

# CPC COOPERATIVE PATENT CLASSIFICATION

## E FIXED CONSTRUCTIONS

### BUILDING

#### E04 BUILDING (layered materials, layered products in general [B32B](#))

#### E04F FINISHING WORK ON BUILDINGS, e.g. STAIRS, FLOORS (windows, doors [E06B](#))

##### WARNING

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

[E04F 11/09](#)

covered by

[E04F 11/02](#)

[E04F 11/17](#)

covered by

[E04F 11/16](#)

10/00	<b>Sunshades, {e.g. Florentine blinds or жалюзи; Outside screens (<a href="#">E06B 9/26</a> takes precedence)}; Awnings {or baldachins (for caravans <a href="#">B60P 3/343</a>)}; (trailer awnings <a href="#">E04H 15/08</a>; for tents <a href="#">E04H 15/58</a>)</b>	10/0662	. . . {with arrangements for fastening the blind to the building}
10/005	. {Rigidly-arranged sunshade roofs with coherent surfaces}	10/0666	. . . {Accessories}
10/02	. of flexible canopy materials, e.g. canvas {; Baldachins}	10/067	. . . {acting as intermediate support of the flexible canopy}
10/04	. . with material fixed on sections of a collapsible frame {especially Florentine blinds}	10/0674	. . . {acting as separate supporting bar}
10/06	. . comprising a roller-blind with means for holding the end away from a building	10/0677	. . . {acting as centre bearing}
10/0603	. . . {with telescopic arms}	10/0681	. . . {Support posts for the movable end of the blind}
10/0607	. . . {with guiding-sections for supporting the movable end of the blind}	10/0685	. . . {Covers or housings for the rolled-up blind}
10/0611	. . . {with articulated arms supporting the movable end of the blind for deployment of the blind}	10/0688	. . . {with the housing taking up the articulated arms}
10/0614	. . . {whereby the pivot axis of the articulation is parallel to the roller}	10/0692	. . . {Front bars}
10/0618	. . . {whereby the pivot axis of the articulation is perpendicular to the roller}	10/0696	. . . {with means to attach an auxiliary screen}
10/0622	. . . {whereby the plane defined by three consecutive articulation points of an articulated arm is not parallel to the rotation axis of the roller, e.g. to create a saddle type roof construction or to prevent contact between the cloth and the arm sections}	10/08	. of a plurality of similar rigid parts, e.g. slabs, lamellae {( <a href="#">E04F 10/005</a> takes precedence)}
10/0625	. . . {whereby the roller is installed on the articulated arms}	10/10	. . collapsible {or extensible; metallic Florentine blinds; awnings with movable parts such as louveres; (shutters <a href="#">E06B 9/04</a> ; louver windows <a href="#">E06B 7/08</a> )}
10/0629	. . . {whereby the arm is of the lazy tong type}	11/00	<b>Stairways, ramps, or like structures (mounting or marking-off stairways <a href="#">E04F 21/26</a>; of temporary {use during building} construction <a href="#">E04G 27/00</a>; means for facilitating access to swimming pools <a href="#">E04H 4/144</a>; {means for facilitating access to swimming pools <a href="#">E04H 4/144</a>; appliances for aiding patients or disabled persons to walk <a href="#">A61H 3/00</a>)}; <b>Balustrades; Handrails</b> (ladders permanently attached to fixed structures <a href="#">E06C 9/00</a>)</b>
10/0633	. . {Arrangements for fastening the flexible canopy material to the supporting structure (fastening roller shutters to rollers <a href="#">E06B 9/171</a> )}	11/002	. {Ramps}
10/0637	. . {with mechanisms for adjusting the inclination of the blind}	2011/005	. . {collapsible, e.g. folding, telescopic}
10/064	. . . {whereby the mechanism changes the inclination of the blind during unrolling}	2011/007	. . {characterised by the supporting structure}
10/0644	. . . {with mechanisms for unrolling or balancing the blind}	11/02	. Stairways; Layouts thereof
10/0648	. . . {acting on the roller tube}	11/0201	. . {Space-saving stairways, e.g. having half steps}
10/0651	. . . {acting on the arms}	2011/0203	. . {Miscellaneous features of stairways not otherwise provided for}
10/0655	. . . {acting on the movable end, e.g. front bar}	2011/0205	. . . {Stairways characterised by the use of specific materials for the supporting structure of the treads}
10/0659	. . . {Control systems therefor}	2011/0207	. . . {mainly of wood}
		2011/0209	. . . {mainly of metal}
		2011/021	. . . {mainly of stone or stone like materials, e.g. concrete; mainly of glass}
		2011/0212	. . . {mainly of concrete}

2011/0214	. . . . . {cast <u>in situ</u> }	11/18	. Balustrades; Handrails ( <u>guard-rails on ships B63B</u> ; <u>for bridges E01D 19/10</u> ; <u>for roads E01F 13/00</u> , <u>E01F 15/00</u> ; <u>fences E04H 17/00</u> {; <u>safety measures for persons during the construction of buildings E04G 21/32</u> )
2011/0216	. . . . . {mainly of glass}	11/1802	. . {Handrails mounted on walls, e.g. on the wall side of stairs}
2011/0218	. . . . {mainly of organic plastics with or without reinforcements or filling materials}	11/1804	. . . {Details of anchoring to the wall}
11/022	. . characterised by the supporting structure	2011/1806	. . . {Balcony guard with additional child safety means}
11/0223	. . . {Cantilevered stairways ( <u>E04F 11/032 takes precedence</u> )}	11/1808	. . . {Handrail members; Connections between handrail members}
11/0226	. . . {Stairways having treads supported by balusters}	11/181	. . {Balustrades}
11/025	. . . Stairways having stringers {( <u>E04F 11/035 takes precedence</u> )}	11/1812	. . . {Details of anchoring to the wall or floor}
11/0255	. . . . {having adjustable gradient ( <u>E04F 11/1041 takes precedence</u> )}	11/1814	. . . . {Covers for the base portions of the balustrade posts}
11/028	. . . . having a central stringer	11/1817	. . . {Connections therefor ( <u>E04F 11/1812 and E04F 11/1836 take precedence</u> )}
11/032	. . . Spiral stairways supported by a central column	2011/1819	. . . . {between balustrade posts and horizontal or sloping balustrade members}
11/035	. . . Stairways consisting of a plurality of assembled modular parts without further support {( <u>E04F 11/032 takes precedence</u> )}	2011/1821	. . . . . {between balustrade posts and handrails}
11/038	. . . . each modular part having a load-bearing balustrade part	2011/1823	. . . . {between balustrade filling members, e.g. balusters or panels, and horizontal or sloping balustrade members}
11/04	. . Movable stairways, e.g. of loft ladders which may or may not be concealable or extensible ( <u>ship ladders B63B</u> ; <u>stairs for aircraft B64F</u> ; <u>escalators or moving walkways B66B</u> )	2011/1825	. . . . . {between balustrade filling members, e.g. balusters or panels, and handrails}
11/06	. . . collapsible, e.g. folding, telescopic	2011/1827	. . . . . {between balusters and handrails}
11/062	. . . . {folding}	2011/1829	. . . . . {between filling panels and handrails}
11/064	. . . . . {with stringers overlapping when folded}	2011/1831	. . . . . {between balustrade filling members, e.g. panels, and balustrade posts}
11/066	. . . . . {folding like scissors or accordions}	11/1834	. . . . . {with adjustable angle, e.g. pivotal connections}
11/068	. . . . {telescopic}	11/1836	. . . {Handrails of balustrades; Connections between handrail members}
11/09	. . Tread-and-riser units	11/1838	. . . . {Laterally displaced handrail}
11/104	. . Treads	11/184	. . . . {of variable curvature; flexible}
11/1041	. . . {having means to adjust the height, the depth and/or the slope of the stair steps ( <u>E04F 11/1042 - E04F 11/116 take precedence</u> )}	11/1842	. . . {Balusters; Grille-type elements}
11/1042	. . . {with an upper layer of fibres or chips, e.g. bonded with synthetic resins}	11/1844	. . . . {Grille-type elements}
11/1043	. . . {with an upper layer of organic plastics with or without reinforcements or filling materials}	11/1846	. . . . {Balusters with means for fixing to the floor}
11/1045	. . . {composed of several layers, e.g. sandwich panels ( <u>layered products in general B32B</u> ; <u>producing decorative panels or veneers B44C 5/04</u> )}	11/1848	. . . . {Separate means for spacing balusters apart}
2011/1046	. . . {Miscellaneous features of treads not otherwise provided for}	11/1851	. . . {Filling panels, e.g. concrete, sheet metal panels}
2011/1047	. . . . {with means for eliminating squeak}	11/1853	. . . . {Glass panels}
2011/1048	. . . . {with lighting means}	11/1855	. . . . {Wire mesh panels}
11/108	. . . of wood {or with an upper layer of wood}	11/1857	. . . . {Flexible panels or nets}
11/112	. . . of metal {or with an upper layer of metal}	11/1859	. . . {Wire cables or the like filling elements}
11/116	. . . of stone, concrete or like material {or with an upper layer of stone or stone like material, e.g. ceramics, concrete; of glass or with an upper layer of glass}	11/1861	. . . {with additional safety means for children, e.g. nets or fillings between balusters}
11/16	. . . Surfaces thereof; Protecting means for edges or corners thereof ({ <u>loosely laid coverings,</u> } <u>floor fabrics, fastenings therefor A47G 27/00</u> )	11/1863	. . {Built-in aids for ascending or descending stairs ( <u>lifts associated with stairs B66B 9/08</u> )}
11/163	. . . . {Protecting means for edges or corners}	11/1865	. . {Collapsible or portable balustrades}
11/166	. . . . . {with means for fixing a separate edging strip}	2011/1868	. . {Miscellaneous features of handrails not otherwise provided for}
11/17	. . . . Surfaces {( <u>guard covers of stairs E04G 21/30</u> )}	2011/187	. . . {lengthwise adjustable, e.g. telescopic}
11/175	. . . . . {Covering panels for tread restoration}	2011/1872	. . . {illuminated}
		2011/1874	. . . {Noise reduction}
		2011/1876	. . . {Movable elements, e.g. against sunlight}
		2011/1878	. . . {Heat exchanger}
		2011/188	. . . {with flower pots}
		2011/1882	. . . {with traction cable inside post or rail}
		2011/1885	. . {Handrails or balusters characterized by the use of specific materials}
		2011/1887	. . . {mainly of wood}

- 2011/1889 . . . {mainly of metal}
- 2011/1891 . . . {mainly of stone or stone like materials, e.g. concrete; mainly of glass}
- 2011/1893 . . . . {mainly of concrete}
- 2011/1895 . . . . {mainly of glass}
- 2011/1897 . . . {mainly of organic plastics with or without reinforcements or filling materials}
  
- 13/00 Coverings or linings, e.g. for walls or ceilings**  
(flooring [E04F 15/00](#); decoration of surfaces, mosaic work [B44](#), e.g. paper-hanging [B44C 7/00](#); made of webs, e.g. of fabrics or wallpaper {, as such, or their manufacturing} [D03D](#), [D04G](#), [D04H](#), [D06N](#), [D21H](#); construction of {false} ceilings [E04B 9/00](#); roofings or similar water-tight coverings against precipitation [E04D](#))
- 13/002 . {made of webs, e.g. of fabrics, or wallpaper, used as coverings or linings (of a number of similar elements carried by a common web [E04F 13/0862](#); paperhanging, tapestry work [B44C 7/00](#))}
- 13/005 . . {Stretched foil- or web-like elements attached with edge gripping devices}
- 13/007 . {Outer coverings for walls with ventilating means}
- 13/02 . of plastic materials hardening after applying, e.g. plaster (surface treatment in painting technique [B44D](#); inorganic or bituminous masses [C04B](#); organic plastics [C08L](#) {; implements for applying plasticised materials [E04F 21/02](#)})
- 13/04 . . Bases for plaster (sub-ceilings with plaster-carrying means [E04B 9/06](#))
- 13/042 . . . {Joint tapes}
- 13/045 . . . {Means for fastening plaster-bases to a supporting structure}
- 13/047 . . . {Plaster carrying meshes}
- 13/06 . . . Edge-protecting borders {(borders for joints between plaster layers and window or door frames or like [E06B 1/62](#))}
- 2013/061 . . . . {for arched or curved edges}
- 2013/063 . . . . {for corners}
- 2013/065 . . . . {for lower edges of outer insulation layers}
- 2013/066 . . . . {for expansion joints between two plaster layers}
- 13/068 . . . . {combined with mesh material or the like to allow plaster to bond therewith}
- 13/07 . composed of covering or lining elements; Sub-structures therefor; Fastening means therefor
- 13/072 . . composed of specially adapted, structured or shaped covering or lining elements
- 13/073 . . . for particular building parts, e.g. corners or columns
- 13/0733 . . . . {for corners}
- 13/0736 . . . . {for columns}
- 13/074 . . . for accommodating service installations or utility lines, e.g. heating conduits, electrical lines, lighting devices or service outlets {(not used; accommodating heating conduits [F24D](#); accommodating electrical cables or lines [H02G 3/00](#); accommodating lighting devices [F21V 33/006](#))}
- 13/075 . . . for insulation or surface protection, e.g. against noise or impact {(not used; for insulation, e.g. against noise [E04B 1/00](#))}
- 13/076 . . . characterised by the joints between neighbouring elements, e.g. with joint fillings or with tongue and groove connections {(not used, see [E04F 13/0889](#))}
- 13/077 . . . composed of several layers, e.g. sandwich panels ([E04F 13/075](#) takes precedence) {(not used, see [E04F 13/0866](#))}
- 13/078 . . . Stretched foil- or web-like elements attached with edge gripping devices {(not used, see [E04F 13/005](#))}
- 13/08 . . composed of a plurality of similar covering or lining elements, ([E04F 13/072](#) takes precedence; borders, skirtings [E04F 19/02](#); {of webs or fabrics [E04F 13/002](#); fixing strips [E04F 19/06](#); separate provisional spacers between adjacent tiles [E04F 21/0092](#); implements or means for setting tiles [E04F 21/18](#)})
- 13/0801 . . . . {Separate fastening elements ([E04F 13/088](#), [E04F 13/0885](#) take precedence)}
- 13/0803 . . . . {with load-supporting elongated furring elements between wall and covering elements}
- 13/0805 . . . . . {with additional fastening elements between furring elements and the wall}
- 13/0807 . . . . . {adjustable perpendicular to the wall}
- 13/0808 . . . . . {adjustable in several directions one of which is perpendicular to the wall}
- 13/081 . . . . . {with additional fastening elements between furring elements and covering elements}
- 13/0812 . . . . . {fixed by means of spring action}
- 13/0814 . . . . . {fixed by means of clamping action}
- 13/0816 . . . . . {the additional fastening elements extending into the back side of the covering elements ([E04F 13/083](#) takes precedence)}
- 13/0817 . . . . . {extending completely through the covering elements}
- 13/0819 . . . . . {inserted into grooves in the back side of the covering elements}
- 13/0821 . . . . . {the additional fastening elements located in-between two adjacent covering elements}
- 13/0823 . . . . . {piercing the side faces of the covering elements}
- 13/0825 . . . . . {engaging side holes preformed into the covering elements}
- 13/0826 . . . . . {engaging side grooves running along the whole length of the covering elements}
- 13/0828 . . . . . {engaging the outer surface of the covering elements, e.g. at the corners}
- 13/083 . . . . . {Hooking means on the back side of the covering elements}
- 13/0832 . . . . {without load-supporting elongated furring elements between wall and covering elements}
- 13/0833 . . . . . {not adjustable ([E04F 13/0857](#) takes precedence; not used, see subgroups)}
- 13/0835 . . . . . {the fastening elements extending into the back side of the covering elements ([E04F 13/0851](#) takes precedence)}
- 13/0837 . . . . . {extending completely through the covering elements}

- 13/0839 . . . . . {the fastening elements situated at the corners of the covering elements, not extending through the covering}
- 13/0841 . . . . . {the fastening elements engaging the outer surface of the covering elements, not extending through the covering ([E04F 13/0839](#) and [E04F 13/0846](#) take precedence)}
- 13/0842 . . . . . {specially adapted for thin sheet-like materials, e.g. sheet-metal or plastics}
- 13/0844 . . . . . {with means piercing the side faces of the covering elements}
- 13/0846 . . . . . {the fastening elements engaging holes or grooves in the side faces of the covering elements ([E04F 13/0835](#) and [E04F 13/0839](#) take precedence)}
- 13/0848 . . . . . {specially adapted for thin sheet-like materials, e.g. sheet-metal or plastics}
- 13/085 . . . . . {with means piercing the side faces of the covering elements}
- 13/0851 . . . . . {Hooking means on the back side of the covering elements}
- 13/0853 . . . . . {adjustable perpendicular to the wall}
- 13/0855 . . . . . {adjustable in several directions, one of which is perpendicular to the wall}
- 13/0857 . . . . . {Supporting consoles, e.g. adjustable only in a direction parallel to the wall ([E04F 13/0853](#) takes precedence)}
- 13/0858 . . . . . {fixed by means of spring action}
- 13/086 . . . . . {fixed by means of clamping action}
- 13/0862 . . . {composed of a number of elements which are identical or not, e.g. carried by a common web, support plate or grid}
- 13/0864 . . . {composed of superposed elements which overlap each other and of which the flat outer surface includes an acute angle with the surface to cover}
- 13/0866 . . . {composed of several layers, e.g. sandwich panels or layered panels (layered products as such in general [B32B](#); producing decorative panels or veneers [B44C 5/04](#); [E04F 13/0864](#), [E04F 13/0875](#) take precedence)}
- 13/0867 . . . {having acoustic absorption means on the visible surface}
- 13/0869 . . . {having conduits for fluids}
- 13/0871 . . . {having an ornamental or specially shaped visible surface ([E04F 13/0867](#) takes precedence)}
- 13/0873 . . . . {the visible surface imitating natural stone, brick work, tiled surface or the like ([E04F 13/105](#), [E04F 13/123](#), [E04F 13/147](#), [E04F 13/165](#), [E04F 13/185](#) take precedence)}
- 13/0875 . . . {having a basic insulating layer and at least one covering layer}
- 13/0876 . . . . {the covering layer comprising mutual alignment or interlocking means}
- 13/0878 . . . . {the basic insulating layer comprising mutual alignment or interlocking means}
- 13/088 . . . {fixed directly to the wall by means of magnets, hook and loop-type or similar fasteners, not necessarily involving the side faces of the covering element}
- 13/0882 . . . . {by hook and loop-type fasteners}
- 13/0883 . . . . {by magnets}
- 13/0885 . . . {specially adapted for being adhesively fixed to the wall; Fastening means therefor; Fixing by means of plastics materials hardening after application}
- 13/0887 . . . . {Adhesive means specially adapted therefor, e.g. adhesive foils or strips}
- 13/0889 . . . {characterised by the joints between neighbouring elements, e.g. with joint fillings or with tongue and groove connections}
- 13/0891 . . . . {with joint fillings}
- 13/0892 . . . . {with means for aligning the outer surfaces of the covering elements ([E04F 13/0894](#) takes precedence)}
- 13/0894 . . . . {with tongue and groove connections}
- 13/0896 . . . . {with adhesive joining strips ([E04F 13/0894](#), [E04F 13/0898](#) take precedence)}
- 13/0898 . . . . {with sealing elements between coverings (sealings of joints between building constructions in general [E04B 1/68](#))}
- 13/09 . . . of elements attached to a common web, support plate or grid {(not used, see [E04F 13/0862](#))}
- 13/10 . . . of wood {or with an outer layer of wood ([E04F 13/0864](#) takes precedence)}
- 13/105 . . . . {with an outer layer imitating natural stone, brick work, tiled surface or the like}
- 13/12 . . . of metal {or with an outer layer of metal or enameled metal ([E04F 13/0864](#) takes precedence)}
- 13/123 . . . . {with an outer layer imitating natural stone, brick work, tiled surface or the like}
- 13/126 . . . . {with an outer layer of wire mesh, wire grid or the like, e.g. gabions}
- 13/14 . . . stone or stone-like materials, e.g. ceramics {concrete,}; of glass {or with an outer layer of stone or stone-like materials or glass ([E04F 13/0864](#) takes precedence; producing shaped elements from concrete, ceramic compositions or other stone-like materials [B28B](#); prefabricated panels in general [E04C 2/00](#))}
- 13/141 . . . . {with an outer layer of concrete ([E04F 13/147](#) takes precedence)}
- 13/142 . . . . {with an outer layer of ceramics or clays}
- 13/144 . . . . {with an outer layer of marble or other natural stone}
- 13/145 . . . . {with an outer layer of glass}
- 13/147 . . . . {with an outer layer imitating natural stone, brick work or the like}
- 13/148 . . . . {with an outer layer of asbestos cement or the like}
- 13/15 . . . . characterised by the use of glass elements {, i.e. wherein an outer layer is not of glass ([E04F 13/145](#) takes precedence)}
- 13/16 . . . of fibres or chips, e.g. bonded with synthetic resins {, or with an outer layer of fibres or chips ([E04F 13/0864](#) takes precedence)}
- 13/165 . . . . {with an outer layer imitating natural stone, brick work, tiled surface or the like}
- 13/18 . . . of organic plastics with or without reinforcements or filling materials (of plastic-bound fibres or chips [E04F 13/16](#)) {or with an outer layer of organic plastics with or without reinforcements or filling materials; plastic tiles ([E04F 13/0864](#) takes precedence)}



- 13/185 . . . . {with an outer layer imitating natural stone, brick work, tiled surface or the like}
- 13/21 . . Fastening means specially adapted for covering or lining elements {(not used, [see E04F 13/0801](#))}
- 13/22 . . . Anchors, support angles or consoles {(not used, [see E04F 13/0801](#))}
- 13/23 . . . . adjustable {(not used, [see E04F 13/0801](#))}
- 13/24 . . . Hidden fastening means on the rear of the covering or lining elements ([E04F 13/30 takes precedence](#)) {(not used, [see E04F 13/0801](#))}
- 13/25 . . . . adjustable {(not used, [see E04F 13/0801](#))}
- 13/26 . . . Edge engaging fastening means, e.g. clamps, clips or border profiles {(not used, [see E04F 13/0801](#))}
- 13/28 . . . . adjustable {(not used, [see E04F 13/0801](#))}
- 13/30 . . . Magnetic fastening means {(not used, [see E04F 13/0883](#))}
- 15/00** **Flooring** (stair treads [E04F 11/104](#); coverings not specially adapted for floors [E04F 13/00](#); borders, skirtings [E04F 19/02](#); {implements for laying flooring [E04F 21/20](#);} gratings for cleaning soles of footwear [A47L 23/24](#); {built-in gratings [E04F 19/10](#); removing floor coverings [E04G 23/00](#); carpets [A47G 27/00](#);} of similar materials to roads [E01C](#); basic or rough floors {, structural floors} [E04B 5/00](#))
- 15/02 . . Flooring or floor layers composed of a number of similar elements (of webs [E04F 15/16](#))
- 15/02005 . . {Construction of joints, e.g. dividing strips ([E04F 15/024](#), [E04F 15/04](#), [E04F 15/06](#), [E04F 15/10](#) and [E04F 15/14](#) take precedence; separate provisional spacers [E04F 21/0092](#))}
- 15/02011 . . . {with joint fillings integrated in the flooring elements}
- 15/02016 . . . {with sealing elements between flooring elements (sealings of joints between building constructions in general [E04B 1/68](#))}
- 15/02022 . . . {with means for aligning the outer surfaces of the flooring elements ([E04F 15/02038 takes precedence](#))}
- 15/02027 . . . {Means for spacing the flooring from an adjoining wall}
- 15/02033 . . . {Joints with beveled or recessed upper edges}
- 15/02038 . . {characterised by tongue and groove connections between neighbouring flooring elements}
- 15/02044 . . {Separate elements for fastening to an underlayer ([E04F 15/02133](#), [E04F 15/0215](#) take precedence)}
- 2015/0205 . . . {with load-supporting elongated furring elements between the flooring elements and the underlayer}
- 2015/02055 . . . . {with additional supporting elements between furring elements and underlayer}
- 2015/02061 . . . . {adjustable perpendicular to the underlayer}
- 2015/02066 . . . . {with additional fastening elements between furring elements and flooring elements}
- 2015/02072 . . . . {the additional fastening elements extending into the back side of the flooring elements ([E04F 2015/021 takes precedence](#))}
- 2015/02077 . . . . {the additional fastening elements located in-between two adjacent flooring elements}
- 2015/02083 . . . . . {Piercing the side faces of the flooring elements}
- 2015/02088 . . . . . {Engaging side holes preformed into the flooring elements}
- 2015/02094 . . . . . {Engaging side grooves running along the whole length of the flooring elements}
- 2015/021 . . . . . {fixed by means of hooking means on the back side of the flooring elements}
- 2015/02105 . . . {without load-supporting elongated furring elements between the flooring elements and the underlayer}
- 2015/02111 . . . . {not adjustable}
- 2015/02116 . . . . . {with fastening elements extending into the back side of the flooring elements}
- 2015/02122 . . . . . {with fastening elements engaging holes or grooves in the side faces of the flooring elements ([E04F 2015/02116 takes precedence](#))}
- 2015/02127 . . . . {adjustable perpendicular to the underlayer ([E04F 15/02464 takes precedence](#))}
- 15/02133 . . {fixed directly to an underlayer by means of magnets, hook and loop-type or similar fasteners, not necessarily involving the side faces of the flooring elements}
- 15/02138 . . . {by hook and loop-type fasteners}
- 15/02144 . . . {by magnets}
- 15/0215 . . {specially adapted for being adhesively fixed to an underlayer; Fastening means therefor; Fixing by means of plastics materials hardening after application}
- 15/02155 . . . {Adhesive means specially adapted therefor, e.g. adhesive foils or strips}
- 15/02161 . . {Floor elements with grooved main surface}
- 15/02166 . . . {wherein the grooves are filled with inserts}
- 15/02172 . . {Floor elements with an anti-skid main surface, other than with grooves}
- 15/02177 . . {Floor elements for use at a specific location (not used, [see subgroups](#))}
- 15/02183 . . . {for outdoor use, e.g. in decks, patios, terraces, verandas or the like}
- 15/02188 . . . {for use in wet rooms}
- 15/02194 . . {Flooring consisting of a number of elements carried by a non-rollable common support plate or grid ([E04F 15/022 takes precedence](#))}
- 15/022 . . Flooring consisting of parquetry tiles on a non-rollable sub-layer of other material, e.g. board, concrete, cork
- 15/024 . . Sectional false floors, e.g. computer floors {(height-adjustable supports for terrace roof coverings [E04D 11/00](#); underfloor heating using water [F24D 3/142](#), using air [F24D 5/10](#); installation of cables, lines or protective tubing in floors [H02G 3/28](#))}
- 15/02405 . . . {Floor panels}
- 15/02411 . . . . {with integrated feet ([E04F 15/02417 takes precedence](#))}
- 15/02417 . . . . {made of box-like elements}
- 15/02423 . . . . . {filled with core material}
- 15/02429 . . . . . {the core material hardening after application}
- 15/02435 . . . . {Sealing joints}
- 15/02441 . . . . . {Sealing strips integrated with the floor panels}

- 15/02447 . . . {Supporting structures}
- 15/02452 . . . . {Details of junctions between the supporting structures and the panels or a panel-supporting framework}
- 15/02458 . . . . {Framework supporting the panels}
- 15/02464 . . . . {Height adjustable elements for supporting the panels or a panel-supporting framework}
- 15/0247 . . . . . {Screw jacks}
- 15/02476 . . . . . {height-adjustable from the upper side of the floor}
- 15/02482 . . . . . {with a variable angle between panel and support}
- 15/02488 . . . . . {filled with material hardening after application}
- 15/02494 . . . . . {with a plurality of base plates or like, each base plate having a plurality of pedestals upstanding therefrom to receive the floor panels}
- 15/04 . . only of wood {or with a top layer of wood}, e.g. with wooden {or metal} connecting members (rollable parquet [E04F 15/16](#))
- 15/041 . . . {with a top layer of wood in combination with a lower layer of other material}
- 15/042 . . . . {the lower layer being of fibrous or chipped material, e.g. bonded with synthetic resins}
- 15/043 . . . . {the lower layer being of organic plastic with or without reinforcements or filling materials}
- 15/045 . . . {Layered panels only of wood}
- 15/046 . . . . {Plywood panels}
- 15/047 . . . {with a butcher-block like top surface}
- 15/048 . . . {with a top surface of assembled elongated wooden strip type}
- 15/06 . . of metal, whether or not in combination with other material (gratings as building elements [E04C 2/42](#) ; of elements with a metal upper layer; [E04F 15/02405](#) takes precedence; metal treads [E04F 11/112](#))
- 15/08 . . only of stone or stone-like material, e.g. {ceramics}, concrete; of glass {or with a top layer of stone or stone-like material, e.g. ceramics, concrete or glass ([E04F 15/02005](#) takes precedence)}
- 15/082 . . . {with a top layer of stone or stone-like material, e.g. ceramics, concrete or glass in combination with a lower layer of other material}
- 15/085 . . . . {The lower layer being of fibrous or chipped material, e.g. bonded with synthetic resins}
- 15/087 . . . . {The lower layer being of organic plastic with or without reinforcements or filling materials}
- 15/10 . . of other materials, e.g. fibrous or chipped materials, organic plastics, magnesite {tiles}, hardboard {, or with a top layer of other materials}
- 15/102 . . . {of fibrous or chipped materials, e.g. bonded with synthetic resins}
- 15/105 . . . {of organic plastics with or without reinforcements or filling materials}
- 15/107 . . . {composed of several layers, e.g. sandwich panels (layered products in general [B32B](#); producing decorative panels or veneers [B44C 5/04](#))}
- 15/12 . . Flooring or floor layers made of masses in situ, e.g. seamless magnesite floors, terrazzo {gypsum floors} (inorganic or bituminous masses [C04B](#); organic plastic masses [C08L](#))
- 15/123 . . {Lost formworks for producing hollow floor screed layers, e.g. for receiving installations, ducts, cables (structural floors [E04B 5/00](#); filling elements for building-up floors [E04B 5/26](#); installation of cables, lines or protective tubing in floors [H02G 3/28](#))}
- 15/126 . . {Terrazzo floors}
- 15/14 . . Construction of joints, e.g. dividing strips ([E04F 15/02005](#) takes precedence; ) sealing joints not restricted to flooring [E04B 1/68](#) {, construction of joints in roads or airfields [E01C 11/02](#))}
- 15/142 . . . {Dividing strips or boundary strips}
- 15/145 . . . . {adjustable in height}
- 15/147 . . . . {interconnected to form a grid-like structure}
- 15/16 . . Flooring, e.g. parquet on flexible web, laid as flexible webs; Webs specially adapted for use as flooring; {Parquet on flexible web} (resiliently-mounted floors, e.g. sprung floors, [E04F 15/22](#); linoleum [D06N](#); {carpets [A47G 27/00](#))}
- 15/163 . . {Webs specially adapted for use as finishing layers}
- 15/166 . . {Flooring consisting of a number of elements carried by a common flexible web, e.g. rollable parquet}
- 15/18 . . Separately-laid insulating layers; Other additional insulating measures; Floating floors (insulating of buildings in general [E04B 1/62](#))
- 15/181 . . {Insulating layers integrally formed with the flooring or the flooring elements}
- 15/182 . . {Underlayers coated with adhesive or mortar to receive the flooring}
- 15/183 . . . {for areas prone to frost damage, e.g. for balconies or terraces}
- 15/185 . . {Underlayers in the form of studded or ribbed plates}
- 15/186 . . {Underlayers covered with a mesh or the like}
- 15/187 . . {Underlayers specially adapted to be laid with overlapping edges}
- 15/188 . . {Edge insulation strips, e.g. for floor screed layers (boundary strips in layers made of masses in situ [E04F 15/142](#))}
- 15/20 . . for sound insulation
- 15/203 . . . {Separately-laid layers for sound insulation}
- 15/206 . . . {Layered panels for sound insulation}
- 15/22 . . Resiliently-mounted floors, e.g. sprung floors (laid as webs [E04F 15/16](#))
- 15/225 . . {Shock absorber members therefor}
- 17/00 Vertical ducts; Channels, e.g. for drainage** (pipes in general [F16L](#); pipe-line systems [F17D](#) ; drainage devices in floors [E03F 5/04](#); roof drainage [E04D 13/04](#))
- 17/005 . . {Lift shafts}

- 17/02 . for carrying away waste gases, e.g. flue gases (free-standing chimneys [E04H 12/28](#); connections between fireplace and chimney, chimney fittings, covers for cleaning holes of chimneys [F23J](#); chimney tops [F23L](#)); Building elements specially designed therefor, e.g. shaped bricks or sets thereof ((coke-ovens [C10B](#); working measures on existing vertical ducts [E04G 23/02](#); apparatus for inserting new lining elements in existing ducts [E04G 21/16](#); metallic chimneys, linings, joints and spacers therefor [F23J 11/00](#), [F23J 13/00](#))}
- 17/023 . . {made of masonry, concrete or other stone-like material; Insulating measures and joints therefor}
- 17/026 . . {Exterior cladding, e.g. of chimney parts extending above the roof; Rain covers for chimney tops without draught-inducing aspects (inducing draught in chimneys [F23L 17/00](#))}
- 17/04 . Air-ducts or air channels ((heating in general [F24](#); ventilating rooms in general [F24F](#))}
- 17/06 . Light shafts, e.g. for cellars
- 17/08 . for receiving utility lines, e.g. cables, pipes (covers giving access to the ducts or channels, covers of inspection holes [E04F 19/08](#))
- 17/10 . Arrangements in buildings for the disposal of refuse (refuse bins, gathering or removal of refuse [B65F](#))
- 17/12 . . Chutes
- 17/123 . . . {Cleaning or disinfecting thereof}
- 17/126 . . . . {with water flushing}
- 19/00 Other details of constructional parts for finishing work on buildings (ladders, e.g. climbing irons, [E06C 9/04](#))**
- 19/005 . {Chimney mantel pieces}
- 19/02 . Borders; Finishing strips, e.g. beadings; Light coves (for protecting edges of plaster [E04F 13/06](#))
- 19/022 . . {for use at vertical intersections of walls ([E04F 19/028](#) takes precedence)}
- 19/024 . . . {for outside use, e.g. imitating brickwork}
- 19/026 . . {specially adapted for cushioning impacts}
- 19/028 . . . {used at protruding corners}
- 19/04 . . for use between floor or ceiling and wall, e.g. skirtings
- 2019/0404 . . . {characterised by the material}
- 2019/0409 . . . . {of wood}
- 2019/0413 . . . . {of metal}
- 2019/0418 . . . . {of stone or stone like material, e.g. ceramics, concrete; of glass}
- 2019/0422 . . . . {of organic plastics with or without reinforcements or filling materials}
- 2019/0427 . . . . . {with a integrally formed hinge}
- 2019/0431 . . . . {of two or more materials}
- 19/0436 . . . {between ceiling and wall}
- 2019/044 . . . {with conduits}
- 2019/0445 . . . . {Ventilating plinths}
- 19/045 . . . {Hygienic or watertight plinths}
- 2019/0454 . . . {with decorative effects}
- 19/0459 . . . {characterised by the fixing method (not used, see subgroups)}
- 19/0463 . . . . {Plinths fixed by snap-action in a direction perpendicular to the wall}
- 19/0468 . . . . {Plinths fixed by hooking in a direction parallel to the wall}
- 19/0472 . . . . {Plinths fixed by means of magnets, hook and loop-type or similar fasteners}
- 19/0477 . . . . {Plinths fixed by means of adhesive}
- 19/0481 . . . {Skirtings or crown mouldings with a separate cladding strip}
- 19/0486 . . . {Corner filling pieces}
- 19/049 . . . {Plinths specially adapted for joining wall coverings to floor surfaces}
- 19/0495 . . . {Plinths fixed around wall openings or around corners of walls}
- 19/06 . . specially designed for securing panels {or masking the edges of wall- or floor-covering elements ([E04F 19/022](#), [E04F 19/026](#) and [E04F 19/04](#) take precedence)}
- 19/061 . . . {used to finish off an edge or corner of a wall or floor covering area (in connection with floor fabrics [A47G 27/045](#); sealings between walls and baths [A47K 3/008](#))}
- 19/062 . . . {used between similar elements (separate provisional spacers [E04F 21/0092](#))}
- 19/063 . . . . {for simultaneously securing panels having different thicknesses}
- 19/064 . . . . {in corners}
- 19/065 . . . {Finishing profiles with a T-shaped cross-section or the like}
- 19/066 . . . . {fixed onto a base profile by means of a separate connector}
- 19/067 . . . . {with means preventing a tipping movement}
- 19/068 . . . . {with means allowing a tipping movement}
- 19/08 . Built-in cupboards; Masks of niches; Covers of holes enabling access to installations ((inspection openings in bathtub aprons [A47K 3/1615](#); covers for electrical distribution boxes [H02G 3/14](#); movable ceiling parts [E04B 9/003](#); removable wall partitions [E04B 2/74](#); ) clean-out doors of chimneys [F23J](#))
- 19/083 . . {Covers with fixing means providing for snap locking}
- 19/086 . . {Covers with magnetic fixing means}
- 19/10 . Built-in gratings, e.g. foot-scrapers
- 21/00 Implements for finishing work on buildings (for working or treating building elements of stone or stone-like material [B28D](#); designed specifically for special details provided for in the other groups of this subclass, see the relevant groups for the details {working measures on existing buildings [E04G 23/00](#); measuring angles or linear dimensions in general [G01B](#), [G01C](#); measuring inclination, e.g. by clinometers or levels [G01C 9/00](#); reference lines, planes or sectors, generated by active optical means [G01C 15/004](#)})**
- 21/0007 . {for mounting doors, windows or frames; their fitting (door-lifters [B66F 15/00](#))}
- 21/0015 . . {for mounting frames}
- 21/0023 . . {for mounting door leaves, window sashes or the like}
- 21/003 . {for marking doors, windows or frames (templates for marking the position of hinges [E05D 11/0009](#); templates for marking the position of doorlocks [E05B 17/06](#))}
- 21/0038 . {for fitting sealing strips or like}
- 21/0046 . {for reshaping butt joints between adjacent panels, e.g. drywall panels ([E04F 21/165](#) takes precedence)}
- 21/0053 . {for installing edge-protecting borders}
- 21/0061 . . {with crimping means}

- 21/0069 . {for cutting or mounting plinths}
- 21/0076 . {for marking and cutting tiles}
- 21/0084 . {Implements for removing filling material from joints}
- 21/0092 . {Separate provisional spacers used between adjacent floor or wall tiles ([E04F 13/0889](#), [E04F 15/02005](#) takes precedence)}
- 21/02 . for applying plasticised masses to surfaces, e.g. plastering walls ({wall covering made of hardening materials [E04F 13/02](#)}; specially for flooring [E04F 21/20](#); implements for painting or decorating [B44](#); applying liquids or other fluent materials to surfaces, in general [B05](#))
- 21/023 . . {for applying adhesive, e.g. glue or mortar, on the covering elements, in particular tiles}
- 21/026 . . {for applying adhesive or joint compound to joint tapes, in particular drywall tapes (joint tapes [E04F 13/042](#); drywall taper tools [E04F 21/1657](#))}
- 21/04 . . Patterns or templates; Jointing rulers {(profile trowels [E04F 21/16](#))}
- 21/05 . . . Supports for jointing rulers
- 21/06 . . Implements for applying plaster, insulating material, or the like {(finishing [E04F 21/16](#))}
- 21/08 . . . Mechanical implements ([E04F 21/14](#) takes precedence; spraying in general [B05B](#); sand-blasting [B24C](#))
- 21/085 . . . . {for filling building cavity walls with insulating materials}
- 21/10 . . . . centrifugally acting
- 21/12 . . . . acting by gas pressure, e.g. steam pressure
- 21/14 . . . in shafts, e.g. chimneys
- 21/16 . . Implements for after-treatment of plaster or the like {before it has hardened or dried}, e.g. smoothing-tools, profile trowels {([E04F 21/04](#), [E04F 21/165](#) take precedence)}
- 21/161 . . . {Trowels}
- 21/162 . . . . {with a blade having a notched or toothed edge}
- 21/163 . . . . {with exchangeable blades}
- 21/165 . for finishing joints, e.g. implements for raking or filling joints, jointers (bricklayers' tools [E04G 21/16](#); repairing, e.g. filling cracks, [E04G 23/02](#) ; wallpaper scrapers or the like [B44C 7/02](#); implements for cleaning joints [A47L 13/10](#))
- 21/1652 . . {for smoothing and shaping joint compound to a desired contour}
- 21/1655 . . {for finishing corner joints}
- 21/1657 . . {for applying tape to joints, e.g. drywall taper tools}
- 21/18 . for setting wall or ceiling slabs or plates (tools for mosaic work [B44C](#))
- 21/1805 . . {Ceiling panel lifting devices}
- 21/1811 . . . {with hand-driven crank systems, e.g. rope, cable or chain winding or rack-and-pinion mechanisms ([E04F 21/1816](#), [E04F 21/1822](#) and [E04F 21/1827](#) take precedence)}
- 21/1816 . . . {fluid pressure-operated ([E04F 21/1822](#) and [E04F 21/1827](#) take precedence)}
- 21/1822 . . . {with pivotally mounted arms}
- 21/1827 . . . {Lazy-tongs mechanisms}
- 21/1833 . . . {spring-force actuated}
- 21/1838 . . {for setting a plurality of similar elements ([E04F 21/1805](#) and [E04F 21/1894](#) take precedence; separate provisional spacers [E04F 21/0092](#))}
- 21/1844 . . . {by applying them one by one}
- 21/185 . . . . {Temporary edge support brackets}
- 21/1855 . . . . {of elongated elements, e.g. sidings}
- 21/1861 . . . . {for setting insulating panels}
- 21/1866 . . . . {using magnets, hook and loop-type fastener or similar means}
- 21/1872 . . . . {using suction-cups}
- 21/1877 . . . {Leveling devices}
- 21/1883 . . . {by simultaneously applying several elements, e.g. templates}
- 21/1888 . . . . {using suction-cups}
- 21/1894 . . {Lever-type lifters gripping the bottom edge of wall panels (door lifters [B66F 15/00](#))}
- 21/20 . for laying flooring (made of similar material to roads or pavements [E01C](#) ; arrangements for removing of previously fixed floor covering [E04G 23/00](#))
- 21/22 . . of single elements, e.g. flooring cramps ; flexible webs (cutting tiles [B28D 1/225](#))}
- 21/24 . . of masses made in situ, e.g. smoothing tools {([E04F 21/04](#) takes precedence; finishing of concrete roads or pavings [E01C 19/40](#); devices for levelling concrete floors [E04G 21/10](#); devices for solidifying concrete floors by vibrating [E04G 21/066](#))}
- 21/241 . . . {Elongated smoothing blades or plates, e.g. screed apparatus}
- 21/242 . . . . {with vibrating means, e.g. vibrating screeds}
- 21/244 . . . . {with means to adjust the working angle of the leveling blade or plate}
- 21/245 . . . {Rotary power trowels, i.e. helicopter trowels}
- 21/247 . . . . {used by an operator sitting on the trowel, i.e. ride-on power trowels}
- 21/248 . . . . {used by an operator walking behind the trowel, i.e. walk-behind power trowels}
- 21/26 . for mounting staircases, e.g. tools for marking steps
- 21/28 . for glazing (glass cutters [C03B 33/10](#))
- 21/30 . . Putty squeezers or guns {(not used, see [B05C 17/002](#))}
- 21/32 . . Putty knives; Putty removers
- 2201/00** **Joining sheets or plates or panels**
- 2201/01** . Joining sheets, plates or panels with edges in abutting relationship
- 2201/0107** . . by moving the sheets, plates or panels substantially in their own plane, perpendicular to the abutting edges
- 2201/0115** . . . with snap action of the edge connectors
- 2201/0123** . . by moving the sheets, plates or panels parallel to the abutting edges
- 2201/013** . . . with snap action of the edge connectors
- 2201/0138** . . by moving the sheets, plates or panels perpendicular to the main plane
- 2201/0146** . . . with snap action of the edge connectors
- 2201/0153** . . by rotating the sheets, plates or panels around an axis which is parallel to the abutting edges, possibly combined with a sliding movement
- 2201/0161** . . . with snap action of the edge connectors



- 2201/0169 . . by rotating the sheets, plates or panels around an axis which is perpendicular to the abutting edges and parallel to the main plane, possibly combined with a sliding movement
- 2201/0176 . . . with snap action of the edge connectors
- 2201/0184 . . by rotating the sheets, plates or panels around an axis which is perpendicular to the abutting edges and perpendicular to the main plane, possibly combined with a sliding movement
- 2201/0192 . . . with snap action of the edge connectors
- 2201/02 . Non-undercut connections, e.g. tongue and groove connections
- 2201/021 . . with separate protrusions
- 2201/022 . . . with tongue or grooves alternating longitudinally along the edge
- 2201/023 . . with a continuous tongue or groove
- 2201/025 . . with tongue and grooves alternating transversally in the direction of the thickness of the panel, e.g. multiple tongue and grooves oriented parallel to each other
- 2201/026 . . with rabbets, e.g. being stepped
- 2201/027 . . connected by tongues and grooves, the centerline of the connection being inclined to the top surface
- 2201/028 . . connected by tongues and grooves with triangular shape
- 2201/03 . Undercut connections, e.g. using undercut tongues or grooves
- 2201/035 . . Dovetail connections
- 2201/04 . Other details of tongues or grooves
- 2201/041 . . Tongues or grooves with slits or cuts for expansion or flexibility
- 2201/042 . . with grooves positioned on the rear-side of the panel
- 2201/043 . . with tongues and grooves being formed by projecting or recessed parts of the panel layers
- 2201/044 . . with tongues or grooves comprising elements which are not manufactured in one piece with the sheets, plates or panels but which are permanently fixedly connected to the sheets, plates or panels, e.g. at the factory ([for separate tongues E04F 2201/0523](#))
- 2201/045 . . . wherein the elements are made of wood
- 2201/046 . . . wherein the elements are made of metal
- 2201/047 . . . wherein the elements are made of stone or stone like material, e.g. ceramics, concrete; of glass
- 2201/048 . . . wherein the elements are made of fibres or chips, e.g. bonded with synthetic resins
- 2201/049 . . . wherein the elements are made of organic plastics with or without reinforcements or filling materials
- 2201/05 . Separate connectors or inserts, e.g. pegs, pins, keys or strips
- 2201/0505 . . Pegs or pins
- 2201/0511 . . Strips or bars, e.g. nailing strips
- 2201/0517 . . U- or C-shaped brackets and clamps
- 2201/0523 . . Separate tongues; Interlocking keys, e.g. joining mouldings of circular, square or rectangular shape
- 2201/0529 . . . the interlocking key acting as a dovetail-type key
- 2201/0535 . . . adapted for snap locking
- 2201/0541 . . . adapted to be moved along the joint edge
- 2201/0547 . . . adapted to be moved perpendicular to the joint edge
- 2201/0552 . . . adapted to be rotated around an axis parallel to the joint edge
- 2201/0558 . . . adapted to be rotated around an axis perpendicular to the joint edge
- 2201/0564 . . . depending on the use of specific materials
- 2201/057 . . . . of wood
- 2201/0576 . . . . of metal
- 2201/0582 . . . . of fibres or chips, e.g. bonded with synthetic resins
- 2201/0588 . . . . of organic plastics with or without reinforcements or filling materials
- 2201/0594 . . Hinge-like connectors
- 2201/06 . Magnets
- 2201/07 . with connections using a special adhesive material
- 2201/08 . hook and loop-type fastener or similar fixing means
- 2201/09 . Puzzle-type connections for interlocking male and female panel edge-parts
- 2201/091 . . with the edge-parts forming part of the panel body
- 2201/093 . . with the edge-parts being separate elements not being part of the panel body
- 2201/095 . . with both connection parts, i.e. male and female connection parts alternating on one edge
- 2201/096 . . with only one type of connection parts, i.e. with male or female on one edge
- 2201/098 . . wherein the interlocking male and female edge-parts have a dovetail, mushroom or similar shape
- 2203/00 Specially structured or shaped covering, lining or flooring elements not otherwise provided for**
- 2203/02 . having particular shapes, other than square or rectangular, e.g. triangular, hexagonal, circular, irregular
- 2203/023 . . having triangular shapes
- 2203/026 . . having hexagonal shapes
- 2203/04 . comprising a plurality of internal elongated cavities arranged in substantially parallel rows
- 2203/06 . comprising two layers fixedly secured to one another, in offset relationship in order to form a rebate
- 2203/065 . . in offset relationship longitudinally as well as transversely
- 2203/08 . with a plurality of grooves or slits in the back side, to increase the flexibility or bendability of the elements
- 2290/00 Specially adapted covering, lining or flooring elements not otherwise provided for**
- 2290/02 . for accommodating service installations or utility lines, e.g. heating conduits, electrical lines, lighting devices or service outlets
- 2290/023 . . for heating
- 2290/026 . . for lighting
- 2290/04 . for insulation or surface protection, e.g. against noise, impact or fire
- 2290/041 . . against noise
- 2290/042 . . . with a facing or top layer for sound insulation
- 2290/043 . . . with a bottom layer for sound insulation
- 2290/044 . . against impact
- 2290/045 . . against fire
- 2290/046 . . . with a facing or top layer for fire insulation
- 2290/047 . . . with a bottom layer for fire insulation
- 2290/048 . . against static electricity