

## SECTION E — FIXED CONSTRUCTIONS

## E04 BUILDING

## E04B GENERAL BUILDING CONSTRUCTIONS; WALLS, e.g. PARTITIONS; ROOFS; FLOORS; CEILINGS; INSULATION OR OTHER PROTECTION OF BUILDINGS (border constructions of openings in walls, floors, or ceilings E06B 1/00)

**Note(s)**

1. This subclass covers working methods used in constructing new buildings and analogous working methods on existing buildings. Other working methods on existing buildings, except those for insulating, are classified in group E04G 23/00.
2. In this subclass, the following term is used with the meaning indicated:
  - "ceiling" includes all the finishing material concealing the underside of the load-carrying ceiling structure or roof structure.

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| <p><b>1/00</b> • <b>Constructions in general; Structures which are not restricted either to walls, e.g. partitions, or floors or ceilings or roofs</b> (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, <u>see</u> the relevant groups for those parts)</p> | <p>1/34 • 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 (E04B 1/342, E04B 1/343, E04B 1/348 take precedence; for floors E04B 5/43; buildings for special purposes, e.g. withstanding earthquake, E04H)</p>   |
| <p>1/02 • Structures consisting primarily of load-supporting, block-shaped or slab-shaped elements (E04B 1/32-E04B 1/36 take precedence)</p>  | <p>1/342 • Structures covering a large free area, whether open-sided or not, e.g. hangars, halls (roof trusses E04C 3/00; non-structural features for specified purposes, <u>see</u> the relevant groups of E04H)</p>  |
| <p>1/04 • • the elements consisting of concrete, e.g. reinforced concrete, or other stone-like material</p>   | <p>1/343 • Structures characterised by movable, separable, or collapsible parts, e.g. for transport (movable roof parts E04B 7/16; floatable buildings B63B; small prefabricated buildings, transportable as a whole, E04H 1/12; small garages E04H 6/02; tents or canopies, in general E04H 15/00)</p>  |
| <p>1/06 • • • the elements being prestressed</p>  | <p>1/344 • • with hinged parts</p>   |
| <p>1/08 • • the elements consisting of metal</p>  | <p>1/346 • • Rotary buildings; Buildings with rotary units, e.g. rooms</p>   |
| <p>1/10 • • the elements consisting of wood</p>   | <p>1/348 • 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 (wall units locating conduits or the like E04C 2/52)</p>  |
| <p>1/12 • • the elements consisting of other material</p>   | <p>1/35 • Extraordinary methods of construction, e.g. lift-slab, jack-block (E04B 1/34 takes precedence; falsework, shuttering for shaping walls, floors, ceilings or roofs for structures of particular shape <u>in situ</u> E04G 11/04; conveying or assembling of building materials E04G 21/00; working measures on existing buildings E04G 23/00)</p>   |
| <p>1/14 • • the elements being composed of two or more materials (of reinforced concrete E04B 1/04)</p>   | <p>1/36 • Bearings or like supports allowing movement (for bridges E01D 19/04; buildings withstanding earthquake E04H 9/02)</p>  |
| <p>1/16 • Structures made from masses, e.g. concrete, cast or similarly formed <u>in situ</u> with or without making use of additional elements, such as permanent forms, sub-structures to be coated with load-bearing material (E04B 1/32-E04B 1/36 take precedence)</p>  | <p>1/38 • Connections for building structures in general</p>   |
| <p>1/18 • Structures comprising elongated load-supporting parts, e.g. columns, girders, skeletons (E04B 1/32-E04B 1/36 take precedence; elongated load-supporting parts as elements, trusses, truss-like structures E04C 3/00)</p>  | <p><b>Note(s)</b><br/>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 E04B 1/21, E04B 2/00, E04B 5/00, E04B 7/00 or E04B 9/00. Joints not specially adapted for building construction, or of more general application, are classified in the appropriate subclasses, e.g. F16B.</p> |
| <p>1/19 • • Three-dimensional framework structures [2]</p> <p><b>Note(s)</b><br/>Group E04B 1/19 takes precedence over groups E04B 1/20-E04B 1/30.</p>  |  |
| <p>1/20 • • the supporting parts consisting of concrete, e.g. reinforced concrete, or other stone-like material</p>   |  |
| <p>1/21 • • • Connections specially adapted therefor [2]</p>  |  |
| <p>1/22 • • • with parts being prestressed</p>  |  |
| <p>1/24 • • the supporting parts consisting of metal</p>  |  |
| <p>1/26 • • the supporting parts consisting of wood</p>   |  |
| <p>1/28 • • the supporting parts consisting of other material</p>   |  |
| <p>1/30 • • the supporting parts being composed of two or more materials; Composite steel and concrete constructions (of reinforced concrete E04B 1/20)</p>   |  |
| <p>1/32 • Arched structures; Vaulted structures; Folded structures (vaulted roofs E04B 7/08)</p>  |  |

E04B

- 1/41 • • Connecting devices specially adapted for embedding in concrete or masonry (spacers for cavity walls E04B 2/30, E04B 2/44; connectors for reinforcing elements E04C 5/16; fastening frames to the border of openings E06B 1/56)
- 1/48 • • Dowels, i.e. members adapted to penetrate the surfaces of two parts and to take the shear stresses
- 1/49 • • • with self-penetrating parts, e.g. claw dowels
- 1/58 • • of bar-shaped building elements
- 1/61 • • of slab-shaped building elements with each other [5]
- 1/62 • Insulation or other protection; Elements or use of specified material therefor (chemical compositions C01-C11; implements for applying insulation or sealings E04F 21/00; buildings to withstand, or to provide protection against, external undesired influences E04H 9/00; sealing pipes in walls or partitions F16L 5/02; shielding against dangerous radiation G21F; constructions of particular parts of buildings, see the relevant groups for those parts)
- 1/64 • • for making damp-proof; Protection against corrosion (sealings E04B 1/66)
- 1/66 • • Sealings (additions of anti-leak properties to plaster C04B; bituminous sealing masses C08L 95/00; sealings for hydraulic engineering work in general E02B 3/16; against ground humidity or ground water E02D 31/02; 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)
- 1/68 • • • of joints, e.g. expansion joints (packing for joints in roads or airfields E01C 11/02; expansion joints for bridges E01D 19/06; sealing joints between foundation piles E02D 5/14; joints in foundation structures E02D 29/16; devices for sealing the spaces or joints between roof-covering elements E04D 1/36; sealing joints between roof-covering elements E04D 3/38; construction of joints for flooring or floor layers made of masses in situ E04F 15/14)
- 1/682 • • • formed in situ [5]
- 1/684 • • • using preformed elastomeric elements [5]
- 1/686 • • • comprising a plurality of hollow, deformable internal cells [5]
- 1/70 • • Drying or keeping dry, e.g. by air vents (by sealings E04B 1/66; during erection E04G 21/28)
- 1/72 • • Pest control (by keeping dry E04B 1/70; impregnation of wood or like materials B27K)
- 1/74 • • Heat, sound or noise insulation, absorption, or reflection (forms of, or arrangements in, rooms for influencing or directing sound E04B 1/99); Other building methods affording favourable thermal or acoustical conditions, e.g. accumulating of heat within walls (fire protection E04B 1/94; elements chiefly adapted for structural purposes E04C 1/00-E04C 3/00; chiefly adapted for surface coverings E04F 13/00; as underlayers for floor coverings E04F 15/18; closures for wall or like openings E06B)
- 1/76 • • • specifically with respect to heat only (heat insulation in general F16L 59/00)
- 1/78 • • • • Heat insulating elements
- 1/80 • • • • slab-shaped
- 1/82 • • • specifically with respect to sound only (noise damping in ducts or channels E04F 17/00; noise damping in general G10K 11/16)
- 1/84 • • • • Sound-absorbing elements
- 1/86 • • • • slab-shaped
- 1/88 • • • Insulating elements for both heat and sound
- 1/90 • • • • slab-shaped
- 1/92 • • Protection against other undesired influences or dangers (buildings providing protection against external dangers E04H 9/00; shielding against dangerous radiation G21F)
- 1/94 • • • against fire (fire-fighting A62C; impregnation of wood or similar materials B27K; fireproof doors E06B 5/16)
- 1/98 • • • against vibrations or shocks (on foundations E02D 31/08); against mechanical destruction, e.g. by air-raids (against incendiary damage only E04B 1/94; finishing work therefor E04F; buildings withstanding earthquake or the like, shelters, arrangements of splinter-catching walls E04H 9/00)
- 1/99 • Room acoustics, i.e. forms of, or arrangements in, rooms for influencing or directing sound (E04B 1/82 takes precedence; acoustics in general G10K 11/00; electric signal processing for producing a reverberation or echo sound G10K 15/08)
- 2/00 **Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls** (connections for building structures in general E04B 1/38; insulation for building in general E04B 1/62; building elements of relatively thin form for parts of buildings E04C 2/00)
- 2/02 • built-up from layers of building elements
- 2/04 • • Walls having neither cavities between, nor in, the solid elements
- 2/06 • • • using elements having specially-designed means for stabilising the position
- 2/08 • • • • by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- 2/10 • • • • by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- 2/12 • • • using elements having a general shape differing from that of a parallelepiped
- 2/14 • • 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
- 2/16 • • • using elements having specially designed means for stabilising the position
- 2/18 • • • • by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- 2/20 • • • • by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- 2/22 • • • using elements having a general shape differing from that of a parallelepiped
- 2/24 • • • the walls being characterised by fillings in some of the cavities forming load-bearing pillars or beams
- 2/26 • • • the walls being characterised by fillings in all cavities in order to form a wall construction
- 2/28 • • 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
- 2/30 • • • using elements having specially designed means for stabilising the position; Spacers for cavity walls

- 2/32 • • • • by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- 2/34 • • • • by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- 2/36 • • • using elements having a general shape differing from that of a parallelepiped
- 2/38 • • • the walls being characterised by fillings in some of the cavities forming load-bearing pillars or beams
- 2/40 • • • the walls being characterised by fillings in all cavities in order to form a wall construction
- 2/42 • • 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
- 2/44 • • • using elements having specially designed means for stabilising the position; Spacers for cavity walls
- 2/46 • • • • by interlocking of projections or inserts with indentations, e.g. of tongues, grooves, dovetails
- 2/48 • • • • by filling material with or without reinforcements in small channels in, or in grooves between, the elements
- 2/50 • • • using elements having a general shape differing from that of a parallelepiped
- 2/52 • • • the walls being characterised by fillings in some of the cavities forming load-bearing pillars or beams
- 2/54 • • • the walls being characterised by fillings in all cavities in order to form a wall construction
- 2/56 • Walls of framework or pillarwork; Walls incorporating load-bearing elongated members (E04B 2/74, E04B 2/88 take precedence; pillars E04C 3/30)
- 2/58 • • with elongated members of metal
- 2/60 • • • characterised by special cross-section of the elongated members
- 2/62 • • • the members being formed of two or more elements in side-by-side relationship
- 2/64 • • with elongated members of concrete
- 2/66 • • • characterised by special cross-section of the elongated members
- 2/68 • • • made by filling-up wall cavities (E04B 2/24, E04B 2/38, E04B 2/52 take precedence)
- 2/70 • • with elongated members of wood
- 2/72 • Walls of elements of relatively thin form (E04B 2/56, E04B 2/74, E04B 2/88 take precedence; with joint fillings acting as framework or pillars E04B 2/68; elements E04C 2/00)
- 2/74 • Removable non-load-bearing partitions; Partitions with a free upper edge (framed panels E04C 2/38)
- 2/76 • • with framework or posts of metal
- 2/78 • • • characterised by special cross-section of the frame members
- 2/80 • • with framework or posts of wood
- 2/82 • • characterised by the manner in which edges are connected to the building; Means therefor; Special details of easily-removable partitions
- 2/84 • Walls made by casting, pouring, or tamping in situ (E04B 2/02, E04B 2/56 take precedence; forms therefor E04G 11/06; working of concrete or similar masses able to be cast or poured in situ E04G 21/02)
- 2/86 • • made in permanent forms
- 2/88 • Curtain walls
- 2/90 • • comprising panels directly attached to the structure [4]
- 2/92 • • • Sandwich-type panels [4]
- 2/94 • • • Concrete panels (E04B 2/92 takes precedence) [4]
- 2/96 • • comprising panels attached to the structure through mullions or transoms [4]
- 5/00 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, E04F 15/00) [5]
- 5/02 • Load-carrying floor structures formed substantially of prefabricated units (E04B 5/43-E04B 5/48 take precedence)
- 5/04 • • with beams of concrete or other stone-like material, e.g. asbestos cement (E04B 5/08, E04B 5/14 take precedence)
- 5/06 • • • placed against one another
- 5/08 • • assembled of block-shaped elements, e.g. hollow stones (E04B 5/14 takes precedence; floors composed of reinforced brickwork E04B 5/44)
- 5/10 • • with metal beams or girders, e.g. with steel lattice girders (E04B 5/14 takes precedence)
- 5/12 • • with wooden beams (E04B 5/14 takes precedence)
- 5/14 • • • with beams or girders laid in two directions
- 5/16 • Load-carrying floor structures wholly or partly cast or similarly formed in situ (E04B 5/43-E04B 5/48 take precedence; floors merely characterised by the prefabricated elements E04C)
- 5/17 • • Floor structures partly formed in situ
- 5/18 • • • with stiffening ribs or other beam-like formations wholly cast between filling members
- 5/19 • • • • the filling members acting as self-supporting permanent forms (E04B 5/21 takes precedence)
- 5/21 • • • • Cross-ribbed floors
- 5/23 • • • with stiffening ribs or other beam-like formations wholly or partly prefabricated (with all load-carrying parts substantially consisting of prefabricated units E04B 5/02)
- 5/26 • • • • with filling members between the beams (E04B 5/28 takes precedence)
- 5/28 • • • • Cross-ribbed floors
- 5/29 • • • • the prefabricated parts of the beams consisting wholly of metal (E04B 5/28 takes precedence)
- 5/32 • • Floor structures wholly cast in situ with or without form units or reinforcements
- 5/36 • • • with form units as part of the floor
- 5/38 • • • • with slab-shaped form units acting simultaneously as reinforcement; Form slabs with reinforcements extending laterally outside the element
- 5/40 • • • • • with metal form slabs
- 5/43 • Floor structures of extraordinary design; Features relating to the elastic stability; Floor structures specially designed for resting on columns only, e.g. mushroom floors (extraordinary constructions in general E04B 1/34)
- 5/44 • Floors composed of stones, mortar, and reinforcing elements (with inserts of glass E04B 5/46)

## E04B

- 5/46 • Special adaptation of floors for transmission of light, e.g. by inserts of glass (of ceilings E04B 9/32; block-shaped elements E04C 1/42; slab- or sheet-shaped elements E04C 2/54; for roof covering E04D 3/06) [5]
- 5/48 • Special adaptations of floors for incorporating ducts, e.g. for heating or ventilating (in block-shaped elements E04C 1/39; in slab- or sheet-shaped elements E04C 2/52)
- 7/00 Roofs; Roof construction with regard to insulation** (structures for roofs as well as for floors E04B 5/00; ceilings E04B 9/00; greenhouses A01G 9/14; large containers having floating covers B65D 88/34; roof trusses, truss-like structures, joists E04C 3/02; roof coverings E04D) [5]
- 7/02 • with plane sloping surfaces, e.g. saddle roofs (E04B 7/12 takes precedence)
- 7/04 • • supported by horizontal beams or the equivalent resting on the walls (E04B 7/06 takes precedence)
- 7/06 • • Constructions of roof intersections or hopped ends
- 7/08 • Vaulted roofs (E04B 7/14 takes precedence; vaulted structures in general E04B 1/32; inflatable tents or canopies, in general E04H 15/20; inflatable forms for shaping *in situ* E04G 11/04)
- 7/10 • • Shell structures, e.g. of hyperbolic-parabolic shape; Grid-like formations acting as shell structures; Folded structures
- 7/12 • formed in bays, e.g. sawtooth roofs (E04B 7/10 takes precedence)
- 7/14 • Suspended roofs (suspended tents or canopies, in general E04H 15/04)
- 7/16 • Roof structures with movable roof parts (buildings for special purposes E04H)
- 7/18 • Special structures in or on roofs, e.g. dormer windows (in connection with roof coverings E04D 13/00, especially domes E04D 13/03)
- 7/20 • Roofs consisting of self-supporting slabs, e.g. able to be loaded [5]
- 7/22 • • the slabs having insulating properties, e.g. being laminated with layers of insulating material (E04B 7/24 takes precedence) [6]
- 7/24 • • the slabs being collapsible, e.g. for transport [6]
- 9/00 Ceilings; Construction of ceilings, e.g. false ceilings; Ceiling construction with regard to insulation** (ceilings used as forms for making floors E04B 5/00; coverings or linings for ceilings E04F 13/00) [5]
- 9/02 • having means for ventilation or vapour discharge [5]
- 9/04 • comprising slabs, sheets or the like (E04B 9/06-E04B 9/34 take precedence; slabs, sheets or the like *per se* E04C 2/00) [5]
- 9/06 • characterised by constructional features of the supporting construction [5]
- 9/08 • • having the capability of expansion [5]
- 9/10 • • Connections between parallel members of the supporting construction (E04B 9/08 takes precedence) [5]
- 9/12 • • Connections between non-parallel members of the supporting construction (E04B 9/08 takes precedence) [5]
- 9/14 • • • all the members being discontinuous and lying at least partly in the same plane [5]
- 9/16 • • • the members lying in different planes [5]
- 9/18 • Means for suspending the supporting construction [5]
- 9/20 • • adjustable [5]
- 9/22 • Connection of slabs, sheets or the like to the supporting construction [5]
- 9/24 • • with the slabs, sheets or the like positioned on, or held against, horizontal flanges of the supporting construction [5]
- 9/26 • • • by means of snap action of elastically deformable elements [5]
- 9/28 • • with the slabs, sheets or the like having grooves engaging with horizontal flanges of the supporting construction or accessory means connected thereto [5]
- 9/30 • characterised by edge details of the ceiling, e.g. securing to an adjacent wall [5]
- 9/32 • Translucent ceilings, i.e. permitting both the transmission and diffusion of light (E04B 9/34 takes precedence; lighting F21) [5]
- 9/34 • Open-work ceilings, e.g. lattice type (E04B 9/30 takes precedence) [5]
- 9/36 • • consisting of parallel slats [5]

**E04C STRUCTURAL ELEMENTS; BUILDING MATERIALS** (for bridges E01D; specially designed for insulation or other protection E04B; elements used as building aids E04G; for mining E21; for tunnels E21D; structural elements with broader range of application than for building engineering F16, particularly F16S)

- 1/00 Building elements of block or other shape for the construction of parts of buildings** (of relatively thin form E04C 2/00; structural elongated elements designed for load-supporting E04C 3/00, e.g. columns or pillars E04C 3/30; manufacture or material of building bricks, stones, or the like B28, C03, C04; paving elements E01C; general building constructions E04B, e.g. walls E04B 2/00, floors E04B 5/00, roofs E04B 7/00, ceilings E04B 9/00; structural elements specially designed for built-in conduit shafts E04F; special elements for building ovens or furnaces F24B, F27D) [5]
- 1/39 • characterised by special adaptations, e.g. serving for locating conduits, for forming soffits, cornices, or shelves, for fixing wall-plates or door-frames, for claustra
- 1/40 • built-up from parts of different materials, e.g. composed of layers of different materials or stones with filling material or with insulating inserts
- 1/41 • • composed of insulating material and load-bearing concrete, stone or stone-like material [6]
- 1/42 • of glass or other transparent material
- 2/00 Building elements of relatively thin form for the construction of parts of buildings, e.g. sheet materials, slabs, or panels** (materials or manufacture, *see* the relevant places, e.g. B27N, B29, D21J; made *in situ* E04B; specially designed for insulation or other protection E04B 1/62; load-carrying floor structures E04B 5/02, E04B 5/16; roofs consisting of self-supporting slabs E04B 7/20; roof- or like covering elements E04D 3/00; for lining or finishing E04F 13/00)
- 2/02 • characterised by specified materials (translucent E04C 2/54)
- 2/04 • • of concrete or other stone-like material; of asbestos cement (E04C 2/26 takes precedence; material or manufacture B28, C04)
- 2/06 • • • reinforced

- 2/08 • • of metal, e.g. sheet metal (E04C 2/26 takes precedence)
- 2/10 • • • of wood, fibres, chips, vegetable stems, or the like; of plastics; of foamed products (E04C 2/26 takes precedence)
- 2/12 • • • of solid wood
- 2/14 • • • • reinforced
- 2/16 • • • of fibres, chips, vegetable stems, or the like
- 2/18 • • • • with binding wires, reinforcing bars, or the like
- 2/20 • • • of plastics
- 2/22 • • • • reinforced
- 2/24 • • • laminated and composed of materials covered by two or more of groups E04C 2/12, E04C 2/16, E04C 2/20
- 2/26 • • composed of materials covered by two or more of groups E04C 2/04, E04C 2/08, E04C 2/10, or of materials covered by one of these groups with a material not specified in one of these groups
- 2/28 • • • combinations of materials fully covered by groups E04C 2/04 and E04C 2/08
- 2/284 • • • at least one of the materials being insulating [6]
- 2/288 • • • • composed of insulating material and concrete, stone or stone-like material [6]
- 2/292 • • • • composed of insulating material and sheet metal [6]
- 2/296 • • • • composed of insulating material and non-metallic or unspecified sheet-material (E04C 2/288 takes precedence) [6]
- 2/30 • characterised by the shape or structure (translucent E04C 2/54)
- 2/32 • • formed of corrugated or otherwise indented sheet-like material; composed of such layers with or without layers of flat sheet-like material
- 2/34 • • composed of two or more spaced sheet-like parts (E04C 2/32 takes precedence; spacers for cavity walls E04B 2/44)
- 2/36 • • • spaced apart by transversely-placed strip material, e.g. honeycomb panels (honeycomb or other core members for layered products B32B)
- 2/38 • • with attached ribs, flanges, or the like, e.g. framed panels (concerned with attaching to other panels or elements to form a structure, see the places for the relevant structure, e.g. E04B 2/00)
- 2/40 • • composed of a number of smaller components rigidly or movably connected together, e.g. interlocking, hingedly connected
- 2/42 • • Gratings; Grid-like panels (reinforcing elements E04C 5/00; built-in gratings E04F 19/10; gratings in general F16S 3/00)
- 2/52 • • with special adaptations for auxiliary purposes, e.g. serving for locating conduits (E04C 2/54 takes precedence; block-shaped elements therefor E04C 1/39; floor structures incorporating ducts E04B 5/48)
- 2/54 • Slab-like translucent elements (floors for transmitting light E04B 5/46; translucent or open-work ceilings E04B 9/32, E04B 9/34; translucent roof coverings E04D 3/06, E04D 3/28)
- 3/00 Structural elongated elements designed for load-supporting** (as building aids E04G)
- 3/02 • Joists; Girders, trusses, or truss-like structures, e.g. prefabricated; Lintels; Transoms (E04C 3/38 takes precedence; for structures characterised by movable, separable, or collapsible parts E04B 1/343)
- 3/04 • • of metal (E04C 3/29 takes precedence; as reinforcing elements E04C 5/06; manufacture B21)
- 3/06 • • • with substantially solid, i.e. unapertured, web (E04C 3/10, E04C 3/11 take precedence)
- 3/07 • • • • at least partly of bent or otherwise deformed strip- or sheet-like material
- 3/08 • • • with apertured web, e.g. with a web consisting of bar-like components; Honeycomb girders (E04C 3/10, E04C 3/11 take precedence)
- 3/09 • • • • at least partly of bent or otherwise deformed strip- or sheet-like material
- 3/10 • • • prestressed
- 3/11 • • • with non-parallel upper and lower edges, e.g. roof trusses (arched girders, portal frames E04C 3/38)
- 3/12 • • of wood, e.g. with reinforcements, with tensioning members (E04C 3/292 takes precedence)
- 3/14 • • • with substantially solid, i.e. unapertured, web (E04C 3/17, E04C 3/18 take precedence)
- 3/16 • • • with apertured web, e.g. trusses (E04C 3/17, E04C 3/18 take precedence)
- 3/17 • • • with non-parallel upper and lower edges, e.g. roof trusses
- 3/18 • • • with metal reinforcements or tensioning members
- 3/20 • • of concrete or other stone-like material, e.g. with reinforcements or tensioning members (reinforcing elements E04C 5/00)
- 3/22 • • • built-up by elements joined in line
- 3/26 • • • prestressed (E04C 3/22, E04C 3/29 take precedence; prestressing members E04C 5/08)
- 3/28 • • of materials not covered by groups E04C 3/04-E04C 3/20
- 3/29 • • built-up from parts of different materials
- 3/292 • • • the materials being wood and metal
- 3/293 • • • the materials being steel and concrete (concrete with internal reinforcements or tensioning members E04C 3/20)
- 3/294 • • • • of concrete combined with a girder-like structure extending laterally outside the element (light-weight girders used as reinforcement E04C 5/065; as part of a floor structure E04B 5/23)
- 3/30 • Columns; Pillars; Struts (not designed for end loading E04C 3/02; posts, masts, as independent structures E04H 12/00)
- 3/32 • • of metal (E04C 3/36 takes precedence)
- 3/34 • • of concrete or other stone-like material, with or without permanent form elements, with or without internal or external reinforcement, e.g. metal coverings (E04C 3/36 takes precedence)
- 3/36 • • of materials not covered by groups E04C 3/32 or E04C 3/34; of a combination of two or more materials
- 3/38 • Arched girders or portal frames (straight girders able to be bent E04C 3/02; inflatable tents or canopies, in general E04H 15/20)
- 3/40 • • of metal (E04C 3/46 takes precedence)
- 3/42 • • of wood, e.g. units for rafter roofs (E04C 3/46 takes precedence)
- 3/44 • • of concrete or other stone-like material, e.g. with reinforcements or tensioning members (E04C 3/46 takes precedence)
- 3/46 • • of materials not covered by groups E04C 3/40-E04C 3/44; of a combination of two or more materials

**E04C**

- 5/00 **Reinforcing elements, e.g. for concrete; Auxiliary elements therefor** (material composition C21, C22; arrangements of reinforcing elements, see the relevant classes)
- 5/01 • Reinforcing elements of metal, e.g. with non-structural coatings [5]
- 5/02 • • of low bending resistance, i.e. of essentially one-or two-dimensional extent
- 5/03 • • • with indentations, projections, ribs, or the like, for augmenting the adherence to the concrete
- 5/04 • • • Mats (bases for plaster E04F 13/04)
- 5/06 • • of high bending resistance, i.e. of essentially three-dimensional extent, e.g. lattice girders
- 5/065 • • • Light-weight girders, e.g. with precast parts (light-weight girders in general E04C 3/08, E04C 3/294)
- 5/07 • Reinforcing elements of material other than metal, e.g. of glass, of plastics, or not exclusively made of metal (metal elements with non-structural coatings E04C 5/01) [5]
- 5/08 • Members specially adapted to be used in prestressed constructions
- 5/10 • • Ducts
- 5/12 • Anchoring devices (tools or methods for tensioning E04G 21/12) [5]
- 5/16 • Auxiliary parts for reinforcements, e.g. connectors, spacers, stirrups (tools for connecting reinforcing elements E04G 21/12)
- 5/18 • • of metal or substantially of metal
- 5/20 • • of other material than metal or with only additional metal parts, e.g. concrete or plastics spacers with metal binding wires

**E04D ROOF COVERINGS; SKY-LIGHTS; GUTTERS; ROOF-WORKING TOOLS** (coverings of outer walls by plaster or other porous material E04F 13/00)

**Note(s)**

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

- "roof coverings" includes any similar kind of watertight covering against rain, snow, hail, or the like, for other parts of buildings.

**Subclass index**

**ROOF COVERINGS**

Tiles or slates; slabs or stiff sheets; flexible materials.....	1/00, 3/00, 5/00, 11/00
Bulk materials, straw or thatch.....	7/00, 9/00, 11/00
Other materials.....	11/00

SPECIAL ARRANGEMENTS IN CONNECTION WITH ROOF COVERINGS..... 12/00, 13/00

APPARATUS OR TOOLS FOR ROOF WORKING..... 15/00

- 1/00 **Roof covering by making use of tiles, slates, shingles, or other small roofing elements** (roofing supports E04D 12/00)
- 1/02 • Grooved or vaulted roofing elements (E04D 1/28, E04D 1/30 take precedence)
- 1/04 • • of ceramics, glass or concrete, with or without reinforcement
- 1/06 • • of metal
- 1/08 • • of plastics; of fibrous materials
- 1/10 • • of specified materials, or of combinations of materials, not covered by any one of groups E04D 1/04-E04D 1/08
- 1/12 • Roofing elements shaped as plain tiles or shingles, i.e. with flat outer surface (E04D 1/28, E04D 1/30 take precedence)
- 1/14 • • of slate material, with or without fastening means
- 1/16 • • of ceramics, glass or concrete, with or without reinforcement
- 1/18 • • of metal
- 1/20 • • of plastics, fibrous materials, or wood
- 1/22 • • of specified materials, or of combinations of materials, not covered by any one of groups E04D 1/14-E04D 1/20
- 1/24 • Roofing elements with cavities, e.g. hollow tiles (E04D 1/28 takes precedence)
- 1/26 • Strip-shaped roofing elements appearing as a row of shingles
- 1/28 • Roofing elements comprising two or more layers, e.g. for insulation
- 1/30 • Special roof-covering elements, e.g. ridge tiles, gutter tiles, gable tiles, ventilation tiles (E04D 3/40 takes precedence; roof covering aspects of energy collecting devices E04D 13/18)
- 1/34 • Fastenings for attaching roof-covering elements to the supporting elements
- 1/36 • Devices for sealing the spaces or joints between roof-covering elements (sealing joints not restricted to roof covering elements E04B 1/68)
- 3/00 **Roof covering by making use of flat or curved slabs or stiff sheets** (E04D 1/00 takes precedence; built-up roofs E04D 11/02)
- 3/02 • of plane slabs, slates, or sheets, or in which the cross-section is unimportant (E04D 3/35 takes precedence)
- 3/04 • • of concrete or ceramics (of asbestos cement E04D 3/18)
- 3/06 • • of glass or other translucent material; Fixing means therefor (fixing glass panes by means applicable to windows E06B 3/54)
- 3/08 • • • with metal glazing bars
- 3/14 • • • with glazing bars of other material, e.g. of glass
- 3/16 • • of metal
- 3/18 • • of specified materials, or of combinations of materials, not covered by any of groups E04D 3/04, E04D 3/06 or E04D 3/16
- 3/24 • with special cross-section, e.g. with corrugations on both sides, with ribs, flanges, or the like (E04D 3/35 takes precedence)
- 3/26 • • of concrete or ceramics

- 3/28 • • of glass
- 3/30 • • of metal
- 3/32 • • of plastics, fibrous materials, or asbestos cement
- 3/34 • • of specified materials, or of combinations of materials, not covered by any one of groups E04D 3/26-E04D 3/32
- 3/35 • Roofing slabs or stiff sheets comprising two or more layers, e.g. for insulation
- 3/36 • Connecting; Fastening
- Note(s)**
- In groups E04D 3/361-E04D 3/368, additional small fastening elements, e.g. nails, screws, are not to be considered to be separate connecting elements.
- 3/361 • • by specially-profiled marginal portions of the slabs or sheets
- 3/362 • • • by locking the edge of one slab or sheet within the profiled marginal portion of the adjacent slab or sheet, e.g. using separate connecting elements
- 3/363 • • • with snap action [4]
- 3/3645 • • • by interference fitting [4]
- 3/365 • • by simple overlapping of the marginal portions with use of separate connecting elements, e.g. hooks or bolts for corrugated sheets
- 3/366 • • by closing the space between the slabs or sheets by gutters, bulges, or bridging elements, e.g. strips
- 3/367 • • by permanent deformation of the marginal portions of adjacent slabs or sheets, e.g. by folding the edges [4]
- 3/368 • • by forcing together the marginal portions of adjacent slabs or sheets
- 3/369 • • by welding of the marginal portions of adjacent slabs or sheets
- 3/38 • Devices for sealing spaces or joints between roof-covering elements (E04D 3/36 takes precedence; sealing joints not restricted to roof covering elements E04B 1/68)
- 3/40 • Slabs or sheets locally modified for auxiliary purposes, e.g. for resting on walls, for serving as guttering; Elements for particular purposes, e.g. ridge elements, specially designed for use in conjunction with slabs or sheets (roof covering aspects of energy collecting devices E04D 13/18)
- 5/00 Roof covering by making use of flexible material, e.g. supplied in roll form** (using stiff sheets E04D 3/00; gravelling of flat roofs E04D 7/00; built-up roofs E04D 11/02)
- Note(s)**
- Group E04D 5/12 takes precedence over groups E04D 5/02-E04D 5/08.
- 5/02 • of materials impregnated with sealing substances, e.g. roofing felt
- 5/04 • by making use of metal foils
- 5/06 • by making use of plastics
- 5/08 • by making use of other materials
- 5/10 • by making use of compounded or laminated materials, e.g. metal foils or plastic films coated with bitumen (E04D 5/12 takes precedence)
- 5/12 • specially modified, e.g. perforated, with granulated surface, with attached pads
- 5/14 • Fastening means therefor
- 7/00 Roof covering by sealing masses applied in situ; Gravelling of flat roofs**
- 9/00 Roof covering by using straw, thatch, or like materials** (impregnation against incendiary damage B27K)
- 11/00 Roof covering, as far as not restricted to features covered by only one of groups E04D 1/00-E04D 9/00; Roof covering in ways not provided for by groups E04D 1/00-E04D 9/00**
- 11/02 • Built-up roofs, i.e. consisting of two or more layers bonded together in situ, at least one of the layers being of watertight composition (gravelling of flat roofs E04D 7/00; venting or ventilation E04D 13/17)
- 12/00 Non-structural supports for roofing materials, e.g. battens, boards** (E04D 11/02 takes precedence)
- 13/00 Special arrangements or devices in connection with roof coverings; Roof drainage** (ventilation tiles E04D 1/30; ventilation slabs E04D 3/40; internal channels E04F 17/00; roofing elements therefor, see the relevant groups)
- 13/02 • Roof-covering aspects of dormer windows (E04D 13/14 takes precedence; structures therefor E04B 7/18)
- 13/03 • Sky-lights; Domes; Ventilating sky-lights (E04D 13/14 takes precedence; structures therefor E04B 7/18)
- 13/035 • • characterised by having movable parts
- 13/04 • Roof drainage; Drainage fittings in flat roofs (gutter tiles E04D 1/30; gutter slabs E04D 3/40; street gullies E03F 5/04)
- 13/064 • • Gutters [6]
- 13/068 • • • Means for fastening gutter parts together [6]
- 13/072 • • • Hanging means (in combination with means for fastening gutter parts together E04D 13/068) [6]
- 13/076 • • Devices or arrangements for removing snow, ice or debris from gutters or for preventing accumulation thereof [6]
- 13/08 • • Down pipes; Special clamping means therefor (clamping pipes in general F16B, F16L)
- 13/10 • Snow traps
- 13/12 • Devices or arrangements allowing walking on the roof or in the gutter
- 13/14 • Junctions of roof sheathings to chimneys or other parts extending above the roof
- 13/143 • • with ventilating means [6]
- 13/147 • • specially adapted for inclined roofs [6]
- 13/15 • Trimming strips; Edge strips; Fascias (E04D 13/14 takes precedence) [6]
- 13/152 • • with ventilating means [6]
- 13/155 • • retaining the roof sheathing [6]
- 13/158 • • covering the overhang at the eave side, e.g. soffits, or the verge of saddle roofs [6]
- 13/16 • Insulating devices or arrangements in so far as the roof covering is concerned (methods for keeping dry building structures in general E04B 1/70; buildings for extreme climates E04H 9/16) [6]
- 13/17 • Ventilation of roof coverings not otherwise provided for (ventilation of rooms or spaces F24F) [6]
- 13/18 • *Roof covering aspects of energy collecting devices, e.g. including solar panels (supporting structures of photovoltaic modules specially adapted for roof structures H02S 20/23) [4, 2014.01]*
- 15/00 Apparatus or tools for roof working**
- 15/02 • for roof coverings comprising tiles, shingles, or like roofing elements

## E04D

- 15/04 • for roof coverings comprising slabs, sheets or flexible material
- 15/06 • for handling roofing or sealing material in roll form
- 15/07 • for handling roofing or sealing material in bulk form

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

### Subclass index

SUNSHADES, AWNINGS.....	10/00
STAIRWAYS.....	11/00
COVERING OR FINISHING WALLS, CEILINGS, OR FLOORS.....	13/00, 15/00, 19/00
DUCTS OR CHANNELS.....	17/00
IMPLEMENTS.....	21/00
OTHER FINISHING DETAILS.....	19/00

### 10/00 Sunshades; Awnings (baldachins A45B, A45F, E04H; trailer awnings E04H 15/08; for tents E04H 15/58)

- 10/02 • of flexible canopy materials, e.g. canvas
- 10/04 • • with material fixed on sections of a collapsible frame
- 10/06 • • comprising a roller-blind with means for holding the end away from a building
- 10/08 • of a plurality of similar rigid parts, e.g. slabs, lamellae (rigidly-arranged sunshade roofs with coherent surfaces E04B 7/00)
- 10/10 • • collapsible

### 11/00 Stairways, ramps, or like structures (mounting or marking-off stairways E04F 21/26; of temporary construction E04G 27/00); Balustrades; Handrails (ladders permanently attached to fixed structures E06C 9/00)

- 11/02 • Stairways; Layouts thereof
- 11/022 • • characterised by the supporting structure [6]
- 11/025 • • • Stairways having stringers [6]
- 11/028 • • • • having a central stringer [6]
- 11/032 • • • Spiral stairways supported by a central column [6]
- 11/035 • • • Stairways consisting of a plurality of assembled modular parts without further support [6]
- 11/038 • • • • each modular part having a load-bearing balustrade part [6]
- 11/04 • • Movable stairways, e.g. of loft ladders which may or may not be concealable or extensible (ship ladders B63B; stairs for aircraft B64F; escalators or moving walkways B66B)
- 11/06 • • • collapsible, e.g. folding, telescopic
- 11/09 • • Tread-and-riser units [6]
- 11/104 • • Treads (E04F 11/09 takes precedence) [6]
- 11/108 • • • of wood [6]
- 11/112 • • • of metal [6]
- 11/116 • • • of stone, concrete or like material [6]
- 11/16 • • • Surfaces thereof; Protecting means for the edges or corners thereof (floor fabrics, fastenings therefor A47G 27/00)
- 11/17 • • • • Surfaces [6]
- 11/18 • Balustrades; Handrails (guard-rails on ships B63B; for bridges E01D 19/10; for roads E01F 13/00, E01F 15/00; fences E04H 17/00)

### 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, D03D, D04G, D04H, D06N, D21H; construction of ceilings E04B 9/00; roofings or similar water-tight coverings against precipitation E04D) [3]

- 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)
- 13/04 • • Bases for plaster (sub-ceilings with plaster-carrying means E04B 9/06)
- 13/06 • • • Edge-protecting borders
- 13/07 • composed of covering or lining elements; Sub-structures therefor; Fastening means therefor [2006.01]
- 13/072 • • composed of specially adapted, structured or shaped covering or lining elements [2006.01]
- 13/073 • • • for particular building parts, e.g. corners or columns [2006.01]
- 13/074 • • • for accommodating service installations or utility lines, e.g. heating conduits, electrical lines, lighting devices or service outlets [2006.01]
- 13/075 • • • for insulation or surface protection, e.g. against noise or impact [2006.01]
- 13/076 • • • characterised by the joints between neighbouring elements, e.g. with joint fillings or with tongue and groove connections [2006.01]
- 13/077 • • • composed of several layers, e.g. sandwich panels (E04F 13/075 takes precedence) [2006.01]
- 13/078 • • • Stretched foil- or web-like elements attached with edge gripping devices [2006.01]
- 13/08 • • composed of a plurality of similar covering or lining elements (E04F 13/072 takes precedence; borders, skirtings E04F 19/02) [1, 2006.01]
- 13/09 • • • of elements attached to a common web, support plate or grid [2006.01]

#### Note(s) [2006.01]

Group E04F 13/09 takes precedence over groups E04F 13/10-E04F 13/18.

- 13/10 • • • of wood [1, 2006.01]
- 13/12 • • • of metal [1, 2006.01]
- 13/14 • • • of stone or stone-like materials, e.g. ceramics; of glass [1, 2006.01]



- 13/15 • • • • characterised by the use of glass elements [2006.01]
- 13/16 • • • • of fibres or chips, e.g. bonded with synthetic resins [1, 2006.01]
- 13/18 • • • • of organic plastics with or without reinforcements or filling materials (of plastic-bound fibres or chips E04F 13/16) [1, 2006.01]
- 13/21 • • Fastening means specially adapted for covering or lining elements [2006.01]
- 13/22 • • • Anchors, support angles or consoles [2006.01]
- 13/23 • • • • adjustable [2006.01]
- 13/24 • • • • Hidden fastening means on the rear of the covering or lining elements (E04F 13/30 takes precedence) [2006.01]
- 13/25 • • • • adjustable [2006.01]
- 13/26 • • • • Edge engaging fastening means, e.g. clamps, clips or border profiles [2006.01]
- 13/28 • • • • adjustable [2006.01]
- 13/30 • • • • Magnetic fastening means [2006.01]
- 15/00 Flooring** (stair treads E04F 11/104; coverings not specially adapted for floors E04F 13/00; borders, skirtings E04F 19/02; gratings for cleaning soles of footwear A47L 23/24; of similar materials to roads E01C; basic or rough floors E04B 5/00) [6]
- 15/02 • Flooring or floor layers composed of a number of similar elements (of webs E04F 15/16)
- 15/022 • • Flooring consisting of parquetry tiles on a non-rollable sub-layer of other material, e.g. board, concrete, cork [2]
- 15/024 • • Sectional false floors, e.g. computer floors
- 15/04 • • only of wood, e.g. with wooden connecting members (rollable parquet E04F 15/16)
- 15/06 • • of metal, whether or not in combination with other material (gratings as building elements E04C 2/42)
- 15/08 • • only of stone or stone-like material, e.g. concrete; of glass
- 15/10 • • of other materials, e.g. fibrous or chipped materials, organic plastics, magnesite, hardboard
- 15/12 • Flooring or floor layers made of masses *in situ*, e.g. seamless magnesite floors, terrazzo (inorganic or bituminous masses C04B; organic plastic masses C08L)
- 15/14 • • Construction of joints, e.g. dividing strips (sealing joints not restricted to flooring E04B 1/68)
- 15/16 • Flooring, e.g. parquet on flexible web, laid as flexible webs; Webs specially adapted for use as flooring (resiliently-mounted floors, e.g. sprung floors, E04F 15/22; linoleum D06N; webs in general, manufacturing of webs, see the relevant classes)
- 15/18 • Separately-laid insulating layers; Other additional insulating measures; Floating floors (insulating of buildings in general E04B 1/62)
- 15/20 • • for sound insulation
- 15/22 • Resiliently-mounted floors, e.g. sprung floors (laid as webs E04F 15/16) [2]
- 17/00 Vertical ducts; Channels, e.g. for drainage** (pipes in general F16L; pipe-line systems F17D)
- 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
- 17/04 • Air-ducts or air channels
- 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) [6]
- 17/10 • Arrangements in buildings for the disposal of refuse (refuse bins, gathering or removal of refuse B65F)
- 17/12 • • Chutes
- 19/00 Other details or constructional parts for finishing work on buildings** (ladders, e.g. climbing irons, E06C 9/04)
- 19/02 • Borders; Finishing strips, e.g. beadings; Light covers (for protecting edges of plaster E04F 13/06)
- 19/04 • • for use between floor or ceiling and wall, e.g. skirtings
- 19/06 • • specially designed for securing panels
- 19/08 • Built-in cupboards; Masks of niches; Covers of holes enabling access to installations (clean-out doors of chimneys F23J)
- 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)
- 21/02 • for applying plasticised masses to surfaces, e.g. plastering walls (specially for laying flooring E04F 21/20; applying liquids or other fluent materials to surfaces, in general B05; decorative arts B44)
- 21/04 • • Patterns or templates; Jointing rulers
- 21/05 • • • Supports for jointing rulers
- 21/06 • • Implements for applying plaster, insulating material, or the like
- 21/08 • • • Mechanical implements (E04F 21/14 takes precedence; spraying apparatus in general B05B; sand-blasting B24C)
- 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, e.g. smoothing tools, profile trowels
- 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) [3]
- 21/18 • for setting wall or ceiling slabs or plates (tools for mosaic work B44C)
- 21/20 • for laying flooring (made of similar material to roads or pavements E01C)
- 21/22 • • of single elements, e.g. flooring cramps
- 21/24 • • of masses made *in situ*, e.g. smoothing tools
- 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
- 21/32 • • Putty knives; Putty removers

**E04G SCAFFOLDING; FORMS; SHUTTERING; BUILDING IMPLEMENTS OR OTHER BUILDING AIDS, OR THEIR USE; HANDLING BUILDING MATERIALS ON THE SITE; REPAIRING, BREAKING-UP OR OTHER WORK ON EXISTING BUILDINGS**

**Note(s)**

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

- "scaffolding" includes other supports for like purposes.

**Subclass index**

**SCAFFOLDING**

Scaffolds resting on the ground; supported by the building..... 1/00, 3/00  
 Component parts or accessories; coupling elements..... 5/00, 7/00

**FALSEWORK, FORMS OR SHUTTERINGS**

For general use..... 9/00  
 For particular use..... 11/00, 13/00, 15/00  
 Connecting members, auxiliary members..... 17/00  
 Auxiliary treatment..... 19/00

**OTHER IMPLEMENTS OR ACCESSORIES**

Temporary arrangements for access..... 27/00  
 Preparing or conveying materials..... 21/00  
 Shores..... 25/00

**WORKING MEASURES ON EXISTING BUILDINGS..... 23/00**

**Workmen's or safety scaffolds**

**1/00 Scaffolds primarily resting on the ground**

- 1/02 • composed essentially of members elongated in one dimension only, e.g. poles, lattice masts, with or without end portions of special form, connected together by any means
- 1/04 • • the members being exclusively poles, rods, beams, or other members of similar form and simple cross-section
- 1/06 • • • comprising members with rod-like or tubular portions fitting together end to end, with or without separate connecting pieces
- 1/08 • • • secured together by bolts or the like penetrating the members
- 1/10 • • • • Timber-work constructions
- 1/12 • • comprising members of special, e.g. composite, cross-section, or with lugs or the like or lateral apertures for supporting or attaching other members
- 1/14 • Comprising essentially pre-assembled two-dimensional frame-like elements, e.g. of rods in L- or H-shape, with or without bracing (E04G 1/15 takes precedence) **[1, 2006.01]**
- 1/15 • essentially comprising special means for supporting or forming platforms (E04G 1/20 takes precedence); Platforms (boards or planks therefor E04G 5/08) **[1, 2006.01]**
- 1/17 • Comprising essentially pre-assembled three-dimensional elements, e.g. cubic elements **[2006.01]**
- 1/18 • adjustable in height
- 1/20 • • Scaffolds comprising upright members and provision for supporting cross-members or platforms at different positions therealong
- 1/22 • • Scaffolds having a platform on an extensible sub-structure, e.g. of telescopic type or with lazy-tongs mechanism

- 1/24 • comprising essentially special base constructions; comprising essentially special ground-engaging parts, e.g. inclined struts, wheels (component parts E04G 5/00)
- 1/28 • designed to provide support only at a low height
- 1/30 • • Ladder scaffolds
- 1/32 • • Other free-standing supports, e.g. using trestles (stands or trestles in general F16M 11/00)
- 1/34 • Scaffold constructions able to be folded in prismatic or flat parts or able to be turned down
- 1/36 • Scaffolds for particular parts of buildings or buildings of particular shape, e.g. for stairs, cupolas, domes
- 1/38 • Scaffolds partly supported by the building (ladders attachable to structures E06C 1/34) **[2006.01]**
- 3/00 Scaffolds essentially supported by building constructions, e.g. adjustable in height (E04G 1/00 takes precedence)**
- 3/18 • supported by cantilevers or other provisions mounted in openings in the building, e.g. window openings (E04G 3/28 takes precedence) **[2006.01]**
- 3/20 • supported by walls (E04G 3/28 takes precedence; wall-anchors for supporting scaffolds E04G 5/04; consoles E04G 5/06) **[2006.01]**
- 3/22 • supported by roofs or ceilings (E04G 3/28 takes precedence) **[2006.01]**
- 3/24 • specially adapted for particular parts of buildings or for buildings of particular shape, e.g. chimney stacks or pylons (E04G 3/28 takes precedence) **[2006.01]**
- 3/26 • • specially adapted for working on roofs **[2006.01]**
- 3/28 • Mobile scaffolds; Scaffolds with mobile platforms **[2006.01]**
- 3/30 • • suspended by flexible supporting elements, e.g. cables **[2006.01]**
- 3/32 • • • Hoisting devices; Safety devices **[2006.01]**
- 3/34 • • characterised by supporting structures provided on the roofs **[2006.01]**

5/00	<b>Component parts or accessories for scaffolds</b> (connections E04G 7/00) [1, 2006.01]	11/04	• for structures of spherical, spheroid or similar shape, or for cupola structures of circular or polygonal horizontal or vertical section; Inflatable forms (connection of valves to inflatable elastic bodies B60C 29/00)
5/02	• Scaffold feet, e.g. with arrangements for adjustment	11/06	• for walls, e.g. curved (E04G 11/04 takes precedence)
5/04	• Means for fastening, supporting, or bracing scaffolds on or against building constructions (fastenings in general F16B)	11/08	• • Forms which are completely dismantled after setting of the concrete and re-built for the next pouring (connecting or supporting means for forms E04G 17/00)
5/06	• Consoles; Brackets	11/10	• • • of elements without beams (E04G 11/18 takes precedence)
5/08	• Scaffold boards or planks	11/12	• • • of elements and beams (E04G 11/18 takes precedence)
5/10	• Steps or ladders specially adapted for scaffolds [2006.01]	11/14	• • • • with beams arranged in alignment with, and between the, elements
5/12	• Canopies [2006.01]	11/16	• • • • with beams placed within the wall
5/14	• Railings [2006.01]	11/18	• • • • for double walls
5/16	• Struts or stiffening rods, e.g. diagonal rods [2006.01]	11/20	• • Movable forms; Movable forms for moulding cylindrical, conical, or hyperbolic structures; Templates serving as forms for positioning blocks or the like (E04G 11/04 takes precedence)
7/00	<b>Connections between parts of the scaffold</b> (for building structures in general E04B 1/38; connections in general F16B)	11/22	• • • Sliding forms raised continuously or step-by-step and being in contact with the poured concrete during raising; Arrangements of lifting means therefor
7/02	• with separate coupling elements	11/24	• • • • Construction of lifting jacks or climbing rods for sliding forms (climbing-type hoisting units in general B66F)
7/04	• • Flexible elements, with or without brackets, e.g. ropes, cables, chains (in general F16G)	11/26	• • • the sheathing of which consists of ribbons, endless aprons, or the like, guided by driven rollers
7/06	• • Stiff scaffolding clamps for connecting scaffold members of common shape	11/28	• • • Climbing forms, i.e. forms which are not in contact with the poured concrete during lifting from layer to layer
7/08	• • • Clamps for parallelly-arranged members	11/30	• • • • which are lifted from layer to layer by turning, tilting, or similar moving upwards about a horizontal axis
7/10	• • • • Self-tightening clamps, e.g. stirrups	11/32	• • • Tiltable forms or tilting tables for making walls as a whole or in parts <u>in situ</u>
7/12	• • • Clamps or clips for crossing members (E04G 7/22 takes precedence)	11/34	• • • Horizontally-travelling moulds for making walls blockwise or sectionwise (E04G 11/26 takes precedence)
7/14	• • • • for clamping the members independently	11/36	• for floors, ceilings, or roofs of plane or curved surfaces
7/16	• • • • • of which the clamping parts for the different members are rotatable with respect to one another	11/38	• • for plane ceilings of concrete
7/18	• • • • for clamping the members against one another or against a separate cushioning piece between them	11/40	• • for coffered or ribbed ceilings
7/20	• • • for ends of members only, e.g. for connecting members in end-to-end relation	11/42	• • • with beams of metal or prefabricated concrete
7/22	• • • for scaffold members in end-to-side relation	11/44	• • • with supporting beams for the shuttering used simultaneously as permanent reinforcement of the ribs
7/24	• • • Couplings involving arrangements covered by more than one of the groups E04G 7/08, E04G 7/12, E04G 7/20, E04G 7/22	11/46	• • • of hat-like or trough-like shape encasing a rib or the section between two ribs or encasing one rib and its adjacent flat floor or ceiling section
7/26	• • for use with specially-shaped scaffold members	11/48	• • Supporting structures for shutterings or frames for floors or roofs (struts E04G 25/00)
7/28	• • Clips or connections for securing boards (brackets E04G 5/06)	11/50	• • • Girders, beams, or the like as supporting members for forms (members, e.g. consoles, for attachment to the wall E04G 17/16; girders intended to form part of the construction E04C 3/02)
7/30	• Scaffolding bars or members with non-detachably fixed coupling elements	11/52	• • • • of several units arranged one after another
7/32	• • with coupling elements using wedges [2006.01]	11/54	• • • • of extensible type, with or without adjustable supporting shoes, fishplates, or the like
7/34	• • with coupling elements using positive engagement, e.g. hooks or pins [2006.01]	11/56	• • • • • of telescopic type
<b><u>Falsework, forms or shutterings for shaping of building parts in situ [5]</u></b>			
9/00	<b>Forming or shuttering elements for general use</b>		
9/02	• Forming boards or similar elements (E04G 9/08, E04G 9/10 take precedence)		
9/04	• • the form surface being of wood [2]		
9/05	• • the form surface being of plastics [2]		
9/06	• • the form surface being of metal [2]		
9/08	• Forming boards or similar elements, which are collapsible, foldable, or able to be rolled up		
9/10	• with additional peculiarities such as surface shaping, insulating or heating, permeability to water or air		
11/00	<b>Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs</b>		
11/02	• for rooms as a whole, whole storeys, or whole buildings		

## E04G

- 13/00 Falsework, forms or shutterings for particular parts of buildings, e.g. stairs, steps, cornices or balconies** (moulds for making units for prefabricated buildings or prefabricated stair units B28B 7/22)
- 13/02 • for columns or like pillars; Special tying or clamping means therefor
- 13/04 • for lintels, beams, or transoms to be encased separately; Special tying or clamping means therefor (members, e.g. consoles, for attachment to the wall E04G 17/16)
- 13/06 • for stairs, steps, cornices, balconies, or other parts corbelled out of the wall
- 15/00 Forms or shutterings for making openings, cavities, slits, or channels** (forming part of shuttering for walls E04G 11/06)
- 15/02 • for windows, doors, or the like
- 15/04 • Cores for anchor holes or the like
- 15/06 • for cavities or channels in walls or floors, e.g. for making chimneys
- 17/00 Connecting or other auxiliary members for forms, falsework structures, or shutterings**
- 17/02 • Connecting or fastening means for non-metallic forming or stiffening elements
- 17/04 • Connecting or fastening means for metallic forming or stiffening elements
- 17/06 • Tying means; Spacers
- 17/065 • • Tying means, the tensional elements of which are threaded to enable their fastening or tensioning [5]
- 17/07 • • Tying means, the tensional elements of which are fastened or tensioned by means of wedge-shaped members [5]
- 17/075 • • Tying means, the tensional elements of which are fastened or tensioned by other means [5]
- 17/12 • • with arms engaging the forms
- 17/14 • Bracing or strutting arrangements for formwalls; Devices for aligning forms (E04G 25/00 takes precedence)
- 17/16 • Members, e.g. consoles, for attachment to the wall to support girders, beams, or the like carrying forms or moulds for floors, lintels, or transoms
- 17/18 • Devices for suspending or anchoring form elements to girders placed in ceilings, e.g. hangers
- 19/00 Auxiliary treatment of forms, e.g. dismantling; Cleaning devices** (lubricating compositions C10M)
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- 21/00 Preparing, conveying, or working-up building materials or building elements *in situ*; Other devices or measures for constructional work** (working stone-like materials B28D; conveying in general B65G; lifting devices B66; measuring instruments G01)
- 21/02 • Conveying or working-up concrete or similar masses able to be heaped or cast (working concrete in general, e.g. mixing machines, B28C; composition of concrete C04B; construction and surfacing of floorings made of similar material to roads or pavements E01C; in connection with barrages E02B 7/00; in connection with foundations E02D 15/00; in connection with finishing work E04F)
- 21/04 • • Devices for both conveying and distributing (concrete pumps F04)
- 21/06 • • Compacting concrete, e.g. by application of vacuum before hardening (for road building E01C 19/00; devices for compacting also soil E02D 3/02)
- 21/08 • • • Internal vibrators
- 21/10 • • Devices for levelling, e.g. templates or boards (smoothing tools E04F 21/16, E04F 21/24)
- 21/12 • Mounting of reinforcing inserts; Prestressing (shell tubes for prestressing members E04C 5/10; anchoring means E04C 5/12; connections of reinforcing elements and spacers E04C 5/16)
- 21/14 • Conveying or assembling building elements (roofing E04D; finishing work E04F)
- 21/16 • • Tools or apparatus (devices for erecting fences E04H 17/26)
- 21/18 • • • Adjusting tools; Templates
- 21/20 • • • for applying mortar
- 21/22 • • • for setting building elements with mortar, e.g. brick-laying machines
- 21/24 • Safety or protective measures preventing damage to building parts or finishing work during construction (as auxiliary structures for scaffolds E04G 5/00)
- 21/26 • • Strutting means for wall parts; Supports or the like, e.g. for holding in position prefabricated walls (E04G 25/00 takes precedence; on existing buildings E04G 23/04)
- 21/28 • • against unfavourable weather influence
- 21/30 • • against mechanical damage or dirt, e.g. guard covers of stairs
- 21/32 • Safety or protective measures for persons during the construction of buildings (related to scaffolds E04G 5/00; ropes or belts for life-saving A62B 1/16, A62B 35/00; climbing tools, e.g. climbing irons for masts, A63B 27/00)
- 23/00 Working measures on existing buildings** (on foundations E02D 35/00, E02D 37/00; in connection with insulations E04B; subsequent or finishing work E04F)
- Note(s)**
- In addition to the subject matter referred out in this group, subject matter relating to working measures on existing buildings which are analogous to those used in constructing new buildings, is classified in the appropriate construction groups.
- 23/02 • Repairing, e.g. filling cracks; Restoring; Altering; Enlarging
- 23/03 • • specially adapted for roofs, e.g. to fit out attics [5]
- 23/04 • Propping of endangered or damaged buildings or building parts, e.g. with respect to air-raid action (struts E04G 25/00)
- 23/06 • Separating, lifting, removing of buildings; Making a new sub-structure
- 23/08 • Wrecking of buildings (dismantling bridges E01D 24/00) [1, 2006.01]
- 25/00 Shores or struts** (specially designed for use in mines E21D 15/00); **Chocks**
- 25/02 • non-telescopic
- 25/04 • telescopic
- 25/06 • • with parts held together by positive means
- 25/08 • • with parts held relatively to each other by friction or gripping

- 27/00 Temporary arrangements for giving access from one level to another for men or vehicles, e.g. steps, ramps** (as parts or accessories for scaffolds E04G 5/00; gangways B63; lifts B66; landing bridges E01D 15/24; permanent stairways or ramps E04F 11/00; ladders E06C)
- E04H BUILDINGS OR LIKE STRUCTURES FOR PARTICULAR PURPOSES; SWIMMING OR SPLASH BATHS OR POOLS; MASTS; FENCING; TENTS OR CANOPIES, IN GENERAL** (foundations E02D) [4]

**Note(s)**

- This subclass covers
  - primarily the layout of buildings as a whole;
  - details which are peculiar to types of buildings, or buildings for special purposes, specified in the groups;
  - canopies in general and canopies similar in construction to tents.
- This subclass does not cover canopies having special application, which are covered by the relevant place, e.g. protecting chairs against the weather A47C 7/66, bed canopies A47C 29/00, sun shades or awnings for buildings E04F 10/00.
- In this subclass, the following terms are used with the meanings indicated:
  - "buildings" does not exclude engineering structures and other constructions;
  - "tent" means a tent or canopy having a supporting means, e.g. frame and a flexible cover.

**Subclass index**

BUILDINGS	
For dwelling or office purposes.....	1/00
For public purposes.....	3/00
For industrial or agricultural purposes; for parking.....	5/00, 6/00
SWIMMING OR SPLASH BATHS OR POOLS.....	4/00
CONTAINERS.....	7/00
BUILDINGS AFFORDING SPECIAL PROTECTION.....	9/00
TOWERS, MASTS, CHIMNEY STACKS.....	12/00
MONUMENTS, TOMBS.....	13/00
BUILDINGS FOR COMBINATIONS OF DIFFERENT PURPOSES, DRIVE-IN BUILDINGS.....	14/00
TENTS, CANOPIES.....	15/00
FENCING, ENCLOSURES, CORRALS.....	17/00

<b>1/00 Buildings or groups of buildings for dwelling or office purposes; General layout, e.g. modular co-ordination, staggered storeys</b> (E04H 3/00 takes precedence; buildings for two or more purposes, drive-in buildings E04H 14/00; building construction in general E04B 1/00)	3/06	• Museums; Library buildings
	3/08	• Hospitals, infirmaries, or the like; Schools; Prisons
	3/10	• for meetings, entertainments, or sports
	3/12	• • Tribunes, grandstands or terraces for spectators (auditoriums E04H 3/30; chairs, stools, benches A47C) [2]
1/02 • Dwelling houses; Buildings for temporary habitation (small erections for limited occupation E04H 1/12)	3/14	• • Gymnasiums; Other sporting buildings (tribunes E04H 3/12)
1/04 • • Apartment houses arranged in two or more levels	3/16	• • • for swimming (swimming or splash baths or pools E04H 4/00) [5]
1/06 • Office buildings; Banks (E04H 1/12 takes precedence; furniture or fittings for shops, storehouses, or the like A47F)	3/22	• • • Theatres; Concert halls; Studios for broadcasting, cinematography, television or similar purposes (drive-in buildings E04H 14/00; equipment for theatres or concert halls A63J) [2]
1/12 • Small buildings or other erections for limited occupation, erected in the open air or arranged in buildings, e.g. kiosks, waiting shelters for bus stops or for filling stations, roofs for railway platforms, watchmen's huts, dressing cubicles (movable screens as household equipment A47G 5/00)	3/24	• • • • Constructional features of stages
	3/26	• • • • Revolving stages; Stages able to be lowered (devices for raising or lowering persons A63J 5/12)
1/14 • • Telephone cabinets	3/28	• • • • Shiftable or portable platforms
<b>3/00 Buildings or groups of buildings for public or similar purposes; Institutions, e.g. infirmaries, prisons</b> (portions of buildings for individual occupation, e.g. cubicles, E04H 1/00; structures covering a large free area E04B 1/342)	3/30	• • • • Constructional features of auditoriums (chairs, stools, benches A47C; building details providing acoustical effects E04B 1/99)
3/02 • Hotels; Motels; Coffee-houses; Restaurants; Shops; Department stores	<b>4/00</b>	<b>Swimming or splash baths or pools</b> (wave-producers for baths A47K 3/10; separation B01D; treatment of water C02F; wave-producing pumps F04D 35/00) [5]
3/04 • • Restaurants or shops having arrangements for self-service (paying counters A47F 9/02; furniture or installations specially adapted for supermarkets A47F 10/00; transport aspects B65G; coin-freed apparatus G07F)	4/02	• formed <u>in situ</u> [5]
	4/04	• prefabricated or composed of prefabricated elements [5]
	4/06	• Safety devices; Coverings for baths [5]
	4/08	• • Coverings consisting of rigid elements [5]

## E04H

- 4/10 • • Coverings of flexible material [5]
- 4/12 • Devices or arrangements for circulating water [5]
- 4/14 • Parts, details or accessories not otherwise provided for [5]
- 4/16 • • specially adapted for cleaning (cleaning devices peculiar to vessels B63B 59/00) [5]
- 5/00 Buildings or groups of buildings for industrial or agricultural purposes** (building construction in general E04B 1/00)
- 5/02 • Buildings or groups of buildings for industrial purposes, e.g. for power-plants, factories (buildings forming part of cooling plants E04H 5/10; building structures for parking vehicles E04H 6/00)
- 5/04 • • Transformer houses; Substations or switchgear houses [5]
- 5/06 • • Pits or building structures for inspection or services (manhole shafts or other inspection chambers in general E02D 29/12)
- 5/08 • Buildings or groups of buildings for agricultural purposes (silos E04H 7/22; manure storage places A01C 3/02; greenhouses A01G 9/14)
- 5/10 • Buildings forming part of cooling plants
- 5/12 • • Cooling towers (towers in general E04H 12/00; cooling equipment F28)
- 6/00 Buildings for parking cars, rolling-stock, aircraft, vessels, or like vehicles, e.g. garages** (tents for use as garages E04H 15/00; bicycle stands B62H; storing of vessels on land B63C 15/00; construction of ground-supported surfaces E01C; marking of parking areas on the ground E01F 9/00; building construction in general E04B 1/00)
- 6/02 • Small garages, e.g. for one or two cars (attached to, or supported by, the vehicle B62D; prefabricated and with undivided interior E04B 1/343)
- 6/04 • • wheeled, hinged, foldable, telescopic, swinging, or otherwise movable (transportable or collapsible buildings in general E04B 1/343)
- 6/06 • • with means for shifting or lifting vehicles
- 6/08 • Garages for many vehicles
- 6/10 • • without mechanical means for shifting or lifting vehicles, e.g. with helically-arranged fixed ramps, with movable ramps
- 6/12 • • with mechanical means for shifting or lifting vehicles
- 6/14 • • • with endless conveyor chains having load-carrying parts moving vertically, e.g. paternoster lifts
- 6/16 • • • Garages shaped as a wheel or drum rotatable about a horizontal axis
- 6/18 • • • with means for transport in vertical direction only or independently in vertical and horizontal directions (E04H 6/14 takes precedence)
- 6/20 • • • • characterised by use of conveyor chains or rotatable rollers for horizontal transport
- 6/22 • • • • characterised by use of movable platforms for horizontal transport
- 6/24 • • • • characterised by use of dollies for horizontal transport
- 6/26 • • • • characterised by use of tiltable floors or floor sections; characterised by use of movable ramps
- 6/28 • • • • characterised by use of turntables or rotary rings for horizontal transport
- 6/30 • • • with means for transport in horizontal direction only
- 6/32 • • • • characterised by use of conveyor chains or rotatable rollers
- 6/34 • • • • characterised by use of movable platforms
- 6/36 • • • • characterised by use of freely-movable dollies
- 6/38 • • • • characterised by use of tiltable floors or floor sections
- 6/40 • • • • characterised by use of turntables or rotary rings
- 6/42 • Devices or arrangements peculiar to garages, not covered elsewhere, e.g. securing devices, safety devices
- 6/44 • for storing aircraft (structures covering a large free area E04B 1/342)
- 7/00 Construction or assembling of bulk storage containers employing civil engineering techniques in situ or off the site** (tower aspects E04H 12/00; storage aspects, e.g. floating roofs, sealing means, filling or discharging means B65D, B65G, F17B, F17C; foundations E02D 27/38) [2]
- 7/02 • Containers for fluids or gases; Supports therefor (arrangements or adaptations of tanks for water supply E03B 11/00) [2]
- 7/04 • • mainly of metal
- 7/06 • • • with vertical axis
- 7/14 • • • ball-shaped
- 7/16 • • • with horizontal axis
- 7/18 • • mainly of concrete, e.g. reinforced concrete, or other stone-like material
- 7/20 • • • Prestressed constructions
- 7/22 • Containers for fluent solids, e.g. silos or bunkers; Supports therefor [2]
- 7/24 • • Constructions, with or without perforated walls, depending on the use of specified materials
- 7/26 • • • mainly of concrete, e.g. reinforced concrete, or other stone-like material
- 7/28 • • • • composed of special building elements
- 7/30 • • • mainly of metal
- 7/32 • • • mainly of wood
- 9/00 Buildings, groups of buildings, or shelters, adapted to withstand or provide protection against, abnormal external influences, e.g. war-like action, earthquake, extreme climate** (floating buildings B63B; foundation aspects E02D; building constructions in general E04B; bearings or like supports allowing movement E04B 1/36; special details regarding insulation or other protection E04B 1/62; supporting structures for endangered or damaged existing buildings or parts thereof E04G 23/04; doors, windows E06B 5/00; air-conditioning, ventilation F24F; camouflage F41H 3/00; cells or rooms shielded against dangerous radiation G21F 7/00)
- 9/02 • withstanding earthquake or sinking of ground (foundations E02D 27/34)
- 9/04 • against air-raid or other war-like actions (respiratory apparatus A62B)
- 9/06 • • Structures arranged in, or forming part of, buildings
- 9/08 • • • Structures arranged underneath buildings, e.g. air-raid shelters
- 9/10 • • Independent shelters; Arrangement of independent splinter-proof walls
- 9/12 • • • entirely underneath the level of the ground, e.g. air-raid galleries (tunnels, galleries E21D)
- 9/14 • against other dangerous influences, e.g. tornadoes, floods

- 9/16 • against adverse conditions, e.g. extreme climate, pests
- 12/00 Towers; Masts, poles; Chimney stacks; Water-towers; Methods of erecting such structures** (cooling towers E04H 5/12; supports for road signs E01F 9/011; foundation piles E02D 5/22; foundations for masts, poles, or chimneys E02D 27/42; structural elongated members in general E04C 3/00; fixed climbing irons E06C 9/04; derricks for oil drilling E21B 15/00) [6]
- 12/02 • Structures made of specified materials (E04H 12/16, E04H 12/18 take precedence)
- 12/04 • • of wood
- 12/06 • • • Truss-like structures
- 12/08 • • of metal
- 12/10 • • • Truss-like structures
- 12/12 • • of concrete or other stone-like material, with or without internal or external reinforcement, e.g. with metal coverings, with permanent form elements
- 12/14 • • • Truss-like structures
- 12/16 • Prestressed structures
- 12/18 • movable or with movable sections, e.g. rotatable, telescopic (rotary buildings E04B 1/346)
- 12/20 • Side-supporting means therefor, e.g. using guy ropes, struts (ground anchors E02D 5/80; fastening means for cables or ropes F16G 11/00)
- 12/22 • Sockets or holders for poles or posts
- 12/24 • Cross-arms
- 12/26 • Winding towers for mines (elevators B66B)
- 12/28 • Chimney stacks, e.g. free-standing, or similar ducts (foundations E02D 27/42; chimneys as part of buildings E04F 17/02; connections between furnace and smoke stack, chimney equipment F23J)
- 12/30 • Water-towers (tanks B65D 88/00; use of high-level tanks E03B 11/12)
- 12/32 • Flagpoles (flags, banners, mountings therefor G09F 17/00)
- 12/34 • Arrangements for erecting or lowering towers, masts, poles, chimney stacks, or the like [6]
- 13/00 Monuments; Tombs; Burial vaults; Columbaria** (sculpture or other artistic features B44)
- 14/00 Buildings for combinations of different purposes not covered by any single one of main groups E04H 1/00-E04H 13/00 of this subclass, e.g. for double purpose** (E04H 3/02, E04H 9/06 take precedence); **Buildings of the drive-in type**
- 15/00 Tents or canopies, in general [4]**
- 15/02 • Tents combined or specially associated with other devices [4]
- 15/04 • • suspended type, e.g. from trees, from cantilever supports (supporting frames E04H 15/34) [4]
- 15/06 • • Tents at least partially supported by vehicles [4]
- 15/08 • • • Trailer awnings or the like [4]
- 15/10 • • Heating, lighting, or ventilating (for heating, lighting, or ventilating devices *per se*, see the relevant classes, e.g. F21, F24) [4]
- 15/12 • • • Heating [4]
- 15/14 • • • Ventilating [4]
- 15/16 • • • • of tent roofs [4]
- 15/18 • Tents having plural sectional covers, e.g. pavilions, vaulted tents, marquees, circus tents (inflatable E04H 15/20); Plural tents, e.g. modular [4]
- 15/20 • inflatable, e.g. shaped, strengthened, or supported by fluid pressure (connection of valves to inflatable elastic bodies B60C 29/00; inflatable forms for making walls, floors, ceilings or roofs *in situ* E04G 11/04) [4]
- 15/22 • • supported by air pressure inside the tent [4]
- 15/24 • cone shaped, e.g. teepees [4]
- 15/26 • Center-pole supported tents (umbrella type E04H 15/28) [4]
- 15/28 • Umbrella type tents [4]
- 15/30 • convertible, e.g. from one type tent to another type tent, from tent to canopy, from tent cover into diverse article (sacks or packs convertible into tents A45F 4/04; coats or capes convertible into tent coverings A45F 4/14) [4]
- 15/32 • Parts, components, construction details, accessories, interior equipment, specially adapted for tents, e.g. guy-line equipment, skirts, thresholds [4]
- 15/34 • • Supporting means, e.g. frames [4]
- 15/36 • • • arch-shaped type (E04H 15/42 takes precedence) [4]
- 15/38 • • • • expandible, e.g. extensible [4]
- 15/40 • • • • flexible [4]
- 15/42 • • • external type, e.g. frame outside of cover [4]
- 15/44 • • • collapsible, e.g. breakdown type (E04H 15/42 takes precedence; building structures having collapsible parts in general E04B 1/343) [4]
- 15/46 • • • • telescoping and foldable [4]
- 15/48 • • • • foldable, i.e. having pivoted or hinged means (E04H 15/46 takes precedence) [4]
- 15/50 • • • • • lazy-tongs type [4]
- 15/52 • • • • • parallelogram type [4]
- 15/54 • • Covers of tents or canopies (ventilated tent roofs E04H 15/16) [4]
- 15/56 • • Floors [4]
- 15/58 • • Closures; Awnings; Sunshades [4]
- 15/60 • • Poles [4]
- 15/62 • • Pegs, stakes or the like [4]
- 15/64 • • Tent or canopy cover fastenings [4]
- 17/00 Fencing, e.g. fences, enclosures, corrals** (features peculiar to electrified fences A01K 3/00, H05C; means for allowing passage through fences, barriers, or the like E06B 11/00)
- 17/02 • Wire fencing, e.g. made of wire mesh (E04H 17/14 takes precedence; working or processing of wire B21F, e.g. making wire nets B21F 27/00)
- 17/04 • • characterised by the use of specially adapted wire, e.g. barbed wire [1, 7]
- 17/06 • • Parts for wire fences
- 17/08 • • • Anchoring means therefor, e.g. specially-shaped parts entering the ground; Struts or the like (for towers or masts E04H 12/20; sockets for posts E04H 12/22)
- 17/10 • • characterised by the way of connecting wire to the posts; Droppers
- 17/12 • • • the wire being placed in slots, grooves, or the like
- 17/14 • Fences constructed of rigid elements, e.g. with additional wire fillings or with posts
- 17/16 • • using prefabricated panel-like elements, e.g. wired frames
- 17/18 • • • Corrals, i.e. easily transportable or demountable enclosures
- 17/20 • • Posts therefor

**E04H**

17/22 • • • Anchoring means therefor, e.g. specially-shaped parts entering the ground; Struts or the like (for towers or masts E04H 12/20; sockets for posts E04H 12/22)

17/24 • • Connections for attaching additional wire to frames, posts or railings

17/26 • Devices for erecting or removing fences