uses in accordance with the applicable European Assessment Document, EAD

2.1 Intended uses

The Penetration seal is intended to be used temporarily or permanent reinstate the fire resistance performance of rigid concrete wall or roof / floor constructions or CLT-/LVL-constructions (Cross laminated timber/Laminated veneer lumber) or flexible walls which are provided with apertures which are penetrated by various cables or metallic or plastic pipes. The minimum thickness for unprotected CLT/LVL wooden construction is 100 mm. The thickness of the wood can be lower if the wood construction has a non-flammable surface (e.g. gypsum) and the thickness of the construction is at least 100 mm.

Penetrations can be mounted either into

- 95 mm or 100 mm thick low density rigid wall ($650 \pm 200 \text{ kg/m}^3$)
- 95 mm thick standardized flexible wall
- 150 or 200 mm thick high-density rigid floor ($\geq 850 \text{ kg/m}^3$)
- 100 mm thick CLT/LVL wall or floor

The provisions made in this European Technical Assessment are based on an assumed intended working life of 25 years provided that the product is subjected to appropriate use and maintenance¹.

2.2 Use category

SWT-100: Type Z2: intended for use in internal conditions with humidity lower than 85 % RH, excluding temperatures below 0 °C, without exposure to rain or UV.

SWT-105: Type Y2. The penetration seal is intended for internal use also at temperatures below 0 °C, without exposure to rain or UV and can therefore according to EAD 350454-00-1104 clause 1.2 be categorize as Type Y2. The product also meets requirements of types Z1 and Z2.

2.3 Design

¹ This means that it is expected that when this working life has elapsed, the real working life may be, in normal use conditions, considerably longer without major degradation affecting the essential requirements of the works. The indications given as to the working life of Sewatek penetration system cannot be interpreted as a guarantee given by the producer or the assessment body. They should only be regarded as a means for the specifiers to choose the appropriate criteria for penetration seals in relation to the expected, economically reasonable working life of the works

This European Technical Assessment is based on the assumption that all plans needed have been made correctly according to the regulations valid on the building site.

2.4 Execution of construction works

It is the responsibility of the manufacturer to ensure that proper information for the use of the Sewatek penetration seal is enclosed to each delivery, including general guidance on the basis of this ETA and the specific installation instructions and construction details. With regard to the assumed working life regular maintenance is necessary. The manufacturer shall provide with written documents which contain descriptions about type and frequency of the maintenance.

The completed building (the works) shall comply with the building regulations (regulations on the works) applicable in the Member States in which the building is to be constructed. The procedures foreseen in the Member State for demonstrating compliance with the building regulations shall also be followed by the entity held responsible for this act. An ETA for Sewatek penetration seal does not amend this process in any way.

3 Performance of the product and references to the methods used for its assessment

Table 1. Basic requirements for construction works and essential characteristics

Basic requirement and essential characteristics	Performance
BWR 1. Mechanical resistance and stability	
Not relevant	
BWR 2. Safety in case of fire	
Reaction to fire of materials and components, EN 13501-1	SWT-105: C-s1, d0 SWT-100: No performance assessed
Resistance to fire, EN 13501-2	EI 30 – EI 120 (in end uses and with the provisions presented in the Annex 1)
BWR 3. Hygiene, health and the environment	
Air permeability	No performance assessed
Water permeability	No performance assessed
Content, emission and/or release of dangerous substances	Clause 3.2.1
BWR 4. Safety and accessibility in use	
Mechanical resistance and stability	No performance assessed
Resistance to impact / movement	No performance assessed
Adhesion	No performance assessed
Durability	No performance assessed
BWR 5. Protection against noise	
Airborne sound insulation	Clause 3.3.1 (SWT-105)
BWR 6. Energy economy and heat retention	No performance assessed
Thermal properties	No performance assessed
Water vapour permeability	No performance assessed
General aspects	
Aspects of durability	No performance assessed

3.1 Safety in case of fire, BWR 2

3.1.1 Reaction to fire

The classification of the main materials with regard to reaction to fire is based on full scale testing (SWT-105).

3.1.2 Resistance to fire

For floors and walls, classification with regard to resistance to fire is based on full scale testing as specified in EN 13501-2. Fire resistance classes are presented in Annex 1.

3.2 Hygiene, health and environment, BWR 3

3.2.1 Dangerous substances

The release of volatile organic and semi-volatile organic compounds has been determined according to EAD 350454-00-1104 point 2.2.5 and EN 16516. The results are shown in below table:

Sewatek SWT-100 Fire Acrylic	No performance assessed			
Sewatek SWT-105 Fire Acrylic	TVOC mg/m³		TSVOC mg/m³	
	3 d	28 d	3 d	28 d
	0,037	0,005	≤ 0,005	≤ 0,005

In addition to the specific clauses relating to dangerous substances contained in this European Technical Assessment, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

3.3 Protection against noise, BWR 5

3.3.1 Airborne sound insulation

SWT-105

Influence of single penetration seal on R_w highest is 0-1 dB, when the thickness of flexible wall ≥ 200 mm.

- R: EN ISO 10140-1:2016 [1], EN ISO 10140-2:2010 [2]
- R_w : EN ISO 717-1:2013 [3]

SWT-100

Influence of single penetration seal on R_w highest is 0-1 dB, when the thickness of flexible wall ≥ 300 mm.

- R: EN ISO 10140-1:2021 [1], EN ISO 10140-2:2022 [2]
- R_w : EN ISO 717-1:2020 [3]

3.4 Identification

The components and materials are identified as being of a generic type or giving a brand name, as described in Annex 1 and specified in the manufacturer's Contents of delivery list. The component under a given brand name may be changed by the manufacturer to another with corresponding performance.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

EC Decision for AVCP is System 1. 1999/0454/EC

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD.

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Eurofins Expert Services Oy.

Espoo on August 26, 2024
by Eurofins Expert Services Oy

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ANNEX 1

Annex 1 - Products

Low-Density Rigid Wall

1a - Sewatek SWT-100 Fire Acrylic

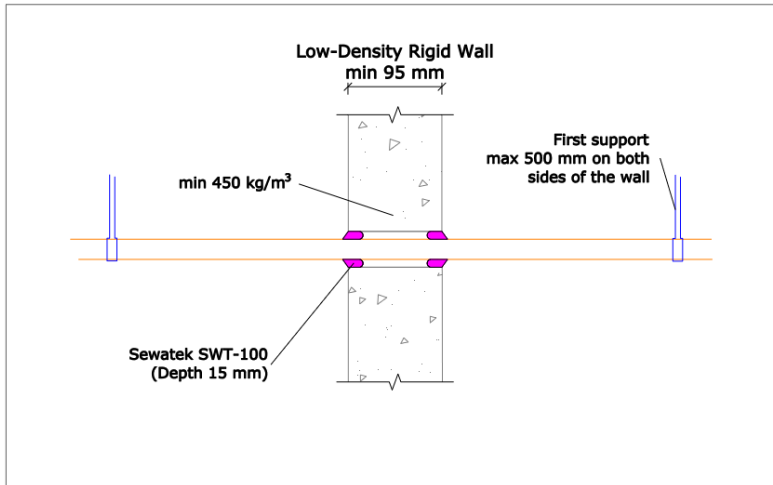


Table 1a. Penetrations with Sewatek SWT-100 Fire Acrylic mounted in **95 mm thick low-density rigid wall**

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm ("/" -" in the table)

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
<i>Mounted into low-density rigid wall of 95 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Zinc-coated steel pipes				
<i>Mounted into low-density rigid wall of 95 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Steel pipes				
<i>Mounted into low-density rigid wall of 95 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 3,3$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Cast iron sewer pipes				
<i>Mounted into low-density rigid wall of 95 mm</i>				
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Composite pipes				
<i>Mounted into low-density rigid wall of 95 mm</i>				
$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	SWT-100	LS (sw 20 / 350 mm)	20 sw + 6 / 30	EI 120 - U/C

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Cables				
<i>Mounted into low-density rigid wall of 95 mm</i>				
Cable $\varnothing \leq 22$ mm	SWT-100	not required	- / -	EI 60 - U/C
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 22$ mm	SWT-100	not required	- / -	EI 60 - U/C

ANNEX 1

Low-Density Rigid Wall

1b - Sewatek SWT-105 Expanding Fire Acrylic

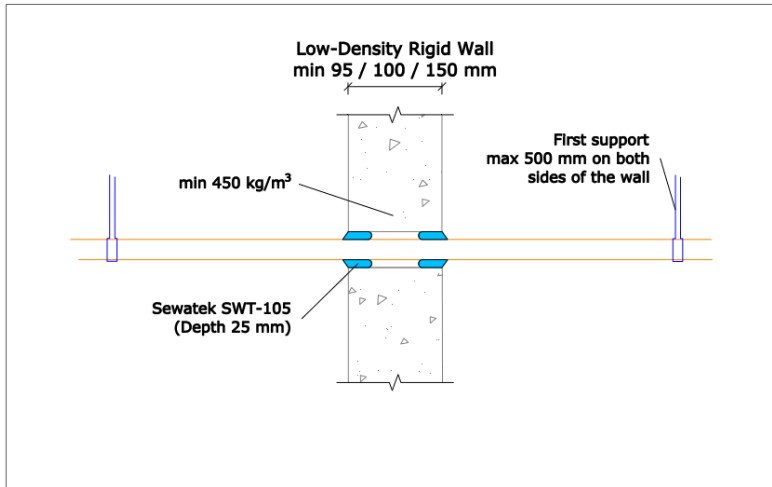


Table 1a. Penetrations with Sewatek SWT-105 Expanding Fire Acrylic mounted in 95 mm, 100 mm or 150 mm thick low-density rigid wall

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm (" / -" in the table)
sw insulation thickness	
- 20 mm (Pipes < 54 mm)	
- 30 mm (Pipes ≥ 54 mm)	

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
Mounted into low-density rigid wall of 95 mm				
$\varnothing \leq 10$ mm, $e_n \leq 1,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 58	EI 60 - U/C
$\varnothing \leq 54$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 60	EI 60 - U/C
Mounted into low-density rigid wall of 100 mm				
$\varnothing \leq 10$ mm, $e_n \leq 1,0$ mm	SWT-105	CS (sw 20 mm / -)	20 sw + 13 / 9	EI 90 - U/C
$\varnothing \leq 22$ mm, $e_n \leq 1,0$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 14 / 24	EI 90 - U/C
$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 15 / -	EI 90 - U/C
Mounted into low-density rigid wall of 150 mm				
$\varnothing \leq 28$ mm, $e_n \leq 1,0$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 18 / 30	EI 45 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 58	EI 90 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 10 / -	EI 120 - U/C
Zinc-coated steel pipes				
Mounted into low-density rigid wall of 95 mm				
$\varnothing \leq 12$ mm, $e_n \leq 1,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 54$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 60	EI 60 - U/C

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Mounted into low-density rigid wall of 100 mm				
$\varnothing \leq 10$ mm, $e_n \leq 1,0$ mm	SWT-105	CS (sw 20 mm / -)	20 sw + 13 / 9	EI 90 - U/C
$\varnothing \leq 22$ mm, $e_n \leq 1,0$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 14 / 24	EI 90 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	CS (sw 20 mm / -)	20 sw + 15 / 8	EI 90 - U/C
$\varnothing \leq 64$ mm, $e_n \leq 2,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 15 / -	EI 90 - U/C
Mounted into low-density rigid wall of 150 mm				
$\varnothing \leq 28$ mm, $e_n \leq 1,0$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 18 / 30	EI 45 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 58	EI 90 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 10 / -	EI 120 - U/C
Steel pipes				
Mounted into low-density rigid wall of 95 mm				
$\varnothing \leq 17,2$ mm (DN10), $e_n \leq 2,3$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 32	EI 60 - U/C
$\varnothing \leq 26,9$ mm (DN20), $e_n \leq 2,0$ mm	SWT-105	not required	10 / 60	EI 60 - U/C
$\varnothing \leq 60,3$ mm (DN50), $e_n \leq 4,0$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / 60	EI 60 - U/C
Mounted into low-density rigid wall of 100 mm				
$\varnothing \leq 17,2$ mm (DN10), $e_n \leq 2,5$ mm and $\varnothing \leq 26,9$ mm, $e_n \leq 2,7$ mm, installed in Sewatek LVP or installed without LVP.	SWT-105	not required	21 and 16 / 60 in line	EI 120 - U/C
$\varnothing \leq 21,3$ mm (DN15), $e_n \leq 2,7$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 14 / 24	EI 90 - U/C
$\varnothing \leq 42,4$ mm (DN32), $e_n \leq 3,5$ mm	SWT-105	CS (sw 20 mm / -)	20 sw + 15 / 8	EI 90 - U/C
$\varnothing \leq 60,3$ mm (DN50), $e_n \leq 4,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 15 / -	EI 90 - U/C
Mounted into low-density rigid wall of 150 mm				
$\varnothing \leq 88,9$ mm (DN80), $e_n \leq 4,1$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / -	EI 120 - U/C
Cast iron sewer pipes				
Mounted into low-density rigid wall of 100 mm				
$\varnothing \leq 110$ mm, $e_n \leq 4,2$ mm	SWT-105	CI (sw 30 mm / -)	10 / -	EI 60 - U/C
Mounted into low-density rigid wall of 150 mm				
$\varnothing \leq 110$ mm, $e_n \leq 4,2$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 15 / -	EI 90 - U/U
Composite pipes				
Mounted into low-density rigid wall of 100 mm				
$\varnothing \leq 16$ mm, $e_n \leq 2,0$ mm	SWT-105	not required	14 / 25	EI 90 - U/C
$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	SWT-105	not required	15 / 10	EI 90 - U/C
$\varnothing \leq 90$ mm, $e_n \leq 8,5$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / -	EI 120 - U/C
Pex-pipes				
Mounted into low-density rigid wall of 95 mm				
Pex bundle $\varnothing \leq 100$ mm, - singular pipe $\varnothing \leq 40/54$ mm, $e_n \leq 2,5-4,2$ mm	SWT-105	not required	- / -	EI 60 - U/C
Pex bundle $\varnothing \leq 75$ mm, - singular pipe/cover pipe $\varnothing \leq 25$ mm, $e_n \leq 2,5$ mm	SWT-105	not required	- / 60	EI 90 - U/C

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Cables				
<i>Mounted into low-density rigid wall of 95 mm</i>				
Cable $\varnothing \leq 22$ mm	SWT-105	not required	15 / -	EI 60
Cable conduit $\varnothing \leq 50,0$ mm, $e_n \leq 1,5$ mm - cable bundle $\varnothing \leq 45$ mm - singular cable $\varnothing \leq 22$ mm	SWT-105	not required	15 / -	EI 60 - U/C
Cable bundle $\varnothing \leq 45$ mm - singular cable $\varnothing \leq 22$ mm	SWT-105	not required	15 / 60 in line	EI 60
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 22$ mm	SWT-105	not required	- / -	EI 60
<i>Mounted into low-density rigid wall of 100 mm</i>				
Cable $\varnothing \leq 25$ mm	SWT-105	not required	13 / 30	EI 60
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 25$ mm	SWT-105	not required	13 / 30	EI 60

ANNEX 1

High-Density Rigid Floor

2a - Sewatek SWT-100 Fire Acrylic

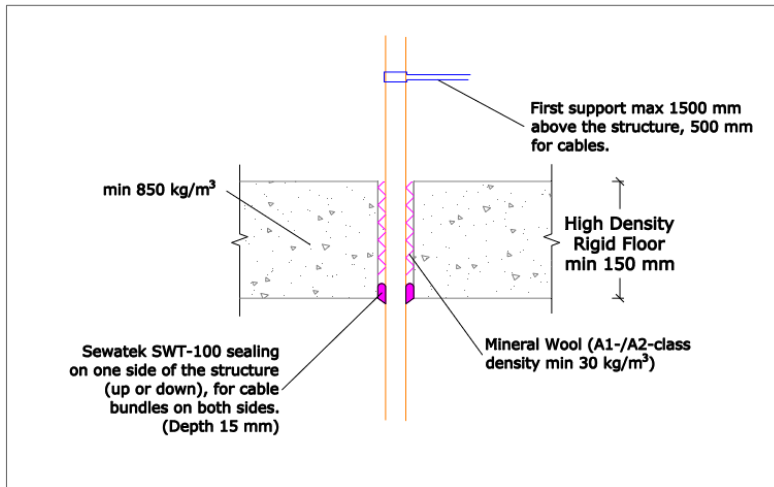


Table 2a. Penetrations with Sewatek SWT-100 Fire Acrylic mounted in **150 mm thick high-density rigid floor**.

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm (" / -" in the table)
sw insulation thickness - 20 mm (Pipes < 54 mm) - 30 mm (Pipes ≥ 54 mm)	

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 10 / 30	EI 120 - U/C
Zinc-coated steel pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 10 / 30	EI 120 - U/C
Steel pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 89$ mm (DN80), $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 10 / 30	EI 120 - U/C
Cast iron sewer pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 10 / 30	EI 120 - U/C
Stainless steel pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 110$ mm, $e_n \leq 1,2$ mm	SWT-100	LI (sw 30 / 350 mm)	7,5 / -	EI 120 - C/U

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Composite pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 90$ mm, $e_n \leq 8.5$ mm	SWT-100	CI (sw 30 mm / -)	10 / -	EI 120 - U/C
$\varnothing \leq 50$ mm, $e_n \leq 4,5$ mm	SWT-100	CS (sw 30 mm / -)	10 / 10	EI 120 U/C
Cables (for bundles: sealing on both sides of the construction)				
<i>Mounted in high-density rigid floor of 150 mm</i>				
Aluminium cable $\varnothing \leq 44$ mm	SWT-100	not required	9 / -	EI 90
MCMK cable $\varnothing \leq 28$ mm	SWT-100	LI (sw 20 / 100 mm)	10 / -	EI 120
Cable (MMJ) $\varnothing \leq 22$ mm	SWT-100	not required	10 / -	EI 120
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 22$ mm	SWT-100	not required	- / -	EI 120

ANNEX 1

High-Density Rigid Floor

2b - Sewatek SWT-105 Expanding Fire Acrylic

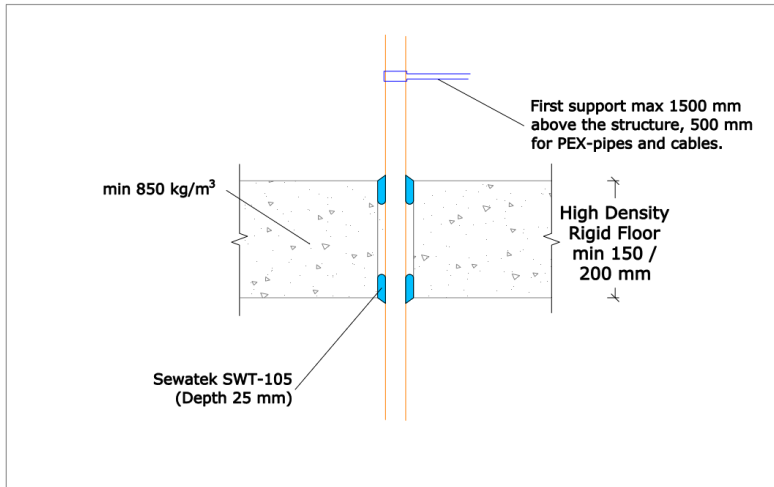


Table 2b. Penetrations with Sewatek SWT-105 Expanding Fire Acrylic mounted in 150 mm or 200 mm thick high-density rigid floor

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm (" / -" in the table)

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 35$ mm, $e_n \leq 1,5$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 7,5 / 10	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 48	EI 120 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 100	EI 120 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 13 / 30	EI 120 - U/C
Zinc-coated steel pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 35$ mm, $e_n \leq 1,5$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 7,5 / 10	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 48	EI 120 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 100	EI 120 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 13 / 30	EI 120 - U/C
<i>Mounted in high-density rigid floor of 200 mm</i>				
$\varnothing \leq 28$ mm, $e_n \leq 1,8$ mm installed in Sewatek penetration pipe	SWT-105	not required	6 / 30 in line	EI 120 - U/C

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Steel pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 27,8$ mm (DN20), $e_n \leq 2,7$ mm	SWT-105	not required	10 / 52	EI 120 - U/C
$\varnothing \leq 35$ mm (DN25), $e_n \leq 2,7$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 7,5 / 10	EI 60 - U/C
$\varnothing \leq 60,2$ mm (DN50), $e_n \leq 3,5$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / 60	EI 120 - U/C
$\varnothing \leq 89$ mm (DN80), $e_n \leq 4,1$ mm	SWT-105	CI (sw 30 mm / -)	10 / 100	EI 120 - U/C
$\varnothing \leq 89$ mm (DN80), $e_n \leq 4,1$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 13 / 30	EI 120 - U/C
Cast iron sewer pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 110$ mm, $e_n \leq 4,2$ mm	SWT-105	CI (sw 30 mm / -)	16 / 100	EI 120 - U/U
$\varnothing \leq 160$ mm, $e_n \leq 5,0$ mm	SWT-105	LI (sw 30 / 500 mm)	7,5 / 100	EI 90 - U/C
Composite pipes				
<i>Mounted in high-density rigid floor of 150 mm</i>				
$\varnothing \leq 50$ mm, $e_n \leq 4,6$ mm	SWT-105	CS (cr 13 mm / -)	13 cr + 7 / 10	EI 120 - U/C
$\varnothing \leq 63$ mm, $e_n \leq 6,0$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 10 / 30	EI 120 - U/C
$\varnothing \leq 90$ mm, $e_n \leq 8,5$ mm	SWT-105	CS (sw 30 mm / -)	30 sw + 13 / 100	EI 120 - U/C
PEX-pipes				
PEX bundle $\varnothing \leq 102$ mm - singular PEX $\varnothing \leq 22/34$ mm, $e_n \leq 3,0$ mm	SWT-105	not required	- / 30	EI 90 - U/C
Cables				
<i>Mounted in high-density rigid floor of 200 mm</i>				
Cable conduit $\varnothing \leq 90$ mm - cable bundle $\varnothing \leq 63$ mm - single cable $\varnothing \leq 21$ mm	SWT-105	not required	12 / 30 in line	EI 90
<i>Mounted in high-density rigid floor of 150 mm</i>				
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 25$ mm	SWT-105	not required	12,5 / 10	EI 60
Blank penetration				
<i>Mounted in high-density rigid floor of 200 mm</i>				
Hole $\varnothing \leq 90$ mm	SWT-105	not required	- / 30 in line	EI 120 - C/C

ANNEX 1

Massive Wood (CLT or LVL) Wall

3a - Sewatek SWT-100 Fire Acrylic

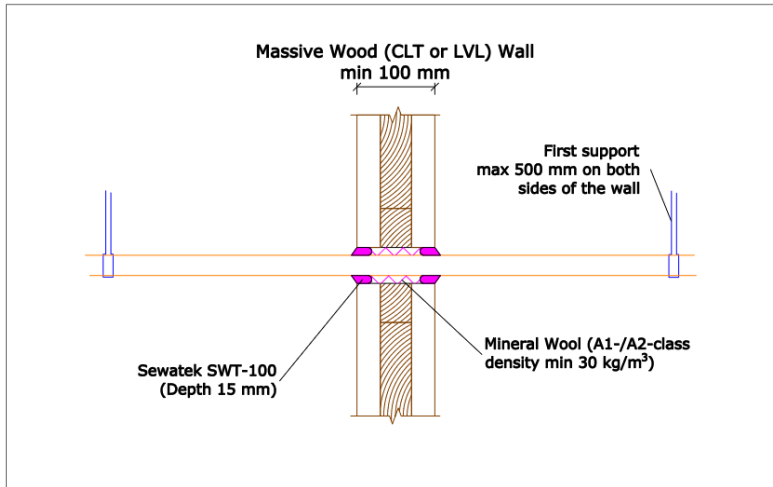


Table 3a. Penetrations with Sewatek SWT-100 Fire Acrylic mounted in **100 mm thick massive wood (CLT or LVL) wall**

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm (" / -" in the table)
sw insulation thickness - 20 mm (Pipes < 54 mm) - 30 mm (Pipes >= 54 mm)	

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
<i>Mounted into massive wood (CLT/LVL) wall of 100 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Zinc-coated steel pipes				
<i>Mounted into massive wood (CLT/LVL) wall of 100 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Steel pipes				
<i>Mounted into massive wood (CLT/LVL) wall of 100 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 3,3$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Cast iron sewer pipes				
<i>Mounted into massive wood (CLT/LVL) wall of 100 mm</i>				
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Composite pipes				
<i>Mounted into massive wood (CLT/LVL) wall of 100 mm</i>				
$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	SWT-100	LS (sw 20 / 350 mm)	20 sw + 6 / 30	EI 120 - U/C

ANNEX 1

Type of the pipe <small>e_n = pipe wall thickness</small>	Penetration seal	Insulation (thickness / length)	a ₁ / a ₂ [mm]	Fire resistance class
Cables				
<i>Mounted into massive wood (CLT/LVL) wall of 100 mm</i>				
Cable Ø ≤ 22 mm	SWT-100	not required	- / -	EI 60 U/C
Cable bundle Ø ≤ 100 mm - singular cable Ø ≤ 22 mm	SWT-100	not required	- / -	EI 60 - U/C

ANNEX 1

Massive Wood (CLT or LVL) Wall

3b - Sewatek SWT-105 Expanding Fire Acrylic

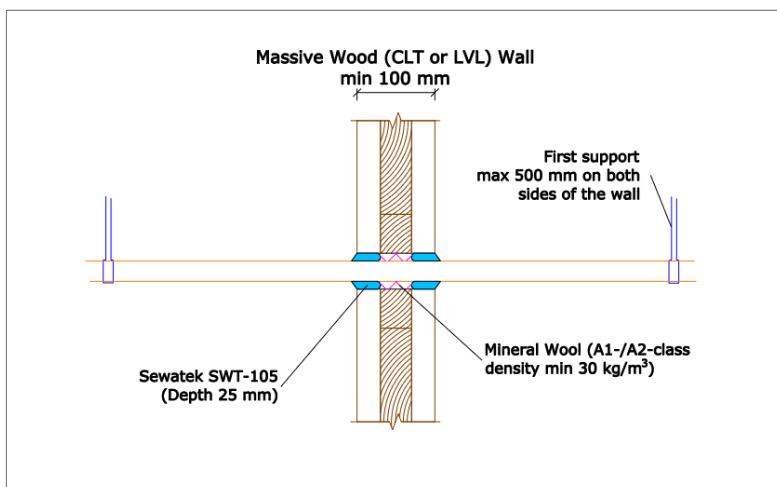


Table 3b. Penetrations with Sewatek SWT-105 Expanding Fire Acrylic mounted in **100 mm thick massive wood (CLT or LVL) wall**

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 -distance is 100 mm ("/" -" in the table)
sw insulation thickness - 20 mm (Pipes < 54 mm) - 30 mm (Pipes >= 54 mm)	

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 20 mm / -)	14 / 60	EI 90 - U/C
$\varnothing \leq 54$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 60	EI 60 - U/C
Zinc-coated steel pipes				
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 20 mm / -)	14 / 60	EI 90 - U/C
$\varnothing \leq 54$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 60	EI 60 - U/C
Steel pipes				
$\varnothing \leq 26,9$ mm (DN20), $e_n \leq 3,2$ mm	SWT-105	not required	10 / 60	EI 60 - U/C
$\varnothing \leq 60,3$ mm (DN50), $e_n \leq 4,0$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 60,3$ mm (DN50), $e_n \leq 4,0$ mm	SWT-105	CI (sw 30 mm / -)	15 / 60	EI 90 - U/C
Cast iron sewer pipes				
$\varnothing \leq 110$ mm (DN100), $e_n \leq 4,2$ mm	SWT-105	CI (sw 30 mm / -)	10 / -	EI 60 - U/C
Composite pipes				
$\varnothing \leq 32$ mm, $e_n \leq 3,0$ mm	SWT-105	not required	14 / 60	EI 45 - U/C
$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	SWT-105	LI (sw 20 / 350 mm)	15 / 60	EI 90 - U/C
$\varnothing \leq 90$ mm, $e_n \leq 8,5$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / -	EI 90 U/C

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Cables				
Cable $\varnothing \leq 25$ mm	SWT-105	not required	13 / 60	EI 60
Plastic conduit $\varnothing \leq 50$ mm - cable bundle $\varnothing \leq 47$ mm - singular cable $\varnothing \leq 17$ mm	SWT-105	not required	15 / 60	EI 60
Cable bundle $\varnothing \leq 66$ mm - singular cable $\varnothing \leq 25$ mm	SWT-105	not required	13 / 60	EI 60
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 22$ mm	SWT-105	not required	13 / 60	EI 60
PEX pipes				
PEX bundle $\varnothing \leq 45$ mm - singular PEX / cover pipe $\varnothing \leq 15$ mm, $e_n \leq 2,5$ mm	SWT-105	not required	13 / 60	EI 90 - U/C
PEX bundle $\varnothing \leq 75$ mm - singular PEX / cover pipe $\varnothing \leq 25$ mm, $e_n \leq 2,5$ mm	SWT-105	not required	8 / 60	EI 90 - U/C
PEX bundle $\varnothing \leq 100$ mm - singular PEX / cover pipe $\varnothing \leq 40/54$ mm, $e_n \leq 2,5 - 4,2$ mm	SWT-105	not required	- / -	EI 60 - U/C

ANNEX 1

Massive Wood (CLT or LVL) Floor

4a - Sewatek SWT-105 Expanding Fire Acrylic

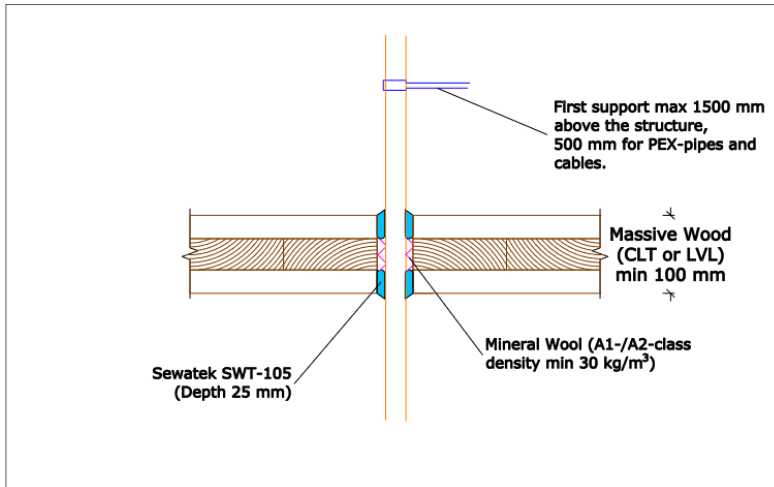


Table 4a. Penetrations with Sewatek SWT-105 Expanding Fire Acrylic mounted in 100 mm thick massive wood (CLT or LVL) floor.

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm (" / -" in the table)
sw insulation thickness - 20 mm (Pipes < 54 mm) - 30 mm (Pipes >= 54 mm)	

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	LI (sw 20 / 350 mm)	14 / 30	EI 90 - U/C
Zinc-coated steel pipes				
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	LI (sw 20 / 350 mm)	14 / 30	EI 90 - U/C
Steel pipes				
$\varnothing \leq 26,9$ mm (DN20), $e_n \leq 3,2$ mm	SWT-105	not required	12 / 30	EI 60 - U/C
$\varnothing \leq 42$ mm (DN32), $e_n \leq 3,2$ mm	SWT-105	LI (sw 20 / 350 mm)	14 / 30	EI 90 - U/C
$\varnothing \leq 60,3$ mm (DN50), $e_n \leq 4,0$ mm	SWT-105	CI (sw 30 mm / -)	16 / 30	EI 90 - U/C
Composite pipes				
$\varnothing \leq 32$ mm, $e_n \leq 3,0$ mm	SWT-105	not required	15 / 30	EI 45 - U/C
$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	SWT-105	CI (sw 20 mm / -)	15 / 30	EI 90 - U/C
Cables				
Cable $\varnothing \leq 17$ mm	SWT-105	not required	15 / 30	EI 90
Cable $\varnothing \leq 25$ mm	SWT-105	not required	13 / 30	EI 60
Cable bundle $\varnothing \leq 66$ mm - singular cable $\varnothing \leq 25$ mm	SWT-105	not required	13 / 30	EI 60
Plastic conduit $\varnothing \leq 50$ mm - cable bundle $\varnothing \leq 47$ mm - singular cable $\varnothing \leq 17$ mm	SWT-105	not required	15 / 30	EI 90

ANNEX 1

Type of the pipe e _n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a ₁ / a ₂ [mm]	Fire resistance class
PEX pipes				
PEX bundle Ø ≤ 45 mm - singular PEX / cover pipe Ø ≤ 15 mm, e _n ≤ 2,5 mm	SWT-105	not required	13 / 30	EI 90 - U/C
PEX bundle Ø ≤ 84 mm - singular PEX / cover pipe Ø ≤ 28 mm, e _n ≤ 2,5 mm	SWT-105	not required	14 / 30	EI 90 - U/C

ANNEX 1

Flexible Wall

5a - Sewatek SWT-100 Fire Acrylic

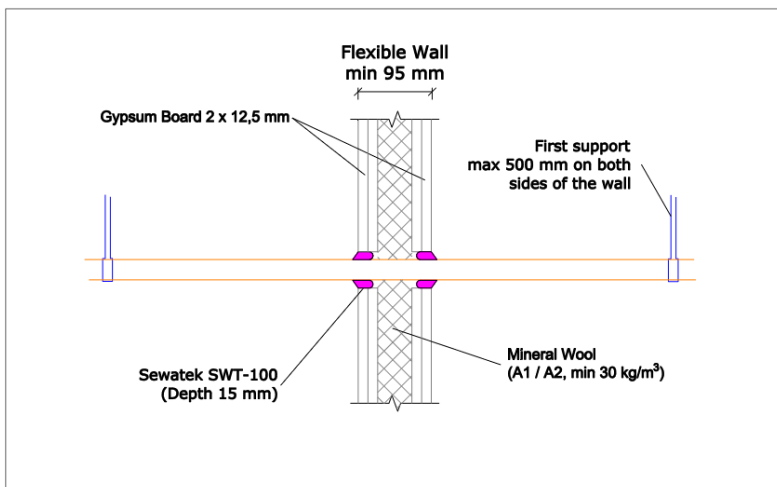


Table 5a. Penetrations with Sewatek SWT-100 Fire Acrylic mounted in 95 mm thick flexible wall

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm ("/' -" in the table)
sw insulation thickness - 20 mm (Pipes < 54 mm) - 30 mm (Pipes >= 54 mm)	

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Copper pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Zinc-coated steel pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 2,0$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Steel pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 42$ mm, $e_n \leq 3,3$ mm	SWT-100	LI (sw 20 / 350 mm)	20 / 60	EI 60 - U/C
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Cast iron sewer pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 89$ mm, $e_n \leq 4,1$ mm	SWT-100	CS (sw 30 mm / -)	30 sw + 6 / -	EI 60 - U/C
Composite pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 40$ mm, $e_n \leq 4,0$ mm	SWT-100	LS (sw 20 / 350 mm)	20 sw + 6 / 30	EI 120 - U/C

ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Cables				
<i>Mounted into flexible wall of 95 mm</i>				
Cable $\varnothing \leq 22$ mm	SWT-100	not required	- / -	EI 60
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 22$ mm	SWT-100	not required	- / -	EI 60

ANNEX 1

Flexible Wall

5b - Sewatek SWT-105 Expanding Fire Acrylic

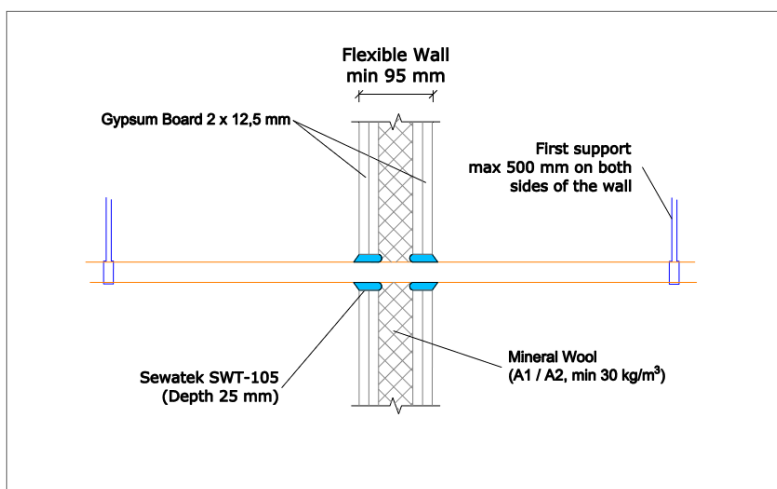


Table 5b. Penetrations with Sewatek SWT-105 Expanding Fire Acrylic mounted in 95 mm thick flexible wall

Insulation markings (See Annex 2)	Markings (See Annex 3)
LI – Local and Interrupted LS – Local and Sustained CI – Continuous and Interrupted CS – Continuous and Sustained sw – Stone wool insulation cr – Cellular rubber insulation	e_n – Pipe wall thickness a_1 – Width of the acrylic seam a_2 – Distance between drill holes When tested as a single, a_2 – distance is 100 mm

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a ₁ / a ₂ [mm]	Fire resistance class
Copper pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 10$ mm, $e_n \leq 1,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 2,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 58	EI 60 - U/C
$\varnothing \leq 54$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 60	EI 60 - U/C
Zinc-coated steel pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 12$ mm, $e_n \leq 1,0$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 42$ mm, $e_n \leq 1,5$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 60	EI 60 - U/C
$\varnothing \leq 54$ mm, $e_n \leq 2,0$ mm	SWT-105	CI (sw 30 mm / -)	10 / 60	EI 60 - U/C
Steel pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 17,2$ mm (DN10), $e_n \leq 2,3$ mm	SWT-105	LI (sw 20 / 350 mm)	10 / 32	EI 60 - U/C
$\varnothing \leq 26,9$ mm (DN20), $e_n \leq 2,0$ mm	SWT-105	not required	10 / 60	EI 60 - U/C
$\varnothing \leq 60,3$ mm (DN50), $e_n \leq 4,0$ mm	SWT-105	LI (sw 30 / 350 mm)	10 / 60	EI 60 - U/C
Cast iron sewer pipes				
<i>Mounted into flexible wall of 95 mm</i>				
$\varnothing \leq 110$ mm, $e_n \leq 4,2$ mm	SWT-105	CI (sw 30 mm / -)	10 / -	EI 60 - U/C

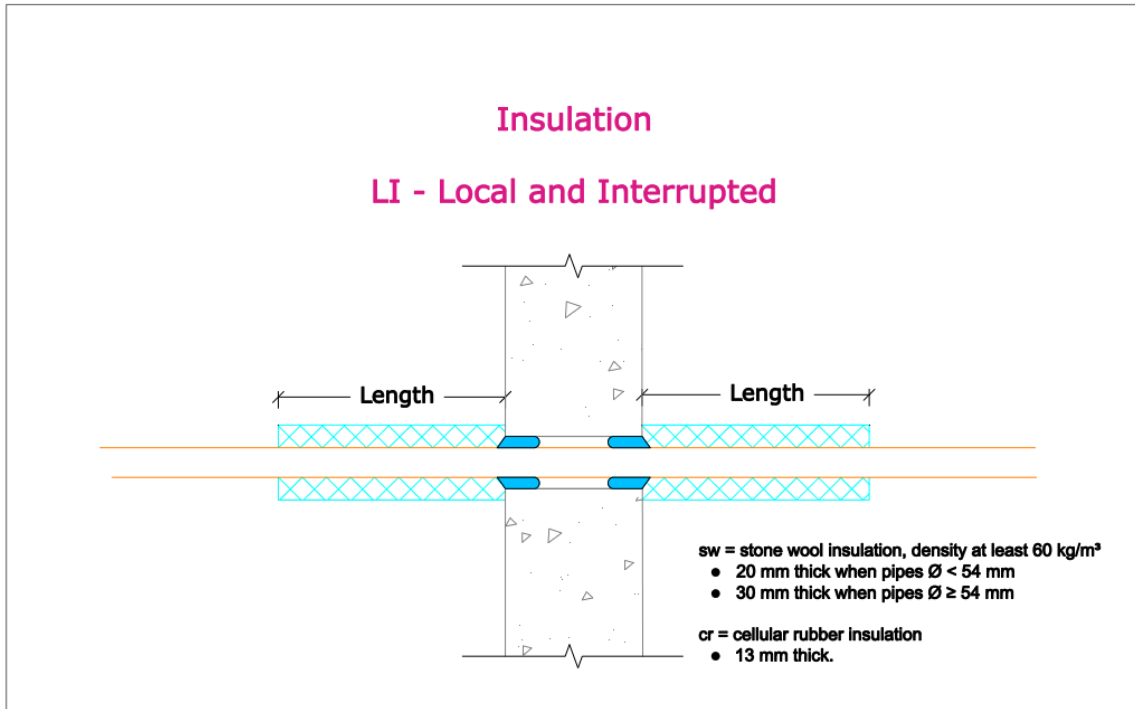
ANNEX 1

Type of the pipe e_n = pipe wall thickness	Penetration seal	Insulation (thickness / length)	a_1 / a_2 [mm]	Fire resistance class
Pex-pipes				
<i>Mounted into flexible wall of 95 mm</i>				
Pex bundle $\varnothing \leq 100$ mm - singular pipe/cover pipe $\varnothing \leq 40/54$ mm, $e_n \leq 2,5 - 4,2$ mm	SWT-105	not required	- / -	EI 60 - U/C
Cables				
<i>Mounted into flexible wall of 95 mm</i>				
Cable $\varnothing \leq 22$ mm	SWT-105	not required	10 / 60	EI 60
Cable conduit $\varnothing \leq 50,0$ mm, $e_n \leq 1,5$ mm - cable bundle $\varnothing \leq 45$ mm - singular cable $\varnothing \leq 22$ mm	SWT-105	not required	15 / -	EI 60 - U/C
Cable bundle $\varnothing \leq 100$ mm - singular cable $\varnothing \leq 22$ mm	SWT-105	not required	- / -	EI 60

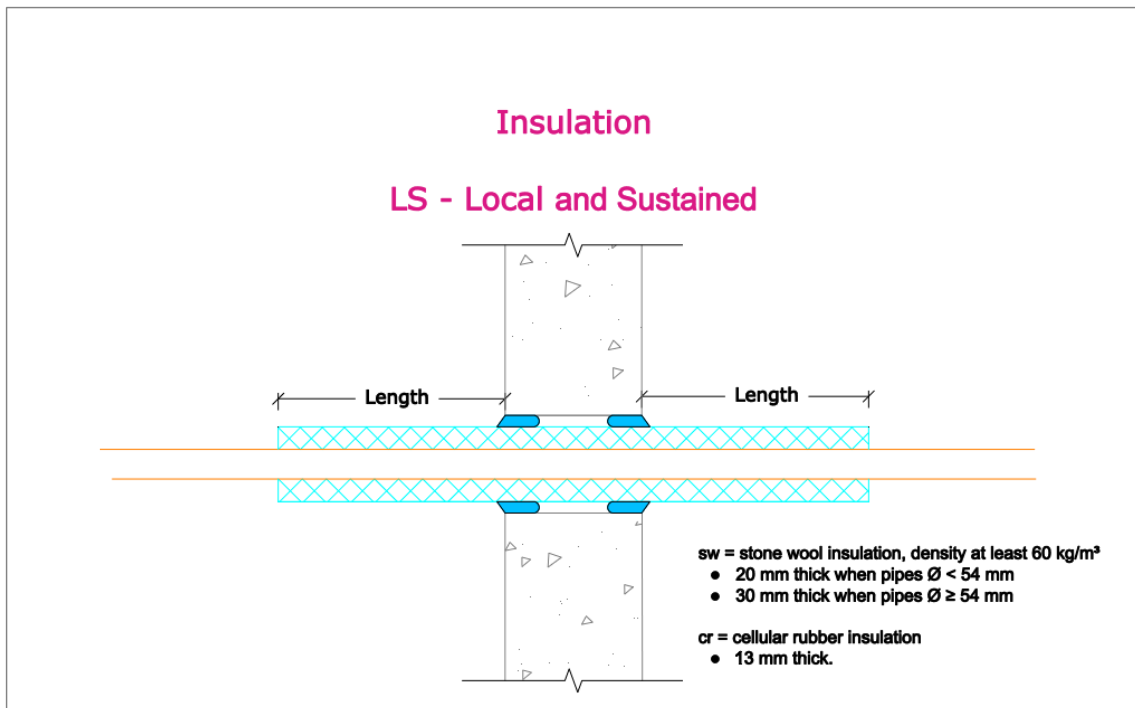
Annex 2 – Insulation

Wall structure

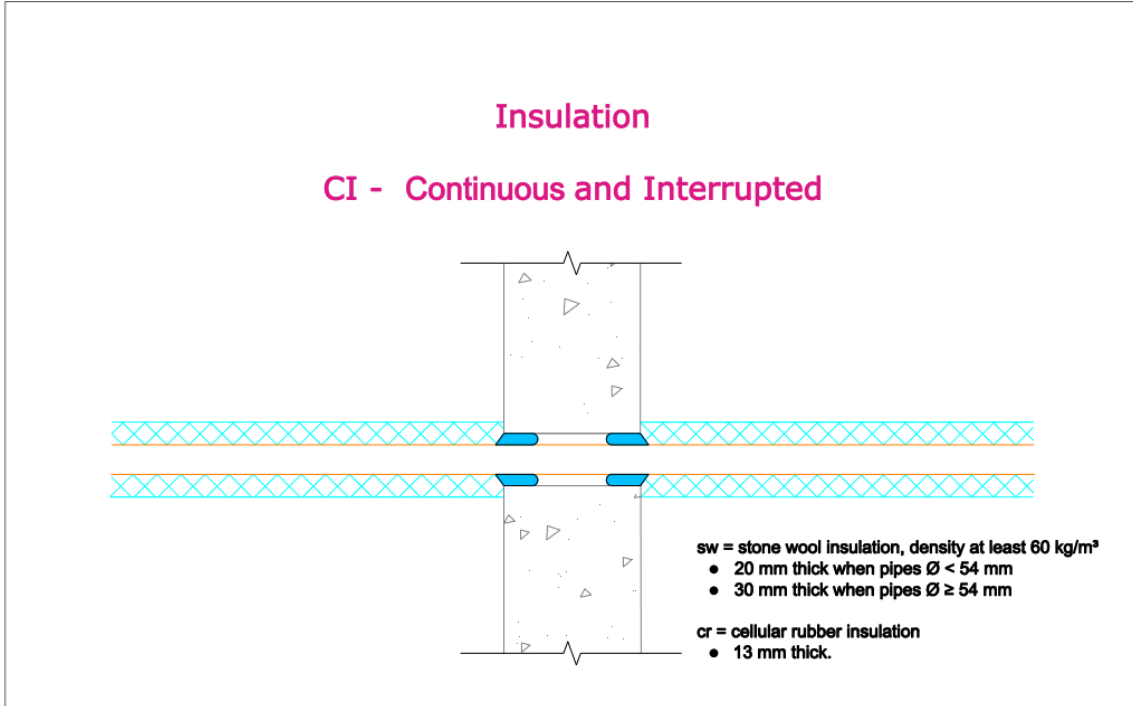
LI – Local and Interrupted



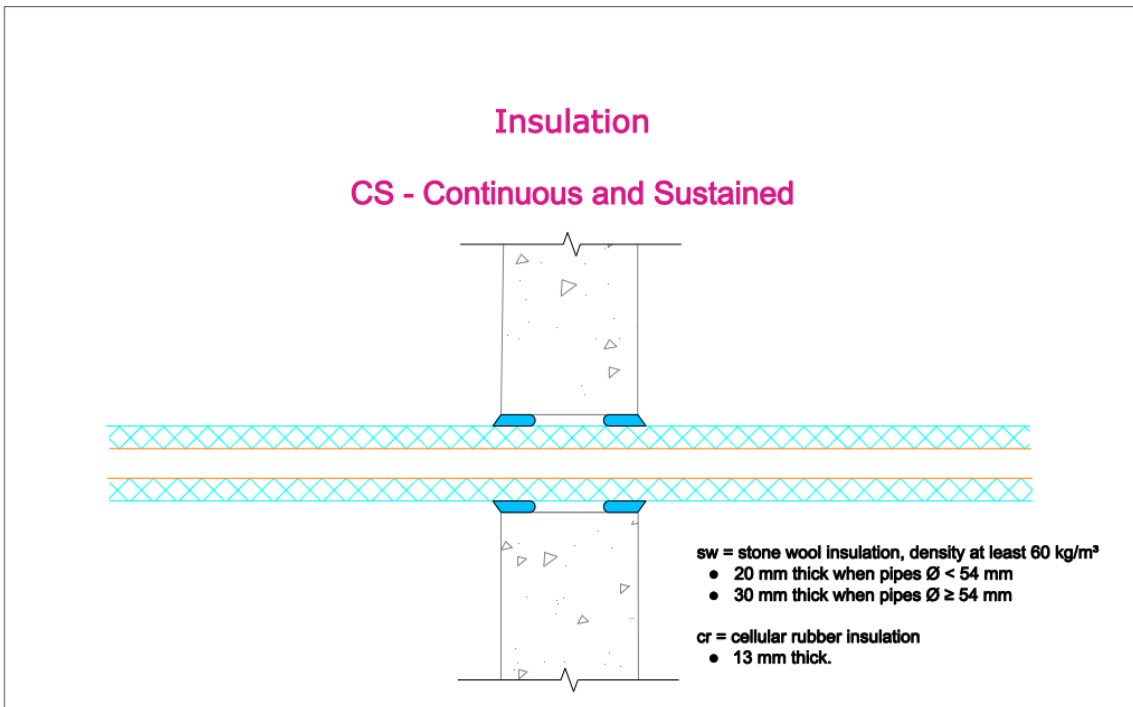
LS – Local and Sustained



CI – Continuous and Interrupted

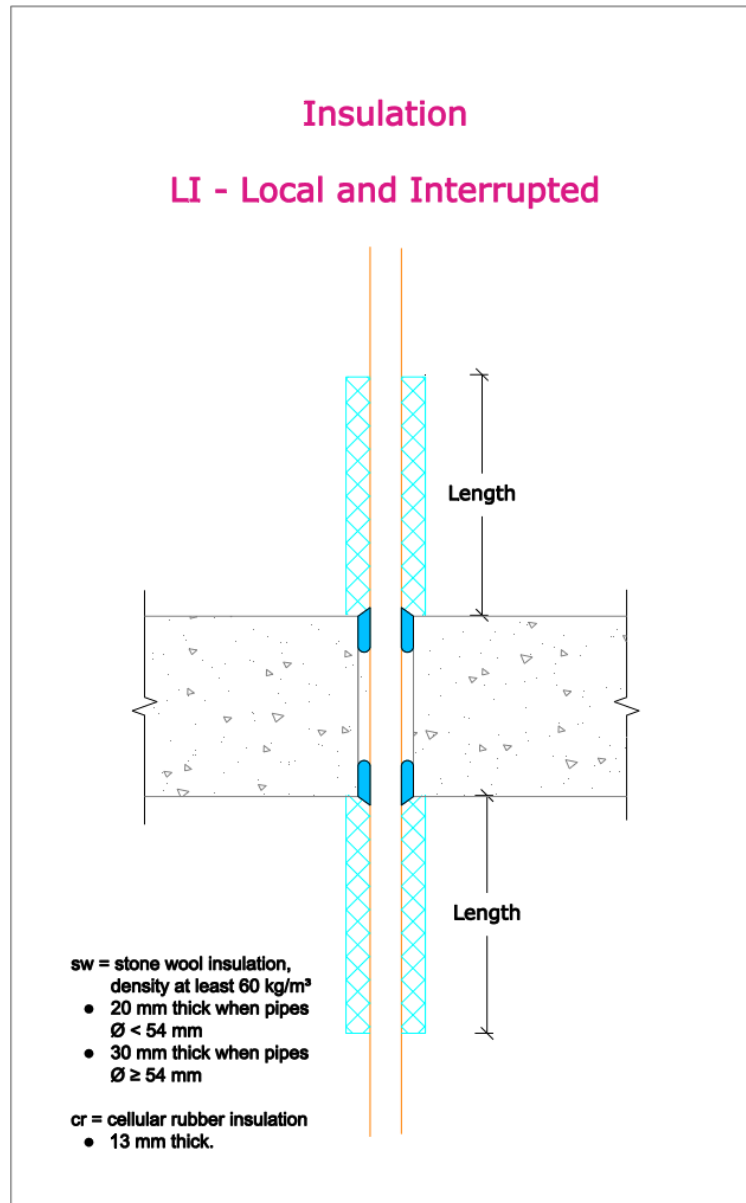


CS – Continuous and Sustained

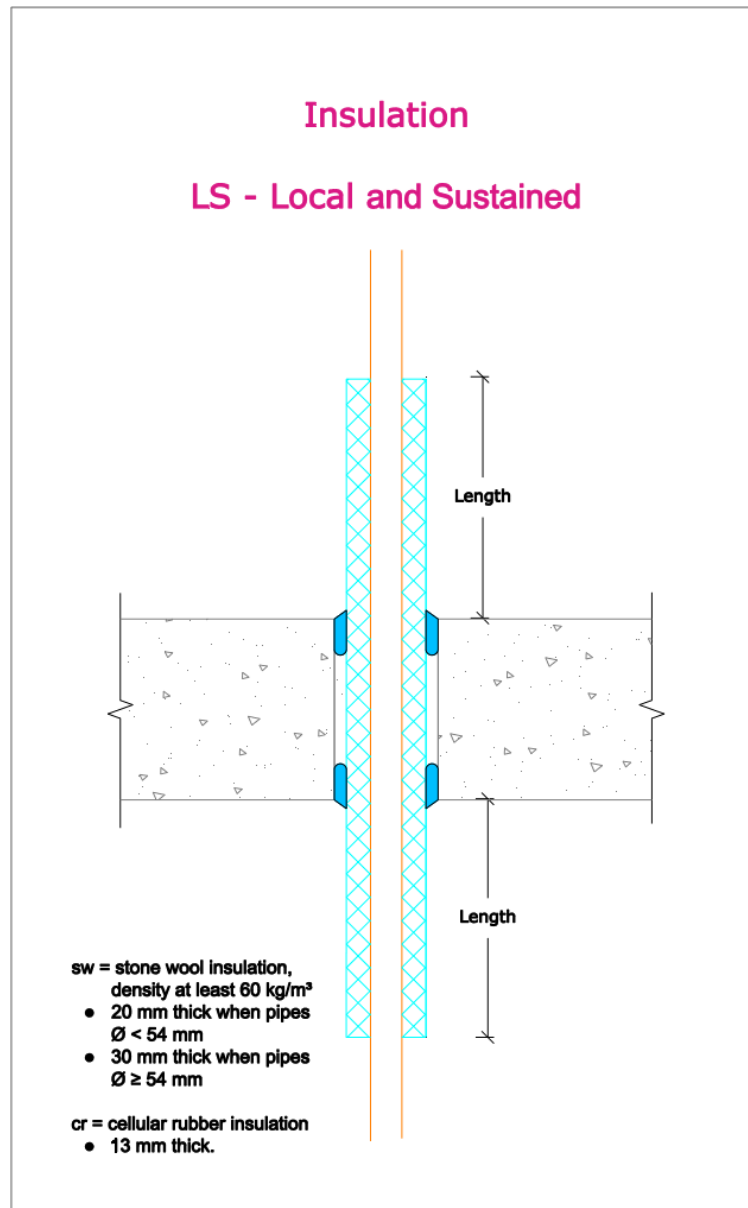


Floor structure

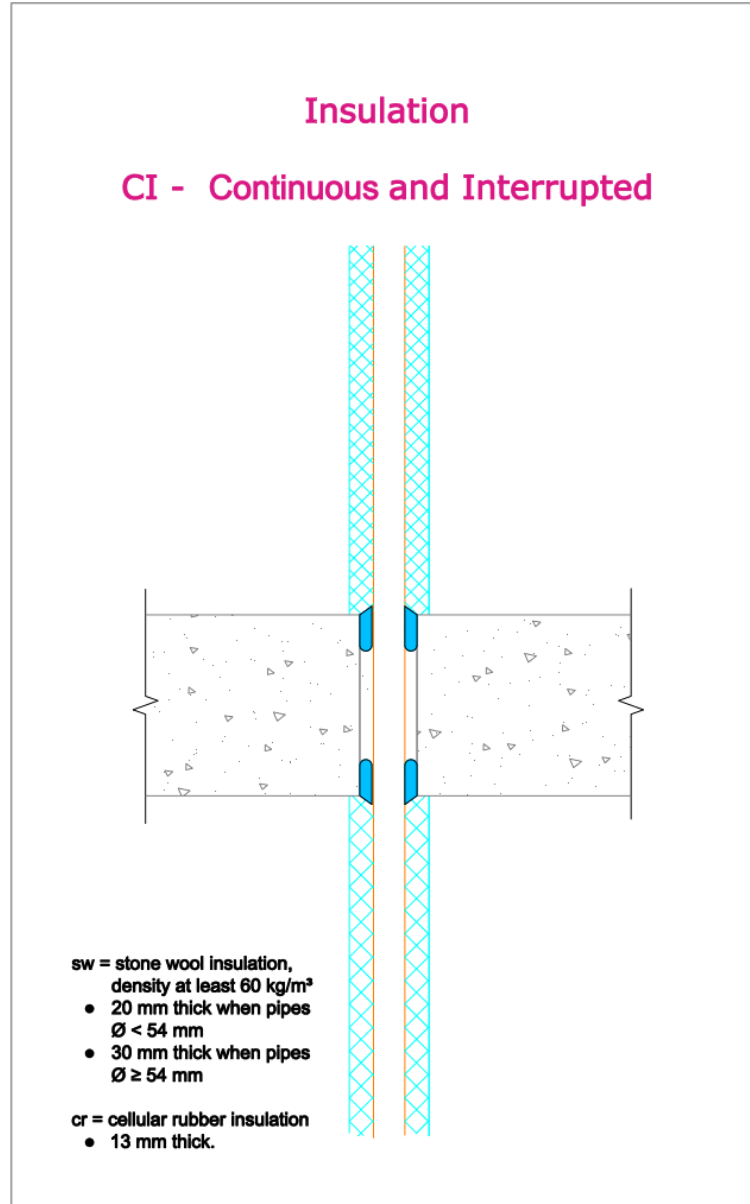
LI – Local and Interrupted



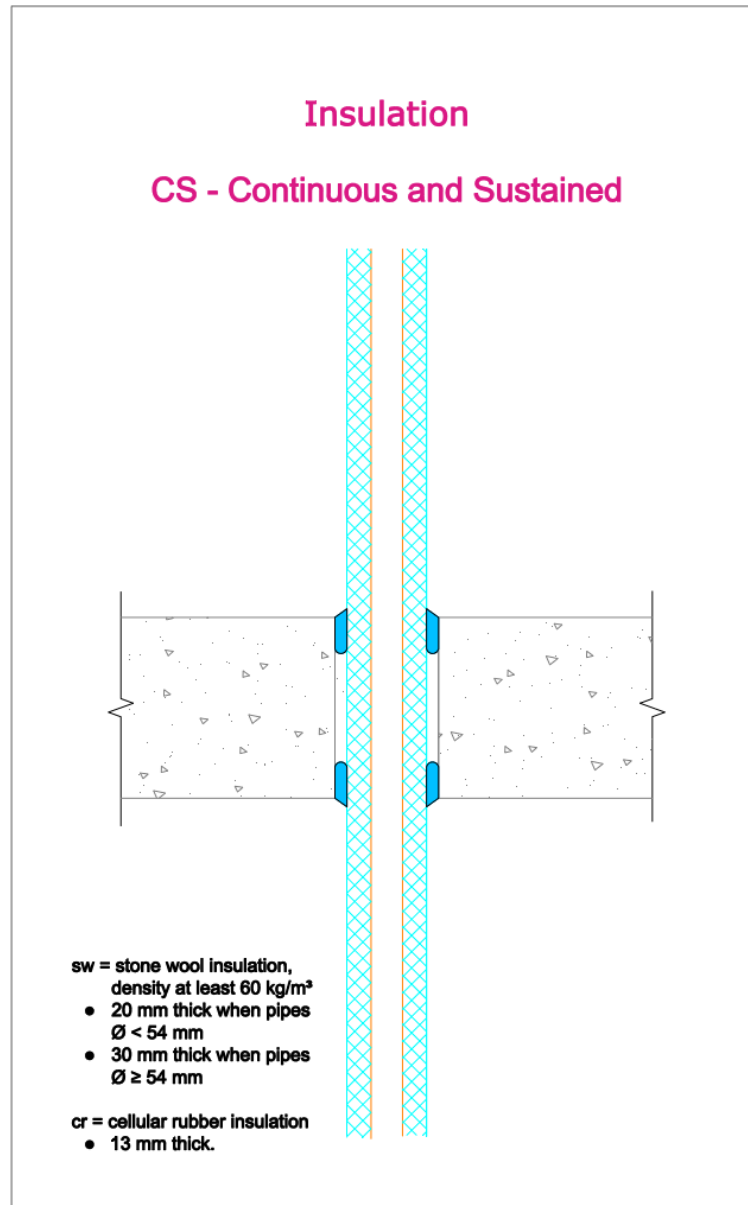
LS – Local and Sustained



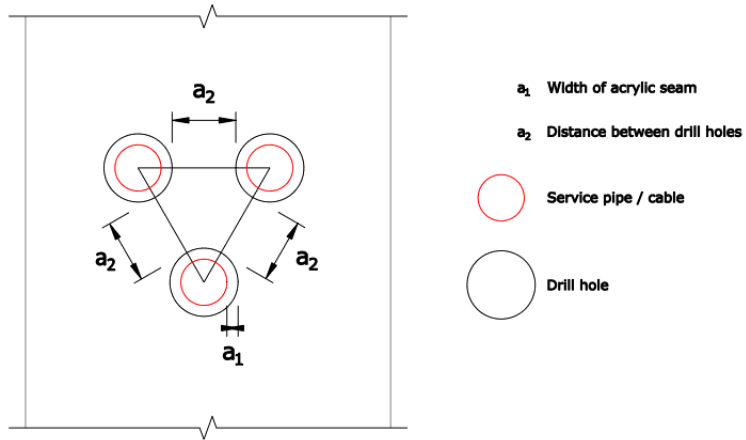
CI – Continuous and Interrupted



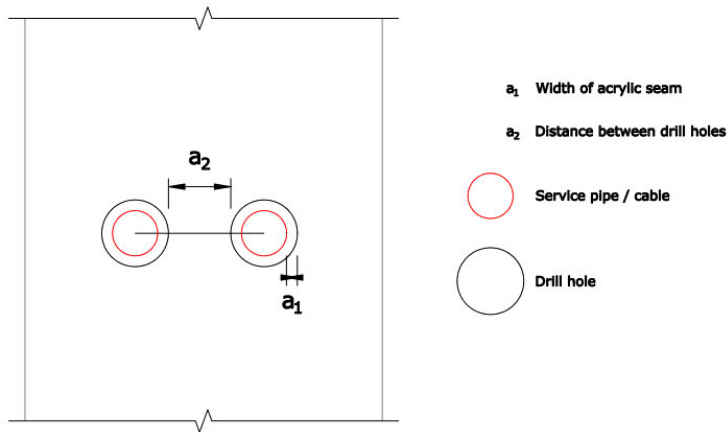
CS – Continuous and Sustained



Annex 3 – The principle of measurement
Cluster Layout



In-Line Layout



PEX pipes and Cables

When a_1 and a_2 (mm) in the table is marked as "-", e.g. (- / -).

