

CPC**COOPERATIVE PATENT CLASSIFICATION****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**

In this subclass the word "scaffolding" includes other supports for like purposes

WARNING

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

E04G 3/02 covered by E04G 3/00
E04G 3/04 " " E04G 3/00
E04G 3/06 " " E04G 3/00
E04G 3/08 " " E04G 3/00
E04G 3/10 " " E04G 3/00
E04G 3/12 " " E04G 3/00
E04G 3/14 " " E04G 3/00
E04G 3/16 " " E04G 3/00
E04G 23/03 " " E04G 23/0266

Guidance heading: Workmen`s or safety scaffolds

E04G 1/00**Scaffolds primarily resting on the ground****WARNING**

New subgroups E04G 1/17 and E04G 1/38, corresponding to IPC8, are not complete. Documents from main groups E04G 1/00 respectively E04G 1/00 and E04G 3/00 are in the process of being reorganised to theses new subgroups

E04G 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

E04G 1/04

- . . the members being exclusively poles, rods, beams, or other members of similar form and simple cross-section

E04G 1/06

- . . . comprising members with rod-like or tubular portions fitting together end to end, with or without separate connecting pieces

E04G 1/08

- . . . secured together by bolts or the like penetrating the members

E04G 1/10

- Timber-work constructions

E04G 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

E04G 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)

- E04G 1/15 . essentially comprising special means for supporting or forming platforms ([E04G 1/20 takes precedence](#)); Platforms (boards or planks therefor [E04G 5/08](#), { clips or connections for securing boards [E04G 7/28](#) })
- E04G 1/151 . . { Platforms made of wood, with or without reinforcements ([E04G 1/152 takes precedence](#)) }
- E04G 1/152 . . { Platforms made of metal or with metal-supporting frame }
- E04G 1/153 . . { Platforms made of plastics, with or without reinforcement ([E04G 1/152 takes precedence](#)) }
- E04G 1/154 . . { Non-detachably fixed and secured connections between platform and scaffold }
- E04G 2001/155 . . Platforms with an access hatch for getting through from one level to another
- E04G 2001/156 . . Stackable platforms
- E04G 2001/157 . . Extensible platforms, e.g. telescopic platforms
- E04G 2001/158 . . Platforms supported by spigots which engage through holes in the platform

- E04G 1/17 . Comprising essentially pre-assembled three-dimensional elements, e.g. cubic elements

- E04G 1/18 . adjustable in height ({ lifting devices for movable platforms e.g. on vehicles [B66F 11/04](#) })
- E04G 1/20 . . Scaffolds comprising upright members and provision for supporting cross-members or platforms at different positions therealong
- E04G 1/22 . . Scaffolds having a platform on an extensible substructure, e.g. of telescopic type or with lazy-tongs mechanism

- E04G 1/24 . comprising essentially special base constructions; comprising essentially special ground-engaging parts, e.g. inclined struts, wheels (component parts [E04G 5/00](#))
- E04G 2001/242 . . Scaffolds movable on wheels or tracks
- E04G 2001/244 mechanically operated
- E04G 2001/246 human powered
- E04G 2001/248 . . Inclined struts

- E04G 1/28 . designed to provide support only at a low height
- E04G 1/30 . . Ladder scaffolds ({ ladders having platforms [E06C 1/39](#), platforms on, or for use on; ladders [E06C 7/16](#) })
- E04G 2001/302 . . . with ladders supporting the platform
- E04G 2001/305 The ladders being vertical and perpendicular to the platform
- E04G 2001/307 The ladders being self-supporting folding ladders
- E04G 1/32 . . Other free-standing supports, e.g. using trestles (stands or trestles in general [F16M 11/00](#), { work benches [B25H 1/00](#) })

- E04G 1/34 . Scaffold constructions able to be folded in prismatic or flat parts or able to be turned down

- E04G 1/36 . Scaffolds for particular parts of buildings or buildings of particular shape, e.g. for stairs, cupolas, domes ({ scaffolding usable on slipways and in dry docks [B63C 5/02](#) })
- E04G 1/362 . . { specially adapted for tanks, silos or similar vessels }
- E04G 1/365 . . { specially adapted for staircases or stairs }
- E04G 1/367 . . { specially adapted for elevator shafts }

- E04G 1/38 . Scaffolds partly supported by the building ([ladders attachable to the structures E06C 1/34](#))
- E04G 3/00 Scaffolds essentially supported by building constructions, e.g. adjustable in height**
([E04G 1/00](#) takes precedence { and [E04G 21/3204](#) takes precedence })
- E04G 3/18 . supported by cantilevers or other provisions mounted in openings in the building, e.g. window openings ([E04G 3/28](#) takes precedence)
- E04G 3/20 . supported by walls ([E04G 3/28](#) takes precedence; wall-anchors for supporting scaffolds [E04G 5/04](#); consoles [E04G 5/06](#))
- E04G 3/22 . supported by roofs or ceilings ([E04G 3/28](#) takes precedence)
- E04G 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; { [E04G 1/362](#), [E04G 3/305](#) take precedence; scaffolding usable on slipways and in dry docks [B63C 5/02](#) })
- E04G 3/243 . . { following the outside contour of a ([E04G 3/26](#) takes precedence) }
- E04G 3/246 . . { following the inside contour of a building }
- E04G 3/26 . . specially adapted for working on roofs ({ devices or arrangements allowing walking on the roof or in the gutter [E04D 13/12](#) })
- E04G 3/265 . . . { with means to adapt it to a variable pitch of the roof }
- E04G 3/28 . Mobile scaffolds; Scaffolds with mobile platforms ({ movable inspection or maintenance platforms for bridges [E01D 19/106](#), lifting devices for movable platforms e.g. on vehicles [B66F 11/04](#) })
- E04G 2003/283 . . mobile horizontally
- E04G 2003/286 . . mobile vertically
- E04G 3/30 . . suspended by flexible supporting elements, e.g. cables
- E04G 3/305 . . . { specially adapted for tanks, silos or similar vessels ([E04G 3/24](#) takes precedence) }
- E04G 3/32 . . . Hoisting devices; Safety devices
- E04G 3/325 { Safety devices for stabilising the mobile platform e.g. to avoid it swinging in the wind }
- E04G 3/34 . . characterised by supporting structures provided on the roofs
- E04G 5/00 Component parts or accessories for scaffolds (connections [E04G 7/00](#))**
- E04G 5/001 . { Safety or protective measures against falling down relating to scaffoldings ([E04G 5/14](#) takes precedence) }
- E04G 5/002 . . { Protections or covers for scaffolding connections }
- E04G 5/003 . { Devices for storing material on the scaffold }
- E04G 5/004 . { Storage and transport racks for scaffolding components }
- E04G 5/005 . { Devices for cleaning or repairing scaffold tubes }

- E04G 5/006 . { Scaffold with cantilevered sections e.g. to accommodate overhangs or recesses in the facade }
- E04G 5/007 . { Devices and methods for erecting scaffolds, e.g. automatic scaffold erectors }
- E04G 2005/008 . Hoisting devices specially adapted as part of a scaffold system
- E04G 5/02 . Scaffold feet, e.g. with arrangements for adjustment
- E04G 5/025 . . { Foot load distribution plates }
- E04G 5/04 . Means for fastening, supporting, or bracing scaffolds on or against building constructions (fastenings in general [F16B](#))
- E04G 5/041 . . { for fastening scaffolds on roof frameworks or on roofs }
- E04G 5/043 . . . { for fastening scaffolds on gutters }
- E04G 5/045 . . { for fastening scaffoldings on profiles, e.g. I or H profiles }
- E04G 5/046 . . { for fastening scaffoldings on walls }
- E04G 5/048 . . . { with hooks to be attached on the wall's crown }
- E04G 5/06 . Consoles; Brackets (([E04G 3/00](#) takes precedence))
- E04G 5/061 . . { specially adapted for attachment to scaffolds }
- E04G 5/062 . . { specially adapted for attachment to building walls }
- E04G 5/064 . . { specially adapted for attachment to building floors }
- E04G 5/065 . . { specially adapted for attachment to ladders } (platforms on, or for use on, ladders [E06C 7/16](#))
- E04G 5/067 . . { specially adapted for attachment to posts ([E04G 5/061](#) takes precedence)}
- E04G 2005/068 . . Connections of consoles at an angle
- E04G 5/08 . Scaffold boards or planks ((clips or connections for securing boards [E04G 7/28](#); scaffolds comprising special means for supporting or forming platforms, platforms [E04G 1/15](#)))
- E04G 5/10 . Steps or ladders specially adapted for scaffolds (([E04G 27/00](#) takes precedence))
- E04G 5/12 . Canopies ((safety or protective measures preventing damage to building parts or finishing work during construction [E04G 21/24](#)))
- E04G 2005/125 . . Roof for scaffolds, e.g. extending to the adjacent building
- E04G 5/14 . Railings
- E04G 5/141 . . { with an access door or the like therefor }
- E04G 5/142 . . { extensible or telescopic }
- E04G 5/144 . . { specific for the lateral i.e. short side of a scaffold }
- E04G 5/145 . . { Toe boards therefor }
- E04G 5/147 . . { specially adapted for mounting prior to the mounting of the platform }
- E04G 2005/148 . . latticed or netted
- E04G 5/16 . Struts or stiffening rods, e.g. diagonal rods
- E04G 5/165 . . { Lintel for scaffoldings }

E04G 7/00

Connections between parts of the scaffold (for building structures in general [E04B 1/38](#); connections in general [F16B](#); { connection for tubes or rods in general [F16B 7/00](#) })

- [E04G 2007/005](#) . Adaptors to adapt the connection means of one manufacturer's scaffold system to the one of another manufacturer
- [E04G 7/02](#) . with separate coupling elements
- [E04G 7/04](#) .. Flexible elements, with or without brackets, e.g. ropes, cables, chains (in general [F16G](#), { means for fastening cables or ropes to one another or to other objects [F16G 11/00](#) })
- [E04G 7/06](#) .. Stiff scaffolding clamps for connecting scaffold members of common shape
- [E04G 7/08](#) ... Clamps for parallelly-arranged members
- [E04G 7/10](#) Self-tightening clamps, e.g. stirrups
- [E04G 7/12](#) ... Clamps or clips for crossing members ([E04G 7/22](#) takes precedence)
- [E04G 7/14](#) for clamping the members independently
- [E04G 7/16](#) of which the clamping parts for the different members are rotatable with respect to one another
- [E04G 7/18](#) for clamping the members against one another or against a separate cushioning piece between them
- [E04G 7/20](#) ... for ends of members only, e.g. for connecting members in end-to-end relation
- [E04G 7/22](#) ... for scaffold members in end-to-side relation
- [E04G 7/24](#) ... Couplings involving arrangements covered by more than one of the subgroups [E04G 7/08](#), [E04G 7/12](#), [E04G 7/20](#), [E04G 7/22](#)
- [E04G 7/26](#) .. for use with specially-shaped scaffold members
- [E04G 7/28](#) .. Clips or connections for securing boards (brackets [E04G 5/06](#); { scaffolds comprising special means for supporting or forming platforms, platforms [E04G 1/15](#); scaffold boards or planks [E04G 5/08](#) })
- [E04G 2007/285](#) ... specially adapted for toe boards
- [E04G 7/30](#) . Scaffolding bars or members with non-detachably fixed coupling elements
- [E04G 7/301](#) .. { for connecting bars or members which are parallel or in end-to-end relation }
- [E04G 7/302](#) .. { for connecting crossing or intersecting bars or members }
- [E04G 7/303](#) ... { the added coupling elements are only fixed at one of the bars or members to connect }
- [E04G 7/304](#) { with tying means for connecting the bars or members }
- [E04G 7/305](#) { without tying means for connecting the bars or members }
- [E04G 7/306](#) ... { the added coupling elements are fixed at several bars or members to connect }
- [E04G 7/307](#) { with tying means for connecting the bars or members }
- [E04G 7/308](#) { without tying means for connecting the bars or members }
- [E04G 7/32](#) .. with coupling elements using wedges
- [E04G 7/34](#) .. with coupling elements using positive engagement, e.g. hooks or pins

Guidance heading: **Falsework, forms, or shutterings for shaping of building parts in situ (scaffolding in general [E04G 1/00](#); moulds for making units for prefabricated buildings or prefabricated stair units [B28B 7/22](#); forms or shutterings of the construction [E04B](#), [E04C](#))**

E04G 9/00

Forming or shuttering elements for general use ((for prefabrication of concrete elements in a plant [B28B 7/00](#)))

- E04G 9/02 . Forming boards or similar elements ([E04G 9/08](#), [E04G 9/10](#) take precedence)
- E04G 9/021 .. { the form surface being of cardboard }
- E04G 2009/023 .. with edge protection
- E04G 2009/025 ... by a flange of the board's frame
- E04G 2009/026 ... specific for corners
- E04G 2009/028 .. with reinforcing ribs on the underside
- E04G 9/04 .. the form surface being of wood
- E04G 9/05 .. the form surface being of plastics
- E04G 9/06 .. the form surface being of metal
- E04G 9/065 ... { the form surface being of wire mesh }

- E04G 9/08 . Forming boards or similar elements, which are collapsible, foldable, or able to be rolled up
- E04G 9/083 .. { which are foldable }
- E04G 9/086 .. { which are specially adapted to be degradable in time e.g. by moisture or water }

- E04G 9/10 . with additional peculiarities such as surface shaping, insulating or heating, permeability to water or air

E04G 11/00

Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs ((for prefabrication of concrete elements in a plant [B28B 7/00](#)))

- E04G 11/02 . for rooms as a whole { by which walls and floors are cast simultaneously }, whole storeys, or whole buildings

- E04G 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](#); ((structures made from masses cast in situ with permanent forms [E04B 1/16](#))))
- E04G 11/045 .. { Inflatable forms }

- E04G 11/06 . for walls, e.g. curved { end panels for wall shutterings; filler elements for wall shutterings; shutterings for vertical ducts } ([E04G 11/04](#) takes precedence)
- E04G 11/062 .. { Forms for curved walls ([E04G 11/20](#) takes precedence) }
- E04G 11/065 ... { with mechanical means to modify the curvature }
- E04G 2011/067 .. Integrated forms comprising shuttering skin, bracing or strutting arrangements, workplatforms and railings

- E04G 11/08 .. Forms, which are completely dismantled after setting of the concrete and re-built for next pouring (([E04G 11/062](#) takes precedence); connecting or supporting means for forms [E04G 17/00](#); { walls made by casting, pouring, in situ made in permanent forms [E04B 2/84](#) })

- E04G 11/082 ... { Retractable forms for the inside face of at least three walls (for rooms as a whole [E04G 11/02](#)) }
- E04G 11/085 ... { End form panels for walls (for floors [E04G 11/365](#)) }

- E04G 11/087 . . . { Fill-in form panels in the plane of two adjacent forms }
- E04G 11/10 . . . of elements without beams { which are mounted during erection of the shuttering to brace or couple the elements } ([E04G 11/18](#) takes precedence)
- E04G 11/12 . . . of elements and beams { which are mounted during erection of the shuttering to brace or couple the elements } ([E04G 11/18](#) takes precedence)
- E04G 11/14 with beams arranged in alignment with and between the elements { and form also the shuttering face }
- E04G 11/16 with beams placed within the wall
- E04G 11/18 . . . for double walls
- E04G 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)
- E04G 11/22 . . . Sliding forms raised continuously or step-by-step and being in contact with the poured concrete during raising { and which are not anchored in the hardened concrete }; Arrangements of lifting means therefor
- E04G 11/24 Construction of lifting jacks or climbing rods for sliding forms (climbing-type hoisting units in general [B66F](#))
- E04G 11/26 . . . the sheathing of which consists of ribbons, endless aprons or the like, guided by driven rollers { [E04G 11/34](#) takes precedence }
- E04G 11/28 . . . Climbing forms, i.e. forms which are not in contact with the poured concrete during lifting from layer to layer { and which are anchored in the hardened concrete }
- E04G 11/30 which are lifted from layer to layer by turning, tilting, or similar moving upwards about a horizontal axis
- E04G 11/32 . . . Tiltable forms or tilting tables for making walls as a whole or in parts in situ
- E04G 11/34 . . . Horizontally-travelling moulds for making walls block-wise or section-wise ([E04G 11/26](#) takes precedence)
- E04G 11/36 . for floors, ceilings, or roofs of plane or curved surfaces { end formpanels for floor shutterings (floors with lost forms [E04B 5/32](#)) }
- E04G 11/365 . . { Stop-end shutterings (end panels for walls [E04G 11/085](#)) }
- E04G 11/38 . . for plane ceilings of concrete
- E04G 11/40 . . for coffered or ribbed ceilings
- E04G 11/42 . . . with beams of metal or prefabricated concrete { which are not, or of which only the upper part is embedded }
- E04G 11/44 . . . with supporting beams for the shuttering used simultaneously as permanent reinforcement of the ribs
- E04G 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 { (for separately encased beams [E04G 13/04](#)) }
- E04G 11/48 . . Supporting structures for shutterings or frames for floors or roofs (struts [E04G 25/00](#))
- E04G 11/483 . . . { Supporting heads ([E04G 11/486](#) takes precedence) }
- E04G 11/486 . . . { Dropheads supporting the concrete after removal of the shuttering; Connecting means on beams specially adapted for dropheads }
- E04G 11/50 . . . Girders, beams, or the like as supporting members for forms (girders intended to form part of the construction [E04C 3/02](#); members, e.g. consoles, for attachment to the wall [E04G 17/16](#))
- E04G 2011/505 with nailable or screwable inserts

- E04G 11/52 of several units arranged one after another
- E04G 11/54 of extensible type, with or without adjustable supporting shoes, fish-plates, or the like
- E04G 11/56 of telescopic type
- E04G 13/00** **Falsework, forms, or shutterings for particular parts of buildings, e.g. stairs, steps, cornices, balconies** { foundations, sills ([E04G 11/365](#) takes precedence; flat foundations e.g. with lost forms [E02D 27/01](#); removable forms or shutterings for road-building purposes [E01C 19/50](#)) }
- E04G 13/02 . for columns or like pillars; Special tying or clamping means therefor { (columns, pillars of concrete with permanent forms [E04C 3/34](#)) }
- E04G 13/021 . . { for circular columns }
- E04G 13/023 . . { with means for modifying the sectional dimensions ([E04G 13/021](#) takes precedence) }
- E04G 13/025 . . . { with stiff clamping means bracing the back-side of the form without penetrating the forming surface }
- E04G 13/026 { the forming surface-element being the same for different sections of the column }
- E04G 13/028 . . { for columns' capital }
- E04G 13/04 . for lintels, beams, or transoms to be encased separately; Special tying or clamping means therefor { (hat-like or trough-like elements encasing a rib and its adjacent ceiling section [E04G 11/46](#); members, e.g. consoles, for attachment to the wall [E04G 17/16](#)) }
- E04G 13/06 . for stairs, steps, cornices, balconies, or other parts corbelled out of the wall { (moulds for making prefabricated stair units [B28B 7/225](#); stairways with permanent forms [E04F 11/02](#)) }
- E04G 13/062 . . { for stairs or steps }
- E04G 13/064 . . { for chimney crowns }
- E04G 13/066 . . { for overhangs }
- E04G 13/068 . . { for window or door sills }
- E04G 15/00** **Forms or shutterings for making openings, cavities, slits, or channels** (forming part of shuttering for walls [E04G 11/06](#), { e.g. double walls [E04G 11/18](#); prefabricated elements with elements wholly or partly embedded therein [B28B 23/00](#); core or mandrels for the prefabrication of concrete elements [B28B 7/28](#)) }
- E04G 15/02 . for windows, doors, or the like
- E04G 15/04 . Cores for anchor holes or the like { around anchors embedded in the concrete (means in or on the building element for connecting to handling apparatus [E04G 21/142](#)) }
- E04G 15/06 . for cavities or channels in walls of floors, e.g. for making chimneys
- E04G 15/061 . . { Non-reusable forms (positioning means without forming function [E04G 21/185](#); electric distribution boxes [H02G 3/08](#)) }
- E04G 15/063 . . { Re-usable forms }

- E04G 15/065 . . . { with mechanical means to modify the section ([E04G 15/068](#) takes precedence) }
- E04G 15/066 . . . { with fluid means to modify the section ([E04G 15/068](#) takes precedence) }
- E04G 15/068 . . . { for channels open towards the surface }

- E04G 17/00** **Connecting or other auxiliary members for forms, falsework structure, or shutterings**

- E04G 17/001 . { Corner fastening or connecting means for forming or stiffening elements (forms for rooms as a whole [E04G 11/02](#); forms for vertical ducts [E04G 11/06](#); forms for columns [E04G 13/02](#)) }
- E04G 17/002 . { Workplatforms, railings; Arrangements for pouring concrete, attached to the form }
- E04G 17/004 . { Strips for creating a chamfered edge }
- E04G 17/005 . { Strips for covering joints between form sections e.g. to avoid burring or spilling of laitance }
- E04G 17/007 . { Plugs to close openings in forms' surface }
- E04G 2017/008 . Pin and hole connection type
- E04G 17/02 . Connecting or fastening means for non-metallic forming or stiffening elements { ([E04G 17/001](#) takes precedence) }
- E04G 17/04 . Connecting or fastening means for metallic forming or stiffening elements, { e.g. for connecting metallic elements to non-metallic elements ([E04G 17/001](#) takes precedence) }
- E04G 17/042 . . { being tensioned by threaded elements ([E04G 17/047](#) takes precedence) }
- E04G 17/045 . . { being tensioned by wedge-shaped elements ([E04G 17/047](#) takes precedence) }
- E04G 17/047 . . { simultaneously tying two facing forms }

- E04G 17/06 . Tying means; Spacers; { Devices for extracting or inserting wall ties ([E04G 17/047](#) takes precedence; permanent forms for walls e.g. with ties [E04B 2/86](#)) }
- E04G 2017/0601 . . Tying means, the tensional element of which is threaded to ensure its fastening or tensioning
- E04G 2017/0603 . . . one-piece element
- E04G 2017/0605 fully recoverable
- E04G 2017/0607 remaining completely or partially embedded in the cast material
- E04G 2017/0609 . . . the element consisting of several parts
- E04G 2017/0611 fully recoverable
- E04G 2017/0612 remaining completely or partially embedded in the cast material
- E04G 2017/0614 . . Tying means, the tensional element of which is fastened or tensioned by means of wedge-shaped members
- E04G 2017/0616 . . . one-piece element
- E04G 2017/0618 fully recoverable
- E04G 2017/062 remaining completely or partially embedded in the cast material
- E04G 2017/0622 . . . the element consisting of several parts

- E04G 2017/0624 fully recoverable
- E04G 2017/0625 remaining completely or partially embedded in the cast material
- E04G 2017/0627 . . Tying means, the tensional element of which is fastened or tensioned by other means
- E04G 2017/0629 . . . one-piece element
- E04G 2017/0631 fully recoverable
- E04G 2017/0633 remaining completely or partially embedded in the cast material
- E04G 2017/0635 . . . the element consisting of several parts
- E04G 2017/0637 fully recoverable
- E04G 2017/0638 remaining completely or partially embedded in the cast material
- E04G 17/064 . . { Spacers placed on the bottom of the mould }
- E04G 17/0642 . . { Devices for extracting or inserting wall ties or parts thereof }
- E04G 17/0644 . . { Plug means for tie-holes }
- E04G 2017/0646 . . made of a flat strip, e.g. of metal
- E04G 2017/0648 . . . The strip being twisted
- E04G 17/065 . . Tying means, the tensional elements of which are threaded to enable their fastening or tensioning
- E04G 17/0651 . . . { One-piece elements }
- E04G 17/0652 { fully recoverable }
- E04G 17/0654 { remaining completely or partially embedded in the cast material }
- E04G 17/0655 . . . { the element consisting of several parts }
- E04G 17/0657 { fully recoverable }
- E04G 17/0658 { remaining completely or partially embedded in the cast material }
- E04G 17/07 . . Tying means, the tensional elements of which are fastened or tensioned by means of wedge-shaped members
- E04G 17/0707 . . . { One-piece elements }
- E04G 17/0714 { fully recoverable }
- E04G 17/0721 { remaining completely or partially embedded in the cast material }
- E04G 17/0728 . . . { the element consisting of several parts }
- E04G 17/0735 { fully recoverable }
- E04G 17/0742 { remaining completely or partially embedded in the cast material }
- E04G 17/075 . . Tying means, the tensional elements of which are fastened or tensioned by other means
- E04G 17/0751 . . . { One-piece elements }
- E04G 17/0752 { fully recoverable }
- E04G 17/0754 { remaining completely or partially embedded in the cast material }
- E04G 17/0755 . . . { the element consisting of several parts }
- E04G 17/0757 { fully recoverable }
- E04G 17/0758 { remaining completely or partially embedded in the cast material }
- E04G 17/12 . . with arms engaging the forms
- E04G 17/14 . . Bracing or strutting arrangements for form-walls; Devices for aligning forms
([E04G 25/00](#) takes precedence; { connecting and aligning [E04G 17/04](#) })
- E04G 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

- E04G 17/18
 - . Devices for suspending or anchoring form elements to girders placed in ceilings, e.g. hangers

- E04G 19/00** **Auxiliary treatment of forms, e.g. dismantling; Cleaning devices (lubricating compositions [C10M](#))**

- E04G 19/003
 - . { Arrangements for stabilising the forms or for moving the forms from one place to another (lifting of articles in general [B66C 1/00](#)) }

- E04G 19/006
 - . { Cleaning devices }

- E04G 21/00** **Preparing, conveying, or working-up building materials or building elements in situ; Other devices or measures for constructional work (conveying in general [B65G](#); lifting devices [B66](#); working stone-like materials [B28D](#); measuring instruments [G01](#))**

- E04G 21/005
 - . { Mortar boards }

- E04G 21/02
 - . Conveying or working-up concrete or similar masses able to be heaped or cast (in connection with finishing work [E04F](#); 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](#); composition of concrete [C04B](#); working concrete in general, e.g. mixing machines [B28C](#))

- E04G 21/025
 - .. { Buckets specially adapted for use with concrete }
- E04G 21/04
 - .. Devices for both conveying and distributing (concrete pumps [F04](#))
- E04G 21/0409
 - ... { with conveyor belts } (truck mixer with conveyor belts [B28C 5/4255](#))
- E04G 21/0418
 - ... { with distribution hose }
- E04G 21/0427
 - { on a static support e.g. crane }
- E04G 21/0436
 - { on a mobile support e.g. truck }
- E04G 21/0445
 - { with booms }
- E04G 21/0454
 - { with boom vibration damper mechanisms }
- E04G 21/0463
 - { with boom control mechanisms, e.g. to automate concrete distribution }
- E04G 21/0472
 - { Details of connection of the hose to the formwork, e.g. inlets }
- E04G 21/0481
 - ... { Concrete chutes }
- E04G 2021/049
 - ... concrete mixing nozzles specially adapted for conveying devices
- E04G 21/06
 - .. Solidifying concrete, e.g. by application of vacuum before hardening (devices for solidifying also soil [E02D 3/02](#); for road building [E01C 19/00](#); { for producing shaped articles [B28B 1/00](#) })

- E04G 21/061
 - ... { by applying vacuum or vacuum combined with vibration }
- E04G 21/063
 - [E04G 21/08](#) take...
- E04G 21/065
 - { making use of vibrating or jolting tools acting upon the shuttering }
- E04G 21/066
 - { making use of vibrating or jolting tools acting upon the surface of the concrete, whether or not provided with parts penetrating the concrete }

- E04G 21/068
 - { making use of vibrating or jolting tools acting upon the reinforcement }
- E04G 21/08
 - ... Internal vibrators, { e.g. needle vibrators (combined with vacuum

-)}
- E04G 21/10 .. Devices for levelling, e.g. templates or boards ([smoothing tools E04F 21/16](#), [E04F 21/24](#))
 - E04G 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](#))
 - E04G 21/121 .. { [Construction of stressing jacks](#) }
 - E04G 21/122 .. { [Machines for joining reinforcing bars](#) }
 - E04G 21/123 ... { [Wire twisting tools \(bundling articles by twisting e.g. wire \[B65B 13/28\]\(#\); bundling rods, sticks, or like elongated objects with e.g. wire \[B65B 27/10\]\(#\); tying devices for hops, vines or trees with e.g. wire \[A01G 17/08\]\(#\) \)](#) }
 - E04G 21/125 .. { [Reinforcement continuity box](#) }
 - E04G 21/126 ... { [for cable loops](#) }
 - E04G 2021/127 .. Circular prestressing of e.g. columns, tanks, domes
 - E04G 2021/128 .. Prestressing each strand of a cable one by one to the same tension
 - E04G 21/14 . Conveying or assembling building elements ([roofing E04D](#); [finishing work E04F](#))
 - E04G 21/142 .. { [Means in or on the elements for connecting same to handling apparatus \(\[E04B 1/38\]\(#\) takes precedence \)](#) }
 - E04G 21/145 ... { [specific for hollow plates](#) }
 - E04G 21/147 ... { [specific for prefabricated masonry wall elements](#) }
 - E04G 21/16 .. Tools or apparatus ([devices for erecting fences E04H 17/26](#))
 - E04G 21/161 ... { [Handling units comprising at least considerable parts of two sides of a room or like enclosed space](#) }
 - E04G 21/162 ... { [Handles to carry construction blocks](#) } ([load carriers \[B65G 7/12\]\(#\)](#))
 - E04G 21/163 ... { [Jacks specially adapted for working-up building elements \(\[jacks in general \\[B66F 3/00\\]\\(#\\)\]\(#\) \)](#) }
 - E04G 21/164 ... { [specially adapted for working-up chimneys](#) }
 - E04G 21/165 ... { [specially adapted for in-situ prefabricated building elements to be tilted up in position](#) }
 - E04G 21/166 ... { [Landings, receiving platforms](#) }
 - E04G 21/167 ... { [specially adapted for working-up plates, panels or slab shaped building elements](#) }
 - E04G 21/168 { [used for tilting, e.g. from horizontal to vertical position or vice versa](#) }
 - E04G 21/169 ... { [specially adapted for working-up reinforcement mats](#) }
 - E04G 21/18 .. Adjusting tools; Templates; { ([workshop marking tools \[B25H\]\(#\)](#); [for coverings or linings \[E04F 21/18\]\(#\)](#)) }
 - E04G 21/1808 { [Holders for bricklayers` lines, bricklayers` bars; Sloping braces \(\[cord-line chalkers \\[B44D 3/38\\]\\(#\\)\]\(#\) \)](#) }
 - E04G 21/1816 { [Adjustable positioning means between line-holder bars and construction](#) }
 - E04G 21/1825 { [Line-holders without supporting bars](#) }
 - E04G 21/1833 { [Line-holders for setting-out builders` work, e.g. foundations](#) }
 - E04G 21/1841 { [Means for positioning building parts or elements \(\[strutting means for wall parts \\[E04G 21/26\\]\\(#\\)\]\(#\) \)](#) }
 - E04G 21/185 { [for anchoring elements or elements to be incorporated in the structure](#) }

E04G 21/1858	.....	{ Templates for window or door openings e.g. in a masonry wall (E04G 15/02 takes precedence)}
E04G 21/1866	.....	{ for making arches }
E04G 21/1875	.....	{ for making curved walls (E04G 11/06 takes precedence)}
E04G 21/1883	.....	{ Spacers, e.g. to have a constant spacing between courses of masonry }
E04G 21/1891	....	{ Cut-marking templates for rafters; Templates used for assembling building frameworks }
E04G 21/20	...	for applying mortar
E04G 21/201	....	{ Trowels }
E04G 21/202	....	{ Hoses specially adapted therefor }
E04G 21/203	....	{ Prepared mortar strips, pouches or the like to be applied between masonry courses }
E04G 21/204	....	{ Mortar sledges }
E04G 21/205	.....	{ with closable mortar opening }
E04G 21/206	....	{ Devices to apply thin-bed mortar joints }
E04G 21/207	....	{ Static templates for applying a predefined layer of mortar }
E04G 2021/208	....	on a vertical joint
E04G 21/22	...	for setting building elements with mortar, e.g. bricklaying machines
E04G 21/24	.	Safety or protective measures preventing damage to building parts or finishing work during construction (as auxiliary structures for scaffolds E04G , { E04G 5/12 })
E04G 21/241	..	{ for temporarily closing door or window openings }
E04G 21/242	..	{ for temporarily covering the whole worksite, e.g. building, trench }
E04G 21/243	..	{ for creating a temporary partition in a closed room }
E04G 21/245	..	{ for temporarily protecting wall crowns }
E04G 21/246	..	{ specially adapted for curing concrete in situ, e.g. by covering it with protective sheets }
E04G 21/247	..	{ specific for protecting windows or doors leaves }
E04G 2021/248	..	Tarpaulins specially adapted therefor
E04G 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)
E04G 21/28	..	against unfavourable weather influence
E04G 21/30	..	against mechanical damage or dirt, e.g. guard covers of stairs
E04G 21/32	.	Safety or protective measures for persons during the construction of buildings (relating to scaffolds E04G 5/00 ; climbing tools, e.g. climbing irons for masts A63B 27/00 ; ropes or belts for life saving A62B 1/16 , A62B 35/00)
E04G 21/3204	..	{ against falling down }
E04G 21/3209	...	{ Temporary tunnels specially adapted against falling objects }
E04G 21/3214	...	{ Means for working on roofs (on flat roofs E04G 21/3223)}
E04G 21/3219	...	{ Means supported by the building wall, e.g. security consoles (E04G 5/06 takes precedence)}
E04G 21/3223	...	{ Means supported by building floors or flat roofs, e.g. safety railings }
E04G 21/3228	....	{ Folding railings for flat roof edge, e.g. to hide the railings from view when

		not in use }
E04G 21/3233	....	{ without permanent provision in the floor or roof }
E04G 21/3238	.....	{ using counterweights }
E04G 21/3242	.....	{ using clamps }
E04G 21/3247	...	{ Storey high safety barrier hung from the facade and sliding up from level to level as work progresses }
E04G 21/3252	...	{ Protections, e.g. cover, caps, against impaling on starter reinforcement bars }
E04G 2021/3257	...	specific for floors made of prefabricated hollow plates
E04G 21/3261	..	{ Safety-nets; Safety mattresses; Arrangements on buildings for connecting safety-lines (jumping-sheets, jumping-mattresses A62B 1/22)}
E04G 21/3266	...	{ Safety nets }
E04G 21/3271	...	{ Safety mattresses }
E04G 21/3276	...	{ Arrangements on buildings for connecting safety-lines (fastening devices for devices for lowering persons from buildings A62B 1/04)}
E04G 21/328	....	{ fastened to the roof covering or insulation }
E04G 21/3285	.....	{ fastened to standing seams of the roof covering }
E04G 21/329	....	{ with measures for dampening the fall }
E04G 21/3295	...	{ Guide tracks for safety lines (arrangements for bypassing safety track supports without life line disconnection A62B 35/0087)}

E04G 23/00

Working measures on existing buildings, ({ domestic cleaning of walls or floors [A47L 11/00](#); grinding floors or walls [B24B 7/18](#); removing of wall coverings [B44C 7/00](#); removing of paint from surfaces [B44D 3/16](#); electrochemical desalination or re-alkalisation [C04B 41/00](#)); on foundations [E02D 35/00](#), [E02D 37/00](#); in connection with insulations [E04B](#); subsequent or finishing work [E04F](#))

NOTE

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, are classified in the appropriate construction groups.

E04G 23/002	.	{ Arrangements for cleaning building facades }
E04G 23/004	..	{ with arrangements for collecting waste water or cleaning products }
E04G 23/006	.	{ Arrangements for removing of previously fixed floor coverings }
E04G 23/008	.	{ Working measures on existing vertical ducts e.g. chimneys, garbage chutes }
E04G 23/02	.	Repairing, e.g. filling cracks; Restoring; Altering; Enlarging ({ compositions of filling material C04B ; strengthening, widening, repairing of bridges E01D 22/00 ; drying damp layers by temporary mechanical ventilation E04B 1/7092)}
E04G 23/0203	..	{ Arrangements for filling cracks or cavities in building constructions }
E04G 23/0207	...	{ in hollow structures e.g. cavity walls }
E04G 23/0211	...	{ using injection }
E04G 23/0214	...	{ using covering strips }
E04G 23/0218	..	{ Increasing or restoring the load-bearing capacity of building construction elements (E04G 23/0203 and E04G 23/0266 take precedence)}

E04G 23/0222	...	{ Replacing or adding wall ties }
E04G 23/0225	...	{ of circular building elements e.g. by circular bracing }
E04G 23/0229	...	{ of foundations or foundation walls }
E04G 23/0233	...	{ of vaulted or arched building elements }
E04G 23/0237	...	{ of storey floors }
E04G 23/024	...	{ of basement floors }
E04G 23/0244	...	{ of beams at places of holes, e.g. drilled in them }
E04G 2023/0248	...	of elements made of wood
E04G 2023/0251	...	by using fiber reinforced plastic elements
E04G 2023/0255	....	whereby the fiber reinforced plastic elements are stressed
E04G 2023/0259	.....	Devices specifically adapted to stress the fiber reinforced plastic elements
E04G 2023/0262	....	Devices specifically adapted for anchoring the fiber reinforced plastic elements e.g. to avoid peeling off
E04G 23/0266	..	{ Enlarging }
E04G 23/027	...	{ Loft conversion by truss modification }
E04G 23/0274	..	{ Temporary shoring of wall opening }
E04G 23/0277	..	{ Repairing or restoring window or door frames (door frames E06B 1/00), window frames E06B 3/00 }
E04G 23/0281	..	{ Repairing or restoring roofing or roof covering (roof covering E04D 3/00)}
E04G 23/0285	..	{ Repairing or restoring flooring (flooring E04F 15/00)}
E04G 23/0288	..	{ Repairing or restoring floor slabs (floors E04B 5/00)}
E04G 23/0292	..	{ Repairing or restoring balconies (balcony structures E04B 1/003)}
E04G 23/0296	..	{ Repairing or restoring facades (covering or linings e.g. for walls E04F 13/00)}
E04G 23/04	.	Propping of endangered or damaged buildings or building parts, e.g. with respect to air-raid action (struts E04G 25/00)
E04G 23/06	.	Separating, lifting, removing of buildings; Making a new sub-structure
E04G 23/065	..	{ Lifting of buildings (E04G 21/163 takes precedence)}
E04G 23/08	.	Wrecking of buildings (of fences E04H 17/26 ; { Demolition agents based on cementitious or like materials C04B 41/0009 })
E04G 23/081	..	{ using hydrodemolition }
E04G 23/082	..	{ using shears, breakers, jaws and the like (metal-cutting or concrete-crushing implements mounted on backhoes E02F 3/965)}
E04G 23/083	..	{ using vaporising wire technique (particular applications of blasting techniques F42D 3/00)}
E04G 23/084	..	{ using breaker balls or the like }
E04G 2023/085	..	crowbars specially adapted for wrecking wooden buildings
E04G 2023/086	..	of tanks, reservoirs or the like
E04G 2023/087	..	of chimneys, smoke stacks or the like
E04G 2023/088	..	of window or door frames
E04G 25/00		Shores or struts (specially designed for use in mines E21D 15/00 { ; E04G 21/26 , E04G 23/04 take precedence }); Chocks

- E04G 2025/003 . Supports therefor, e.g. tripods
- E04G 2025/006 . Heads therefor, e.g. pivotable
- E04G 25/02 . non-telescopic
- E04G 25/04 . telescopic {([locking of telescopic systems in general E16B 7/10](#))}
- E04G 2025/042 . . with devices to avoid accidental disengagement of the telescopic elements, e.g. during transport
- E04G 2025/045 . . which telescoping action effected by a lever
- E04G 2025/047 . . which telescoping action effected by a piston
- E04G 25/06 . . with parts held together by positive means
- E04G 25/061 . . . { by pins }
- E04G 25/063 { with safety devices to avoid the accidental loss or unlocking of the pin, e.g. chains attaching the pin to the prop }
- E04G 25/065 . . . { by a threaded nut }
- E04G 25/066 . . . { by a wedge }
- E04G 25/068 . . . { by a cam }
- E04G 25/08 . . with parts held relatively to each other by friction or gripping

- E04G 27/00** **Temporary arrangements for giving access from one level to another for men or vehicles, e.g. steps, ramps (for scaffolds [E04G 5/10](#); gangways [B63](#); lifts [B66](#))**