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ECOPANEL FL

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INTRODUCTION

A specialized area of construction buildings covered with thermal insulated panels is that of the production, storage, preservation and freezing rooms for food and other sensitive products.

Nowadays, the need for transportation and distribution of these products over long distances is getting greater.

Fof this reason, the European directive for the hygiene and security of food, which Greece has instituted as well, determines the specifications that must be met for the production, storage, preservation and freezing areas of food and other sensitive products.

In response to the specific demands of these constructions, Corus- Kalpinis- Simos S.A. has introduced the range of thermal insulated partitions "ECOPANEL FL".

MEMBER OF

IARW International Association of Refrigerated Warehouses

World Food Logistics Organization WFLO The Refrigeration Research & Education Foundation

CERTIFICATIONS

SYSTEM CERTIFICATION TÜV HELLAS Member of RWTÜV Group

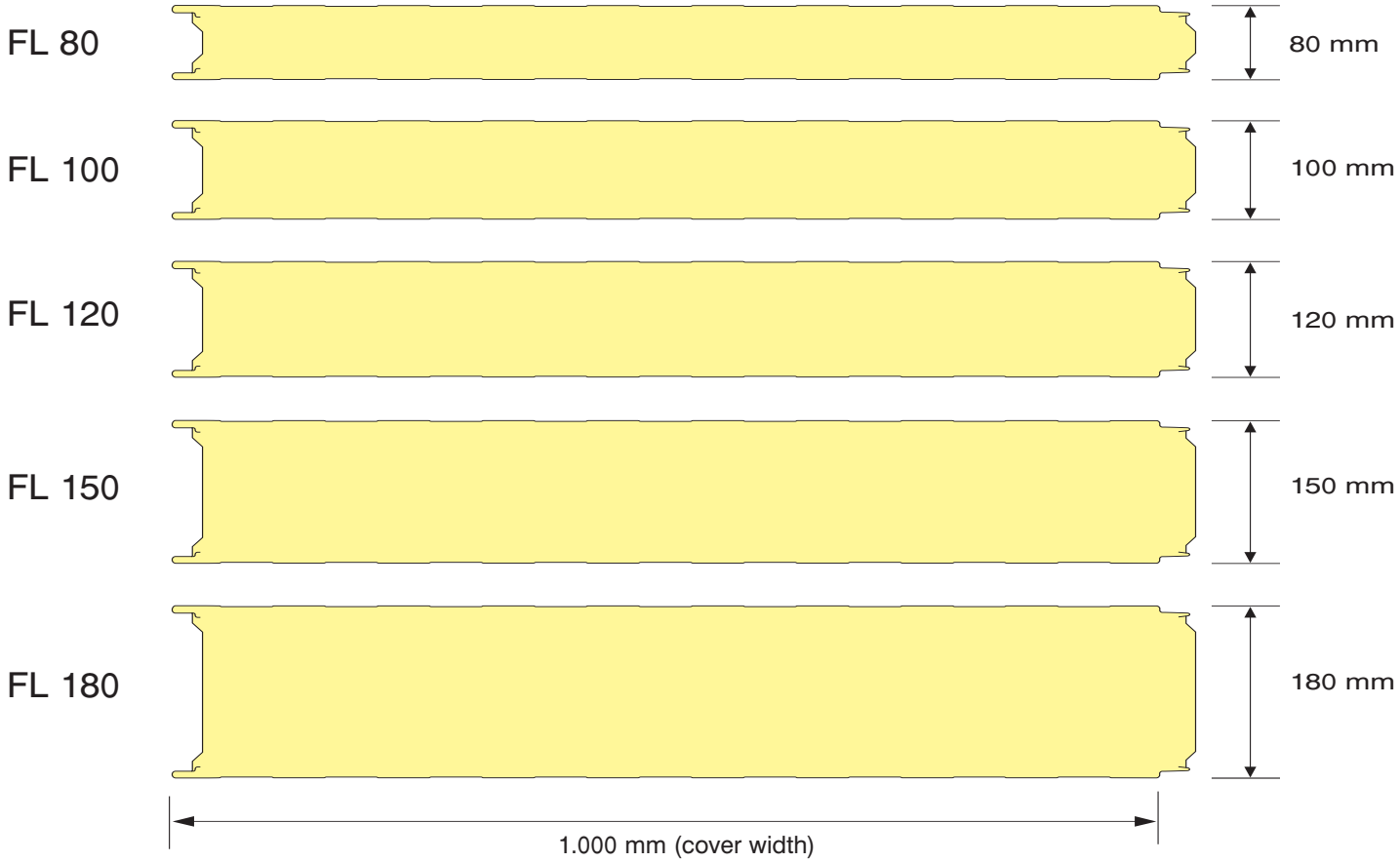
ISO 9001: 2000

DNV INTERNATIONAL SAFETY RATING SYSTEM

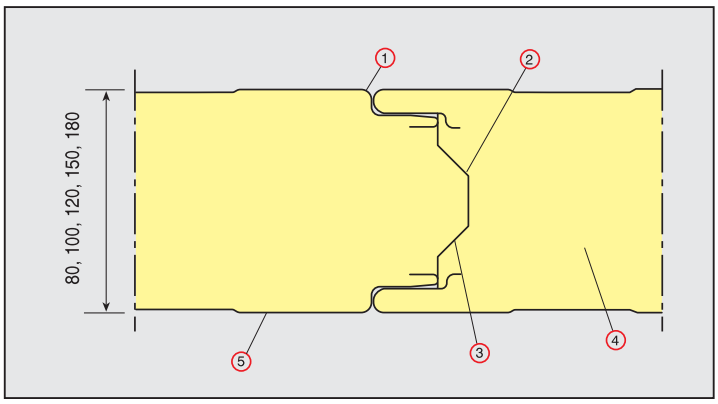
DESCRIPTION

ECOPANEL FL are designed to meet the special needs and growing demands of the areas for which they are destined.
Particular attention has been given to the design of their joints as well as the characteristics of their components such as the polyurethane insulation core and the steel sheet quality.
They completely satisfy the current European specifications that refer to the hygiene and protection of food in the areas of its production, storage and preservation.

ECOPANEL FL

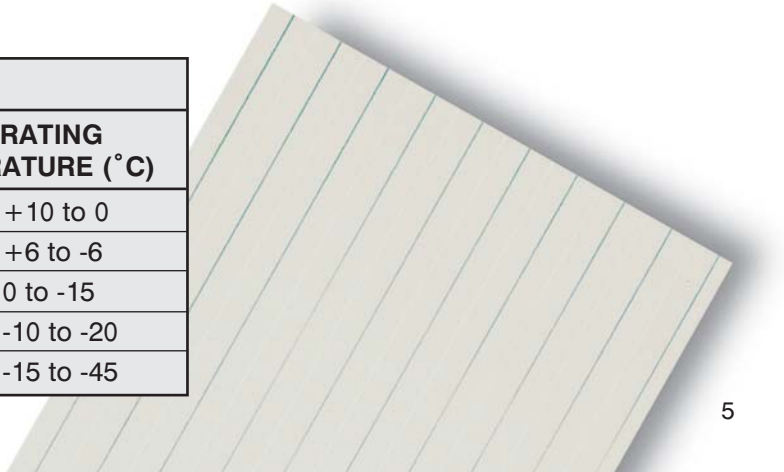


SPECIAL FEATURES



1. No gap exterior joints suitable for areas of high hygienic demand which meet the “HACCP” specifications.
2. Special shaping internal joints that insure maximum thermal insulation and jointing sealability.
3. Removable paper strips on both sides for the better possible form core contact and thermal loss avoidance.
4. Polyurethane foam core of high thermal performance (λ=0,021 W / m.K)
   CFC Free and HCFC Free
5. Possibility of panel production with smooth lining on both sides.

PANEL THICKNESS SELECTION		
USE	**TYPE-THICKNESS (mm)**	**OPERATING TEMPERATURE (˚C)**
CHILL ROOMS	FL 80	From +10 to 0
CHILL ROOMS	FL 100	From +6 to -6
CHILL ROOMS	FL 120	From 0 to -15
FREEZER ROOMS	FL 150	From -10 to -20
DEEP FREEZER ROOMS	FL 180	From -15 to -45



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PRODUCT TECHNICAL CHARACTERISTICS

TYPE OF PANEL	SHEET THICKNESS (mm)		CORE THICKNESS (mm)	WEIGHT (kg/m²)	HEAT TRANSMISSION COEFFICIENT K (W/m²k)	HEAT TRANSMISSION RESISTANCE 1/Λ (m²k/W)	MAX LENGTH (m)
	OUTER	INNER					
FL 80	0,5 0,6	0,5 0,6	80	11,48 13,17	0,26	3,76	15,0
FL 100	0,5 0,6	0,5 0,6	100	12,24 13,93	0,21	4,71	
FL120	0,5 0,6	0,5 0,6	120	13,00 14,69	0,18	5,66	
FL 150	0,5 0,6	0,5 0,6	150	14,14 15,83	0,14	7,09	
FL 180	0,5 0,6	0,5 0,6	180	15,28 16,97	0,11	8,52	

Thermal conductivity factor: λ=0,021W/m.K (κατά DIN 52612)

TECHNICAL SPECIFICATIONS

METAL SHEETS

- **TYPES:** GALVANIZED STEEL, STAINLESS STEEL,
- **STANDARD TYPE:** STEEL S 280 GD / S 320 GD (DIN EN 10147)
- **PROTECTION SUBSTRATE:** GALVATITE® HOT DEEP GALVANIZED Z 275 (275 gr/m2) EN 10147
- **COATINGS:** - CES 120 Antistatic Food Safe
  - CES 25 Food Safe,
  - Plastisol,
  - PVDF (PVF_2)
  - Polyester 25 μm

POLYURETHANE INSULATION CORE

- **PHYSICAL PROPERTIES:** Has no smell, chemically neutral, mould free, non deleterious
- **SWELLING OF CORE:** Through blowing agents (Pentane) safe for the environment and the ozone layer (CFC Free & HCFC Free)
- **TENSILE MODULE:** 4.60 N/mm2 (for thickness of 60 mm)
- **COMPRESSION MODULE:** 4.50 N/mm2 (for thickness of 60 mm)

ECOPANEL SPECIFICATIONS

- **FOAM DENSITY:** 40 42 kg/m2
- **FIRE CLASS:** B1 or B2 (DIN 4102 Part 1)
- **CLOSED CELLS:** > 95%
- **SOUND REDUCTION FIGURE:** Rw=25 dB
- **TOLERANCES:** Cut to length: ±4~ 8 mm (depending on panel's length)
  Cover width: ±2 mm
  Thickness: ±2 mm
  End square: ±3 mm

COATINGS SELECTION TABLE

APPLICATION USE	INOX	CES 120 (Antistatic)	CES 25	PVDF (PVF^2)	PLASTISOL	POLYESTER
PACKAGED PRODUCTS	• • • •	• • • •	• • • •	• • • •	• • •	• • •
UNPACKAGED PRODUCTS						
FRUITS	• • • •	• • • •	• • •	• •	• •	•
CHEESES	• • • •	• • • •	• •	•	x	x
MEETS – POULTRIES	• • • •	• • • •	• • •	• •	x	x
FISHES – SEA FOODS	• • • •	• • • •	• •	• •	x	x
VEGETABLES	• • • •	• • • •	• • •	• • •	• •	•
PASTRY – BREAD	• • • •	• • • •	• • •	• •	•	x
MUSHROOMS	• • • •	• • • •	•	x	x	x
FOOD PROCESSING						
FRUITS	• • • •	• • • •	• •	• •	• •	x
CHEESES	• • • •	• • • •	•	•	•	x
MEETS – POULTRIES	• • • •	• • • •	•	•	•	x
FISHES – SEA FOODS	• • • •	• • • •	•	•	•	x
PASTRY – BREAD	• • • •	• • • •	•	•	•	x
CONTROLLED ENVIRONMENT AREAS						
MICROBIOLOGICAL	• • • •	• • • •	• •	x	x	x
PHARMACEUTICAL	• • • •	• • • •	• •	x	x	x
SURGICAL	• • • •	• • • •	• •	x	x	x

x = UNSUITABLE, • = ADEQUATE, •• = GOOD, ••• = VERY GOOD, •••• = EXCELLENT

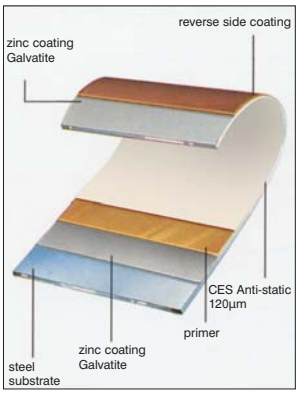
TYPICAL PROPERTIES OF ORGANIC COATINGS

COATING	PROPERTIES						
	NOMINAL COATING THICKNESS	MAX OPERATING TEMPERATURE	PENCIL HARDNESS	SCRATCH RESISTANCE (g)	ABRASION RESISTANCE TABER (mg)	SPECULAR GLOSS 60° (%)	SALT SPRAY (h)
CES 120(Antistatic)	120	50	N/A	> 3.500	12-15	12	450
CES 25	25	120	H	> 3.000	35	25	250
PVDF (PVF^2)	25 - 27	120	F-H	> 3.000	16	10 - 35	1.000
Plastitol	120	60	N/A	2.600	35	30-60	1.000
Polyester 25 μm	25	120	H - 2H	2.800	20	30-50	750

NOTES:
1. All figures are typical properties and do not constitute a specification
2. This figures relate to the top coat
3. N/A = Indicates that the test is not applicable

TEST	SPECIFICATION
NOMINAL COATING THICKNESS	ECCA T1, BS 3900/C5
PENCIL HARDNESS	ECCA T4, ASTM D3363
SCRATCH RESISTANCE	BS 3900/E2
ABRASION RESISTANCE (TABER)	ASTM D 4060
SPECULAR GLOSS (60˚)	ECCA T2, ASTM D523
CORROSION RESISTANCE: SALT SPRAY	ECCA TB, ASTM B117-73

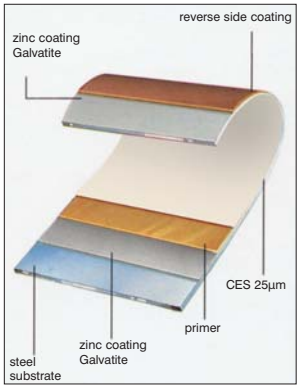
QUALITIES OF EXTERNAL COATINGS OF STEEL SHEETS



CES 120 Anti-static

(available with Assure® antibacterial technology incorporating Microban®)

- Anticorrosion protection substrate Galvatite®
- Fully safe for continuous and prolonged contact with non-packaged, liquid, wet and moist food products
- 120 µm polymer film topcoat which is robust to dents and general wear and tear
- Anti-static surface which helps prevent the build-up of dirt and dust
- Assure® protection transform the product into an active antibacterial surface
- For interior use; not suitable for cladding outdoors



CES 25

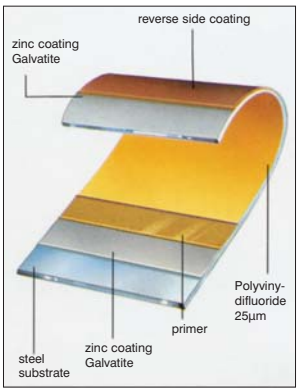
(available with Assure® antibacterial technology incorporating Microban®)

- Anticorrosion protection substrate Galvatite®
- Anti-toxic and safe for prolonged contact with aggressive liquids such as vinegar, alcohol and vegetable oils
- Will not absorb water so can be cleaned continuously
- Assure® protection transform the product into an active antibacterial surface
- For interior use; not suitable for cladding outdoors

Assure CES are approved by or in compliance with the regulation of:

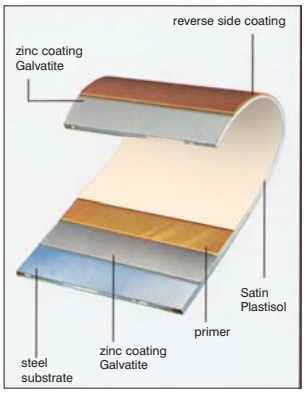
- European Union Scientific Committee for Food
- Australian and New Zealand Food Authority
- United States Environmental Protection Agency
- United States Food and Drug Administration

Assure is effective against many bacteria in controlled environments such as Listeria monocytogenesis, Salmonella, Escherichia coli and MRSA.
Can be used on frequently-washed surfaces without loss of anti-bacterial properties.
Is suitable for a multitude of applications from cold stores and food processing plans, through to medical environments and clean rooms.



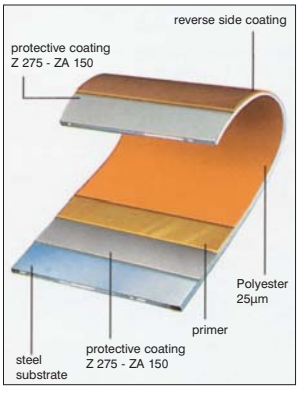
PVDF
(PVF_2 Polyvinydifluoride)

- Anticorrosion protection substrate Galvatite®
- Suitable for packaged food products
- Sufficient for food processing areas
- Sufficient for contact with bare food
- Good colour retention and stability
- Very good for use to exterior wall cladding in high erosion environments (acids, phosphors etc.)



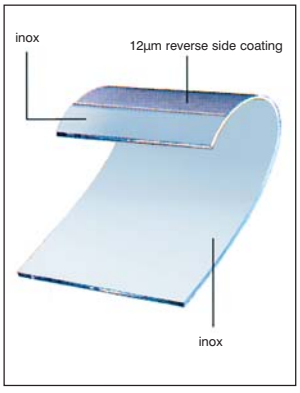
Satin Plastisol

- Anticorrosion steel protection with Galvatite® coating
- Suitable for packaged food products
- Sufficient for food processing areas
- Excellent abrasion and corrosion resistance
- Particularly suitable for use on internal partition walls (office areas, packaged food preservation areas)



Polyester

- Anticorrosion protection substrate Galvanized Z 275 - ZA150
- Suitable for packaged food products
- Unsuitable for contact with bare food
- Unsuitable for food processing areas
- Suitable for wall application, particularly in drier climates

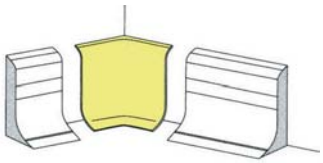


Inox

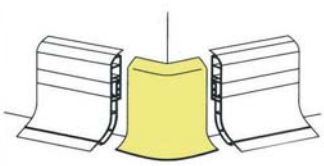
- Special treated reverse side backing coat for superior adhesion to polyurethane core
- Superior performance, specially in food processing rooms
- Excellent in aggressive environments
- Complete waterproof, so can be cleaned continuously and with hose pressure water

SPECIAL SANITARY FITTINGS

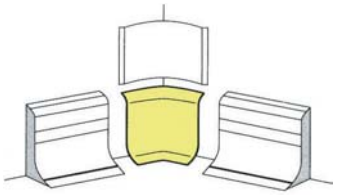
Apart from the flashings made of coated, galvanized steel sheets of the same quality specification as the sheets of ECOPANEL FL, Corus-Kalpinis-Simos S.A. offers a complete range of sanitary flashings.
Those sanitary flashings are realized with thermoplastic resins of first quality in accordance with the European specifications.
They are used for the finish of interior edges (such as vertical and horizontal corners, skirting board, etc) in areas of the production, preservation and maturation of food.
They are also necessary in areas of high sanitary and cleanliness demands such as hospitals, clinics, laboratories, congregation centers etc.
They are economic, strong, ergonomic and functional.
Their assembly is simple and steady with hidden fixings.



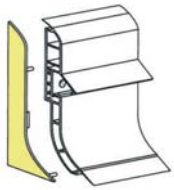
Internal skirt corner



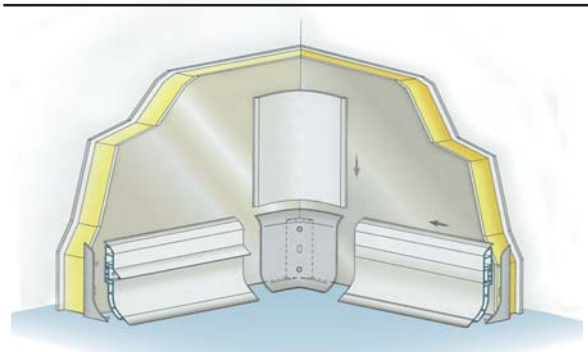
External skirt corner



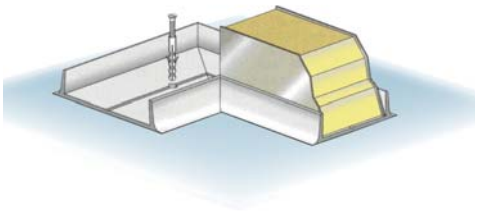
Skirting and vertical corner profile

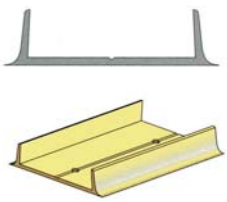


Skirt

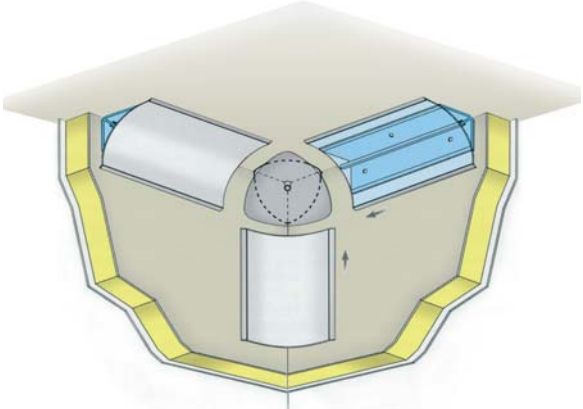


Skirting with rounded plinth profile and corner profile

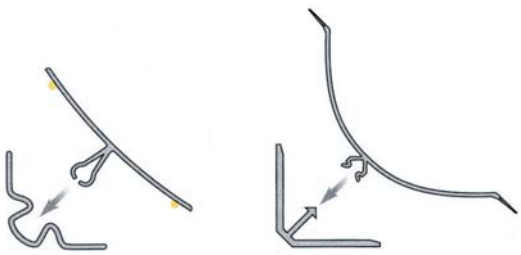




U channel profile



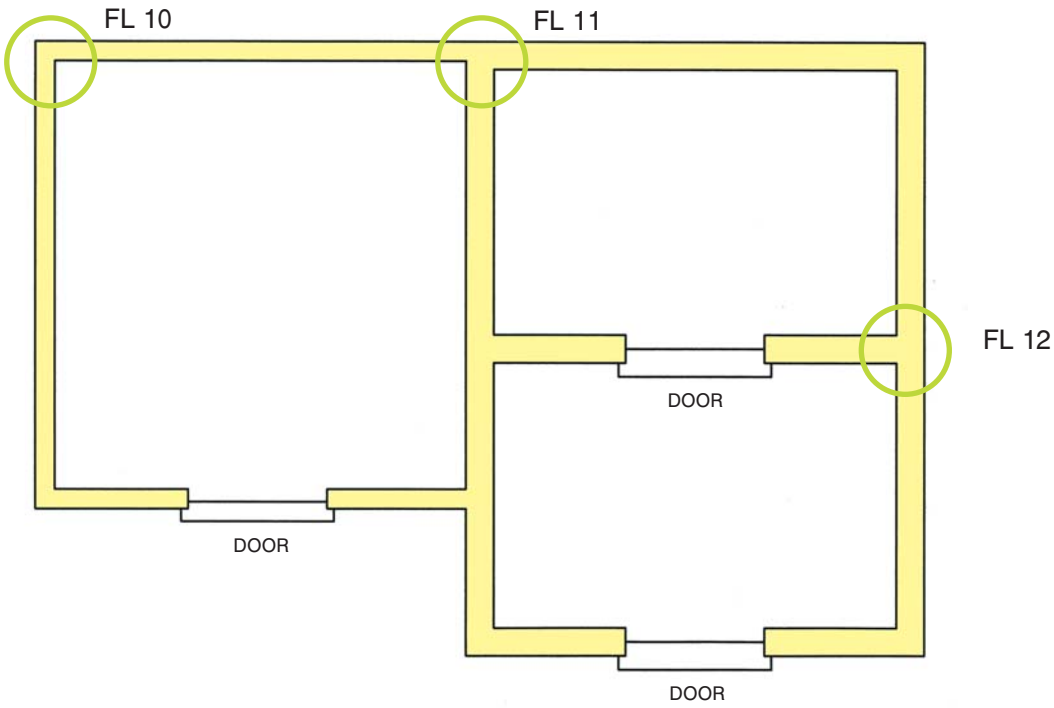
Internal corners and coving profile



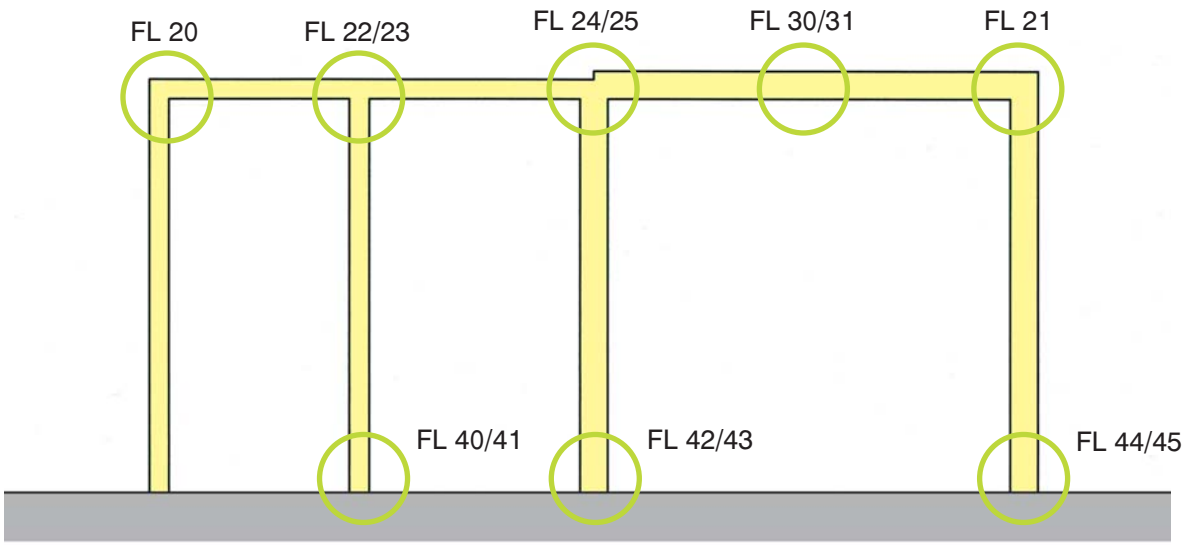
Rounded corners with backing support

The following basic details of **ECOPANEL FL** are in reference to the typical plan and section sketches found below. It is undeniable that the series of construction drawings found below cannot cover the specific demands of each individual work. For this reason the details can be adjusted to suit every specific need.
The Corus-Kalpinis-Simos S.A. technical department would be please to be involved with your special demands during the study of each project.

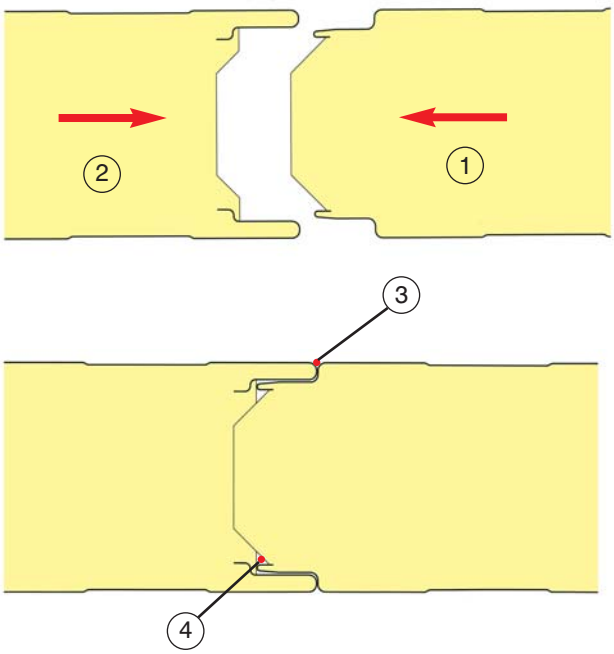
TYPICAL PLAN



TYPICAL SECTION



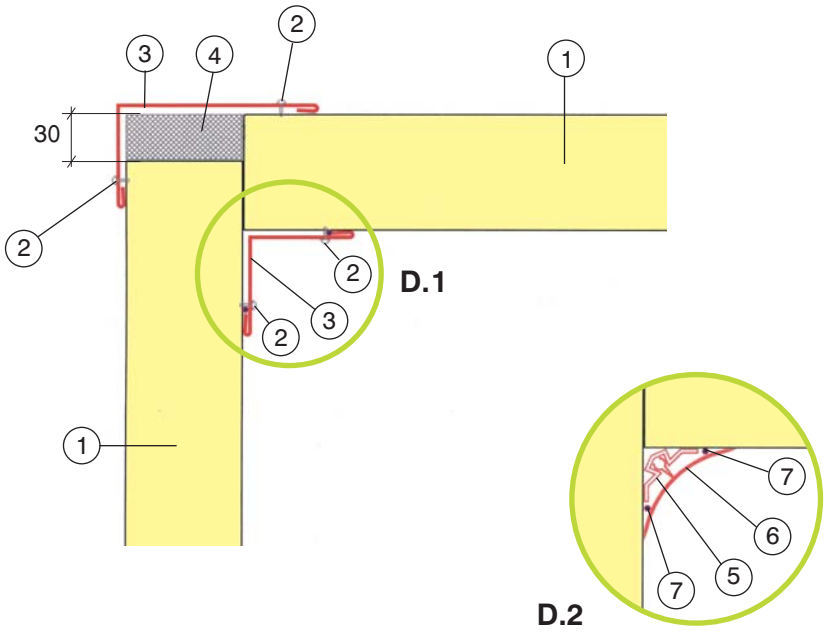
JOINTING ASSEMBLY



1. ECOPANEL FL (male)
2. ECOPANEL FL (female)
3. Option: silicone finish after assembling
4. Internal sealant mastic silicone type

WALL TO WALL ASSEMBLY

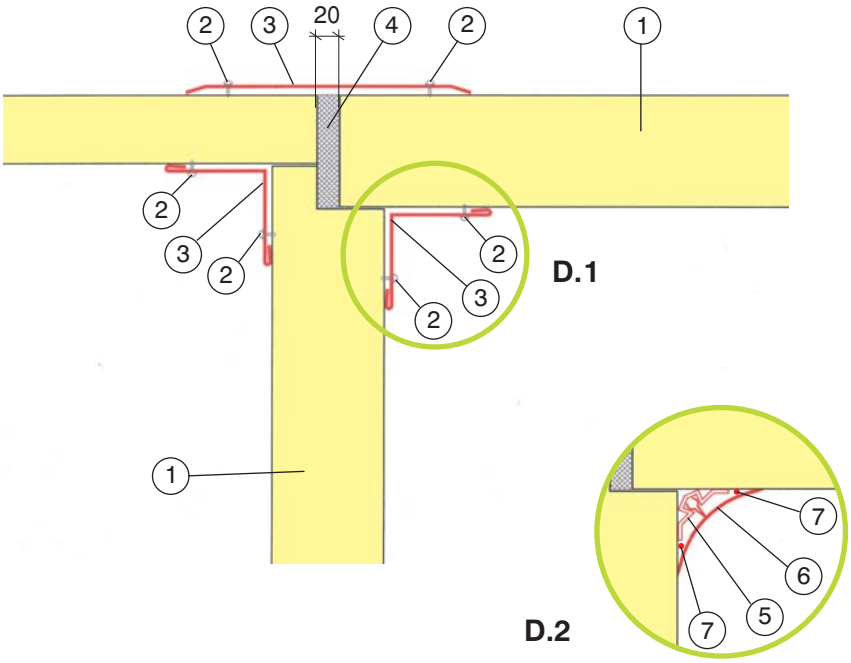
DETAIL FL 10



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

PARTITION WALL TO EXTERNAL WALLS OF DIFFERENT WIDTH ASSEMBLY

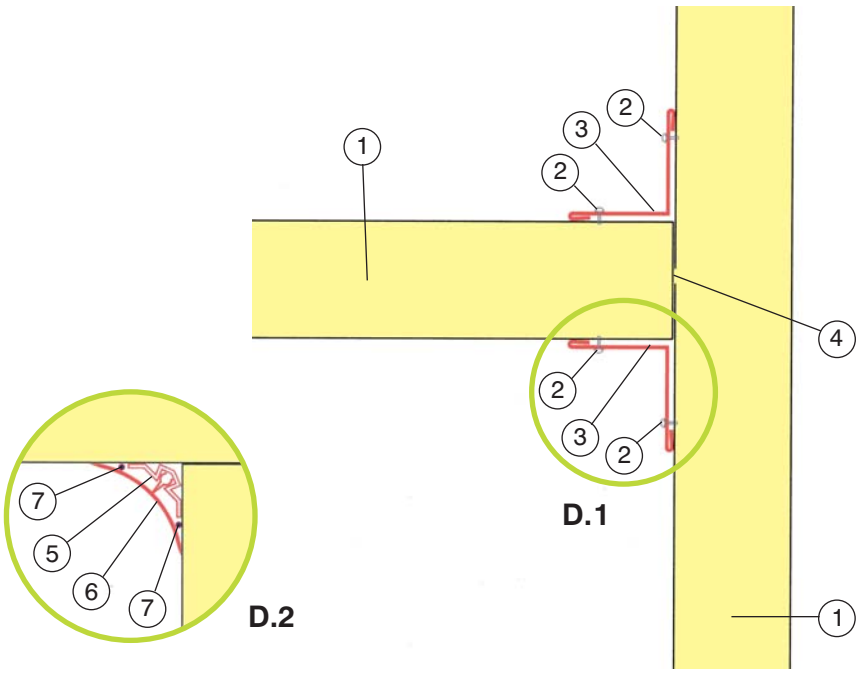
DETAIL FL 11



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

PARTITION WALL TO EXTERNAL WALLS ASSEMBLY

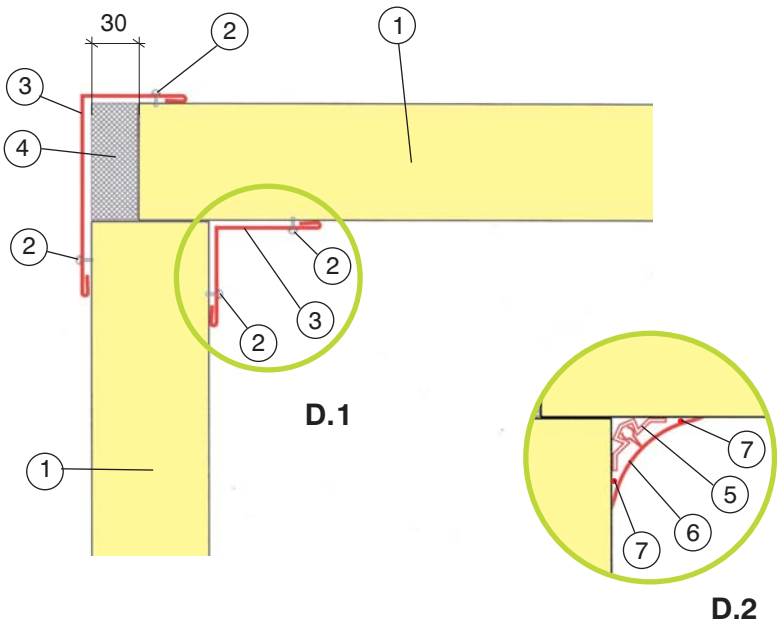
DETAIL FL 12



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Thermal break (Steel sheet cutting)
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

EXTERNAL WALL TO CEILING ASSEMBLY

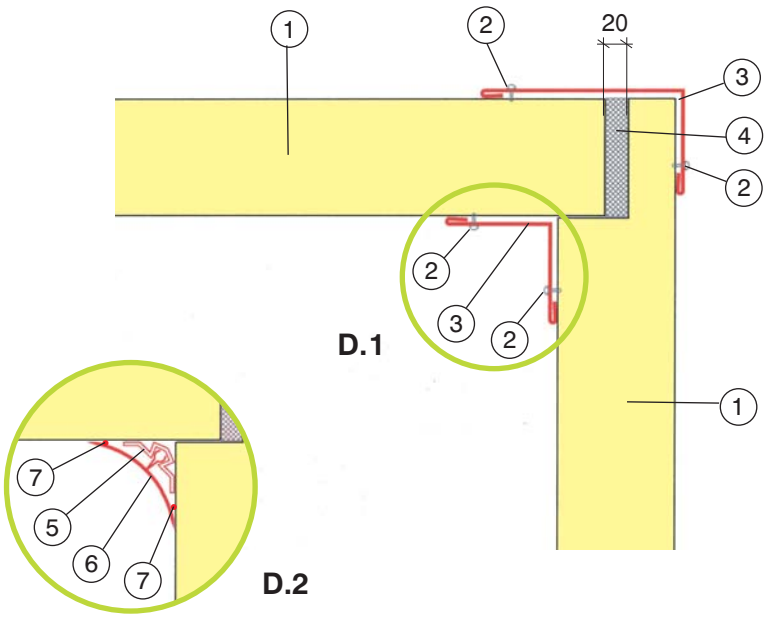
DETAIL FL 20



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

EXTERNAL WALL TO CEILING ASSEMBLY

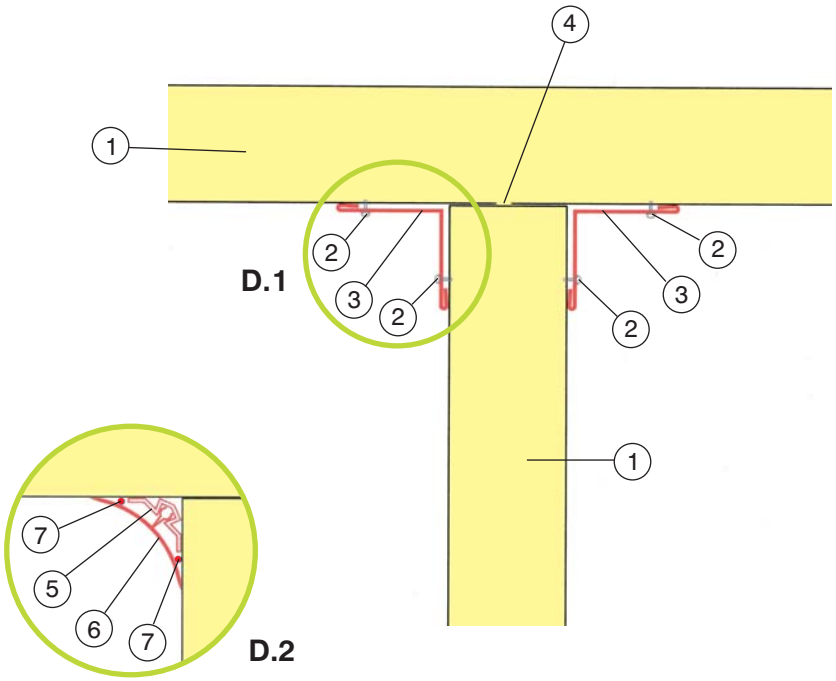
DETAIL FL 21



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

PARTITION WALL TO CEILING ASSEMBLY

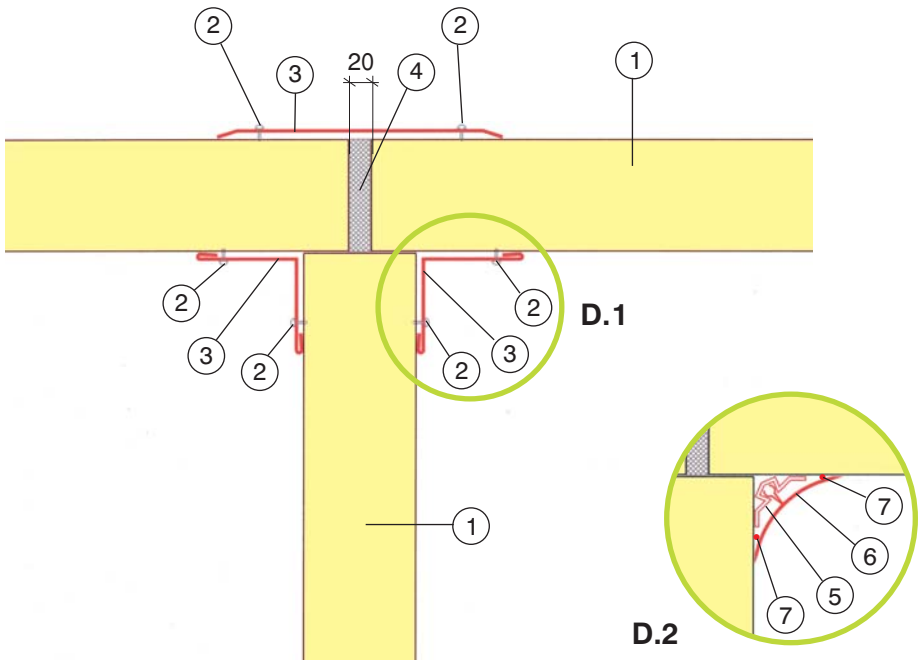
DETAIL FL 22



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Thermal break (Steel sheet cutting)
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

CEILING JOINT ON PARTITION WALL

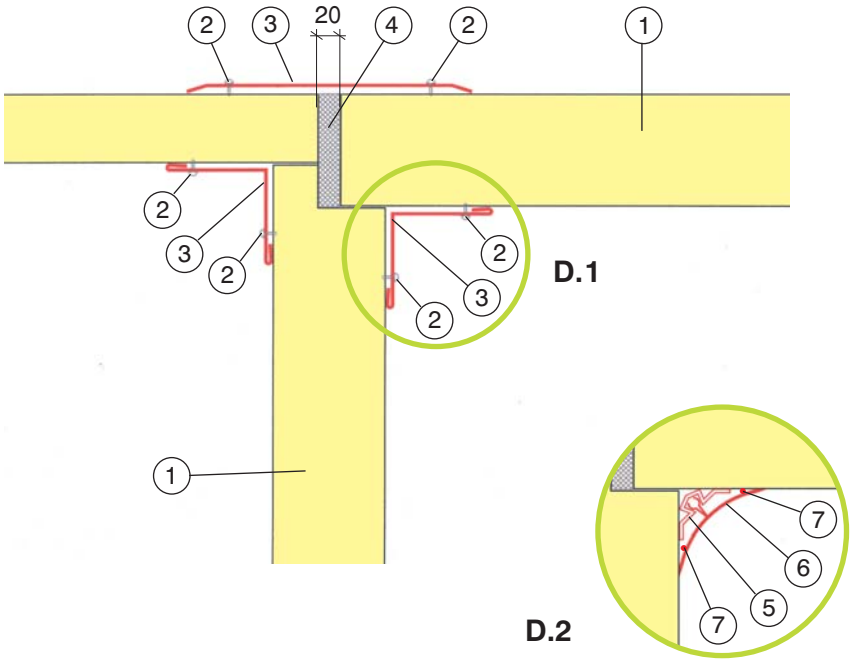
DETAIL FL 23



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

PARTITION TO CEILING ASSEMBLY WITH THICKNESS CHANGE

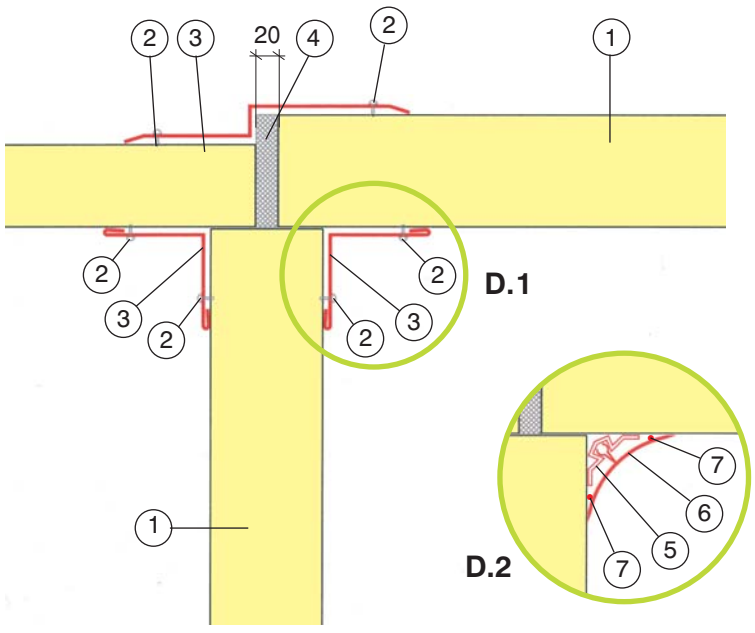
DETAIL FL 24



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

PARTITION TO CEILING ASSEMBLY WITH THICKNESS CHANGE

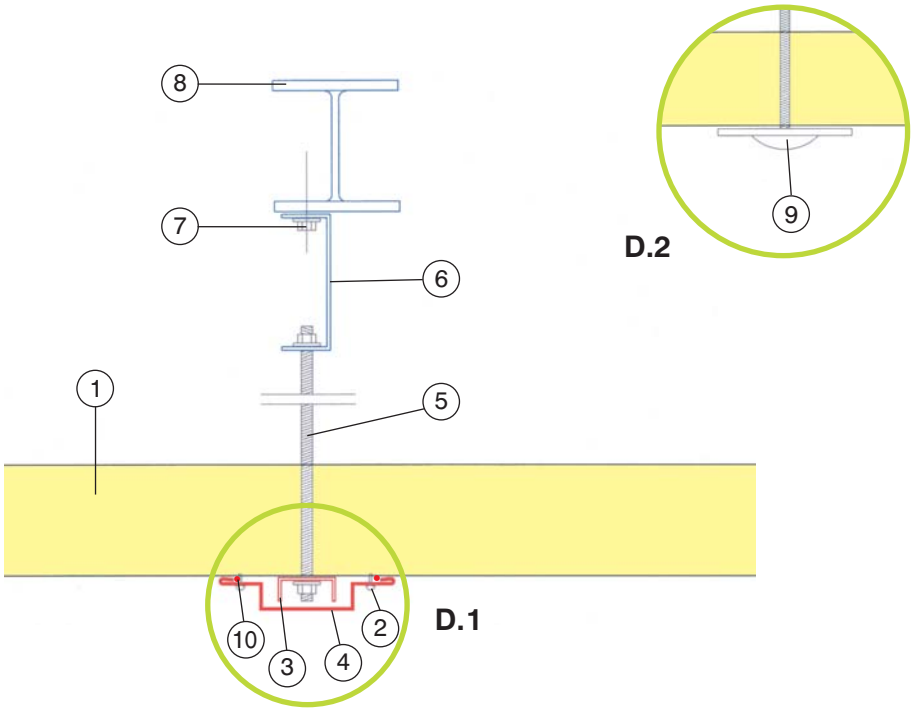
DETAIL FL 25



1. ECOPANEL FL
2. Rivet
3. Coated steel flashing
4. Polyurethane injection
5. Angle support
6. Sanitary angle profile
7. Silicone sealant

CEILING SUPPORT

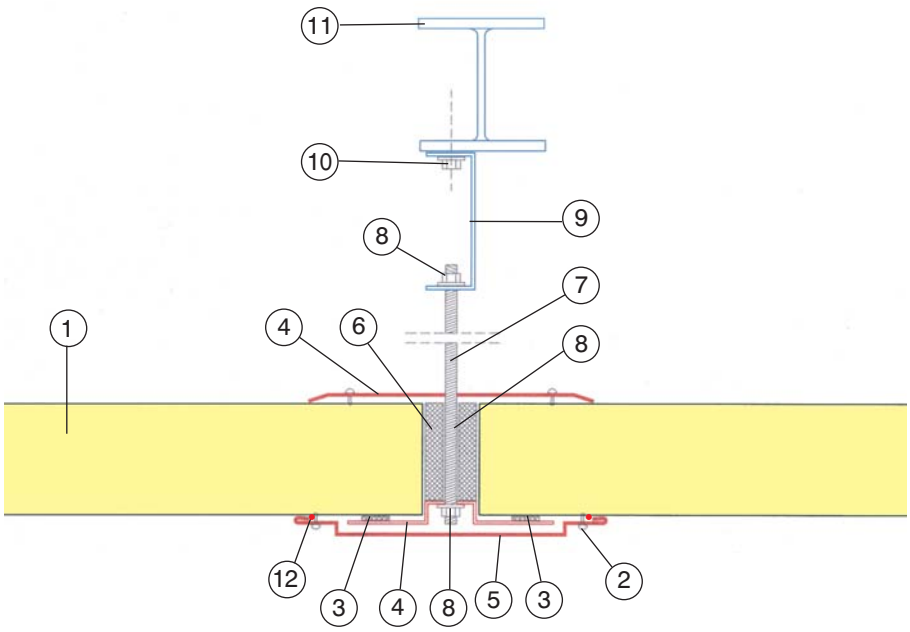
DETAIL FL 30



1. ECOPANEL FL
2. Rivet
3. Supporting galvanized U profile
4. Omega coated steel flashing
5. Teflon screw rod
6. Galvanized U profile
7. Screw
8. Truss
9. Teflon washered screw cap
10. Silicone sealant

INJECTED JOINT CEILING SUPPORT

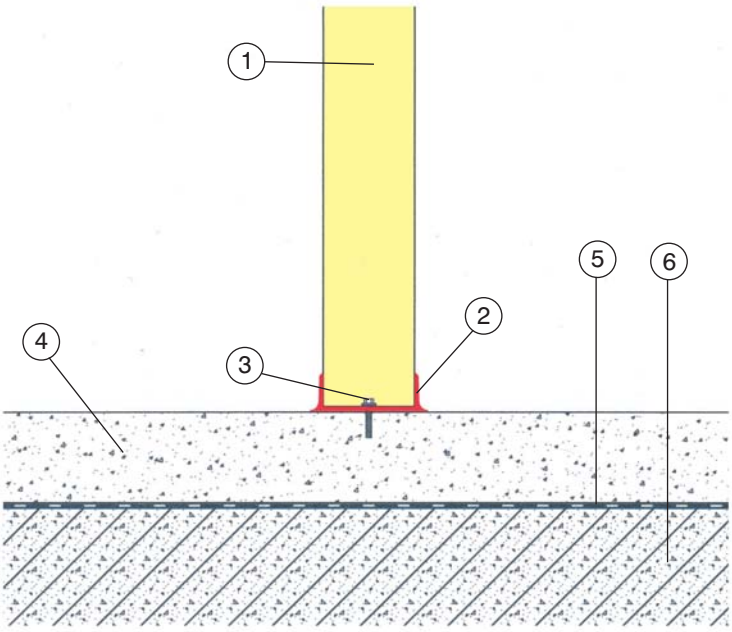
DETAIL FL 31



1. ECOPANEL FL
2. Rivet
3. Sealing tape
4. Supporting galvanized omega profile
5. Omega coated steel flashing
6. Polyurethane injection
7. Teflon screw rod
8. Nut
9. Galvanized U profile
10. Screw
11. Truss
12. Silicone sealant

PARTITION WALL TO FLOOR JOINT

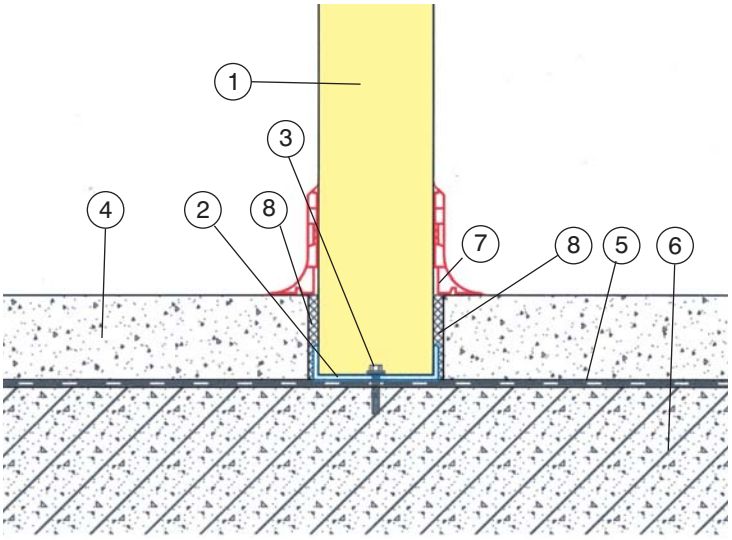
DETAIL FL 40



1. ECOPANEL FL
2. U channel sanitary profile
3. Pin and screw
   (M 8 in 600mm interval)
4. Finished floor
5. Vapour-seal
6. Concrete floor

PARTITION WALL TO FLOOR ASSEMBLY

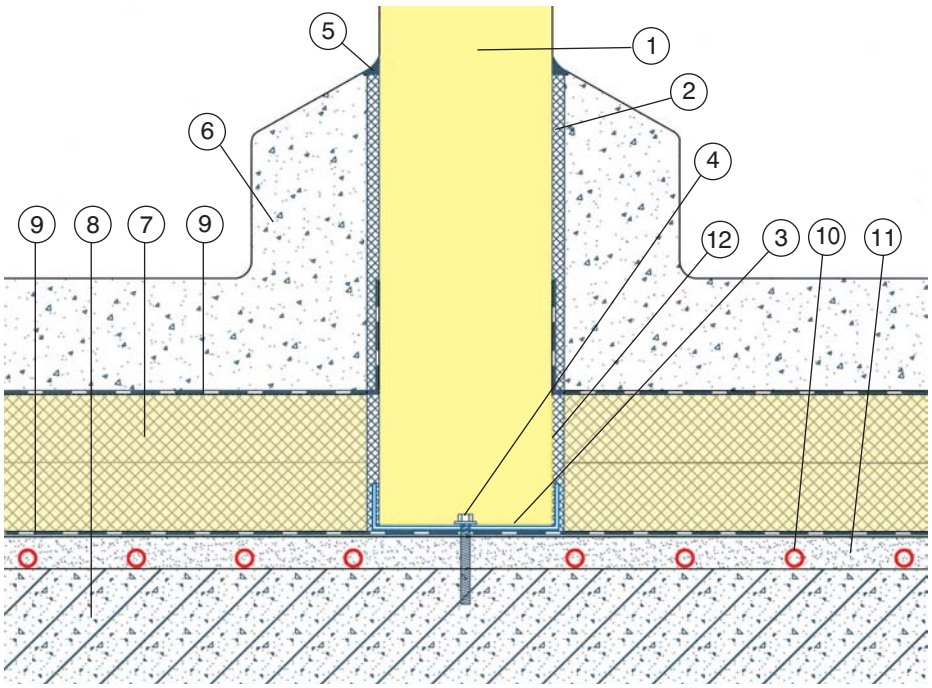
DETAIL FL 41



1. ECOPANEL FL
2. U galvanized steel profile
3. Pin and screw
   (M 8 in 600mm interval)
4. Finished floor
5. Vapour-seal
6. Concrete floor
7. Sanitary skirt
8. Thermal insulation

WALL PANEL BOTTOM ON FLOOR INSULATION

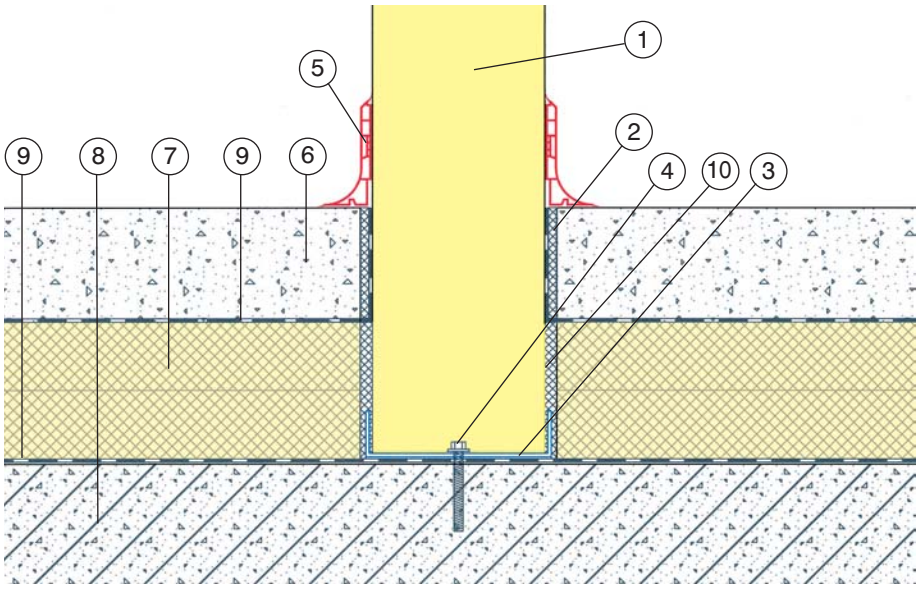
DETAIL FL 42



1. ECOPANEL FL
2. Thermal insulation
3. Galvanized steel U profile
4. Pin and screw
   (M 8 in 600mm interval)
5. Silicone joint
6. Finished floor
7. Floor insulation
8. Concrete floor (heated or ventilated)
9. Vapour-seal
10. Heater elements
11. Sand cement screed

WALL PANEL BOTTOM ON FLOOR INSULATION

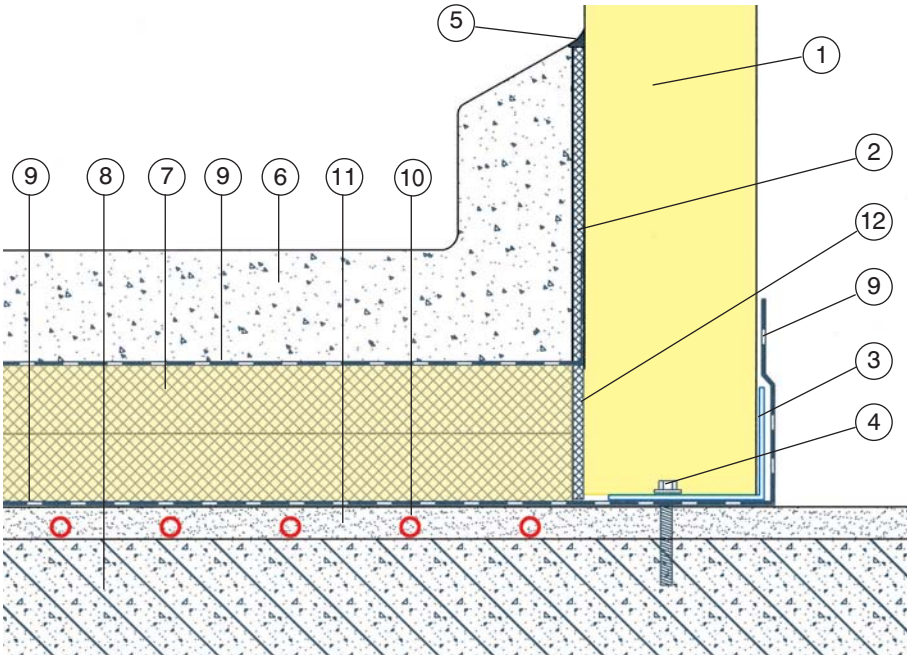
DETAIL FL 43



1. ECOPANEL FL
2. Thermal insulation
3. Galvanized steel U profile
4. Pin and screw
   (M 8 in 600mm interval)
5. Sanitary skirt
6. Finished floor
7. Floor insulation
8. Concrete floor (heated or ventilated)
9. Vapour-seal

PARTITION WALL BOTTOM ON FLOOR INSULATION

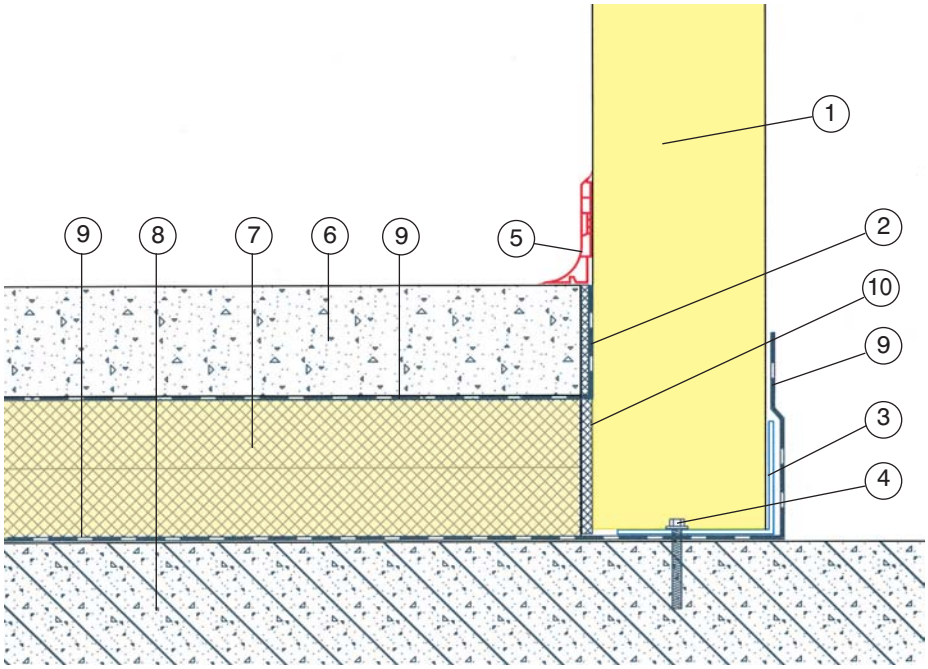
DETAIL FL 44



1. ECOPANEL FL
2. Thermal insulation
3. Galvanized steel angle profile
4. Pin and screw
   (M 8 in 600mm interval)
5. Silicone sealant
6. Finished floor
7. Floor insulation
8. Concrete floor (heated or ventilated)
9. Vapour-seal
10. Heater elements
11. Sand cement screed
12. Thermal break (Steel sheet cutting)

WALL PANEL BOTTOM ON FLOOR INSULATION

DETAIL FL 45



1. ECOPANEL FL
2. Thermal insulation
3. Galvanized steel angle profile
4. Pin and screw
   (M 8 in 600mm interval)
5. Sanitary skirt
6. Finished floor
7. Floor insulation
8. Concrete floor (heated or ventilated)
9. Vapour-seal
10. Thermal break (Steel sheet cutting)

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