

## ECLA EUROPEAN CLASSIFICATION

### E04B

**GENERAL BUILDING CONSTRUCTIONS; WALLS, e.g. PARTITIONS; ROOFS; FLOORS; CEILINGS; INSULATION OR OTHER PROTECTION OF BUILDINGS** (border constructions of opening in walls, floors or ceilings [E06B1/00](#); [N: electromagnetic shielding [H05K9/00A](#)])

[N: **WARNING**

The following IPC groups are not used in the internal ECLA classification scheme. Subject matter covered by these groups is classified in the following ECLA groups:

[E04B1/682](#) covered by [E04B1/68](#)  
[E04B1/684](#) covered by [E04B1/68](#)  
[E04B1/686](#) covered by [E04B1/68](#)  
 ]

**Note**

In this subclass, the following term is used with the meaning indicated :

- "ceiling" includes all the finishing material concealing the the underside of the load-carrying ceiling structure or roof structure.

### E04B1/00

**Constructions in general; Structures which are not restricted either to walls, e.g. partitions, or floors or ceilings or roofs**(scaffolds, shutterings[E04G](#); structures specially adapted for buildings for special purposes, general layout of buildings, e.g. modular co-ordination,[E04H](#); the particular parts of buildings, see the relevant groups for those parts)

#### E04B1/00B

- [N: Base structures; Cellars] [C0003]

#### E04B1/00B1

- · [N: Cellars constructed from prefabricated units]

#### E04B1/00C

- [N: Building characterised by incorporated canalisations ([E04B1/348D](#), [E03C1/01](#), [E04C2/52](#), [E04F17/00](#) take precedence; canalisation per se [F16L](#); conducts for ventilation, heating systems or air-conditioning [F24](#))] [C9605]

#### E04B1/00D

- [N: Balconies; Decks] [C1104]

#### E04B1/00D2

- · [N: Anchoring devices specially adapted therefor with means for preventing cold bridging]

#### E04B1/00E

- [N: Loggias]

#### E04B1/02

- Structures consisting primarily of load-supporting, block-shaped, or slab-shaped elements ([E04B1/32](#) to [E04B1/36](#) take precedence)

#### E04B1/04

- · the elements consisting of concrete, e.g. reinforced concrete, or other stone-like material

#### E04B1/04B

- · · [N: Connections specially adapted therefor]

#### E04B1/04B2

- · · · [N: using reinforcement loops protruding from the elements] [N1104]

#### E04B1/06

- · · the elements being prestressed

- E04B1/08 . . the elements consisting of metal
- E04B1/10 . . the elements consisting of wood
- E04B1/12 . . the elements consisting of other material
- E04B1/14 . . the elements being composed of two or more materials (of reinforced concrete [E04B1/04](#))
  
- E04B1/16 . Structures made from masses, e.g. of concrete, cast or similarly formed in situ with or without making use of additional elements, such as permanent forms, substructures to be coated with load-bearing material ([E04B1/32](#) to [E04B1/36](#) take precedence)
- E04B1/16A . . [N: with vertical and horizontal slabs, both being partially cast in situ]
- E04B1/16A1 . . . [N: with a central core, used as form, in order to form a continuous concrete shell]
- E04B1/16B . . [N: with vertical and horizontal slabs, only the vertical slabs being partially cast in situ ([E04B2/86](#) takes precedence)] [C9605]
- E04B1/16C . . [N: with vertical and horizontal slabs, only the horizontal slabs being partially cast in situ]
- E04B1/16D . . [N: with elongated load-supporting parts, cast in situ; [E04B1/16A](#), [E04B1/16B](#) and [E04B1/16C](#) take precedence]
- E04B1/16E . . [N: with curved surfaces, at least partially cast in situ in order to make a continuous concrete shell structure ([E04B1/16F1A](#) takes precedence)]
- E04B1/16F . . [N: with permanent forms made of particular materials, e.g. layered products]
- E04B1/16F1 . . . [N: flexible]
- E04B1/16F1A . . . . [N: inflatable]
  
- E04B1/18 . Structures comprising elongated load-supporting parts, e.g. columns, girders, skeletons ([E04B1/32](#) to [E04B1/36](#) take precedence; elongated load-supporting parts as elements, trusses, truss-like structures [E04C3/00](#))
- E04B1/18B . . [N: Connections not covered by [E04B1/21](#) and [E04B1/24B](#), e.g. connections between structural parts of different material]
- E04B1/19 . . Three-dimensional framework structures [N: folded structures and grid-like formations acting as shell structures [E04B7/10](#)]
- E04B1/19B . . . [N: Connecting nodes specially adapted therefor] [C1203]
- E04B1/19B1 . . . . [N: with central spherical, semispherical or polyhedral connecting element]
- E04B1/19B2 . . . . [N: with central cylindrical connecting element]
- E04B1/19B3 . . . . [N: with central cubical connecting element]
  
- Note**
- Subgroup [E04B1/19](#) takes precedence over subgroups [E04B1/20](#) to [E04B1/30](#)
  
- E04B1/20 . . the supporting parts consisting of concrete, e.g. reinforced concrete, or other stonelike material
- E04B1/21 . . . Connections specially adapted therefor
- E04B1/21B . . . . [N: comprising metallic plates or parts]
- E04B1/22 . . . with parts being prestressed
- E04B1/24 . . the supporting parts consisting of metal
- E04B1/24B . . . [N: Connection details of the elongated load-supporting parts] [C0103]
- E04B1/26 . . the supporting parts consisting of wood

- E04B1/26B . . . [N: Connections specially adapted therefor (shear dowels [E04B1/48D](#), [E04B1/49](#))] [C1104]
- E04B1/26B1 . . . . [N: Connectors made from folded sheet metal ([E04B1/26B2](#) takes precedence)] [N9506]
- E04B1/26B2 . . . . [N: Joist hangers] [N9506]
- E04B1/28 . . the supporting parts consisting of other material
- E04B1/30 . . the supporting parts being composed of two or more materials; Composite steel and concrete constructions (of reinforced concrete [E04B1/20](#))
  
- E04B1/32 . Arched structures; Vaulted structures; Folded structures ([N: [E04B1/343F3](#) takes precedence;] vaulted roofs [E04B7/08](#)) [C9705]
- E04B1/32B . . [N: Structures with a longitudinal horizontal axis, e.g. cylindrical or prismatic structures]
- E04B1/32C . . [N: Structures with a vertical rotation axis or the like, e.g. semi-spherical structures]
  
- E04B1/34 . Extraordinary structures, e.g. with suspended or cantilever parts supported by masts or tower-like structures enclosing elevators or stairs; Features relating to the elastic stability ([E04B1/342](#), [E04B1/343](#), [E04B1/348](#) take precedence; for floors [E04B5/43](#); buildings for special purposes, e.g. withstanding earthquake, [E04H](#))
- E04B1/34B . . [N: supported by masts or tower-like structures]
- E04B1/34C . . [N: Extraordinarily-supported small buildings]
- E04B1/34C1 . . . [N: mainly supported by a central column or footing ([E04B1/34D](#) takes precedence)]
- E04B1/34D . . [N: Structures comprising mainly a central support column and a cantilevered roof]
  
- E04B1/342 . Structures covering a large free area, whether open-sided or not, e.g. hangars, halls (roof trusses [E04C3/00](#); non-structural features for specified purposes, see the relevant groups of [E04H](#))
  
- E04B1/343 . Structures characterised by movable, separable, or collapsible parts, e.g. for transport (movable roof parts [E04B7/16](#); floatable buildings [B63B](#); small prefabricated buildings, transportable as a whole [E04H1/12](#); small garages [E04H6/02](#); tents or canopies, in general [E04H15/00](#)) [N: containers [B65G](#)]
- E04B1/343B . . [N: telescopic]
- E04B1/343B1 . . . [N: with only one level of nesting]
- E04B1/343C . . [N: characterised by separable parts]
- E04B1/343C1 . . . [N: mainly constituted by panels]
- E04B1/343C2 . . . [N: mainly constituted by longitudinal elements]
- E04B1/343C3 . . . [N: mainly constituted by three-dimensional elements]
- E04B1/343D . . [N: Structures movable as a whole]
- E04B1/343D1 . . . [N: Skirtings therefor]
- E04B1/343D2 . . . [N: Anchoring means therefor]
- E04B1/343D3 . . . [N: Base structures or supporting means therefor]
- E04B1/343F . . [N: Foldable or retractable structures]
- E04B1/343F1 . . . [N: with provisions to raise or lower the whole structure]
- E04B1/343F2 . . . [N: Wheeled arch-type structures]
- E04B1/343F2B . . . . [N: collapsible]
- E04B1/343F3 . . . [N: Structures deriving their rigidity from concertina folds]

- E04B1/343G . . [N: Assembling details for foldable, separable, collapsible or retractable structures] [C9605]
- E04B1/344 . . with hinged parts
- E04B1/344B . . . [N: with articulated bar-shaped elements]
- E04B1/344C . . . [N: folding out from a core cell]
- E04B1/344C1 . . . . [N: with only lateral unfolding]
- E04B1/344D . . . . [N: foldable in a flat stack of parallel panels]
- E04B1/344D1 . . . . [N: Portal- or saddle-shaped structures]
- E04B1/344E . . . . [N: with rotating shell-forming segments]
- E04B1/346 . . Rotary buildings; buildings with rotary units, e.g. rooms
- E04B1/346B . . . [N: with adapted utilities connections, e.g. for water or electricity] [N1104]
  
- E04B1/348 . Structures composed of units comprising at least considerable parts of two sides of a room, e.g. box-like or cell-like units closed or in skeleton form
- E04B1/348B . . [N: Elements integrated in a skeleton]
- E04B1/348C . . [N: Elements not integrated in a skeleton]
- E04B1/348C2 . . . [N: the supporting structure consisting of concrete]
- E04B1/348C3 . . . [N: the supporting structure consisting of metal]
- E04B1/348C4 . . . [N: the supporting structure consisting of wood]
- E04B1/348C5 . . . [N: the supporting structure consisting of other specified material, e.g. of plastics]
- E04B1/348C6 . . . [N: the supporting structure being composed of two or more materials]
- E04B1/348C7 . . . [N: particular arrangement of habitable rooms or their component parts; modular co-ordination]
- E04B1/348D . . [N: Elements for special technical purposes, e.g. with a sanitary equipment (combination of baths, douches, sinks, wash-basins, closets or urinals [A47K4/00](#); plumbing installations for baths, douches, or the like, [E03C1/01](#); panels serving for locating conduits [E04C2/52A](#); ducts for receiving installation lines [E04F17/08](#))]
  
- E04B1/35 . Extraordinary methods of construction, e.g. lift-slab, jack-block ([E04B1/34](#) takes precedence; falsework, shuttering for shaping walls, floors, ceilings or roofs in situ [E04G 11/04](#); conveying or assembling of building materials [E04G21/00](#); working measure on existing buildings [E04G23/00](#))
- E04B1/35A . . [N: characterised by the in-situ moulding of large parts of a structure ([E04B1/35B](#), [E04B1/35C](#), [E04B1/35D](#), [E04B1/35E](#), [E04B1/35F](#), [E04B1/35G](#) take precedence)] [N9705]
- E04B1/35B . . [N: Lift-slab; characterised by a purely vertical lifting of floors or roofs or parts thereof]
- E04B1/35C . . [N: characterised by erecting a vertical structure and then adding the floors from top to bottom] [N9705]
- E04B1/35D . . [N: characterised by raising a structure and then adding structural elements under it ([E04B1/35B](#), [E04B1/35C](#), [E04B1/35E](#) take precedence)]
- E04B1/35D1 . . . [N: the structure being a roof] [N9705]
- E04B1/35E . . [N: characterised by the raising of hingedly-connected building elements, e.g. arches, portal frames ([E04B1/35G](#) takes precedence)] [N9705]
- E04B1/35E1 . . . [N: the elements being a floor slab with hingedly-connected wall panels] [N9705]
- E04B1/35F . . [N: characterised by the use of a central column to lift and temporarily or

- permanently support structural elements ([E04B1/35C](#) and [E04B1/35G](#) take precedence)] [N9705]
- E04B1/35G . . [N: characterised by the tilting up of whole buildings or sections thereof, e.g. walls, portal frames] [N9705]
- E04B1/35K . . [N: Constructions using straw bales] [N1106]
- E04B1/36 . Bearings or like supports allowing movement (for bridges [E01D19/04](#); buildings with-standing earthquakes [E04H9/02](#))
- E04B1/38 . Connections for building structures in general

**Note**

Connections specially adapted for particular building parts or for particular building structures are classified in the groups for those parts or structures, e.g. in groups [E04B1/21](#), [E04B2/00](#), [E04B5/00](#), [E04B7/00](#) or [E04B9/00](#). Joints not specially adapted for building construction, or of more general application, are classified in the appropriate subclasses, e.g. [F16B](#).

- E04B1/38C . . [N: Connection of concrete parts using adhesive materials, e.g. mortar or glue] [N0502]
- E04B1/40 . . [N: IPC 4] Separate connecting elements (for forms, falsework, or shutterings [E04G17/00](#); releasable clips or clamps, hooks, wedges, wall-dowels, nails, bolts, rivets, screws, wood-screws [F16B](#))

[N: **Warning**  
[N0410]

Group [E04B1/40](#) [N: IPC4] is no longer used for the classification of new documents. The backlog of this group is in the process of being reorganised to group [E04B1/41](#) and subgroups ]

- E04B1/41 . . . Connecting devices specially adapted for embedding in concrete ([N: joist hangers [E04B1/26B2](#); shear dowels [E04B1/48C](#)]; spacers [N: other than masonry wall ties] for cavity walls [E04B2/30](#), [E04B2/44](#); connectors for reinforcing elements [E04C5/16](#); supporting devices for connector reinforcing rods for concrete walls [E04G21/12D](#); fastening frames to the border of openings [E06B1/56](#)) [C1104]
- E04B1/41B . . . . [N: Longitudinal elements having an open profile, with the opening parallel to the concrete or masonry surface, i.e. anchoring rails] [C9707]
- E04B1/41D . . . . [N: Elements with sockets ([E04B1/41B](#) takes precedence)] [N9707]
- E04B1/41D1 . . . . . [N: with internal threads or non-adjustable captive nuts] [N9707]
- E04B1/41D2 . . . . . [N: receiving adjustable or removal nuts] [N9707]
- E04B1/41D3 . . . . . [N: receiving removal bolt heads ([E04B1/41D5](#) takes precedence)] [N9707]
- E04B1/41D4 . . . . . [N: with transverse hook- or loop-receiving parts ([E04B1/41D5](#) takes precedence)] [N9707]
- E04B1/41D5 . . . . . [N: with captive and extendable anchoring parts, e.g. spring-loaded bolts, hanging rings] [N9707]
- E04B1/41E . . . . . [N: Longitudinally-externally threaded elements extending from the concrete or masonry, e.g. anchoring bolt with embedded head] [N9707]
- E04B1/41E1 . . . . . [N: with an adjustment sleeve] [N9707]
- E04B1/41F . . . . . [N: Nailable or non-threaded screwable elements (dowels [F16B13/00](#))] [N9707]
- E04B1/41M . . . . . [N: Masonry wall ties (with insulation-layer locating devices [E04B1/76C1B](#);

				replacing or adding wall ties <a href="#">E04G23/02C2</a> ]
<a href="#">E04B1/41M1</a>	. . . . .	[N: for cavity walls with both wall leaves made of masonry (spacers for permanent forms <a href="#">E04B2/86</a> )] [C9902]		
<a href="#">E04B1/48</a>	. . . . .	Dowels, i.e. members adapted to penetrate the surfaces of two parts and to take the shear stresses		
<a href="#">E04B1/48C</a>	. . . . .	[N: Shear dowels to be embedded in concrete] [N1104]		
<a href="#">E04B1/48D</a>	. . . . .	[N: Shear dowels for wood ( <a href="#">E04B1/49</a> takes precedence)] [N1104]		
<a href="#">E04B1/49</a>	. . . . .	with self-penetrating parts, e.g. claw dowels [N: (nail plates <a href="#">F16B15/00C</a> )]		
<a href="#">E04B1/54</a>	. . . . .	[N: IPC 4] Joints substantially without separate connecting elements, e.g. jointing by inter-engagement (welded, glued, or the like joints, in general <a href="#">F16B</a> )		
<a href="#">E04B1/58</a>	. . . . .	of bar-shaped building elements [N: (framework connections <a href="#">E04B1/21</a> , <a href="#">E04B1/24B</a> , <a href="#">E04B1/26B</a> )]		
<a href="#">E04B1/58B</a>	. . . . .	[N: with a cross-section having an open profile]		
<a href="#">E04B1/58B1</a>	. . . . .	[N: of substantially I - or H - form]		
<a href="#">E04B1/58B2</a>	. . . . .	[N: of substantially U - form]		
<a href="#">E04B1/58C</a>	. . . . .	[N: with a closed cross-section]		
<a href="#">E04B1/58C1</a>	. . . . .	[N: of substantially rectangular form]		
<a href="#">E04B1/58C2</a>	. . . . .	[N: of substantially circular form]		
<a href="#">E04B1/58C2B</a>	. . . . .	[N: with ends provided with protuberances]		
<a href="#">E04B1/58C2C</a>	. . . . .	[N: with separate connection devices]		
<a href="#">E04B1/61</a>	. . . . .	of slab-shaped building elements with each other		
<a href="#">E04B1/61B</a>	. . . . .	[N: the overlapping ends of the slabs connected together]		
<a href="#">E04B1/61D</a>	. . . . .	[N: the frontal surfaces of the slabs connected together]		
<a href="#">E04B1/61D1</a>	. . . . .	[N: by clamping, e.g. friction, means on lateral surfaces]		
<a href="#">E04B1/61D2</a>	. . . . .	[N: by locking means on lateral surfaces]		
<a href="#">E04B1/61D3</a>	. . . . .	[N: by means between frontal surfaces]		
<a href="#">E04B1/61D3B</a>	. . . . .	[N: with protrusions on the one frontal surface co-operating with recesses in the other frontal surface]		
<a href="#">E04B1/61D3B1</a>	. . . . .	[N: the connection made by expansion]		
<a href="#">E04B1/61D3B2</a>	. . . . .	[N: the connection made by friction-grip]		
<a href="#">E04B1/61D3B3</a>	. . . . .	[N: the connection made by formlocking]		
<a href="#">E04B1/61D3B4</a>	. . . . .	[N: the connection made by an additional locking key]		
<a href="#">E04B1/61D3C</a>	. . . . .	[N: with recesses in both frontal surfaces co-operating with an additional connecting element]		
<a href="#">E04B1/61D3C1</a>	. . . . .	[N: the connection made by expansion]		
<a href="#">E04B1/61D3C2</a>	. . . . .	[N: the connection made by friction-grip]		
<a href="#">E04B1/61D3C3</a>	. . . . .	[N: the connection made by formlocking]		
<a href="#">E04B1/61D3C4</a>	. . . . .	[N: the connection made by an additional locking key]		
<a href="#">E04B1/61D3D</a>	. . . . .	[N: with protrusions on both frontal surfaces]		
<a href="#">E04B1/61D3D1</a>	. . . . .	[N: with one protrusion on each frontal surface]		
<a href="#">E04B1/61D3D2</a>	. . . . .	[N: with two or more protrusions on each frontal surface]		
<a href="#">E04B1/61D3E</a>	. . . . .	[N: with protrusions and recesses on each frontal surface]		
<a href="#">E04B1/61D3F</a>	. . . . .	[N: with rotatable locking means co-operating with a recess (similar devices for sliding doors <a href="#">E05B65/08B2</a> )]		

- E04B1/61D4 . . . . [N: by means on top and/or bottom surfaces of the slabs]
- E04B1/62 . . . . Insulation or other protection; Elements or use of specified material therefor (chemical compositions C01 to C11; implements for applying insulation or sealings E04F 21/00; buildings to withstand or to provide protection against external undesired influences E04H9/00; sealing pipes in walls or partitions F16L5/02; shielding against dangerous radiation G21F; constructions of particular parts of buildings, see the relevant groups for those parts)
- E04B1/62W . . . . [N: Sheets or foils allowing passage of water vapor but impervious to liquid water; house wraps] [N1104] [C1203]
- E04B1/64 . . . . for making damp-proof; Protection against corrosion (sealings E04B1/66)
- [N: **Note**  
Group E04B1/64 is not used for classification. Documents are classified in subgroups only or in groups E04B1/66, E04B1/70  
]
- E04B1/64C . . . . [N: Protecting metallic construction elements against corrosion (for concrete reinforcing elements made of steel E04C5/01; anodic or cathodic protection C23F13/00)]
- E04B1/64D . . . . [N: Damp-proof courses (in combination with lintels E04C3/02)]
- E04B1/64D1 . . . . [N: obtained by removal and replacement of a horizontal layer of an existing wall]
- E04B1/64D2 . . . . [N: obtained by injection or infiltration of water-proofing agents into an existing wall]
- E04B1/66 . . . . Sealings ([N: damp-proof courses E04B1/64D; fire-proof sealings E04B1/94F]; additions of anti-leak properties to plaster C04B; bituminous sealing masses C08L95/00; sealings for hydraulic engineering work in general E02B3/16; against ground humidity or ground water E02D31/02; coverings against rain or other precipitations of the atmosphere E04D; composition of material or manufacture of sealing foils, see the relevant classes for these foils)
- E04B1/66A . . . . [N: Sheets or foils impervious to water and water vapor] [N1203]
- E04B1/68 . . . . of joints, e.g. expansion joints (packing for joints in roads or airfields E01C11/02; expansion joints for bridges E01D19/06; sealing joints between foundation piles E02D5/14; joints in foundation structures E02D29/16; devices for sealing the spaces or joints between roof-covering elements E04D1/36; sealing joints between roof-covering elements E04D3/38; [N: construction of joints for flooring or floor layers composed of a number of similar elements E04F15/02A]; construction of joints for flooring or floor layers made of masses in situ E04F15/14)
- E04B1/68A . . . . [N: Fillings therefor]
- E04B1/68B . . . . [N: Joint covers (E04B1/68L takes precedence)]
- E04B1/68B2 . . . . . [N: specially adapted for floor parts]
- E04B1/68C . . . . [N: Waterstops (E04B1/68Dtakes precedence)]
- E04B1/68D . . . . [N: Expansion elements for parts cast in situ]
- E04B1/68F . . . . [N: Reverse side strips]
- E04B1/68G . . . . [N: for free moving parts]
- E04B1/68H . . . . [N: Compressable seals of solid form]
- E04B1/68K . . . . [N: Compressable seals of hollow form (E04B1/68M takes precedence)]
- E04B1/68L . . . . [N: Expansion elements specially adapted for wall or ceiling parts]
- E04B1/68M . . . . [N: Porous tubular seals for injecting sealing material (filling of cracks in existing buildings E04G23/02)]

- E04B1/70 . . . Drying or keeping dry, e.g. by air vents ([N: using damp-proof courses [E04B1/64D](#); using sealings, e.g. sealing masses or foils, [E04B1/66](#)]; during erection [E04G21/28](#))
- E04B1/70B . . . [N: by using electricity, e.g. electro-osmosis (electrochemical desalination or re-alkalisation of reinforced concrete [C04B41/00](#))] [C9410]
- E04B1/70C . . . [N: by heating the ambient air]
- E04B1/70D . . . [N: by collecting water in basements]
- E04B1/70R . . . [N: Evacuating water from walls made from hollow bricks] [N1008]
- E04B1/70S . . . [N: Evacuating water from cavity walls, e.g. by using weep holes] [N1008]
- E04B1/70S2 . . . [N: using trays] [N1008]
- E04B1/70S4 . . . [N: Grills for weep holes] [N1008]
- E04B1/70S6 . . . [N: Devices for preventing blockage of weep holes, e.g. a blockage caused by falling mortar] [N1008]
- E04B1/70V . . . [N: by ventilating (means for ventilating in floors [E04B5/48](#), in ceilings [E04B9/02](#), in building blocks [E04C1/39A](#), in building panels [E04C2/52A](#), in roofs [E04D13/16](#); ventilating wall coverings [E04F13/00B](#))]
- E04B1/70V1 . . . [N: Air vents for walls]
- E04B1/70V2 . . . [N: with Knappen systems, i.e. atmospheric siphons]
- E04B1/70V3 . . . [N: Temporary mechanical ventilation of damp layers, e.g. insulation of a floating floor]
- E04B1/72 . . . Pest control (by keeping dry [E04B1/70](#); impregnation of wood or like materials [B27K](#))
- E04B1/74 . . . Heat, sound or noise insulation, absorption, or reflection (forms of, or arrangements in, rooms for influencing or directing sound [E04B1/99](#)). Other building methods affording favourable thermal or acoustical conditions, e.g. accumulating of heat within walls (fire protection [E04B1/94](#); elements chiefly adapted for structural purposes [E04C1/00](#) to [E04C3/00](#); chiefly adapted for surface covering [E04F13/00](#); as underlayers for floor coverings [E04F15/18](#); closures for wall or like openings [E06B](#))
- E04B1/76 . . . specifically with respect to heat only (heat insulation in general [F16L59/00](#))
- E04B1/76B . . . [N: fillings for cavity walls]
- E04B1/76C . . . [N: comprising a prefabricated insulating layer, disposed between two other layers or panels]
- E04B1/76C1 . . . [N: in combination with an air space]
- E04B1/76C1B . . . [N: with insulation-layer locating devices combined with wall ties]
- E04B1/76D . . . [N: Exterior insulation of exterior walls] [C1104]
- E04B1/76D1 . . . [N: Details of the adhesive connection of the insulation to the wall] [N1104]
- E04B1/76D2 . . . [N: Details of the mechanical connection of the insulation to the wall] [N1104]
- E04B1/76D2A . . . [N: Dowels with enlarged insulation retaining head] [N1104]
- E04B1/76D3 . . . [N: Anchoring of separate elements through the lining to the wall] [N1104]
- E04B1/76D5 . . . [N: Elements for window or door openings, or for corners of the building] [N1104]
- E04B1/76D7 . . . [N: with ventilation means for the insulation] [N1104]
- E04B1/76D9 . . . [N: Bottom edge finishing profile] [N1104]
- E04B1/76E . . . [N: comprising an insulating layer, disposed between two longitudinal supporting elements, e.g. to insulate ceilings]

E04B1/76E2	. . . . .	[N: comprising fiber insulation, e.g. as panels or loose filled fibres] [N0502]
E04B1/76E2B	. . . . .	[N: comprising fiber blankets or batts] [N0502]
E04B1/76E2B1	. . . . .	{7 dots} [N: Connection of blankets or batts to the longitudinal supporting elements] [N0502]
E04B1/76E2B1F	. . . . .	{8 dots} [N: Blankets or batts with connecting flanges] [N0502]
E04B1/76F	. . . . .	[N: Insulating linings for the interior face of exterior walls] [N1104]
E04B1/78	. . . . .	Heat insulating elements [N: <a href="#">E04B1/76E2B</a> takes precedence] [C0502]
E04B1/80	. . . . .	slab-shaped
E04B1/80B	. . . . .	[N: with vacuum spaces included in the slab]
E04B1/80C	. . . . .	[N: with air or gas pockets included in the slab]
E04B1/82	. . . . .	specifically with respect to sound only ([N: of floors or ceilings <a href="#">E04B9/00A</a> ; of flooring <a href="#">E04F15/20</a> ; noise damping in ducts or channels <a href="#">E04F17/00</a> ; [N: sound damping devices for pipes <a href="#">F16L55/033</a> ]; noise damping in general <a href="#">G10K11/00</a> )
E04B1/82B	. . . . .	[N: sound absorbing devices ( <a href="#">E04B1/82D</a> , <a href="#">E04B1/82E</a> take precedence)]
E04B1/82D	. . . . .	[N: soundproof enclosures]
E04B1/82E	. . . . .	[N: screens ( <a href="#">E04B2/74</a> takes precedence; for road or railway traffic <a href="#">E01F</a> ); Arrangements of sound-absorbing elements, e.g. baffles]
E04B1/82E1	. . . . .	[N: Stage shells] [N0502]
E04B1/84	. . . . .	Sound-absorbing elements
E04B1/84B	. . . . .	[N: block-shaped]
E04B1/84C	. . . . .	[N: sheet-shaped]
E04B1/86	. . . . .	slab-shaped
E04B1/88	. . . . .	Insulating elements for both heat and sound
E04B1/90	. . . . .	slab-shaped
E04B1/92	. . . . .	Protection against other undesired influences or dangers (buildings providing protection against external dangers <a href="#">E04H9/00</a> ; shielding against dangerous radiation <a href="#">G21F</a> )
E04B1/94	. . . . .	against fire ([N: fire protection of partitions <a href="#">E04B2/74B2</a> , <a href="#">E04B2/74C2</a> ; supporting constructions for ceilings having the capability of expansion in case of fire <a href="#">E04B9/08</a> ; fire-fighting <a href="#">A62C</a> , [N: e.g. fire prevention or containment <a href="#">A62C2/00</a> ]; impregnation of wood or similar materials <a href="#">B27K</a> ; [N: fireproof paints <a href="#">C09D5/18</a> ; fireproofing materials <a href="#">C09K21/00</a> ; flame-resistant papers <a href="#">D21H5/00B</a> ; coverings or linings, e.g. for walls or ceilings, in general <a href="#">E04F13/00</a> ]; fireproof doors <a href="#">E06B5/16</a> ; [N: firebreak devices for pipes or the like passing through walls <a href="#">F16L5/04</a> ; protection of pipes by means of non-inflammable material <a href="#">F16L57/00B</a> ])
E04B1/94B	. . . . .	[N: Building elements specially adapted therefor]
E04B1/94B1	. . . . .	[N: slab-shaped]
E04B1/94B2	. . . . .	[N: elongated]
E04B1/94B2A	. . . . .	[N: covered with fire-proofing material]
E04B1/94C	. . . . .	[N: Load-supporting structures specially adapted therefor]
E04B1/94D	. . . . .	[N: Protection against smoke or toxic gases]
E04B1/94E	. . . . .	[N: by closing openings in walls or the like in the case of fire (fire-proof doors <a href="#">E06B5/16</a> )]
E04B1/94F	. . . . .	[N: Fire-proof sealings or joints (for doors or windows <a href="#">E06B5/16C</a> )]
E04B1/98	. . . . .	against vibrations or shocks (on foundations <a href="#">E02D31/08</a> ); against mechanical

destruction, e.g. by air-raids (against incendiary damage only [E04B1/94](#); finishing work therefor [E04E](#); buildings withstanding earth-quake or the like, shelters, arrangements of splintercatching walls [E04H9/00](#))

- E04B1/98A . . . . [N: involving active or passive dynamic mass damping systems]
- E04B1/99 . Room acoustics, i.e. forms of, or arrangements in, rooms for influencing or directing sound ([E04B1/82](#) takes precedence; acoustics in general [G10K11/00](#); electric signal processing for producing a reverberation or echo sound [G10K15/08](#))
- E04B1/99B . . [N: Acoustical surfaces with adjustment mechanisms] [N0408]
  
- E04B2/00** **Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls** (connections for building structures in general [E04B1/38](#); insulation for buildings in general [E04B1/62](#); building elements of relatively thin form for parts of buildings [E04C2/00](#))
  
- E04B2/02 . built-up from layers of building elements
- E04B2/04 . . Walls having neither cavities between, nor in, the solid elements
- E04B2/06 . . . using elements having specially-designed means for stabilising the position
- E04B2/08 . . . . by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- E04B2/10 . . . . by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- E04B2/12 . . . using elements having a general shape differing from that of a parallelepiped
- E04B2/14 . . Walls having cavities in, but not between, the elements, i.e. each cavity being enclosed by at least four sides forming part of one single element
- E04B2/16 . . . using elements having specially-designed means for stabilising the position
- E04B2/18 . . . . by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- E04B2/20 . . . . by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- E04B2/22 . . . using elements having a general shape differing from that of a parallelepiped
- E04B2/24 . . . the walls being characterised by fillings in some of the cavities forming load-bearing pillars or beams
- E04B2/26 . . . the walls being characterised by fillings in all cavities in order to form a wall construction
- E04B2/28 . . Walls having cavities between, but not in, the elements; Walls of elements each consisting of two or more parts kept in distance by means of spacers, all parts being solid
- E04B2/30 . . . using elements having specially designed means for stabilising the position; Spacers for cavity walls [N: (masonry wall ties [E04B1/41M](#))]
- E04B2/32 . . . . by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- E04B2/34 . . . . by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- E04B2/36 . . . using elements having a general shape differing from that of a parallelepiped
- E04B2/38 . . . the walls being characterised by fillings in some of the cavities forming load-bearing pillars or beams
- E04B2/40 . . . the walls being characterised by fillings in all cavities in order to form a wall construction

- E04B2/42 . . Walls having cavities between, as well as in, the elements; Walls of elements each consisting of two or more parts, kept in distance by means of spacers, at least one of the parts having cavities
- E04B2/44 . . . using elements having specially-designed means for stabilising the position; Spacers for cavity walls [N: (masonry wall ties [E04B1/41M](#))]
- E04B2/46 . . . . by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- E04B2/48 . . . . by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- E04B2/50 . . . using elements having a general shape differing from that of a parallelepiped
- E04B2/52 . . . the walls being characterised by fillings in some of the cavities forming load-bearing pillars or beams
- E04B2/54 . . . the walls being characterised by fillings in all cavities in order to form a wall construction
  
- E04B2/56 . [N: Load-bearing] walls of framework or pillarwork; Walls incorporating load-bearing elongated members ([E04B2/74](#), [E04B2/88](#) take precedence; pillars [E04C3/30](#))
- E04B2/56B . . [N: with fillings between the load-bearing elongated members]
- E04B2/58 . . with elongated members of metal
- E04B2/60 . . . characterised by special cross-section of the elongated members
- E04B2/62 . . . . the members being formed of two or more elements in side-by-side relationship
- E04B2/64 . . with elongated members of concrete
- E04B2/66 . . . characterised by special cross-section of the elongated members
- E04B2/68 . . . made by filling-up wall cavities ([E04B2/24](#), [E04B2/38](#), [E04B2/52](#) take precedence)
- E04B2/70 . . with elongated members of wood
- E04B2/70B . . . [N: with integrated supporting and obturation function]
- E04B2/70B1 . . . . [N: with longitudinal horizontal elements ([E04B2/70B3](#), [E04B2/70B4](#) take precedence)]
- E04B2/70B2 . . . . [N: with longitudinal vertical elements]
- E04B2/70B3 . . . . [N: with longitudinal horizontal elements shorter than the length of a wall]
- E04B2/70B4 . . . . [N: with longitudinal horizontal elements placed between columns]
- E04B2/70C . . . [N: with supporting function]
- E04B2/70C1 . . . . [N: obturation by means of panels]
- E04B2/70C2 . . . . [N: obturation by means of longitudinal elements with a convex external surface]
- E04B2/70C3 . . . . [N: obturation by means of longitudinal elements with a plane external surface]
  
- E04B2/72 . [N: Non-load-bearing] walls of elements of relatively thin form [N: with respect to the thickness of the wall] ([E04B2/56](#), [E04B2/74](#), [E04B2/88](#) take precedence; with joint fillings acting as framework or pillars [E04B2/68](#); elements [E04C2/00](#))
- E04B2/72B . . [N: connections specially adapted therefor]
- E04B2/72C . . [N: constituted of gypsum elements]
  
- E04B2/74 . Removable non-load-bearing partitions; Partitions with a free upper edge (framed panels [E04C 2/38](#)) [N: modular coordination]

- E04B2/74B . . [N: assembled using panels without a frame or supporting posts, with or without upper or lower edge locating rails] [C9601]
- E04B2/74B2 . . . [N: with special measures for sound or thermal insulation including fire protection]
- E04B2/74B3 . . . [N: with free upper edge, e.g. for use as office space dividers]
- E04B2/74C . . [N: assembled using frames with infill panels or coverings only; made-up of panels and a support structure incorporating posts ([E04B2/78](#) and [E04B2/80](#) take precedence)]
- E04B2/74C2 . . . [N: special measures for sound or thermal insulation, including fire protection]
- E04B2/74C2F . . . . [N: Details for fire protection] [N1104]
- E04B2/74C2P . . . . [N: Posts or frame members specially adapted for reduced sound or heat transmission] [N1104]
- E04B2/74C2T . . . . [N: Posts or frame members with projections for holding sound or heat insulating fillings] [N1104]
- E04B2/74C3 . . . . [N: with free upper edge, e.g. for use as office space dividers]
- E04B2/74C3D . . . . . [N: with separate framed panels without intermediary support posts] [N9601]
- E04B2/74C3D1 . . . . . [N: Glazing details] [N9601]
- E04B2/74C3D2 . . . . . [N: Details of connection of panels ([E04B2/74C3D3](#) takes precedence)] [N9601]
- E04B2/74C3D3 . . . . . [N: with adjustable angular connection of panels] [N9601]
- E04B2/74C3D3A . . . . . [N: using flexible hinges] [N9601]
- E04B2/74C3D3B . . . . . [N: using hinges having two parallel rotation axes] [N9601]
- E04B2/74C3E . . . . . [N: with panels and support posts] [N9601]
- E04B2/74C3E1 . . . . . [N: Glazing details] [N9601]
- E04B2/74C3E2 . . . . . [N: with panels hooked onto posts ([E04B2/74C3E3](#) takes precedence)] [N9601]
- E04B2/74C3E3 . . . . . [N: with adjustable angular connection of panels to posts] [N9601]
- E04B2/74C3E3A . . . . . [N: using angularly-spaced longitudinal grooves of the posts] [N9601]
- E04B2/74C3E3B . . . . . [N: hinged connections ([E04B2/74C3E3C](#) takes precedence)] [N9601]
- E04B2/74C3E3C . . . . . [N: panels hooked onto the rim or in a groove of circular posts] [N9601]
- E04B2/74C4 . . . . [N: with separate framed panels without intermediary posts, extending from floor to ceiling] [N9601]
- E04B2/74C4B . . . . . [N: Glazing details] [N9601]
- E04B2/74C4C . . . . . [N: with false tongue joints] [N9601]
- E04B2/74C5 . . . . [N: with panels and support posts, extending from floor to ceiling] [N9601]
- E04B2/74C5B . . . . . [N: Glazing details] [N9601]
- E04B2/74C5C . . . . . [N: with wallboards attached to the outer faces of the posts, parallel to the partition ([E04B2/74C5D](#) takes precedence)] [N9601] [C1104]
- E04B2/74C5D . . . . . [N: with telescoping posts to compensate for floor or ceiling irregularities] [N1104]
- E04B2/76 . . with framework or posts of metal [N: ([details of connections, thresholds or skirtings E04B2/82](#))] [C9601]
- E04B2/76B . . . . [N: L-connections]
- E04B2/76C . . . . [N: Cross connections]
- E04B2/76C1 . . . . . [N: with one continuous profile, the perpendicular one passing continuously

- through the first one]
- E04B2/76C2 . . . . [N: with two interrupted profiles]
- E04B2/76C3 . . . . [N: with one continuous profile, the perpendicular one being interrupted]
- E04B2/76D . . . . [N: T-connections]
- E04B2/76D2 . . . . [N: Connections between wall studs and upper or lower locating rails]  
[N0303]
- E04B2/76D2A . . . . . [N: allowing vertical movement of upper rail with respect to the stud, e.g.  
by using slots in the rail or stud] [N1104]
- E04B2/78 . . . characterised by special cross-section of the frame-members[N: as far as  
important for securing wall panels to a framework with or without the help of  
cover-strips (separate connecting means, e.g. clip [E04B2/74](#); connections  
between uprights and cross-members [E04B2/76](#))]
- E04B2/78B . . . . . [N: of single or multiple tubular form]
- E04B2/78B2 . . . . . [N: of substantially rectangular form]
- E04B2/78B2B . . . . . [N: with all four sides of the profiles having substantially similar  
undercut grooves or connecting projections] [N1104]
- E04B2/78B2C . . . . . [N: with only two sides of the profiles having substantially similar  
undercut grooves or connecting projections] [N1104]
- E04B2/78B3 . . . . . [N: of curved cross-section; e.g. circular]
- E04B2/78C . . . . . [N: of open profile]
- E04B2/78C2 . . . . . [N: of substantially I - section with web perpendicular to plane of partition]
- E04B2/78C3 . . . . . [N: of substantially H - section with flanges perpendicular to plane of  
partition]
- E04B2/78C4 . . . . . [N: of substantially S - or Z - section; having a shape or cross-section  
adapted for gripping or overlapping panels by means of at least partially  
complementary shaped parallel elements]
- E04B2/78C5 . . . . . [N: of substantially U- or C- section] [N1104]
- E04B2/80 . . . with framework or posts of wood
- E04B2/82 . . . characterised by the manner in which edges are connected to the building; Means  
therefor; Special details of easily-removable partitions [N: as far as related to the  
connection with other parts of the building]
- E04B2/82B . . . . [N: Connections between two opposed surfaces (i.e floor and ceiling) by means  
of a device offering a restraining force acting in the plane of the partition]
- E04B2/82B2 . . . . . [N: Elastic connections, e.g. inflated joints]
- E04B2/82B21 . . . . . [N: restrained elastically at one surface and inelastically at the opposing  
surface]
- E04B2/82C . . . . [N: the connection between the floor and the ceiling being achieved without any  
restraining forces acting in the plane of the partition] [C1104]
- E04B2/82D . . . . [N: Partitions constituted of sliding panels]
- E04B2/82E . . . . [N: Connections between partitions and structural walls] [N1104]
- E04B2/84 . . . Walls made by casting, pouring, or tamping in situ ([E04B2/02](#), [E04B2/56](#) take  
precedence; forms therefor [E04G 11/06](#); working of concrete or similar masses able to  
be cast or poured in situ [E04G21/02](#))
- E04B2/84P . . . [N: by projecting or otherwise applying hardenable masses to the exterior of a form  
leaf] [N1104]
- E04B2/84P2 . . . . [N: the form leaf comprising a wire netting, lattice or the like] [N1104]
- E04B2/84P3 . . . . [N: the form leaf comprising an insulating foam panel] [N1104]

- E04B2/86 . . . made in permanent forms
- E04B2/86D . . . [N: without spacers] [N9605]
- E04B2/86E . . . [N: with spacers being embedded in at least one form leaf] [N9605]
- E04B2/86E1 . . . . [N: with spacers being embedded in both form leaves] [N9605]
- E04B2/86F . . . . [N: with spacers and at least one form leaf being monolithic] [N9605]
- E04B2/86F1 . . . . [N: with both form leaves and spacers being monolithic] [N9605]
- E04B2/86G . . . . [N: with ties attached to the inner faces of the forms ([E04B2/86E](#) and [E04B2/86F](#) take precedence)] [N9605]
- E04B2/86G1 . . . . [N: using dovetail-type connections] [N9605]
- E04B2/86H . . . . [N: with ties going through the forms] [N9605]
- E04B2/86J . . . . [N: with ties located in the joints of the forms] [N9605]
- E04B2/86K . . . . [N: using wire netting, a lattice or the like as form leaves] [N9605] [C1104]
- E04B2/86L . . . . [N: using flexible material as form leaves ([E04B2/86K](#) takes precedence)] [N9605]
  
- E04B2/88 . . . Curtain walls [N: ([fixing of glass panes E06B3/54](#))] [C9901]
- E04B2/88A . . . [N: comprising a supporting structure for flush mounted glazing panels] [N9901]
- E04B2/90 . . . comprising panels directly attached to the structure [N: ([E04B2/88A](#) takes precedence)] [C9901]
- E04B2/92 . . . . Sandwich-type panels
- E04B2/94 . . . . Concrete panels ([E04B2/92](#) takes precedence)
- E04B2/96 . . . comprising panels attached to the structure through mullions or transoms [N: ([E04B2/88A](#) takes precedence)] [C9901]
- E04B2/96A . . . . [N: with angles or corners in the curtain wall] [N9604] [M1203]
- E04B2/96C . . . . [N: Connections of mullions and transoms] [N9604]
- E04B2/96D . . . . [N: Details of the cross-section of the mullions or transoms ([E04B2/96C](#) takes precedence)] [N9604]
  
- E04B5/00** **Floors; Floor construction with regard to insulation; Connections specially adapted therefor** (elements for floors, e.g. bricks, stones, filling bodies, girders, [E04C](#); flooring as finishing work, insulation of flooring, sectional false floors, e.g. for computers [E04F15/00](#))
  
- E04B5/02 . . . Load-carrying floor structures formed substantially of prefabricated units ([E04B5/43](#) to [E04B5/48](#) take precedence) [M1207]
- E04B5/02C . . . [N: Separate connecting devices for prefabricated floor-slabs] [N1204]
- E04B5/02P . . . [N: with beams or slabs of plastic] [N0908]
- E04B5/04 . . . with beams [N: or slabs] of concrete or other stone-like material, e.g. asbestos cement ([E04B5/08](#), [E04B5/14](#) take precedence) [C0908]
- E04B5/04H . . . . [N: having elongated hollow cores] [N0908]
- E04B5/04S . . . . [N: with beams placed with distance from another] [N0908]
- E04B5/06 . . . . [N: with beams] placed against one another [N: optionally with pointing-mortar] [C0908]
- E04B5/08 . . . assembled of block-shaped elements, e.g. hollow stones ([E04B5/14](#) takes precedence; floors composed of reinforced brickwork [E04B5/44](#))
- E04B5/10 . . . with metal beams or girders, e.g. with steel lattice girders ([E04B5/14](#) takes precedence)

- E04B5/12 . . . with wooden beams ([E04B5/14](#) takes precedence) [N: also means for supporting beams; (shores or struts [E04G25/00](#))]
- E04B5/14 . . . with beams or girders laid in two directions
- E04B5/16 . Load-carrying floor structures wholly or partly cast or similarly formed in situ ([E04B5/43](#) to [E04B5/48](#) take precedence; floors merely characterised by the prefabricated elements [E04C](#))
- E04B5/17 . . . Floor structures partly formed in situ
- E04B5/18 . . . . with stiffening ribs or other beam-like formations wholly cast between filling members
- E04B5/19 . . . . . the filling members acting as self-supporting permanent forms ([E04B5/21](#) takes precedence)
- E04B5/21 . . . . . Cross-ribbed floors
- E04B5/23 . . . . with stiffening ribs or other beam-like formations wholly or partly prefabricated (with all load-carrying parts substantially consisting of prefabricated units [E04B5/02](#)) [N: beams built-up by elements joined in line [E04C3/22](#)]
- E04B5/26 . . . . . with filling members between the beams ([E04B5/28](#) takes precedence)
- E04B5/26B . . . . . [N: Monolithic filling members] [N1012]
- E04B5/26B2 . . . . . [N: with a flat lower surface ([E04B5/26B4](#) takes precedence)] [N1012]
- E04B5/26B4 . . . . . [N: with one or more hollow cores] [N1012]
- E04B5/26C . . . . . [N: Filling members covering the undersurface of the beams] [N1204]
- E04B5/26E . . . . . [N: End filling members to be placed between the floor and the wall, e.g. thermal breaks] [N1204]
- E04B5/28 . . . . . Cross-ribbed floors
- E04B5/29 . . . . . the prefabricated parts of the beams consisting wholly of metal ([E04B5/28](#) takes precedence)
- E04B5/32 . . . Floor structures wholly cast in situ with or without form units or reinforcements
- E04B5/32C . . . . [N: with hollow filling elements] [N1204]
- E04B5/32C1 . . . . . [N: the filling elements being spherical] [N1204]
- E04B5/36 . . . . with form units as part of the floor
- E04B5/38 . . . . . with slab-shaped form units acting simultaneously as reinforcement; Form slabs with reinforcements extending laterally outside the element [N: beams placed against one another and acting as permanent forms [E04B5/23](#)]
- E04B5/40 . . . . . with metal form-slabs
- E04B5/43 . Floor structures of extraordinary design; Features relating to the elastic stability; Floor structures specially designed for resting on columns only, e.g. mushroom floors ([N: anchoring devices for balconies with means for preventing cold bridging [E04B1/00D2](#)]; extraordinary constructions in general [E04B1/34](#))
- E04B5/44 . Floors composed of stones, mortar, and reinforcing elements (with inserts of glass [E04B5/46](#))
- E04B5/46 . Special adaptation of floors for transmission of light, e.g. by inserts of glass (of ceilings [E04B9/32](#), block-shaped elements [E04C1/42](#); slab- or sheet-shaped elements [E04C2/54](#); for roof covering [E04D3/06](#))
- E04B5/48 . Special adaptations of floors for incorporating ducts, e.g. for heating or ventilating (in block-shaped elements [E04C1/39](#); in slab- or sheet-shaped elements [E04C2/52](#))

- E04B7/00**      **Roofs; Roof construction with regard to insulation** (structures for roofs as well as for floors [E04B5/00](#); ceilings [E04B9/00](#); greenhouses [A01G9/14](#); large containers having floating covers [B65D88/34](#); roof trusses, trusslike structures, joists [E04C3/02](#); roof covering [E04D](#)) [**M1207**]
- [E04B7/02](#)      . with plane sloping surfaces, e.g. saddle roofs [**N: (canopies [E04F10/00](#))**] ([E04B7/12](#) takes precedence)
- [E04B7/02A](#)      . . [**N: consisting of a plurality of parallel similar trusses or portal frames**]
- [E04B7/02A2](#)      . . . [**N: the trusses or frames supporting load-bearing purlins, e.g. braced purlins (battens, supports for battens [E04D12/00](#))**]
- [E04B7/02C](#)      . . [**N: consisting of prefabricated modules, e.g. box-like or cell-like units** ([E04B7/24](#) takes precedence)]
- [E04B7/02D](#)      . . [**N: consisting of structures of pyramidal or conical shape**]
- [E04B7/04](#)      . . supported by horizontal beams or the equivalent resting on the walls ([E04B7/06](#) takes precedence)
- [E04B7/04C](#)      . . . [**N: with connectors made of sheet metal for connecting the roof structure to the supporting wall (connectors made of sheet metal for wooden elongated load-supporting elements in general [E04B1/26B1](#))**] [**N0603**]
- [E04B7/06](#)      . . Constructions of roof intersections or hipped ends
- [E04B7/06A](#)      . . . [**N: Hipped ends**] [**N0111**]
- [E04B7/08](#)      . Vaulted roofs ([E04B7/14](#) takes precedence; vaulted structures in general [E04B1/32](#); inflatable tents or canopies, in general [E04H15/20](#); inflatable forms for shaping in situ [E04G11/04](#))
- [E04B7/10](#)      . . Shell structures, e.g. of hyperbolic-parabolic shape; Grid-like formations acting as shell structures; Folded structures [**N: buildings [E04B1/32](#)**]
- [E04B7/10B](#)      . . . [**N: Shell structures**]
- [E04B7/10C](#)      . . . [**N: Grid-like structures**]
- [E04B7/10D](#)      . . . [**N: Folded structures**]
- [E04B7/12](#)      . formed in bays, e.g. saw-tooth roofs ([E04B7/10](#) takes precedence)
- [E04B7/14](#)      . Suspended roofs (suspended tents or canopies in general [E04H15/04](#))
- [E04B7/16](#)      . Roof structures with movable roof parts (buildings for special purposes [E04H](#))
- [E04B7/16P](#)      . . [**N: characterised by a pivoting movement of the movable roof parts** ([E04B7/16T](#) takes precedence)] [**N1004**]
- [E04B7/16T](#)      . . [**N: characterised by a translation movement of the movable roof part, with or without additional movements**] [**N1004**]
- [E04B7/18](#)      . Special structures in or on roofs, e.g. dormer windows (in connection with roof coverings [E04D13/00](#), especially domes [E04D13/03](#))
- [E04B7/20](#)      . Roofs consisting of self-supporting slabs, e.g. able to be loaded
- [E04B7/20B](#)      . . [**N: the slabs having non-structural supports for roofing materials (for slabs having insulating properties [E04B7/22B](#))**][**C0409**]
- [E04B7/22](#)      . . the slabs having insulating properties, e.g. laminated with layers of insulating material[**N0409**]
- [E04B7/22B](#)      . . . [**N: the slabs having non-structural supports for roofing materials**][**N0409**]

- E04B7/24 . . . the slabs being collapsible [N: or retractable], e.g. for transport[N0409]
- E04B9/00** **Ceilings; Construction of ceilings, e.g. false ceilings; Ceiling construction with regard to insulation** (ceilings used as forms for making floors [E04B5/00](#); coverings or linings for ceilings [E04F13/00](#))
- E04B9/00A . [N: characterised by provisions for heat or sound insulation]
- E04B9/00B . [N: with movable parts, e.g. pivoting panels, access doors]
- E04B9/00C . [N: composed of imitation beams or beam coverings]
- E04B9/00D . [N: with means for hanging lighting fixtures or other appliances to the framework of the ceiling]
- E04B9/00E . [N: with means for connecting partition walls or panels to the ceilings]
- E04B9/02 . having means for ventilation or vapour discharge
- E04B9/02A . . [N: comprising drainage gutters for condensed water or grease] [N1204]
- E04B9/04 . comprising slabs, [N: panels,] sheets or the like [N1204]
- E04B9/04A . . [N: being stiff and curved] [N1204]
- E04B9/04B . . [N: being foldable, curvable or rollable] [N1204]
- E04B9/04C . . [N: comprising ducts] [N1204]
- E04B9/04D . . [N: having a closed frame around the periphery] [N1204]
- E04B9/04E . . [N: having connection means at the edges] [N1204]
- E04B9/04F . . [N: having a honeycomb core] [N1204]
- E04B9/04G . . [N: being laminated] [N1204]
- E04B9/04H . . [N: having closed internal cavities] [N1204]
- E04B9/04J . . [N: having irregularities on the faces, e.g. holes, grooves] [N1204]
- E04B9/04K . . [N: having a trapezoidal cross section] [N1204]
- E04B9/04L . . [N: of the tray type] [N1204]
- E04B9/04L1 . . . [N: containing a filling element] [N1204]
- E04B9/06 . characterised by constructional features of the supporting construction, [N: e.g. cross section or material of framework members]
- E04B9/06A . . [N: supporting construction for curved ceilings] [N1204]
- E04B9/06E . . [N: comprising extruded supporting beams] [N0907]
- E04B9/06F . . [N: comprising supporting beams having a folded cross-section] [N0907]
- E04B9/06F2 . . . [N: with inverted T-shaped cross-section] [N0907]
- E04B9/06F2D . . . . [N: with double web] [N0907]
- E04B9/08 . . having the capability of expansion [N: e.g. in case of fire]
- E04B9/10 . . Connections between parallel members of the supporting construction ([E04B9/08](#) takes precedence)
- E04B9/12 . . Connections between non-parallel members of the supporting construction ([E04B9/08](#) takes precedence)
- E04B9/12B . . . [N: one member passing through the other member, both members laying at

- least partly in the same plane]
- E04B9/12B1 . . . . [N: both members being continuous members] [N1204]
- E04B9/12D . . . [N: one member being discontinuous and abutting against the other member]
- E04B9/14 . . . all the members being discontinuous and laying at least partly in the same plane
- E04B9/16 . . . the members lying in different planes
- E04B9/18 . Means for suspending the supporting construction
- E04B9/18A . . [N: having a lower side adapted to be connected to a channel of the supporting construction] [N1204]
- E04B9/20 . . adjustable
- E04B9/20C . . . [N: by means of a resilient clip] [N1204]
- E04B9/22 . Connection of slabs, [N: panels,] sheets or the like to the supporting construction [N1204]
- E04B9/22A . . [N: with the slabs, panels, sheets or the like hanging at a distance below the supporting construction] [N1204]
- E04B9/24 . . with the slabs, [N: panels,] sheets or the like positioned on [N: the upperside of], or held against [N: the underside of the] horizontal flanges of the supporting construction [N: or accessory means connected thereto] [N1204]
- E04B9/24B . . . [N: with the slabs, [N: panels,] sheets or the like positioned on the upperside of the horizontal flanges of the supporting construction] [N1204]
- E04B9/24B1 . . . . [N: with separate retaining elements] [N1204]
- E04B9/24B2 . . . . [N: comprising sealing means between the supporting construction and the slabs, panels, sheets or the like] [N1204]
- E04B9/24D . . . [by means of screws, bolts or clamping strips held against the underside of the supporting construction ([E04B9/26](#) takes precedence)]
- E04B9/24E . . . [N: by means of sliding or pivoting locking elements, held against the underside of the supporting construction]
- E04B9/24F . . . [N: by means of permanent magnetic force held against the underside of the supporting construction]
- E04B9/26 . . . by means of snap action of elastically deformable elements [N: held against the underside of the supporting construction]
- E04B9/28 . . with the slabs, [N: panels,] sheets or the like having grooves engaging with horizontal flanges of the supporting construction or accessory means connected thereto [N1204]
- E04B9/30 . characterised by edge details of the ceiling; e.g. securing to an adjacent wall
- E04B9/30B . . [N: for flexible tensioned membranes]
- E04B9/30B1 . . . [N: Tensioning hand tools therefor] [N1204]
- E04B9/32 . Translucent ceilings, i.e. permitting both the transmission and diffusion of light ([N: [E04B9/30B](#) and] [E04B9/34](#) take precedence; details of lighting devices, of general application [F21V](#); screens [F21V11/00](#))
- E04B9/34 . [N: Grid-like or] open-work ceilings, e.g. lattice type [N: boxlike modules, acoustic baffles] ([E04B9/30](#) takes precedence, grids for lighting devices [F21V](#))
- E04B9/34B . . [N: consisting of non-parallel slats, e.g. grids]
- E04B9/36 . . consisting of parallel slats

- E04B9/36A . . . [N: the principal plane of the slats being horizontal]
- E04B9/36B . . . [N: the principal plane of the slats being vertical]