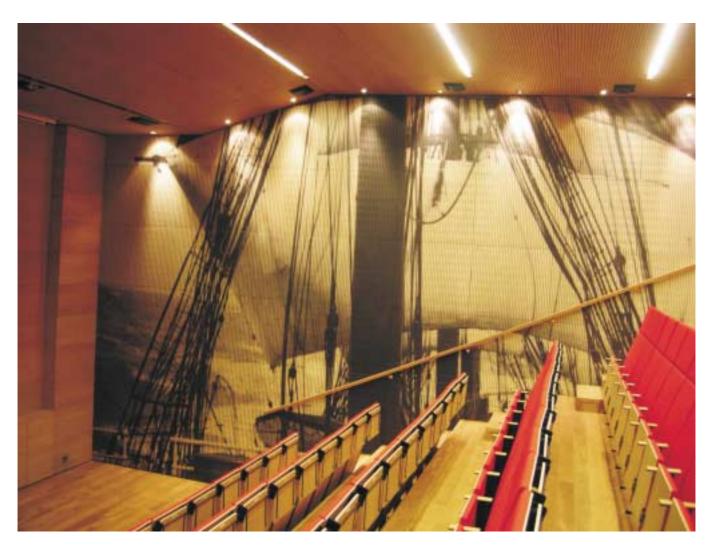
Fire retardant wood based panels

Complete system for ceilings and walls



Elam -range of products:

Elam -products involve a range of decoratively surfaced fire retardant wall and ceiling panels for mainly public buildings. Panel surfaces is usually covered with lacquered (and stained) or vaxed natural wood veneer. Other surface solutions are imitation foils, high pressure or real stone laminate or paint. Panels can be plain, perforated, slotted or grooved.

As a rule cement bonded particleboard, which is fireproof and strong, is used as core board. In locations where fire classification requirements are not applicable, conventional wood based panels as plywood, chipboard or MDF may be used for core boards.

Cement bonded particleboard consists of wood chips (30% dry weight) and portland cement (70%). No organic binders, formaldehyde or asbestos included. The boards are sanded and thickness calibrated to make them suitable for surface coating.



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All the materials as glue, veneer and lacquer are chosen to keep the fire resistance on as high level as possible.

Other Elam applications are:

Curved ElamForm panels, ElamTrellis, ElamInterior thin perforated decoration panels, Perfo-Linear, Linear and Mosaic grooved panels, through coloured cement- bonded particleboard Anhracite, fixing accessories and special wood profiles.

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Dimensions, boards and surfaces

Std sizes (mm): Std thicknesses 12 and 16 mm. Other sizes and thicknesses on request.	2600 x 1200/600/300/190				
Core boards:	As a rule, strong cement bonded particleboard is used as core material, but conventional wood based panels as well, if no fire classification is required e.g. chipboard, MDF or plywood. Special "marine -boards" can be used for ships (IMO A 270, SOLAS).				
Surface alternatives: Unsurfaced panels:	All sizes, edge forms and perforations are available for raw panel as well as surfaced panel.				
Wood veneered panels: Lacquering: Staining: Wax or oil treatment:	All commercial wood species available. Low emission acrylate lacquering, TVOC emission less than <10 g/m²h. Up to wish and sample of customer or up to given color code. Colorless or colored treatment.				
Painted panels:	Painting on special paper coated board. Balance film on back side. Colour stains according to e.g. NCS -code.				
Foil surfaced panels:	Wood imitation melamine and wall papers (small volumes not available).				
High Pressure Laminated panels:	d All well-known HPL accepted.				

Edge types and coverings of panels and acoustic boards

Edge covering alternatives (combine the code number after edge type number as shown below):

- **0.** Unsurfaced edge
- a. Wood or other imitation band
- **b.** Real thin wood veneer, lacquered as surface
- **c.** 2,0 mm thick wood veneer, lacquered as surface
- **d.** 10 mm thick wood batten under surface veneer (edge type 8)

	Relevant edge covering alternatives:
Type 1: Straight, machined edge with "pencil rounded arris".	1/0, 1/a and 1/b
Type 2: Bevelled edge (abt. 2 mm), cement grey bevelled section with the edge 2/0.	2/0 and 2/c
Type 3: Grooved for concaled fixing with "pencil rounded arris".	3/0, 3/a and 3/b
Type 4: Grooved for consealed fixing, bevelled edge (abt. 2 mm), cement grey bevelled section with the edge 4/0.	4/0 and 4/c
Type 5: Rounded edge surfaced with 2,0 mm lacquered wood veneer.	5/c
Type 6: As type 3, but no gap between panels.	6/0, 6/a, 6/b and 6/c
Type 7: Removable ceiling panel. Recommended for size 600 * 600 mm only.	7/0, 7/a and 7/b
Type 8: Removable ceiling panel, thick rebated wood profile under veneer.	8/0 and 8/d
Type 9: Removable wall panel. See page 11 in more detail.	9/0, 9/a, 9/b and 9/c

Acoustic perforations:

The next models are standard types, others available on request. Type S means "slotted" and P perforated (round hole). The back side of the panel can be coated with black or white fabric.

Std panel sizes are 600 x 600 ja 1200 x 600 mm:

Type S

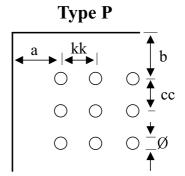
a

d

c

b

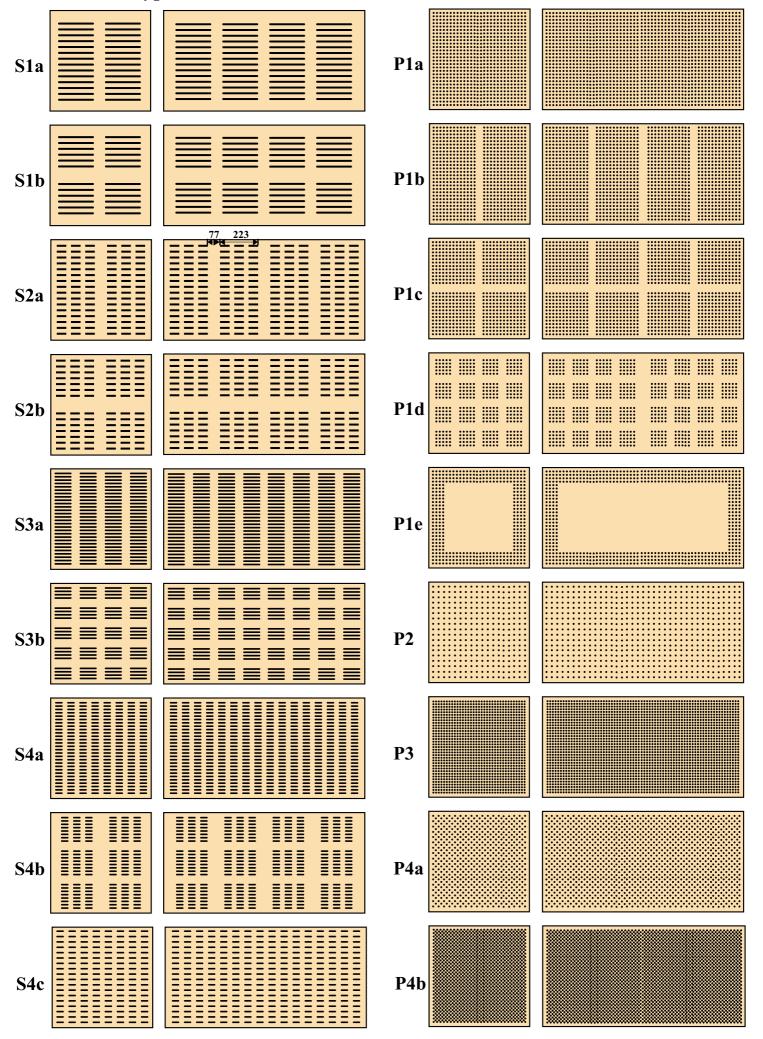
cc



Hole diameter Ø Hole area %

 $\underline{\mathbf{Bold}} = \mathbf{std} \ \mathbf{diameter}$

			Hole area %										
	Panel size	cc	Ø 6	Ø 8	Ø 10,5	Ø 12	a	b	c	d	Holes/row	Rows	Holes
Type	mm	mm	%	%	%	%	mm	mm	mm	mm	pcs	pcs	pcs
S1a	1200 x 600	35	9,6	13,0	17,2	19,7	79	72,5	78	202	14	4	56
	600 x 600	35	9,6	13,0	17,2	19,7	59	72,5	78	202	14	2	28
S1b	1200 x 600	35	8,3	11,1	14,7	16,9	79	72,5	78	202	12	4	48
	600 x 600	35	8,3	11,1	14,7	16,9	59	72,5	78	202	12	2	24
S2a	1200 x 600	35	9,2	12,6	17,1	20,0	38,5	37,5	32	53	16	12	192
	600 x 600	35	9,2	12,6	17,1	20,0	38,5	37,5	32	53	16	6	96
S2b	1200 x 600	35	8,1	11,1	15,0	17,5	38,5	37,5	32	53	14	12	168
	600 x 600	35	8,1	11,1	15,0	17,5	38,5	37,5	32	53	14	6	84
S3a	1200 x 600	20	17,7	24,0	32,1		30	30	60	90	28	8	224
	600 x 600	20	17,7	24,0	32,1		30	30	60	90	28	4	112
S3b	1200 x 600	20	12,6	17,1	22,9	26,5	30	30	60	90	20	8	160
	600 x 600	20	12,6	17,1	22,9	26,5	30	30	60	90	20	4	80
S4a	1200 x 600	20	16,7	23,0	31,5	36,9	40	30	32	40	28	16	448
	600 x 600	20	16,7	23,0	31,5	36,9	28	30	32	40	28	8	224
S4b	1200 x 600	20	10,7	14,8	20,3	23,7	76	30	32	40	24	12	288
	600 x 600	20	10,7	14,8	20,3	23,7	64	30	32	40	24	6	144
S4c	1200 x 600	32	10,7	14,8	20,3	23,7	40	28	32	40	18	16	288
	600 x 600	32	10,7	14,8	20,3	23,7	28	28	32	40	18	8	144
P1a	1200 x 600	20	6,4	11,3	19,5	25,5	30	30	20		28	58	1624
	600 x 600	20	6,2	10,9	18,8	24,6	30	30	20		28	28	784
P1b	1200 x 600	20	5,7	10,2	17,5	22,9	30	30	20		28	52	1456
	600 x 600	20	5,7	10,2	17,5	22,9	30	30	20		28	26	728
P1c	1200 x 600	20	5,3	9,4	16,3	21,2	30	30	20		26	52	1352
	600 x 600	20	5,3	9,4	16,3	21,2	30	30	20		26	26	676
P1d	1200 x 600	20	3,1	5,6	9,6	12,6	50	50	20		20	40	800
	600 x 600	20	3,1	5,6	9,6	12,6	50	50	20		20	20	400
P1e	1200 x 600	20	2,4	4,3	7,4	9,7	30	30	20		28		616
	600 x 600	20	3,0	5,4	9,2	12,1	30	30	20		28		384
P2	1200 x 600	32	2,6	4,6	8,0	10,5	24	28	32		18	37	666
	600 x 600	32	2,5	4,5	7,8	10,2	28	28	32		18	18	324
Р3	1200 x 600	16	9,9	17,6	30,3		32	28	16		35	72	2520
	600 x 600	16	9,6	17,1	29,4		28	28	16		35	35	1225
P4a	1200 x 600	16/32	5,0	8,9	15,4	20,1	24	28	16/32				1278
	600 x 600	16/32	4,8	8,6	14,7	19,2	28	28	16/32				613
P4b	1200 x 600	10/20	12,4	22,1			30	30	10/20				3163
	600 x 600	10/20	11,9	21,1			30	30	10/20				1513



Linear-, Perfo-Linear- and Mosaic- panels:

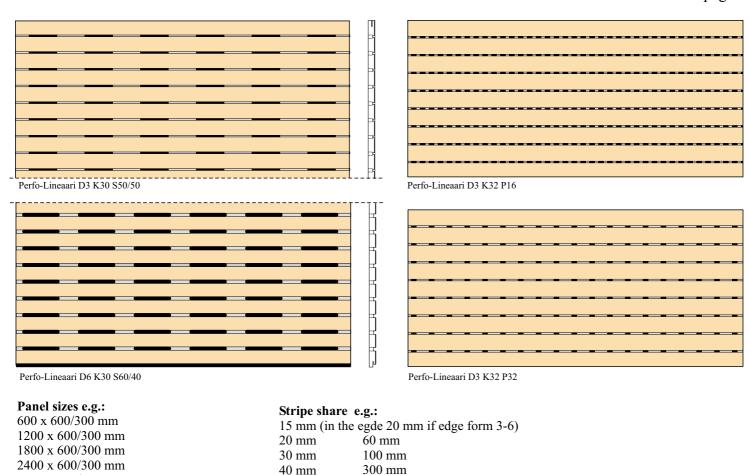


"Linear", "Perfo-Linear" and "Mosaic" are panels made of MDF- or cement bonded particleboard with grooved surface. Basic idea is to give the designer "free hands" when choosing groov distance and panel size. Breadth of groove is 3, 6 (or 8) mm. The surface can be wood veneered, painted or laminated with white









Linear- and Perfo-Linear joint principles

breadth with round perforations 413 and 381 mm

Parallel joint to stripes of Linear, Perfo-Linear and Mosaic will be made with PI-3510 -profile, which is painted to colour of core board making the panelling to look even and continuous. Crossing joint can be made with invisble tongue of plywood or painted PI-profile.

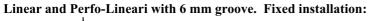
or special

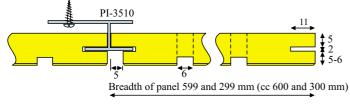
50 mm

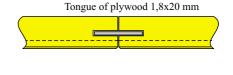
Joint parallel to stripes

2600 x 600/300 mm

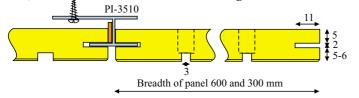
Joints perpendicular to stripes

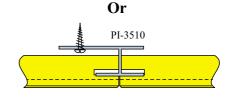




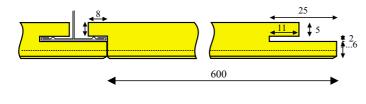


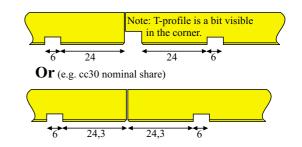
Linear, Mosaiq or Perfo-Linear with 3 mm groove. Fixed installation:



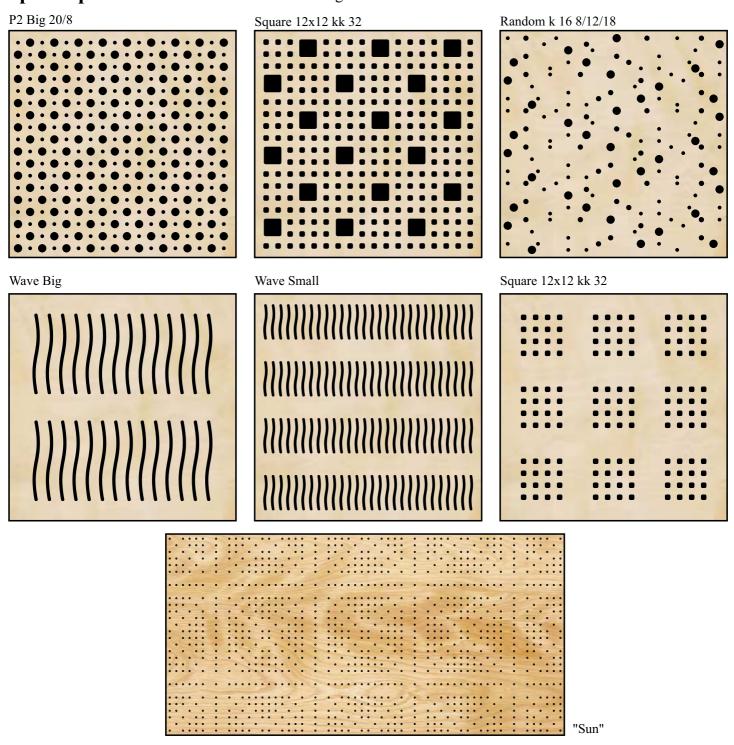


Demountible ceiling panel 600x600 (edge type 7):

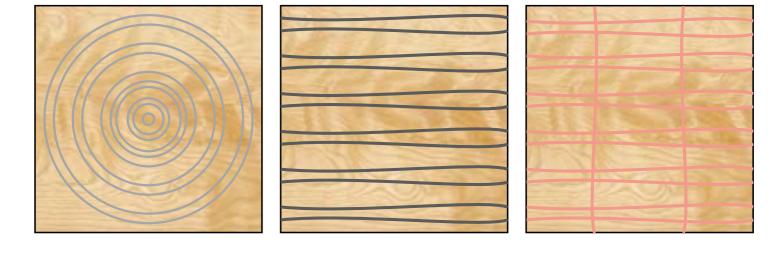




Special perforations can be made according to clients wishes.



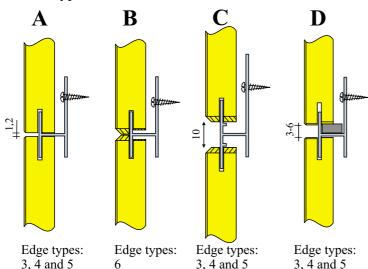
Special striping can be made up to wishes of the client. Board material e.g. through-colored MDF.



Installation of Elam-panels

Installation with PI-profiles:

Joint types:



Type A:

Concealed installation with PI-3510 profile. 1,2 mm open gap between panels. Unpainted profile may reflect in joint.

Type B:

Butt joint. No gap or very small gap between panels. Unpainted profile may reflect in joint. If the height of the wall lining is over 3 m, special solution is required to prevent situation that the whole weight of the wall lining lays on the lowest profile line. See the page 12 in more detail.

Type C:

10 mm open joint, fixing with aluminium profile PI-4510, which can be painted, anodised, covered with wood imitation or lacquered veneer.

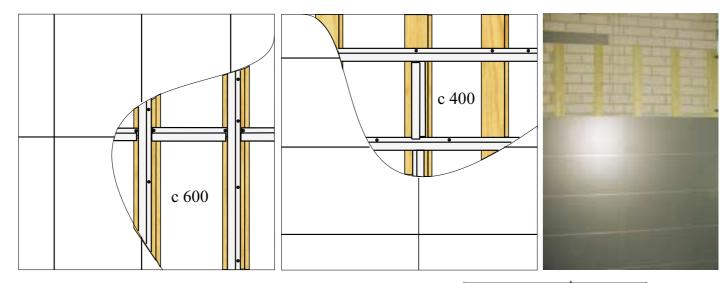
Type D:

3-6 mm open joint, fixing with aluminium profile PI-3510, which can be painted, covered with wood imitation or lacquered veneer. The desired gap between panels can be achieved by putting a filling piece of e.g. mdf- or plywood inside the profile as shown in the drawing.

Wood veneered panels are for indoor use only. Before installation check that the room is dry and ventilated and the temperature preferably over 18 C °. The RH of the air preferably between 30-60 %, absolutely not over 80%. Because the colour and figure of natural wood can vary, try to avoid to install divergent panels on the same wall.

PI-profiles are screwed to e.g. wooden battens. Screw distance between 400-600 mm. If shorter panel dimension is over 600 mm, additional support is needed to prevent bending of the panel.

Wooden battens behind the panels are normally used on the concrete or brick wall for easier installation and straightening the construction. On the well made plasterboard wall with steel frame the horizontal fixing profiles can be screwed directly to frames through plasterboard.

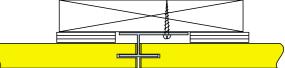


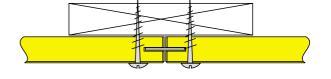
In sports and similar halls where higher strength often is needed, it is necessary to use extra support betveen the panel edge and the batten if concealed joint with PI-profiles is absolutely desired. Additional strenth is reached by using 16 mm panel thickness as well.

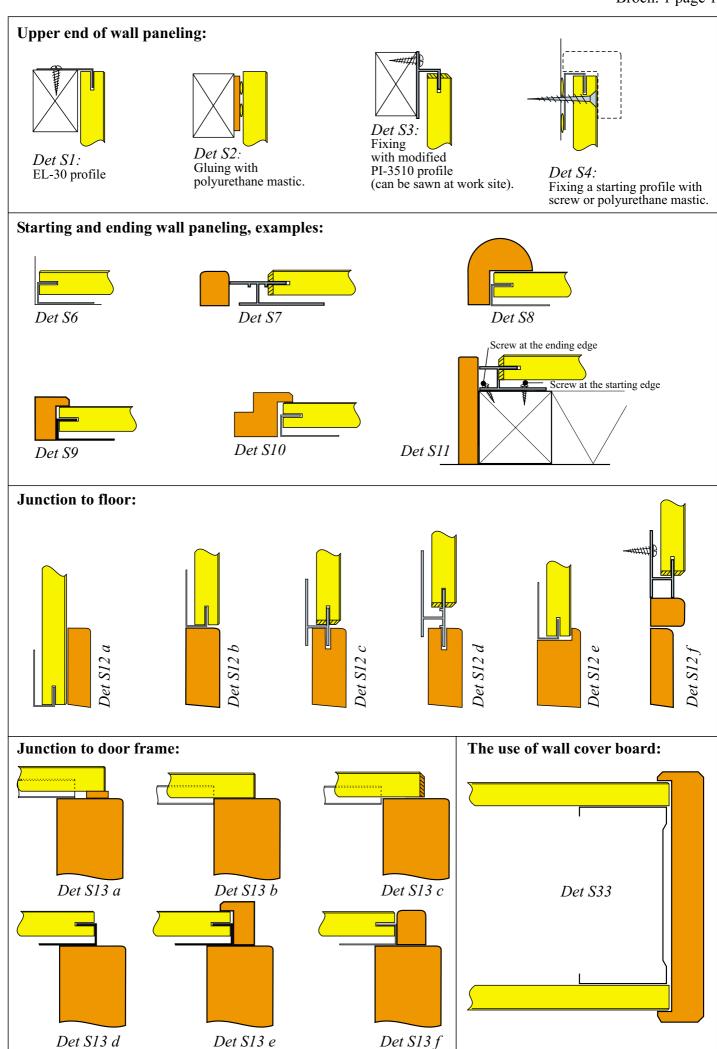
Dense perforation, Perfo-Linear and Linear are not suitable in lower parts of sports wall linings.

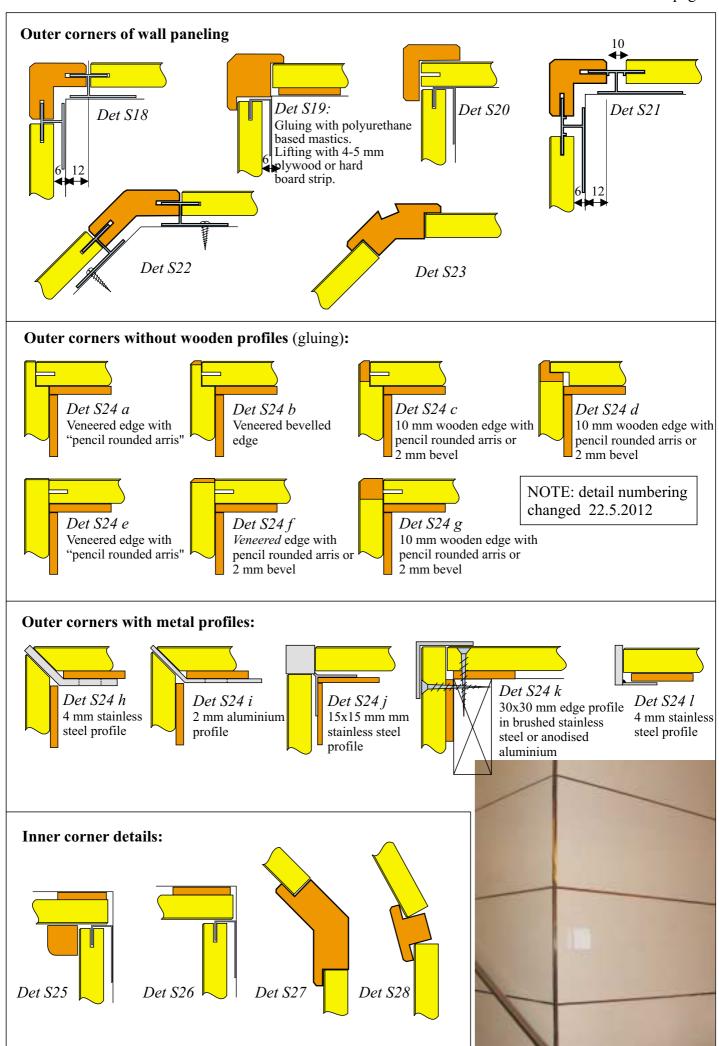
Visible fixing:

For example by means of hat profile or different screws to wooden battens or steel frame directly. If necessary 1,8 mm loose plywood tongue can be used in the edge groove to prevent possible stepping of the joint.









Other solutions:

Joints with wood profiles: Det S29 Det S30 Det S31

20 mm open joint:

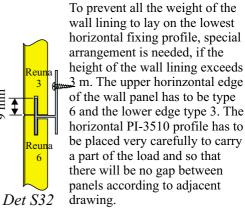
20 mm open joint can be made by fixing with aluminium profile PI-4510. Profile can be painted, covered with wood imitation, lacquered veneer or e.g. strip of brushed stainless steel or laminate. The desired gap between panels can be achieved by

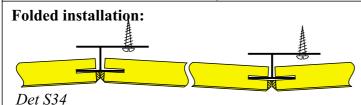
The desired gap between panels can be achieved by putting a filling piece of e.g. mdf- or plywood inside the profile as shown in the drawing.

When loose band on profile is used, the edges shall have

Det S14 special groove depth to prevent the band to fall down.

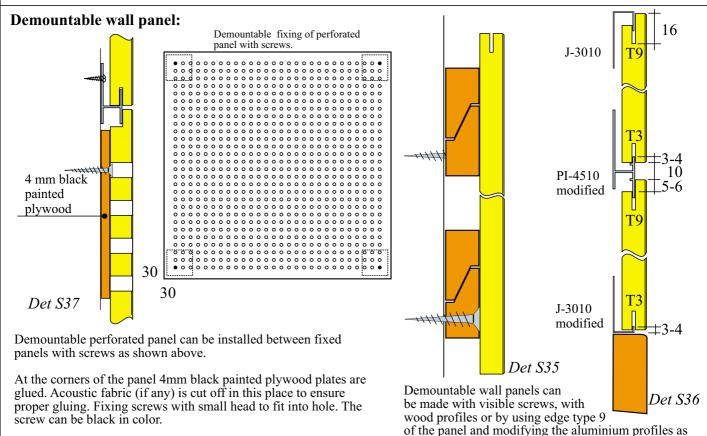
Edge for 6 and high wall linings:





PI-profiles allows fold of about 6°. By moulding the profile it is possible to get greater angles.

12 mm thick panel can be bent to radius 10-12 m at the work site.



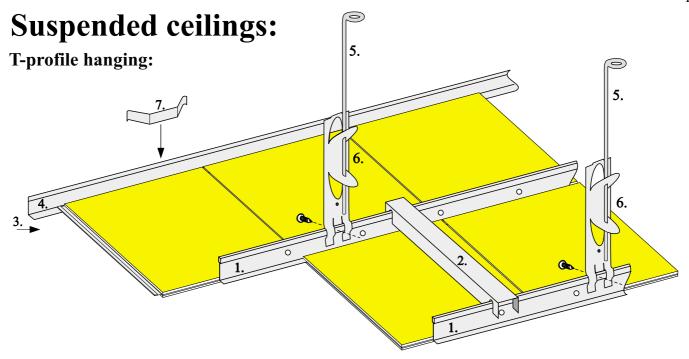






shown in the drawing above. Note: Installation requires

highest carefulness.



Accessories and their consumption:		
Accesso	ries and their consumption.	Fixing distance (mm)
1.	T-profile, galvanized or stove enamel steel, L 3000 mm	600/590/290/190
2.	Distance bar, galvanized steel, L 600 and 1200 mm	12001300
3.	Joint tongue, galvanized steel	
4a).	L- wall edge trim, stove enamel steel, optional NCS-colours.	
4b).	Double L- wall edge trim, stove enamel steel, optional NCS-colours.	
4c).	Wooden quadrant edge trim.	
5.	Wire hanger with loop. L 150 to 2500 mm.	
6.	Adjustable clip TJ-200.	1200
7.	Wall clip (if necessary) DCC-8.	

Consumption of accessories in average:

	Panel size (mm):	600 x 600	1200 x 600	2590 x 590	2590 x 290	2590 x 190	1190 x 1190
T-profile	m/m2	1,7	1,7	1,7	3,5	5,3	1,7
Distance bar	pcs/m2	1,4	1,4	1,4	1,4	1,4	
Joint tongue	pcs/m2	2,8	1,4	0,7			2,8
Edge trim	m/m2	0,53	0,53	0,53	0,53	0,53	0,53
Wire hanger	pcs/m2	1,4	1,4	1,4	2,8	4,4	1,4
Adjustable clip	pcs/m2	1,4	1,4	1,4	2,8	4,4	1,4

Installation:

Elam -panels can be used as removable or solid suspended ceilings by using conventional suspension system.

Solid installation:

Solid ceiling can be hanged with concealed T-profiles by grooves of panel edge as shown in picture above. Profiles are suspended to beams or similar. Under 600 mm broad panels require no distance bars. PI-profiles can be used as well for fixed installation.

Removable installation:

Access to cavity can be met with specially formed opposite edges of the panel (edge type 7). Perpendicular edges are without profiles.

The recommended panel size 600 x 600 mm can have the grain direction parallel or across the T-profile.

The installation can be started from the middle of the ceiling or from the edge. Wall connection profiles are fixed with screws c 400 mm.

Hangers for T-profile fixed to ceiling c 750-1200 mm, next to wall 300 mm from the end of profile.

The line of panels are mounted on the profiles which are bound together with distance bars. It's possible to glide the whole panel line on the T-profiles.

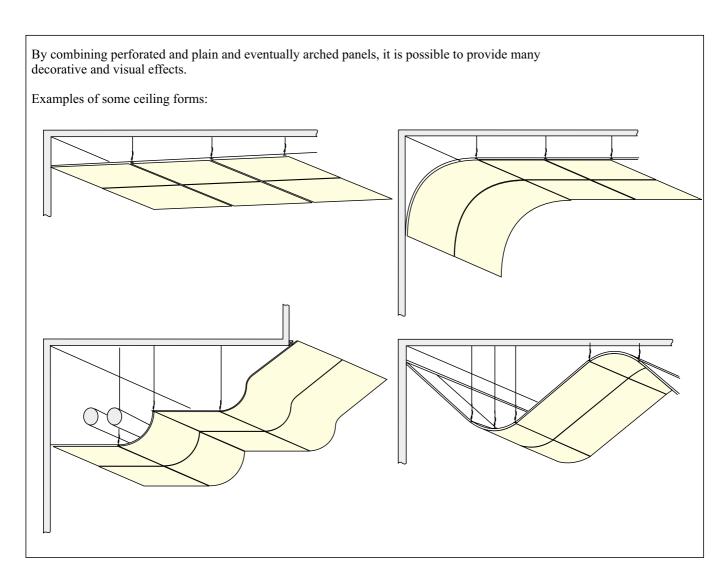
Minumum free height above panels is abt.100 mm to ensure access to cavity.

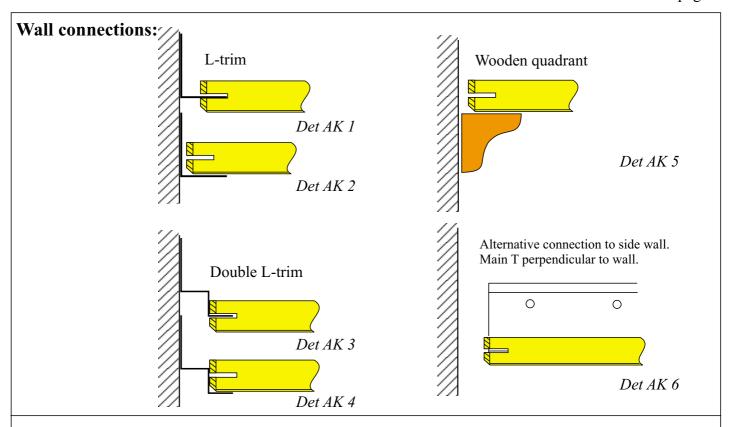
If the panels are made of cement bonded particleboard, the weight of construction is abt. 15..17 kg/m2.

It is possible to install std light fittings on the T-profiles as well.

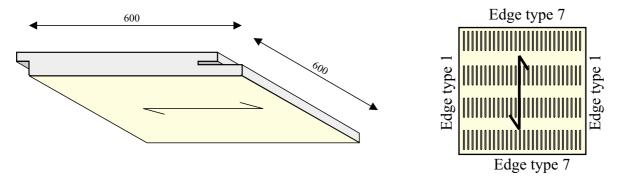




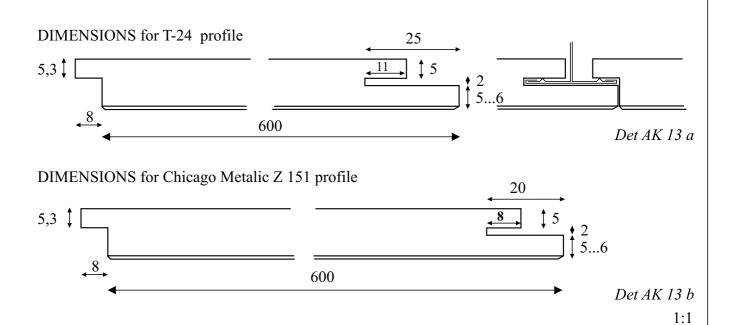




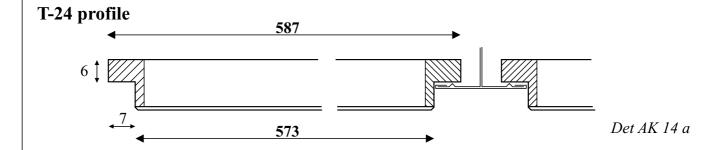
Demountable ceiling panel (edge type 7):



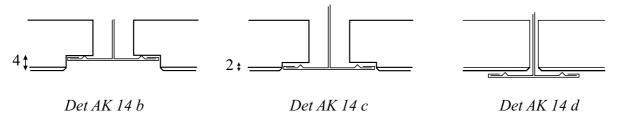
The order of wood grain direction to slots and edge type 7. Panel size 600 x 600 or smaller only.

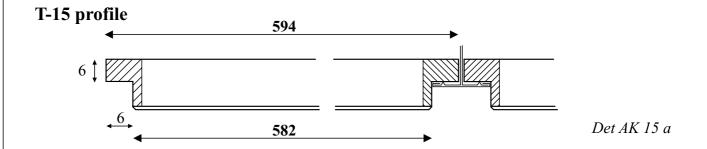


Demountable ceiling panel with visible profile:

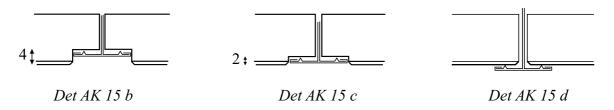


Dimensions without wooden edge:

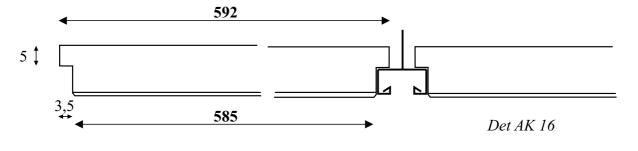




Dimensions without wooden edge:

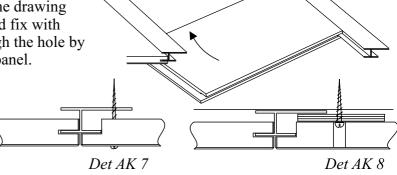


Fineline or Chicago 3500 profile



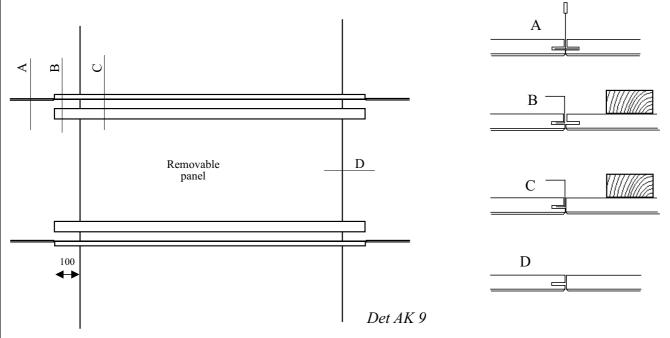
Removable inspection panel:

Inspection panels can be done according to the drawing by sawing the other lap off from one edge and fix with screws. Perforated panels can be fixed through the hole by gluing a plywood list on the rear side of the panel.



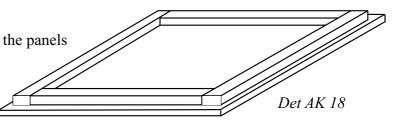
Removable inspection panel with wood battens:

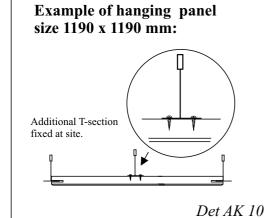
T-profile will be cut 100 mm before the edge of the removable panel, and it will be replaced with U-profile. The wooden hanging battens are ready-fixed to the back side of the removable panel.

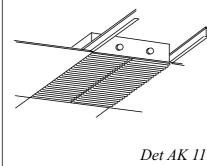


Over-size panels:

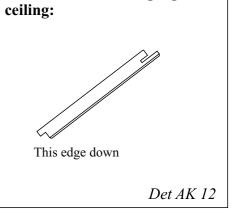
If the hanging distance exceeds 600 mm, the panels have to reinforced some way to prevent bending. The reinforcement can be made for example with wooden profiles screwed and glued behind the panel.





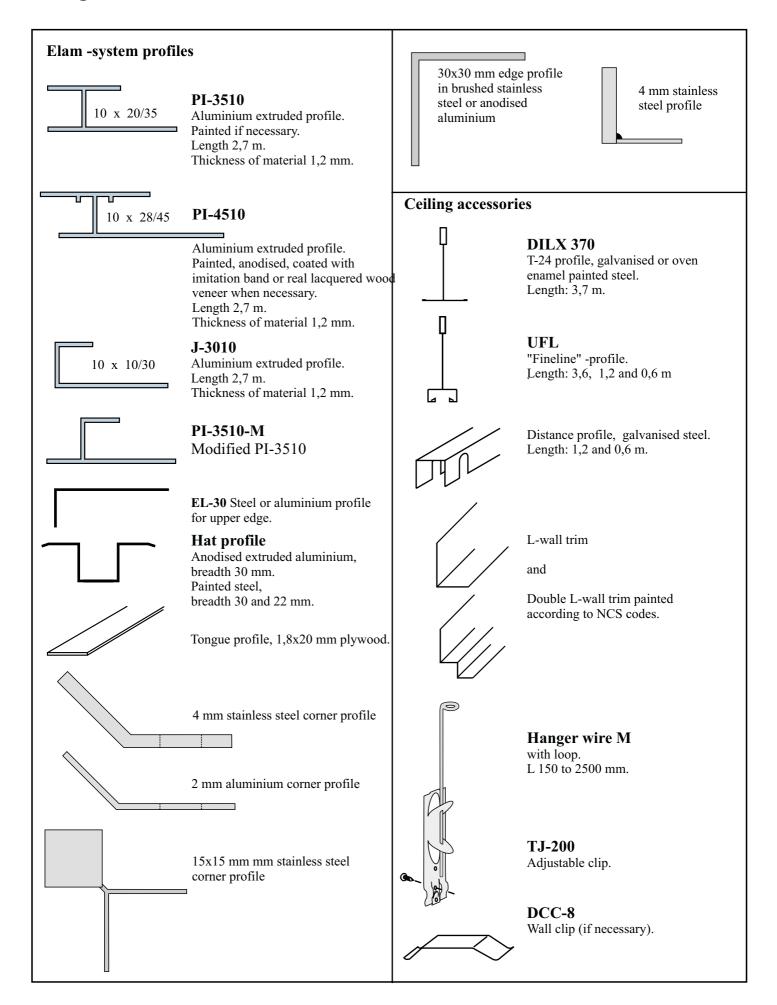


Installation of lighting:



Panel direction in sloping

Fixing accessories in metal:



Wood mouldings:

KLT-system: Fixing with PI-aluminium profiles. Requires exact dimensioning and straightness of wall constructions.

KRL-system: Fixing with screw or glue. Allows to use of sawn edges making the installation work easier.

