

SBA Technical Data Sheet Number 07 - The W.B.C. Hive

Details of dimensions and construction for the DIY Beekeeper. Illustrations reproduced, and text modified, from Advisory Leaflet 411 - "The W.B.C. Hive", Published 1955. © Crown copyright; reproduced by permission of the controller of HMSO. (Except where indicated otherwise.)

NOTE

1. The design and dimensions of the W.B.C. hive are given in full in the specification issued by the British Standards Institution (British Standard 1300: 191946), with the exception of the section rack, which has not been standardised

2. The information given here has been copied and summarised from the Ministry of Agriculture, Fisheries and Food Advisory leaflet 411, The W.B.C. Hive, Crown Copyright 1955; with the exception of the 'exploded view' of the hive below. This has been reproduced from The Bee-Keeper's Guide, W. Herrod-Hempsall, 1938.

3. Almost all measurements are Imperial. They have not been converted to Metric equivalents as the original designs were specified in Imperial measurements. Anyone who wants to work in Metric equivalents may, of course, carry out the conversion for their own use.

Equipment

Tools - hand (power tools optional)

Consumables

* Timber - Western Red Cedar, or other softwoods are suitable provided the timber is well seasoned, sound, and free from large knots and rot. Cedar has the advantage of being very light in weight

* Wood Preservative - Colourless and odourless types, free from insecticide, are suitable. Traditionally hives of this type were often painted. Cedar requires no preservative.

* Nails - assorted sizes

* Non-rusting metal sheet or other waterproof material (such as tar-felt) for covering the roof

* Metal Runners - these support the ends of the frames and are obtainable from bee appliance dealers. One pair is required for each brood box or super

* Queen Excluder - these are inserted between the brood box and honey supers, and are available, to BS specification, from appliance dealers

* Steel springs for follower board - these are available from appliance dealers as Section Rack Springs

Method of Preparation

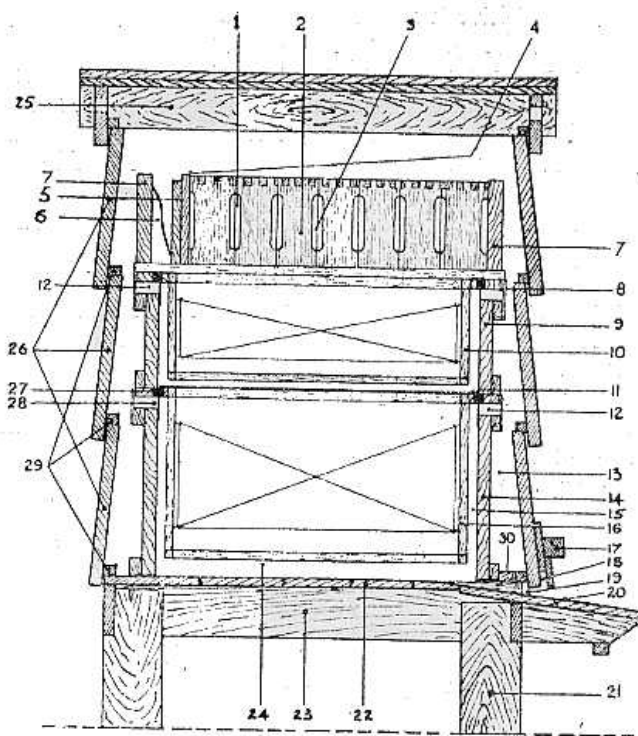
All wood should be cut and planed to size before trial fitting together. It may be advisable to pre-drill nail holes depending on the timber being used, if it is inclined to split. Exterior grade glue, though not absolutely essential, may be used to strengthen joints if desired. Preservative should be allowed to dry thoroughly before bees are introduced to the hive.

Method of Construction - General Principles

The W.B.C. Hive (so named after its inventor W Broughton Carr), is a double walled hive, in which the wooden boxes containing the frames of brood and honey are con-

tained within an additional outer 'shell' of wooden casing pieces or 'lifts'. This outer casing consists of a floor (often supported on short legs), three or more lifts (the lower one fitted with an adjustable entrance which may be protected by a porch) and a roof. The inner parts consist of a brood chamber or chambers, and honey supers, covered over by a crownboard or canvas quilts. Clearly the addition of extra honey supers will also require additional lifts. The brood chamber is designed to take ten British Standard frames with long (1 1/2") lugs. The shallow box or super holds ten shallow British Standard frames. The section rack is designed to take 21 sections 4 1/2" square, arranged in seven rows of three. The roof is usually made to a pitched design.

The 'exploded' view of the hive shown below should help to explain all of these components parts, and their physical relationship to each other.



THE W.B.C. HIVE

- | | |
|------------------------------|---------------------------------|
| 1. Bee way. | 16. Brood frame. |
| 2. Section. | 17. Porch. |
| 3. Metal divider. | 18. Groove for entrance slides. |
| 4. End following board. | 19. Entrance. |
| 5. Spring block. | 20. Alighting board. |
| 6. Spring. | 21. Leg. |
| 7. Section rack end. | 22. Floor board. |
| 8. Stop for frames. | 23. Floor joist. |
| 9. End of shallow frame box. | 24. Space under frames. |
| 10. Shallow frame. | 25. Roof. |
| 11. Queen excluder. | 26. Lifts. |
| 12. Rebate under frame lugs. | 27. Metal end. |
| 13. Air space. | 28. Metal runner for frames. |
| 14. End of brood chamber. | 29. Supporting ledges. |
| 15. Bee space. | 30. Tunnel slip. |

Method of Construction - Details

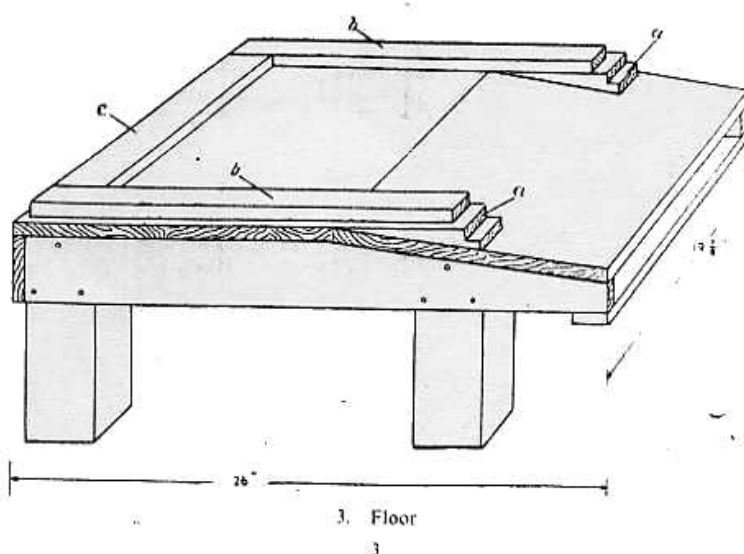
The separate parts of the hive are described in the following sections - each is illustrated, and there are accompanying notes for each part as well.

1. Floor
2. Lifts
3. Roof
4. Brood Chamber and Shallow Supers
5. Inner Cover
6. Section Rack

Constructional Details

1 Floor

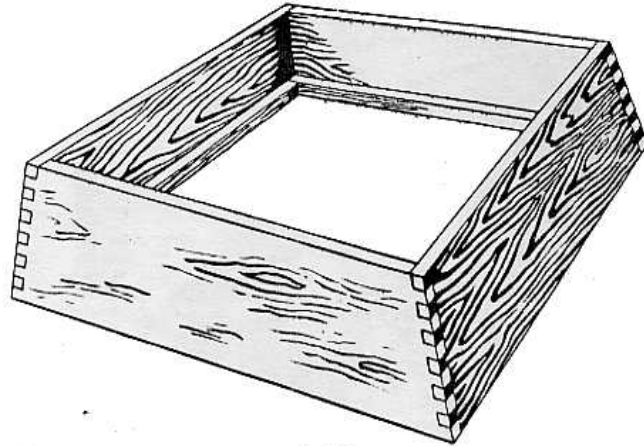
- overall dimensions 26" x 19 7/8"
- tongued and grooved or lapped boards, 5/8" thick
- nailed to side members 25 3/4" x 2 7/8" x 7/8"
- side members are tapered from a point 13 1/2" from the back edge of the floor to a depth of 1 1/4" at the front (refer to diagram)
- floor supported on vertical or splayed legs, or omit legs and provide a stand of bricks etc.
- side members strengthened by a 19 7/8" x 2 7/8" x 5/8" bar across the back and another 19 7/8" x 1 1/2" x 1/2" under the front
- two tapered pieces (marked a in the diagram above), suitably stepped to support the lower lift, are fixed to the floor and provide an entrance 14 3/8" long x 5/16" high
- three strips of wood, two (18 1/2" x 2" x 5/8") marked b in the diagram, and one (14 1/2" x 2 1/2" x 5/8") marked c in the diagram, are secured to the floor to raise the brood chamber sufficiently to provide adequate clearance
- the distance between the outer edges of these strips and the edges of the floor is 11/16"



Fit and nail / glue the floorboards to the side members. Fit additional supports at back and front, and legs if they are used. Next fit the taper pieces and finally the strips on the upper surface.

2 Lifts

- made from boards 8" wide and 5/8" thick
- corners lock-jointed
- square, outside dimensions 19 7/8" at top, 21 1/2" at bottom
- lifts supported on the floor and each other by fillets of 5/8" x 5/8" cross section, fixed internally 1/2" from the bottom edge
- the lift next to the floor may have a porch fitted, 18" long incorporating two entrance slides each 11" x 1 3/8" x 7/12"



Cut holes for entrance in one side; glue and nail all four sides together then fit porch and slides if required.

3 Roof

Refer to this illustration on page 2 - this shows a flat roof.

- The roof may be gabled (pitched), or flat with a sloping or horizontal top
- internal dimensions 20 1/4" x 20 1/4"
- gabled roof may be built of 1/2" boards on a 3/4" frame
- depth and pitch to suit individual requirements, but minimum dimensions should be 2" at the sides and 3" at the middle
- the sides of the frame are let into the front and back boards
- ventilation holes 1" in diameter cut centrally in front and back boards and covered on the inside with wire mesh or perforated zinc
- internal fillets 5/8" x 5/8" in cross section are fixed 1/2" above the bottom edge of the frame; these rest on the top edge of the uppermost lift
- roof to be covered with a waterproof material such as tar felt; a ridge board 2 7/8" x 7/8" is also usually fitted

Build frame, fit to side boards and fit roof boards. Fit fillets, cut holes and apply mesh and waterproof cover.

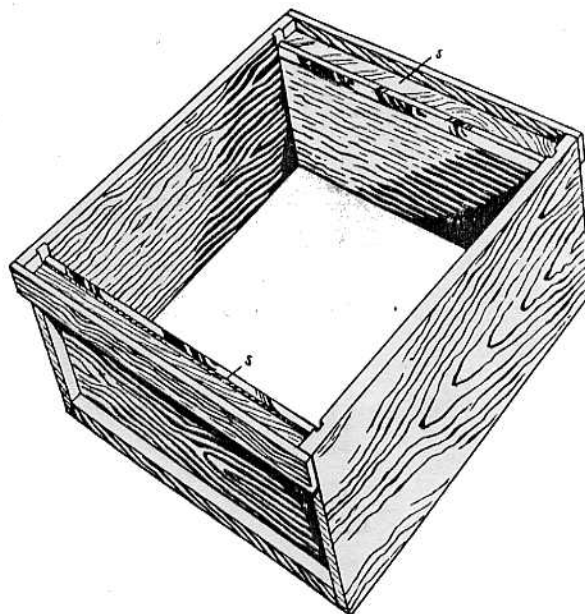
4 Brood Chamber and Shallow Supers

- brood chamber constructed from 7/16" timber
- dimensions 8 7/8" high, 17 1/8" long between the fillets which enclose the frame lugs, 14 9/16" between the runners which support the frames, and 15 3/16" wide between the side walls the inner walls are let into the side walls
- runners on the inner walls are 7/16" below the top of the side walls
- the strips marked s in the drawing above should be fixed so as to allow a bee space below the lugs of the frames

Cut four walls to size, assemble, glue and nail. Fit metal runners, and fillets to enclose ends and underneath of frame lugs.

Constructional Details - Shallow Super

- dimensions are the same as for the brood box, except for the height which is $5 \frac{7}{8}$ "



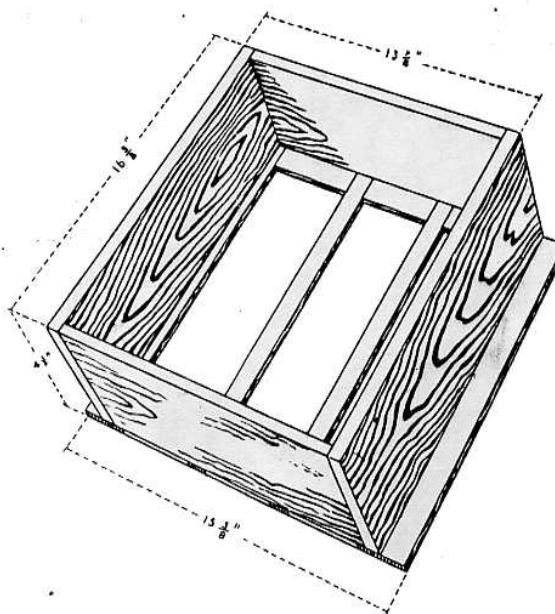
5. Brood Chamber

5 Inner Cover

- may be either a quilt or crown board of outside dimensions $17 \frac{3}{4}$ " x 16"
- if a quilt, heavy calico, canvas or sailcloth should be used
- crown board framed in such a way as to provide a $\frac{1}{4}$ " bee space on both sides
- two holes $1 \frac{3}{16}$ " x 3" are cut in the board to receive Porter bee escapes
- one situated centrally, the other parallel to it, allowing 3" from the centre of the opening to the outer edge

6 Section Rack

- takes 21 sections $4 \frac{1}{2}$ " square arranged in seven rows of three
- body made of four pieces of $\frac{1}{2}$ " wood butt-jointed at the corners
- internal measurements are $15 \frac{3}{8}$ " long x $12 \frac{7}{8}$ " wide x $4 \frac{1}{4}$ " deep
- sections rest on four strips nailed across the bottom
- two inner strips are $16 \frac{3}{8}$ " x 1" x $\frac{1}{4}$ "
- two outer strips $16 \frac{3}{8}$ " x $1 \frac{1}{2}$ " x $\frac{1}{4}$ ", project $\frac{3}{4}$ " beyond the sides of the box to form flanges (see illustration above)
- outside dimensions of the bottom of the box are therefore $16 \frac{3}{8}$ " x $15 \frac{3}{8}$ "
- strips are interspersed by three blocks $3 \frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{4}$ " at one end, and by three wider blocks $3 \frac{1}{2}$ " x $1 \frac{3}{4}$ " x $\frac{1}{4}$ " at the other
- the wider blocks project inwards to prevent the bees getting behind the follower



6. Section Rack

board 12 3/4" x 4 1/2" x 1/2" which is used to press the rows of sections firmly together

- metal dividers. which are inserted between the rows of sections, can be obtained from bee appliance dealers
- follower board held in position by a spring block inserted between the board and end wall of the rack
- the thickness of the strips provides a bee space of 1/4" below the rack

Cut and fit the four walls together. Cut and space the bottom strips, fix, and fit the blocks in between. Finally make the follower board. Suitable springs are available from appliance dealers.

Health and Safety Information

The following hazards are identified:

1 Danger or personal injury from:

1. Hand tools
2. Power tools
3. Hammer and nails

Precautions:

1. Protective overall and gloves
2. Goggles

DISCLAIMER: - Great care has been taken in the preparation of this technical sheet to ensure accuracy but the Scottish Beekeepers' Association cannot accept liability or responsibility. Beekeepers must therefore use the information at their own discretion and risk.

Acknowledgements

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ISSUE NO 2 DATED FEBRUARY 2007