CLASSIFICATION OF FIRE RESISTANCE PERFORMANCE IN ACCORDANCE WITH EN 13501-2:2007+A1:2009 OF A NON-LOAD BEARING FLEXIBLE WALL CONSTRUCTION PROVIDED WITH HOLLOW WALL BOXES WITH VARIOUS WIRING ACCESSORIES

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Notified Body No:	1234
Product name:	Non-load bearing wall with Attema hollow wall boxes
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1. Introduction

This classification report defines the classification, in accordance with the procedures given in EN 13501-2:2007+A1:2009, assigned to a non-load bearing flexible wall construction, provided with Attema hollow wall boxes with various wiring accessories.

2. Details of classified product

2.1 General

A fire test was carried out on a non-load bearing flexible wall construction (partly based on EN 1363-1:2012) provided with hollow wall boxes with various wiring accessories, made of:

- Steel edge profiles, 50 mm rolled steel U-track;
- Steel vertical profiles, 50 mm rolled steel C-studs;
- Paper faced, gypsum plasterboards type F (EN 520);
- Attema hollow wall boxes with various wiring accessories, provided with flexible cables or conduits.

2.2 Wall

2.2.1 Profiles

In the test frame rolled steel U-track profiles, with a width of 50 mm and a steel thickness of 1 mm, were applied and mounted in the concrete lining with nail anchors
6 x 35 mm, c.t.c. 500 mm. Between the top and bottom edge profile, vertical rolled steel C-studs, with a width of 50 mm and a steel thickness of 1 mm, were applied
c.t.c. 600 mm.

2.2.2 Paper faced gypsum plasterboard type F

At the fire and non-fire side, two layers of 12.5 mm paper faced gypsum plaster board type F (according to EN 520) were applied on the steel profiles. The panels were mounted on the steel profiles with screws 3.9 x 25 mm c.t.c. 300 mm and 3.9 x 40 mm for the second (outside) layer, c.t.c distance 300 mm. The total thickness of the wall was partly 100 mm and partly 110 mm to make it possible to place the boxes fully back to back in the wall.

The joints between the panels were filled with gypsum plaster jointing compound. The wall was not fixed at the left vertical side, the so called free edge, to make deflection possible.

2.2.3 Stone wool insulation

Some areas between the profiles were insulated with stone wool with a density of
35 kg/m^3 as seen in figure 2 and 3.

2.2.4 Hollow wall boxes

In the flexible wall construction ‘single’ and ‘double’ hollow wall boxes are placed. The fire resistant hollow wall boxes were supplied with an intumescent pad with a thickness of 3 mm. The boxes were tested empty, with an electro socket or a switch. The boxes were provided with flexible cables or conduits and placed back-to-back in the wall.

Characteristics ‘single’ hollow wall boxes

- Plastic hollow wall boxes with an external depth of max. 54 mm, an external diameter of max. 76 mm and a wall thickness of min. 2.1 mm;
- Linkable on a pitch of 71 mm;
- With or without spouts;
- Supplied with an intumescent pad, thickness 3 mm;
- Examples of types are: UHW50, UHW50K, HWD50L.

Characteristics ‘double’ hollow wall boxes

- Hollow wall boxes with dimensions according to two single hollow wall boxes, except the middle part (between two boxes), which is wider for the purpose of the mounting of multiple switch material combined in one socket.
- Linkable on a pitch of 142 mm (2x 71 mm);
- Linkable with single hollow wall boxes
- With or without spouts;
- Supplied with an intumescent pad, thickness 3 mm;
- Examples of types are: DUO-UHW50 and ISP-DUO-UHW50.

2.3 Method of assembly

- Attaching the steel edge profiles to the concrete lining of the test frame with nail anchors;
- Attaching the vertical steel profiles to the edge profiles with screws;
- Placing the gypsum boards at the fire side;
- Filling up the joints with gypsum plaster jointing compound;
- Placing of the hollow wall boxes at the fire side;
- Partly insulating the wall with stone wool;
- Placing the gypsum boards at the non-fire side;
- Placing the hollow wall boxes at the non-fire side;
- Filling the joints with gypsum plaster jointing compound.

2.4 Test frame

The test frame was constructed of steel beams with a fire resistant concrete lining, with internal dimensions of 4000 x 3000 mm (w x h). The depth of the test frame was 250 mm.

3. Test report & test result in support of classification

3.1 Test report

Name of Laboratory	Name of sponsor	Test report No.	Test method
Efectis Nederland BV Centre for Fire Safety	Attema B.V.	2012-Efectis-R9324a [Rev.1]	EN 1364-1:1999

3.2 Test results

3.2.1 Summary of test results

Table 1: Single hollow wall boxes, one to five in a row in an insulated wall up to a height of 2500 mm

Integrity, (**E**)	
- Cotton pad	
- 1 box	98 minutes
- 2 boxes in a row	92 minutes
- 3 boxes in a row	98 minutes
- 5 boxes in a row	98 minutes
- Gap gauge ∅ 25 mm	
- 1 box	98 minutes
- 2 boxes in a row	92 minutes
- 3 boxes in a row	98 minutes
- 5 boxes in a row	98 minutes
- Flames longer than 10 sec.	
- 1 box	98 minutes
- 2 boxes in a row	92 minutes
- 3 boxes in a row	98 minutes
- 5 boxes in a row	98 minutes
Thermal insulation, (**I**)	
- Maximum temperature rise	
- 1 box	97 minutes
- 2 boxes in a row	92 minutes
- 3 boxes in a row	98 minutes
- 5 boxes in a row	98 minutes

Table 2: Single hollow wall boxes, one to four in a row in a none insulated wall, up to a height of 1150 mm

Integrity, (**E**)	
- Cotton pad	
- 1 box	81 minutes
- 3 boxes in a row	98 minutes
- 4 boxes in a row	85 minutes
- Gap gauge ∅ 25 mm	
- 1 box	81 minutes
- 3 boxes in a row	98 minutes
- 4 boxes in a row	85 minutes
- Flames longer than 10 sec.	
- 1 box	81 minutes
- 3 boxes in a row	77 minutes
- 4 boxes in a row	85 minutes
Thermal insulation, (**I**)	
- Maximum temperature rise	
- 1 box	81 minutes
- 3 boxes in a row	77 minutes
- 4 boxes in a row	85 minutes

Table 3: Double hollow wall boxes, in an insulated wall, up to a height of 2500 mm

Integrity, (**E**)	
- Cotton pad	
- 2 boxes in a row	89 minutes
- Gap gauge ∅ 25 mm	
- 2 boxes in a row	78 minutes
- Flames longer than 10 sec.	
- 2 boxes in a row	78 minutes
Thermal insulation, (**I**)	
- Maximum temperature rise	
- 2 boxes in a row	78 minutes

4. Classification and field of application

4.1 Reference of classification

This classification has been carried out in accordance with clause 7.3.3 of EN 13501-2:2007+A1:2009.

4.2 Classification

The fire resistance of an **insulated** non-load bearing flexible wall construction, provided with single, one to five in a row, Attema hollow wall boxes.

Fire resistance classification:

EI 90

EW 90

The fire resistance of a **none insulated** non-load bearing standard flexible wall construction, provided with single, one to four in a row, Attema hollow wall boxes.

Fire resistance classification:

EI 60

EW 60

The fire resistance of an **insulated** non-load bearing standard flexible wall construction, provided with double, one to two in a row, Attema hollow wall boxes.

Fire resistance classification:

EI 60

EW 60

4.3 Field of application

The results of the fire test are directly applicable to similar constructions, where one or more of the changes listed below are made and the construction continues to comply with the appropriate design code for its stiffness and stability.

4.3.1 General

- Decrease in height;
- Increase in the thickness of the wall;
- Increase in the thickness of component materials;
- Decrease in linear dimensions of boards or panels but not the thickness;
- Decrease in stud spacing;
- Decrease in distance of fixing centres;
- Horizontal and vertical joints, of the type tested;
- Single hollow wall boxes may be applied in an insulated wall up to a height of 2.5 m and in a linked row of max. one to five boxes, vertical or horizontal oriented for a fire resistance of 90 minutes;
- Single hollow wall boxes may be applied in a none insulated wall up to a height of 1.15 m and in a linked row of max. one to four boxes, vertical or horizontal oriented for a fire resistance of 60 minutes;
- Double hollow wall boxes may be applied in an insulated wall up to a height of 2.5 m and in a linked row of max. two boxes + one single box, vertical or horizontal oriented for a fire resistance of 60 minutes;
- The hollow wall boxes may be applied back-to-back in the wall;
- Using electric cables or conduits both up –and downwards in the flexible wall.

4.3.2 Extension in width

- The width of the wall may be increased and decreased.

4.3.3 Extension in height

- The height of the wall may be decreased for a fire resistance of 90 minutes and increased to 4 meters for a maximum fire resistance of 30 minutes.

4.3.4 Supporting construction

- Based on EN 1363-1:2012 the results of the test are applicable to any other non-loadbearing supporting construction within the same type (flexible), for instance wooden instead of metall studs, that has an equal or greater fire resistance (thicker, denser, more layers of boards, as appropriate).

5. Limitations

This classification document does not represent type approval or certification of the product.

SIGNED

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Project leader fire resistance

APPROVED

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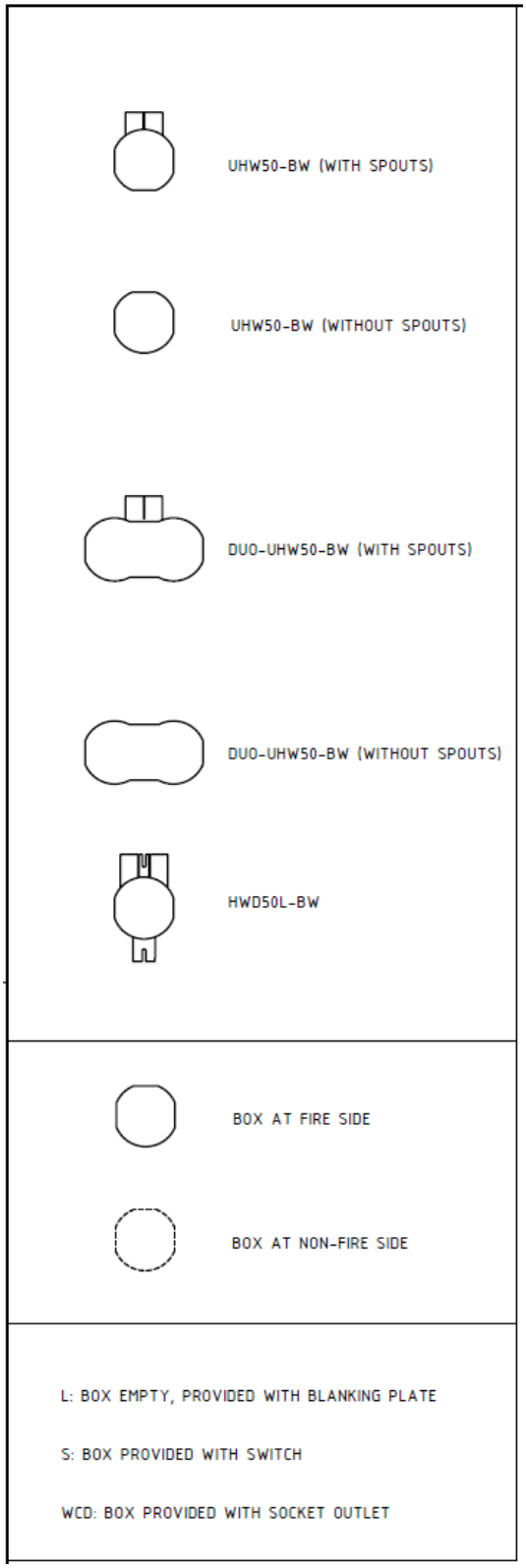

Figure 1: Legend of the hollow wall boxes applied in the wall

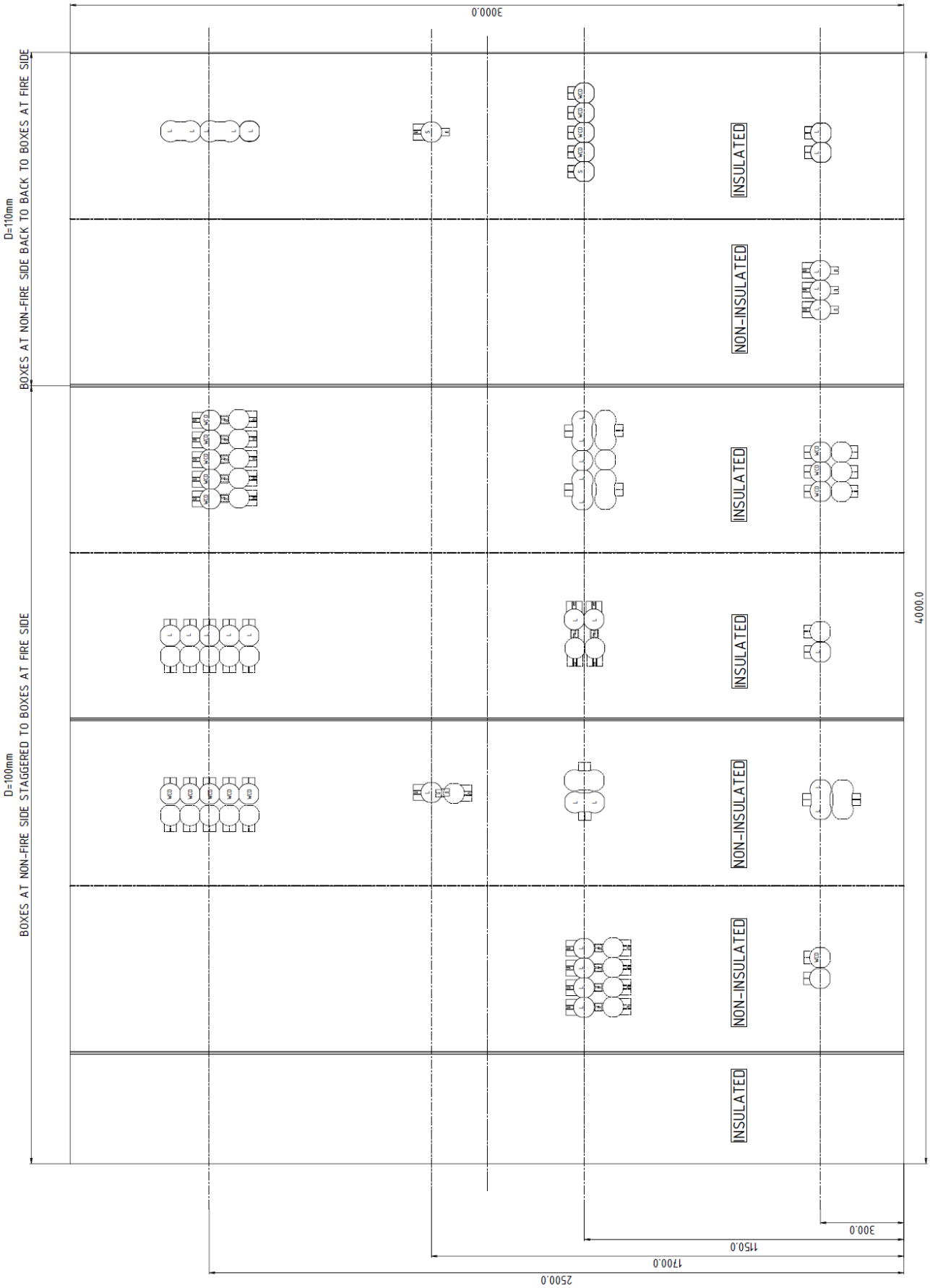

Figure 2: Exposed side of the wall provided with hollow wall sockets with various wiring accessories

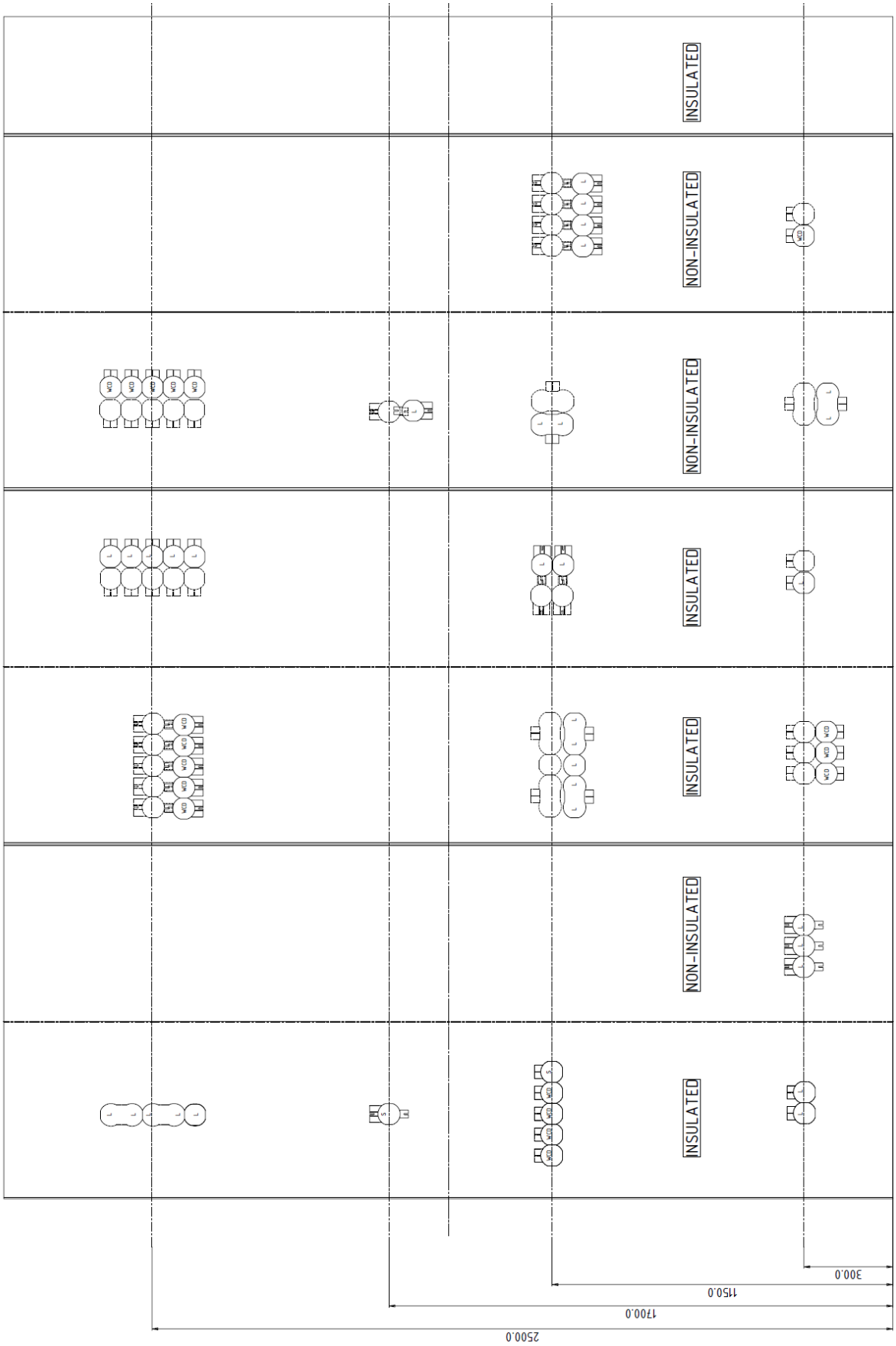

Figure 3: Non exposed side of the wall provided with hollow wall sockets with various wiring accessories