CP 143-5:1964

CONFIRMED
DECEMBER 2007

Sheet roof and wall coverings —

Part 5: Zinc

UDC [69.024.156 + 69.022]:669.5

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This part of the Code of Practice has been prepared by a committee convened by the Codes of Practice Committee for Building. Having been endorsed by the Council for Codes of Practice, it was published under the authority of the General Council on
7 October 1964

The following BSI references relate to the work of this Code of Practice:
Committee reference BLCP/4/1
Draft for comment D63/12684

ISBN 0 580 34555 6

Amendments issued since publication

Amd. No.	Date	Comments

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This Code of Practice makes reference to the following British Standards and British Standard Codes of Practice:

BS 219, *Soft solders.*

BS 476, *Fire tests on building materials and structures — Part 3: External fire exposure roof tests.*

BS 747, *Roofing felts (bitumen and fluxed pitch).*

BS 849, *Plain sheet zinc roofing.*

BS 1202, *Wire nails and cut nails for building purposes.*

BS 1210, *Wood screws.*

BS 2717, *Glossary of terms applicable to roof coverings.*

CP 3:Chapter V, *Loading.*

CP 231, *Painting.*

CP 326.101, *Protection of structures against lightning.*

CP ...., *Preservative treatments for constructional timber*[1)].

This Code of Practice represents a standard of good practice and takes the form of recommendations. Compliance with it does not confer immunity from relevant legal requirements including byelaws.

Attention is, however, drawn to the fact that in certain byelaws, notably those Building Byelaws based upon one of the models issued for England and Wales and for Northern Ireland, and in the Scottish Building Regulations, compliance with the provisions of certain British Standards or British Standard Codes of Practice, or of specific clauses therein, is "deemed to satisfy" the requirements of certain of the Byelaws and Regulations in the fields covered by the British Standards and Codes of Practice, or by the specific clauses referred to.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 15 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

[1)] In course of preparation.

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Section 1. General

101 Scope

This Part of the Code deals with zinc roof covering and gives recommendations based on accepted good practice in the United Kingdom for laying zinc roofs on the Roll Cap System. In this system the sheets are fully supported and have their sides turned up against shaped wood rolls spaced to suit the width of the sheets. The rolls are covered with an independent capping which completes the joint. Joints between the ends of sheets are made either by means of drips or welts depending on the pitch, see Figure 1 and Figure 2.

Recommendations are given for the whole of the roof covering above the upper surface of the constructional base for both flat and pitched roofs.

Flashings and gutters are also dealt with in so far as they are integral parts of the roof covering.

102 Definitions

For the purposes of this Code, the definitions given in BS 2717[2)] apply.

103 Exchange of information and time schedule

The working drawings and specification should be prepared in sufficient detail to afford proper guidance in the preparation of estimates and the execution of the work. Where Bills of Quantities form part of the contract, they should be prepared in accordance with the Standard Method of Measurement of Building Works or the Scottish Mode for the Measurement of Building Works, as appropriate. There should be a full exchange of information between all concerned with the roofing and the work adjacent to it, in sufficient time to ensure that the covering can be carried out at the proper time and that all necessary provision for fixings has been made in advance. Early arrangements should be made on the site for rainwater disposal. Roof covering should be completed before internal finishes are begun.

Section 2. Materials, appliances and components

201 Zinc sheet

Zinc sheet should comply with Part 1 of BS 849[3)]. The United Kingdom stock or standard sizes of sheets for roofing work are 3 ft wide by 7 or 8 ft long; purpose made sheets of other dimensions can be obtained.

A table of weights, gauges and thicknesses in inches of zinc sheets is given in Clause **602** and is based on the weight of one square foot of inch thick material. It should be noted that the English Zinc Gauge, as distinct from the Standard Wire Gauge, rises in number with thickness.

On permanent buildings, roof coverings and ancillary parts should not be thinner than No. 14 ZG (approximately 21 SWG). No exterior zinc work should be thinner than No. 12 ZG (approximately 23 SWG).

202 Nails

Nails should be of steel either heavily galvanized or otherwise provided with a zinc coating of equivalent thickness. They should comply with BS 1202[4)]. Galvanized clout nails not less than 1 in long should be used for fixing the zinc.

203 Screws

Screws should be of steel coated similarly to steel nails and should comply with BS 1210[5)].

[2)] BS 2717, "*Glossary of terms applicable to roof coverings*".
[3)] BS 849, "*Plain sheet zinc roofing*".
[4)] BS 1202, "*Wire nails and cut nails for building purposes*".
[5)] BS 1210, "*Wood screws*".

204 Underlay

Suitable materials for underlays are open-textured impregnated felts such as those defined under Type 4A ii), BS 747[6].

Materials other than those defined above may be used provided that they are porous and are not liable to become "tacky" in service.

205 Solder and soldering fluxes

Solder for use on zinc should be antimony free, and either 50/50 or 60/40 tin/lead, corresponding to grades F and K in BS 219[7]. The flux generally used is zinc chloride solution (commonly known as "Killed spirits") either alone or with the addition of ammonium chloride. There are also proprietary non-acid liquid fluxes which are equally suitable.

When the surfaces to be soldered cannot be pre-cleaned, hydrochloric acid (commonly known as "Spirits of salts") may be used.

Flux residues should be washed off joints immediately on completion.

206 Roll capping

Square section roll capping (see Figure 4) is machine made from zinc sheet and shall be of the same thickness as the roof covering. It is usually supplied in lengths of 8 ft, but should not be fixed in lengths of more than 4 ft.

Section 3. Design considerations

301 Characteristics of zinc

Zinc is a basic non-ferrous metal, light grey in colour and of about the same density as steel. It is commercially available in a relatively pure form as sheet, strip and nails.

In the cast form, zinc has a coarse crystalline structure. By rolling into sheet or strip this is reduced to render the material ductile with good working properties. The physical properties of zinc sheet are given in Clause **601**.

On exposure to the atmosphere, the bright metal readily forms an adherent and moderately protective coating of basic carbonate, which results in the surface weathering to a stable matt grey.

302 Durability

The durability of zinc roofing depends chiefly on the thickness of the zinc and on the type of atmosphere to which it is exposed. The maintenance-free life of a zinc roof, properly laid with a suitable gauge of metal and to adequate falls, is upwards of forty years under average urban conditions.

In some atmospheres, the pitch of the roof will effect its durability. While the effects of rural or marine atmospheres are very slight, the sulphur acids in heavily polluted industrial areas attack zinc more rapidly. Such attack decreases with increase in the pitch of the roof, since corrosive substances are more effectively washed away by rain.

Zinc is not resistant to acids or strong alkalis.

303 Properties affecting design

a) *Contact with other metals.* Sheet zinc is susceptible to electrochemical corrosion if placed in contact with, or if it receives water draining from copper or copper-rich alloys. Thus, water from a copper roof should not discharge on to a zinc surface such as a gutter or rainwater pipe. The other metals (iron, aluminium and its alloys, lead and tinmans' solder) likely to come into contact with zinc in building construction, have not been found to cause trouble.

Where copper lightning conductors, vent pipes etc., pass over zinc roof coverings, the copper should either be tinned (i.e. with tin/lead solder) or alternatively coated with insulating material.

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[6] BS 747, "*Roofing felts (bitumen and fluxed pitch)*".

[7] BS 219, "*Soft solders*".

b) *Contact with timber.* Zinc should not be laid in direct contact with nor receive drainage from, western red cedar, oak or sweet chestnut.

Where zinc has to be laid over these materials, a felt underlay should be provided.

Seasoned softwoods, with the exception of those mentioned above, do not affect zinc, see Subclause **305** a).

c) *Contact with cement, mortar and concrete.* Zinc is not affected by sand/cement or sand/lime/cement mortars made with clean materials. Initially a slight etching action takes place, but this ceases once the mortar has set. If zinc flashings etc., are embedded in, or come into contact with, walling materials containing appreciable amounts of soluble salts (notably chlorides and sulphates), the metal may be attacked, and in such cases should be coated with a hard drying bitumen paint.

d) *Condensation.* Condensed water if trapped against the underside of zinc roof coverings, is liable to attack the metal. Risk of such attack is reduced by ventilating the roof structure and following the recommendations in Clause **305**.

e) *Provision for thermal movement.* Zinc has, among the common metals a relatively high coefficient of thermal expansion for which due allowance should be made in roofing and other exterior work. The thermal movement of an 8 foot length of zinc sheet is about ¼ in for a temperature variation of 100 degF (56 degC). Zinc coverings on roofs or integral gutters should not be laid in continuous lengths (i.e. with double-welted or with soldered joints) greater than 20 ft.

304 Roof pitch

The pitch of fully supported zinc roofs and of gutters integral with them should provide adequate fall to clear water from them; the fall should not be less than 2 inches in 10 feet. There is no limitation to the steepness of pitch.

305 Substructure

The substructure should be designed in accordance with the Code of functional requirements of buildings, CP3, Chapter V[8)], and should be windtight, dimensionally stable, inert and free from spring. The decking should be capable of supporting men working on it without permanent distortion. Felt underlays are essential with concrete substructures, and are recommended on timber surfaces, but with some types of composition board decking, felt may not be required. Zinc should not be laid in contact with surfaces which attract moisture, or which allow condensation from inside the building to become trapped under the metal. One of the functions of the porous felt underlay is to allow the underside of the metal to breathe.

It should be noted that drips, not less than 2 in deep, may be required on roofs pitched at less than 15°.

a) *Timber.* All boarding should be well seasoned softwood, of not less than 1 in nominal thickness, preferably quarter sawn and wrought on the face, to receive the zinc. Boarding should be laid in the direction of the fall, or, if this is rendered difficult by the construction of the roof, diagonally, since any warping in boards laid across the slope, especially on roofs of low pitch, will prevent rainwater from running off freely.

The boards should be rigidly fixed and joints staggered. The heads of nails should be well punched down, and all screws countersunk. If timber treated with a preservative is used for boarding, rolls or rafters coming into contact with zinc, the preservative should be non-corrosive.

Timber treated with fire retardants based on sodium silicate and sodium phosphate is not likely to cause trouble.

b) *Concrete.* The surface should be laid to even falls and provided with a smooth finish. Fixings for clips and wood rolls are best made with composition plugs into which screws are driven. If timber battens are used, they should be pressure treated with preservatives, see CP .... [9)].

c) *Other forms of decking.* Various composition boards or slabs have been found satisfactory for providing a continuous structural decking. The methods of securing the zinc sheeting (i.e. fixing for rolls and clips) may have to be adapted to suit the properties of the particular type of material specified, and collaboration between the zinc roofing contractor and the main contractor is desirable.

[8)] CP 3:Chapter V, "*Loading*".

[9)] CP..., "*Preservative treatments for constructional timber*" (in course of preparation).

The method of fixing should provide secured anchorage at least equivalent to that provided by fixing with nails or screws into sound timber. The surface of the composition board or slab shall be such as to permit fixing and dressing operations to be carried out without damaging the decking.

306 Joints

a) *Rolls.* Shaped wood rolls (see Figure 3) are used to provide joints running with the fall of the roof, and at hips and ridges.

b) *Cross joints.* Joints between the ends of sheets are made by means of single lock welts for roofs pitched at 15° or steeper. For lower pitches, joints are generally made by means of drips which should be not less than 2 in deep.

307 Special features

When other roof surfaces discharge directly on to a zinc roof, the zinc covering should extend under the adjoining roof for a distance giving a vertical height of 6 in. When a zinc roof discharges over other roof surfaces, a separate zinc apron should be provided, the upper edge of the apron to be engaged with the roof sheets, and the lower edge stiffened with a bead or fold.

308 Thermal insulation

The thermal conductivity of zinc is high, and for practical purposes the effect of a zinc covering may be ignored when estimating the thermal resistance of a roof. Provision for thermal insulation should be made in the design of the substructure. Zinc roofing readily absorbs solar heat; this absorption can be reduced by coating with a suitable paint.

309 Fire protection

Zinc sheet is non-combustible and therefore it will not itself contribute to fire spread. As a roof covering, the classification obtained by zinc in the test prescribed in BS 476- 3[10] will depend on the materials with which it is associated in the construction.

310 Protection against lightning

Zinc roofs do not present any special hazard. Reference should be made to CP 326.101[11]. Attention is drawn in that Code to the necessity for preventing direct contact between bare copper conductors and zinc, on account of the risk of electrochemical action, see also Subclause **303** a).

Section 4. Method of laying and workmanship

401 Protection and storage on site

Standard zinc sheets are supplied flat, or in rolls, and strip in coils. The material should be stored dry under cover on a clean, flat surface clear of the ground. Sheets may be stored flat, and rolls or coils stood on end. Preformed roofing sheets delivered to the site should be nested or stacked in such a way that no distortion occurs. Preformed capping, usually delivered in 8 ft lengths, should be similarly nested and protected from damage. Underlay felt and wood rolls should be stored dry under cover.

402 Preparatory work

When sheets are to be formed on site, a space under cover should be allocated for use as a workshop. The workshop should accommodate a timber bench 10 feet long by 3 feet wide which should be provided with an oversailing metal strip, the working edge of which should be slightly rounded. The workbench should preferably be combined with the storage space. No special scaffolding is required beyond that normally provided for ready access to the roof surface. Facilities for hoisting materials to the roof should be provided. The roof decking should be as recommended in Clause **304**, and in addition should be dry and swept clean before laying the underlay felt. The felt should be dry and free from debris before covering with zinc.

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[10] BS 476, "*Fire tests on building materials and structures*", Part 3, "*External fire exposure roof tests*".

[11] CP 326.101, "*Protection of structures against lightning*".

403 Sequence of operations

All constructional work and installations above roof level should be completed before covering operations are commenced. Provision for fixings should be made on concrete surfaces, and also on composition board or slab deckings, if their nature makes this necessary (see also Clause **305**). Chases required to receive flashings should be provided.

The zinc covering should be laid from the lowest part of the roof upwards in the following sequence:

a) Cesspools to box gutters.

b) Box gutter linings and outlets.

c) Drop aprons.

d) Main roof coverings, including cappings.

e) Cover flashings.

404 Underlay

The felt should be laid with butt joints, and the work should be planned in such a way as to prevent the felt becoming saturated with rain or damaged before the roof covering is completed. The felt is held in position by the rolls or clips but it is often necessary to secure it temporarily pending the fixing of the rolls and clips. Where the background permits, galvanized clout nails should be used for this purpose.

405 Setting out

a) *Bays.* The principal factor controlling setting out is the size of sheet used (see Clause **201**).

Rolls should be spaced at not more than 2 feet 9½ inches in the clear between the base of the rolls. This allows for a 1½ in turn-up and provides ¼ in space for movement along each side of the bay. End bays against abutments should be narrower to allow for the greater turn-up against the wall abutment. (The distance from the wall abutment to the near edge of the roll should be not more than 2 ft 7 in.) End bays at verges which are to be finished without rolls will vary in width according to the detail. In setting out the bays, it is customary to adjust any variation from a multiple of the standard width of the bay at each end.

Drips should be spaced at 6 in less than the length of the sheet (i.e. 7 ft 6 in when sheets 8 ft long are used); any variation from a multiple of the standard length of bay should be adjusted in the top bay, and allowance also made for a 4 in turn-up at the top abutment.

b) *Roofing sheets.* The roof covering sheets are preformed before being placed in position. The side edges should be turned up 1½ in against rolls, or 4 in against abutments and the lower edge may be finished to form a welted joint, a beaded joint or turn down. Top edges should be turned up 4 in at abutments and drips, and not less than 3 in at ridges. For roofs pitched at 15°, or steeper, the upper end of each sheet should be preformed into a single welt 1¼ in wide to engage with a similar welt 1 in wide formed on the sheet above; the welt should be taken to the full height of the turn-up. For roof pitches up to 15°, welted and soldered cross joints may be used where the provision of drips is not practicable, but total lengths of covering with such joints should never exceed 20 feet.

Zinc sheets should never be marked out with a steel scriber or other sharp tool which may cut into the surface of the metal since this may cause mechanical weakness.

Internal corners of turn-ups should be folded into dog ears. The half stops (see Figure 5) at the junction between the lower end of the turn-up to the roll and the front edge of the sheet should also be formed without soldering. Their free edges should be "feinted" inwards, i.e. turned slightly inwards as in Figure 4. External corners of turn-ups are made by cutting the sheet and soldering on gusset pieces.

c) *Corner pieces.* Corner pieces (see Figure 6) forming the junction between drips and the turn-ups at abutments are cut from sheet zinc of the same gauge as the roof covering, and should be welted to the sheets.

d) *Eaves apron.* Aprons (see Figure 7) for securing the eaves are preformed from zinc sheet of the same gauge as the roof covering. They are formed with a turn-out of not less than 1 in at the top, and the bottom edge is folded to form a ½-in doubled edge.

Alternative methods of securing the eaves edges of roofing sheets are by means of a "T" plate (see Figure 7) which is fixed in the same way as an eaves apron, or by means of a simple lining plate 4 in wide arranged to project 1 in beyond the roof edge; in each case the gauge of sheet zinc should be the same as for the roof covering.

e) *Fixing clips.* The clips used for securing the covering sheet at rolls and abutments are strips of zinc 1½ in wide and not less than 7 in long cut from sheet zinc of the same gauge as the roof covering, with the grain running lengthwise. Clips (i.e. hanging clips), used for securing cross welts on pitched roofs are formed from 4 in × 3 in pieces of sheet zinc of the same gauge as the roof covering, cut with the grain running with the 4-in dimension and with one end folded back ½ in.

f) *Capping.* The capping (see Figure 4) is a standard machine-formed component made to suit the standard size roll described in Subclause **406** h). The size usually used is described as "1½ in square capping".

It should be of the same gauge as the roof covering, be formed with radiused corners and have its lower edges "feinted" to form capillary breaks, where these make contact with the roof sheets. At the lower end of each section of capping a stop-end (see Figure 8) is formed, by folding and without the use of solder.

A saddle (see Figure 9) is formed also by folding and without the use of solder, at the upper end of each section at drips, ridges and abutments.

g) *Holding down clips.* Holding down clips (see Figure 10) are made up from sheet zinc of the same gauge as the roof covering. In making them it is essential for the grain of the metal to run with the length of the clip.

h) *Rolls.* Rolls (see Figure 3) should be of softwood, sawn finish. There are two types of roll:

i) *Roof rolls:* generally measuring 1⅝ in high, 1¾ in across the base tapering to 1¼ in across the top. The height may vary, but should never be less than 1½ in.

ii) *Ridge and hip rolls:* should be 1½ in higher than the top of the intersecting roof rolls and the section of the roll above this line should be similar to that of the roof rolls to accommodate the standard zinc capping.

406 Laying procedure

a) *General.* Laying is always started from the lowest point and preferably at one side, i.e. against a wall or verge. The linings to box and parapet gutters should be completed before covering of the roof is commenced.

b) *Box and parapet gutters.* The minimum fall for box gutters is the same as for flat roofs, and their depth should be not less than 2 in. Where the side of a box gutter abuts a vertical surface, the zinc lining should be turned up at least 4 in. Joints in the length of a box gutter, between a gutter and a cesspool, or between a gutter and the roof covering are formed in the same way as joints at drips. Internal angles of gutters and cesspools are formed with dog-ears. The sides of gutters abutting vertical surfaces should be secured by means of folded clips in the same way as the roofing sheets.

Box and parapet gutters should be formed from zinc sheet not thinner than that used for the roof covering.

c) *Rolls and fixing clips.* All rolls should be fixed before the roofing sheets are laid. Where the background permits, they should be skew-nailed at not more than 1 ft 9 in centres. Where the background will not hold nails, screws or bolts, other fixings of equivalent strength should be used at the same centres. While the rolls are being fixed, the fixing clips are inserted under them. The clips at the upper and lower ends of sheets should be not more than 3 in from the drip or abutment, and intermediate clips spaced at not more than 3 ft 6 in. They should be fixed by the nails or screws securing the rolls and should then be bent up against the sides of the rolls to allow the roofing sheet to be placed in position. The clips at abutments are secured to the background in similar positions. Except where held by wooden rolls, fixing clips should be secured with two clout nails or other fixings appropriate to the background.

d) *Eaves apron.* The apron should be secured either by means of clips fixed to the fascia at not more than 12-in centres and folded round the bottom and top edges, or by means of galvanized roundheaded screws and dished zinc washers.

With the latter method, the holes for the screws should be formed with a raised lip on the outer side to make the fixings weathertight. The ends of aprons are returned against abutments, and joints in their length are lapped not less than 2 in.

"T" plates should be secured with clips in the same way as aprons. Lining plates should be secured with galvanized clout nails, countersunk screws, or other fixings appropriate to the background, at not more than 6-inch centres.

e) *Roofing sheets.* The preformed roofing sheets are next placed in position, beginning with the lower edge of the roof. The bead or welt (see Figure 11) at the lower edge of each sheet is engaged with the edge of the eaves apron or sheet below, which, at drips, should be turned out 1 inch level with the top of the drop to receive it. The sides of the sheets are secured by the fixing clips which are folded over the upstands and cut off.

With pitched roofs, the hanging clips, two to each sheet, should be fixed either with three clout nails, two screws or other fixings appropriate to the background.

f) *Capping and homing down clips.* The capping is held in position at stop ends and saddles, and at intermediate points by holding down clips (see Figure 10). It should be fixed in such lengths that the distance between any two fixing points is not more than 3 ft 9 in. The stop ends are formed to engage with the bead, welt, or turn down on the lower edges of the roofing sheets. At drips the saddles are turned out 1 inch in line with the roofing sheets. At wall abutments the saddles are turned up with the roofing sheets, the top edges of which are turned over to hold them.

Each holding down clip is fixed over the upper end of the capping below and secured to the wood roll by two screws or three clout nails. The lower end of the capping above is engaged in the fold of the holding down clip.

There should, except when impracticable, be at least one holding down clip between stop end and saddle.

g) *Hips and ridges.* Hips and ridges on both flat and pitched roofs are formed with rolls as already described. The treatment is the same in each case except that it is necessary to form splayed saddles at the intersections of hip and roof rolls.

It is necessary to use a soldered junction piece at the intersection of ridge and the upper ends of hips.

h) *Valleys.* Valleys on pitched roofs may be formed either

i) by forming a box gutter.

ii) where the pitch is not less than 15°, the valley may be formed from a separate sheet of zinc of the same gauge as the roofing sheets and of 18 inch girth, preformed in lengths, with welted joints to the adjacent roofing sheets and at junctions within its length. It is secured to the background by hanging clips as described in Subclause **406** e).

Where roof rolls meet the valley, it is necessary to form the capping into splayed stop ends.

j) *Verges.* Verges on flat or pitched roofs may be finished either:

i) with a roll and drop apron (see Figure 12), or

ii) in a similar manner to the eaves.

407 Flashings

Where roof coverings or gutter linings abut walls, flashings preformed from zinc sheet of the same gauge as the roof covering should be provided; these may be either straight or stepped to suit the circumstances.

Flashings should lap over turned-up edges of roof sheets and gutters at least 2 in. They should be turned into walls at least ¼ in and be wedged at not more than 2-ft centres and pointed [see Subclause **303** c)]. The free edge should in all cases be stiffened, either with a half-bead or a fold (see Figure 13).

Section 5. Inspection and testing

501 Inspection

Inspection should be carried out during the progress of the work to ensure that the substructure and decking are correctly prepared and that due attention is paid to the laying techniques outlined in Section 4. On completion, further inspection should be made to see that no damage has occurred and that no nails or similar objects, which may cause damage to the covering, are left on the roof. If final building operations are not complete, protection should be provided.

502 Maintenance

Under normal conditions no maintenance will be necessary during the life of a zinc roof, but it is desirable to keep the surface free from accumulations of leaves and dirt. Where sheets have suffered damage, they should be replaced by new sheets, and ancillary details (cappings etc.) similarly dealt with. Where conditions demand, zinc roofs may be protected against atmospheric corrosion by painting (see CP 231)[12)] but this is rarely considered necessary in practice.

Duckboards should be used to protect roofs subject to traffic; they should be of seasoned softwood, excepting Western Red Cedar, and should not be treated with any preservatives corrosive to zinc. Care should also be taken to suitably cushion the feet of any ladders, scaffolding standard, etc., temporarily erected on zinc roofing.

Permanent walk ways and crawling boards provided over pitched roofs should comply with The Building (Safety, Health and Welfare) Regulations, 1948.

Section 6. Appendices

601 Typical physical properties of rolled zinc sheet

Specific gravity	7.2
Coefficient of linear expansion (20–100 °C average value)	4.0×10^{-5} per degC 2.2×10^{-5} per degF
Melting point	419 °C (786 °F)
Thermal conductivity	
(Cal/cm s degC)	0.25
(Btu in/ft^2 h degF)	580

602 Weights of various gauges of rolled zinc sheet

(Based on 1 ft^2 × 1 in thick weighs 37.456 lb). The standard sizes of zinc sheet are 7 ft by 3 ft and 8 ft by 3 ft.

English zinc gauge	Thickness	Thickness	Standard wire gauge	Weight per square foot	Weight per square metre
Number	in	mm	Number	oz	kg
—	0.024	0.610	23	14.38	4.38
12	0.025	0.635	—	14.98	4.56
13	0.028	0.711	22	16.78	5.12
14	0.031	0.787	—	18.58	5.40
—	0.032	0.813	21	19.18	5.82
15	0.036	0.914	20	21.57	6.41
—	0.040	1.016	19	22.51	7.33
16	0.041	1.041	—	24.57	7.52

Though not strictly accurate, the following conversion table shows the nearest SWG equivalents of zinc gauge numbers, and is usually considered sufficient for building purposes.

English zinc gauge	Nearest SWG	Approximate weight of roof covering (inclusive of cappings etc)	
Number	Number	lb per 100^2 ft	kg/m^2
12	23	—	—
13	22	—	—
14	21	144	7.03
15	20	169	8.25
16	19	192	10.25

[12)] CP 231, "*Painting*".

603 Metric equivalents of dimensions in the text

½ in	=	12.7 mm
¾ in	=	19.1 mm
1 in	=	25.4 mm
1¼ in	=	31.8 mm
1½ in	=	38.1 mm
1⅝ in	=	41.3 mm
1¾ in	=	44.5 mm
2 in	=	50.8 mm
3 in	=	76.2 mm
4 in	=	101.6 mm
6 in	=	152.4 mm
7 in	=	177.8 mm
12 in	=	304.8 mm
18 in	=	457 mm
1 ft 9 in	=	533 mm
2 ft	=	611 mm
2 ft 9½ in	=	841 mm
3 ft	=	914 mm
3 ft 6 in	=	1.066 m
4 ft	=	1.219 m
7 ft	=	2.133 m
8 ft	=	2.438 m
20 ft	=	6.096 m

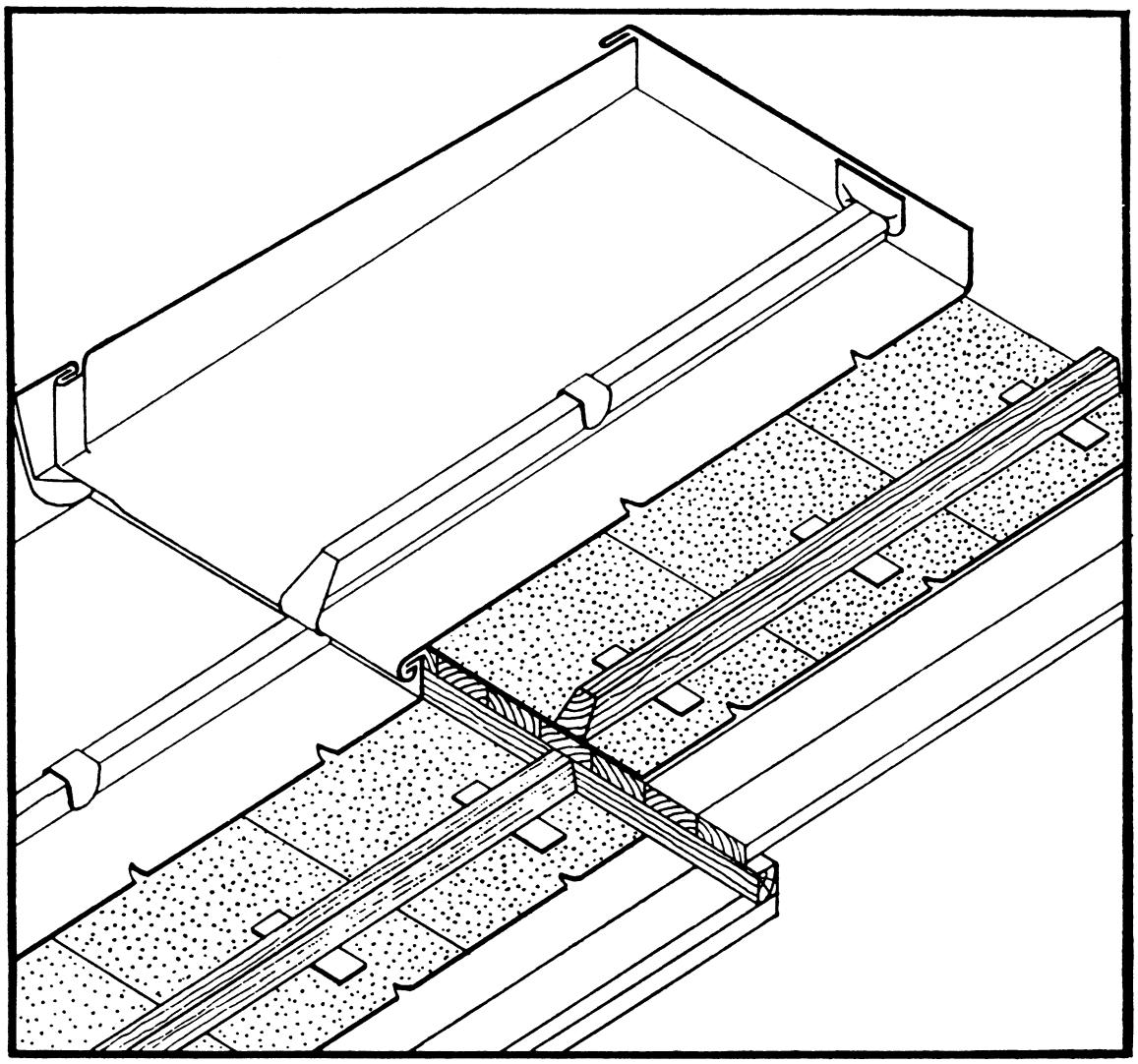

Figure 1 — General layout and details for roll cap covering with drips

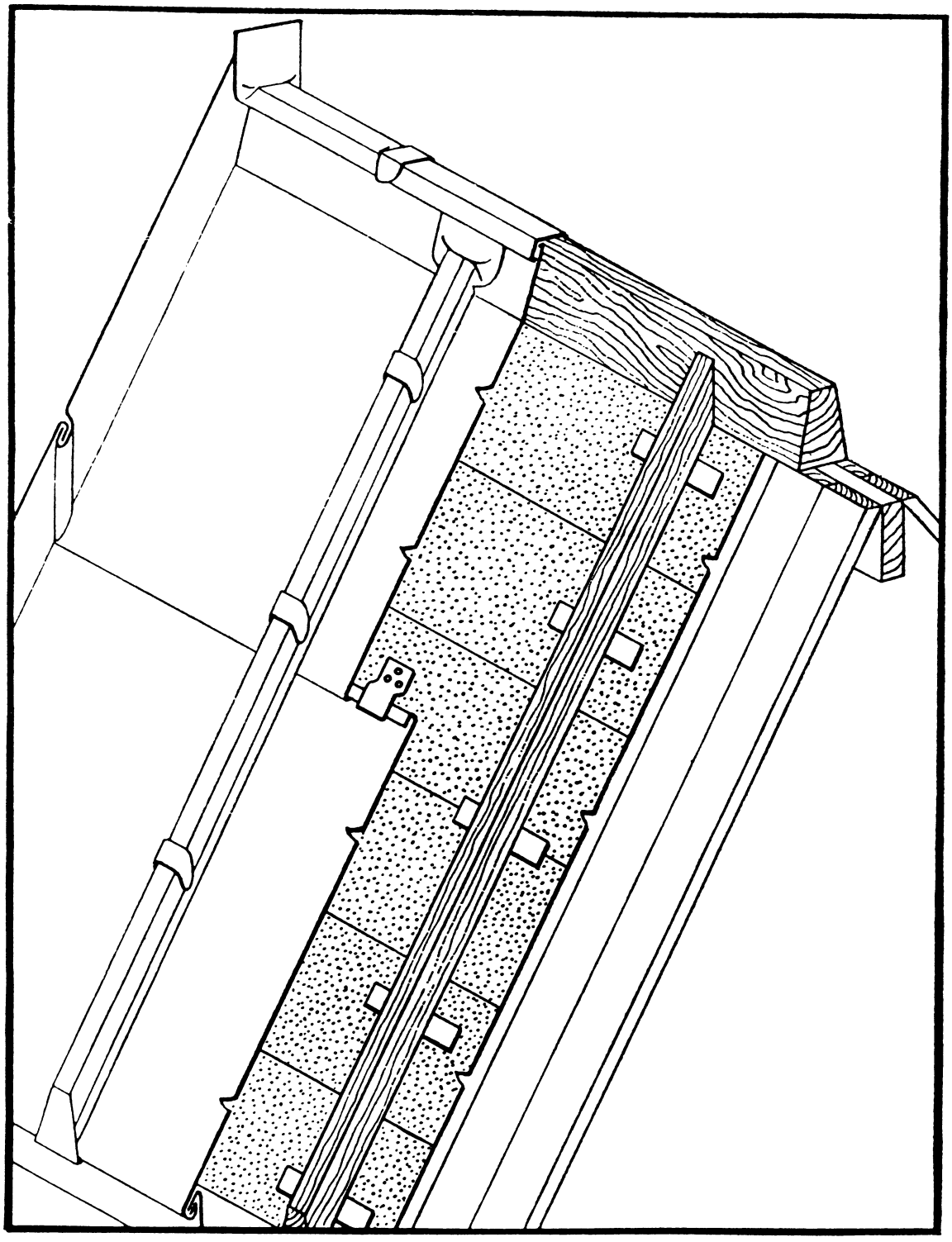

Figure 2 — General layout for roll cap covering with welted joints

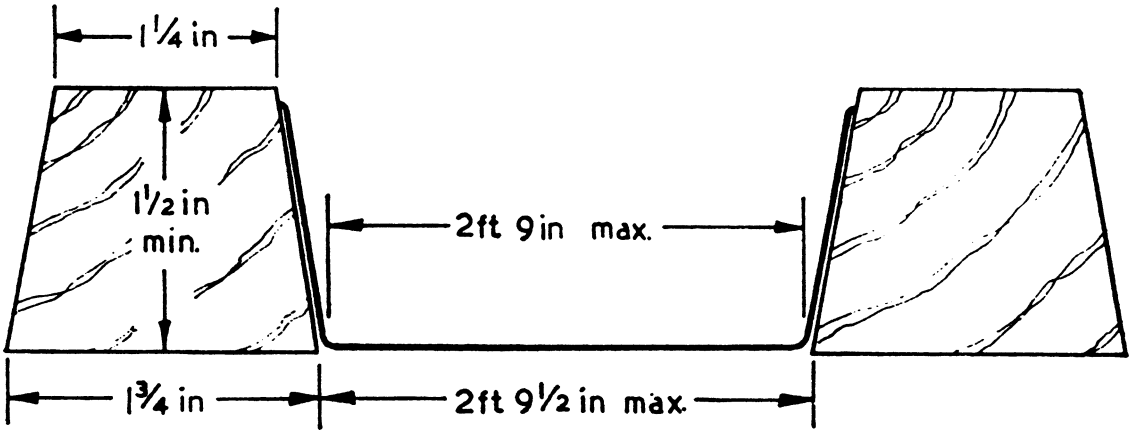

Figure 3 — Detail of spacing of wood rolls

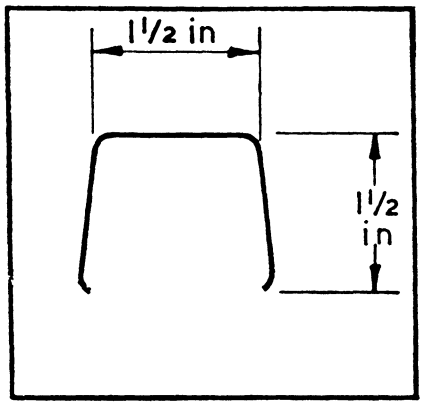

Figure 4 — Section of square roll capping

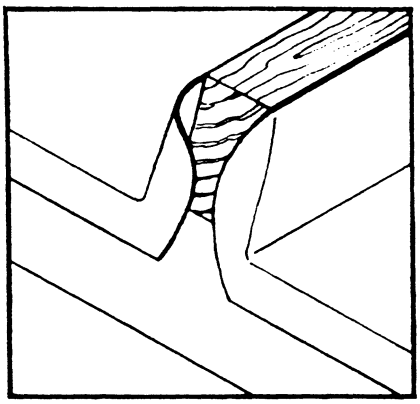

Figure 5 — Half-stops on lower corners of roof sheets

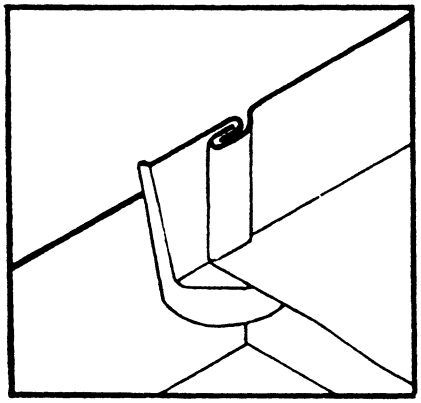

Figure 6 — Corner piece welted to roof sheet

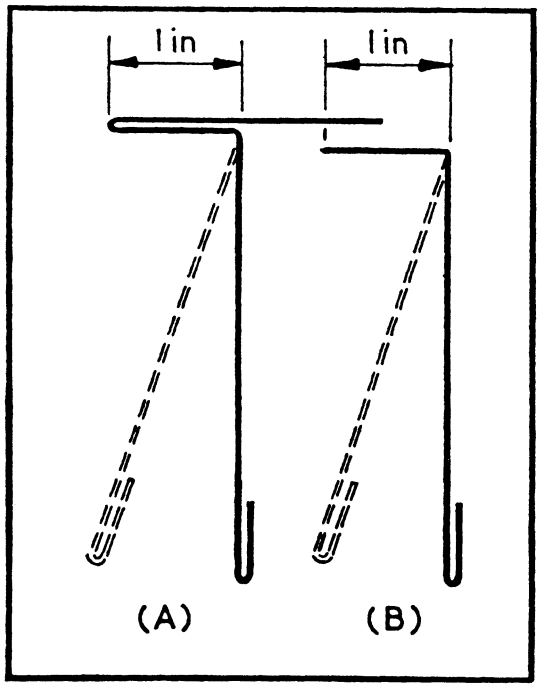

Figure 7 — Sections of "T" plate (A) and eaves apron (B)

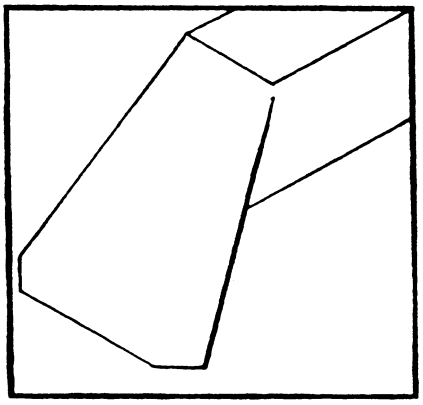

Figure 8 — Folded stop-end on roll capping

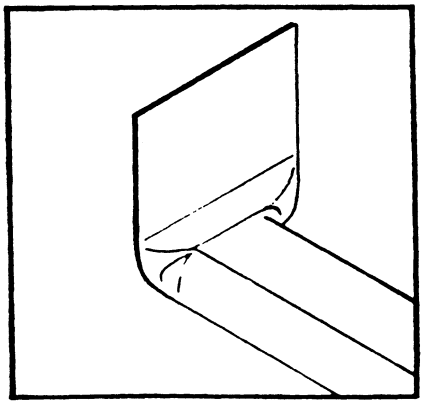

Figure 9 — Folded saddle-piece on roll capping

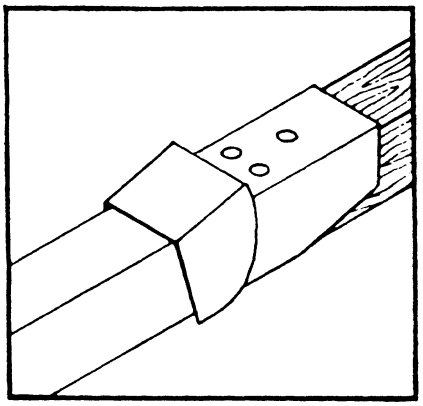

Figure 10 — Folded holding-down clip for capping

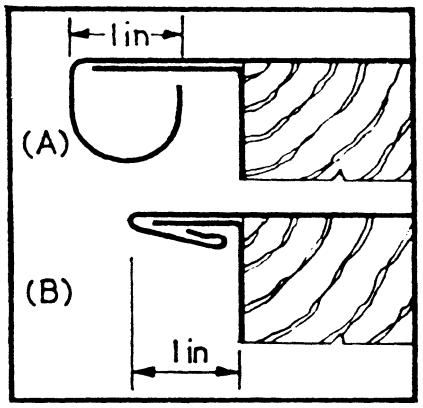

Figure 11 — Sections of beaded (A) and welted (B) finish to edges of sheets

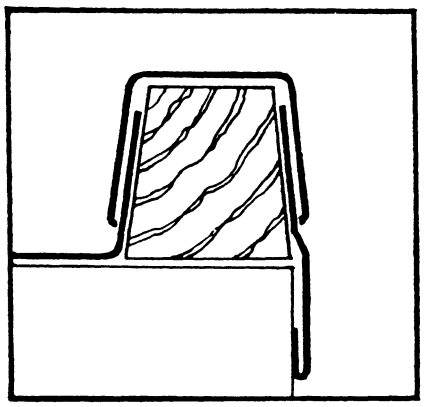

Figure 12 — Detail of verge with roll and drop apron

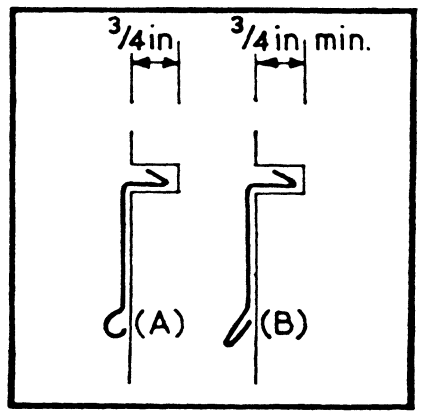

Figure 13 — Sections of cover flashing (A) beaded (B) welted

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