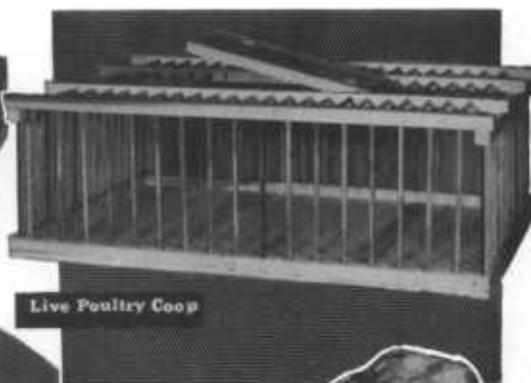


Fig 84 Ah  
Pg 5

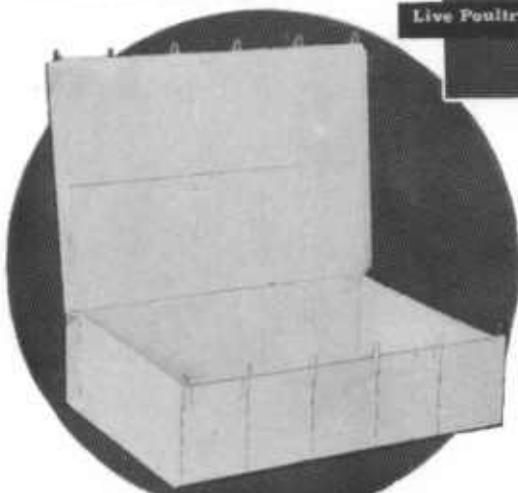
# Recommended Specifications for STANDARD PACKS, CONTAINERS, AND PACKAGING MATERIALS for Poultry and Poultry Products



Baby Chick or Poullet Box



Live Poultry Coop



Wire-bound Box for Dressed Poultry



Film Wrap for Ready-to-Cook Birds

• United States Department of Agriculture •  
Production and Marketing Administration  
Poultry Branch



Agriculture Handbook No. 25



## CONTENTS

	<u>Page</u>
Introduction . . . . .	1
Part I.--Packs for poultry (identification and reference tables) . . . . .	2
Baby chick and poult packs (table). . . . .	2
Live poultry packs (table). . . . .	3
Dressed poultry packs (table). . . . .	5
Ready-to-cook poultry packs (table). . . . .	7
Cooked poultry packs (table). . . . .	12
Poultry products packs (table). . . . .	14
Part II.--Containers for poultry . . . . .	16
Barrels, wire-bound (for processed poultry) . . . . .	16
Barrels, wooden (for processed poultry) . . . . .	18
Boxes, fiber (for baby chicks). . . . .	21
Boxes, fiber (for processed poultry). . . . .	27
Boxes, wire-bound (for processed poultry) . . . . .	31
Boxes, wooden (for processed poultry) . . . . .	40
Cans, metal (for processed poultry) . . . . .	45
Cartons, fiber, and paperboard (for processed poultry). . . . .	45
Coops, metal (for live poultry) . . . . .	50
Coops, wood (for live poultry). . . . .	52
Coops, wood, and wire (for live poultry). . . . .	56
Drums, fiber (for processed poultry). . . . .	57
Jars, glass (for processed poultry) . . . . .	59
Part III.--Packing and wrapping materials for poultry packs. . . . .	60
Fillers, fiber (for processed poultry). . . . .	60
Films, plastic, and transparent (for processed poultry) . . . . .	61
Foins and metal trays (for processed poultry) . . . . .	62
Laminated combinations (for processed poultry). . . . .	65
Pads, fiber (for processed poultry) . . . . .	66
Pads, wood (for live poultry) . . . . .	67
Papers (for processed poultry). . . . .	68
Stockinettes (for processed poultry). . . . .	71
Standard tests and testing procedures. . . . .	74
Standard terminology . . . . .	77

Prepared in Poultry Branch  
PRODUCTION AND MARKETING ADMINISTRATION  
UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

Issued July 1951

RECOMMENDED SPECIFICATIONS FOR STANDARD  
PACKS, CONTAINERS, AND PACKAGING MATERIALS  
FOR POULTRY AND POULTRY PRODUCTS

INTRODUCTION

Standards of some kind for farm commodities are almost as old as commercial agriculture itself, but uniform national standards were not promulgated until after the passage of the U. S. Cotton Futures Act in 1914.

Broadly speaking, standards serve several purposes:

1. They set up a common language of quality, or specification.
2. They remove the need for personal inspection of products by sellers, buyers, and lenders of money.
3. They provide a comparable basis for the quotation of market prices throughout the country.
4. They provide a basis for the settling of disputes over quality or specifications.
5. They provide a buying guide for consumers or purchasers.
6. They provide a sound, logical basis for the physical separation of products into quality or specification groups, so that commercial needs and wants may be filled at a minimum of distribution cost.
7. Other things being equal, they aid the seller in obtaining market prices.
8. They improve marketing conditions in many other ways.

National standards are "Mandatory," "Permissive," or "Tentative." In most cases, standards in the United States are permissive; that is, they are for voluntary use by the general public as a quality or specification measure in buying or selling.

In releasing these specifications, the U. S. Department of Agriculture has made the first attempt to set up recommended standards for poultry and poultry product packs, containers, and packaging materials, and a terminology for use as a common basis for buying, selling, and discussion. As different containers are found to be satisfactory and practical for use in packing poultry and poultry products, they will be added to these standards in future revisions.

Work in connection with the development of these standards has been conducted in cooperation with the Poultry Packaging Sub-Task Group of the Poultry and Egg Packaging Task Group. This Sub-Task Group is composed of members of associations and organizations representing poultry, manufacturing, railroad, warehousing, and trucking industries. It makes recommendations that are relevant to work conducted by the Poultry Branch in accomplishing the following objectives: (1) To develop recommended specifications for poultry and poultry products, packs, containers, and packaging procedures; (2) to publish educational materials pertaining to problems such as the assembly of containers, proper packing, loading, stacking, warehousing, and proper handling; and (3) to make recommendations for research needed in the field of poultry and poultry products packaging.

**Part 1.--PACKS FOR POULTRY**

In relation to the packs specified in this part, only new containers and new packaging materials shall be used in making domestic or North American shipments by rail or by truck, in making export shipments by boat, or in making domestic and export shipments by air, except that coops for live poultry may be re-used for domestic shipments provided they have been thoroughly cleaned and disinfected. The specifications for the containers and packaging materials used in the following packs shall be a part of the pack requirements.

**Table 1.--Chick and poult packs**

Pack identification	References to specifications		Primary use
	for constituent parts of packs:		
	Fiber chick:	Excelsior pads used:	
	or	on floors of chick:	
	poult boxes:	or poult boxes	
	<u>Page</u>	<u>Page</u>	
1. A "counter" pack, accommodating 25 or 50 baby chicks or poults	22-26	67	Counter displays and local deliveries
2. A "local winter" pack, accommodating 100 baby chicks or poults	do.	do.	Local deliveries
3. A "local summer" pack, accommodating 100 baby chicks or poults	do.	do.	Local deliveries
4. A regular (domestic) "combination" pack, accommodating 25 or 50 baby chicks or poults	do.	do.	Local deliveries, domestic shipments
5. A small (domestic) or export "winter" pack, accommodating 100 baby chicks or poults	do.	do.	Domestic and export shipments
6. A regular (domestic) or export "summer" pack, accommodating 100 baby chicks or poults	do.	do.	Domestic and export shipments
7. A jumbo (domestic) or export "oversize" pack, accommodating 100 baby chicks	do.	do.	Domestic and export shipments
8. A regular (domestic) started chick pack, accommodating fifty 3- to 8-week old started chicks	do.	do.	Domestic and North American shipments

Table 2.--Live poultry packs

Pack identification	References to specifications for			Primary use
	different kinds of coops used			
	All metal	All wood	Wood and wire	
	Page	Page	Page	
1. A regular (domestic), or "1-man," broiler coop <u>1</u> / pack, accommodating from 14 to 20 broilers	50	52	-	Market or processing plant shipments, huckster pick-up.
2. A regular (domestic), or "1-man," chicken coop pack, accommodating from 10 to 12 large fowl <u>1</u> /	50	52	-	Do.
3. A regular (domestic), or "1-man," turkey coop pack, accommodating from 5 to 6 turkeys	50	52	-	Do.
4. A domestic "1-man," adjustable coop for broilers, chickens, or turkeys (See figure 1, page 4)	51	-	-	Do.
5. A regular (domestic) poultry coop pack, accommodating from 12 to 16 geese, from 20 to 24 large fowl, etc.	-	52, 56	56	On the farm transfer, market deliveries, huckster pick-up.
6. A regular (domestic), or "2-man," turkey coop pack, accommodating from 10 to 12 turkeys	-	52, 56	56	Do.

1/ Other kinds of poultry are also packed in these coops.

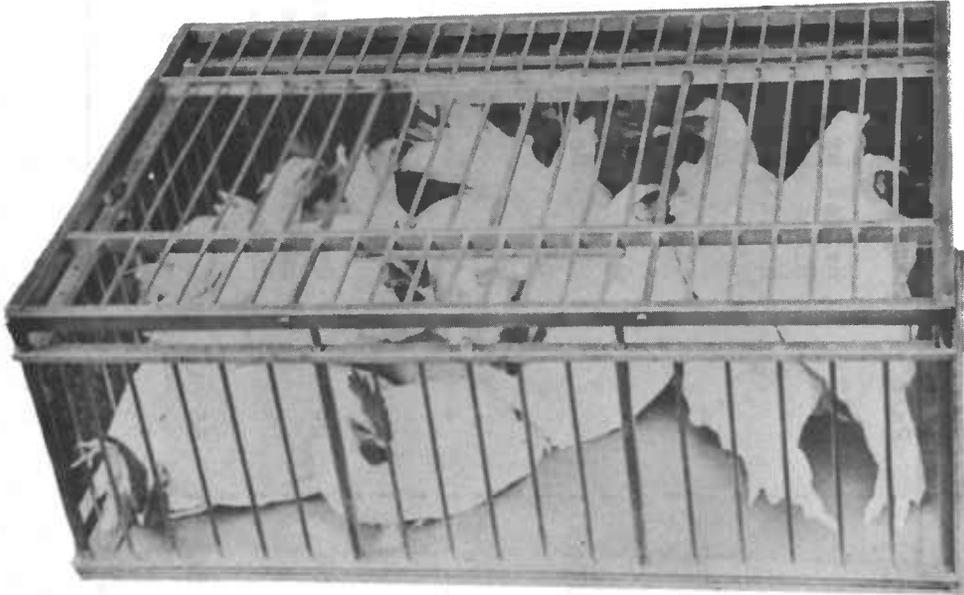


Figure 1.--An all-aluminum, "1-men," adjustable coop for broilers, chickens, or turkeys.

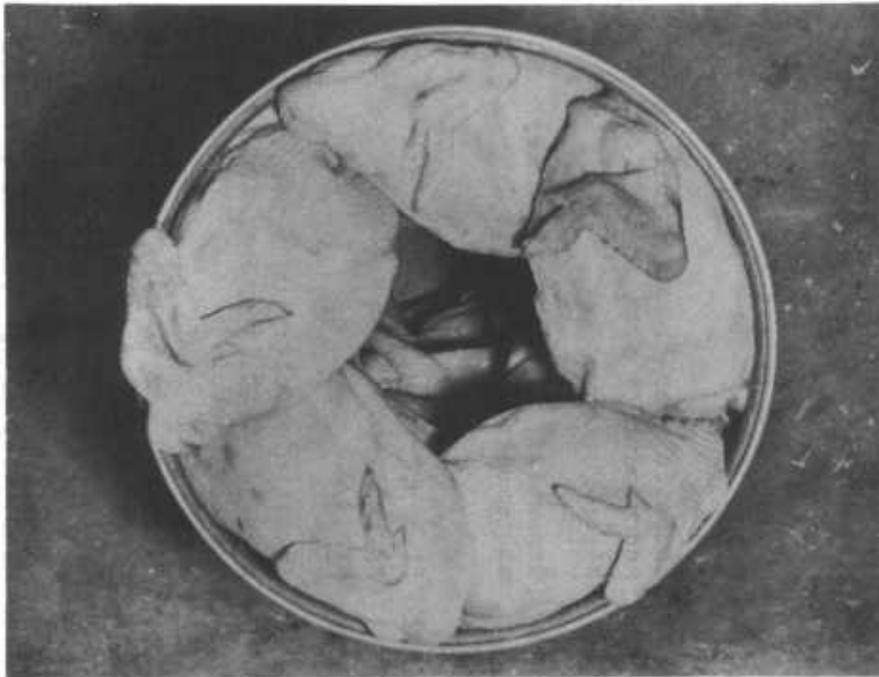


Figure 2.--A fiber drum pack of dressed chickens.

Table 3.--Dressed poultry packs

Pack identification	References to specifications for constituent parts of packs												Primary use
	Different kinds and types of shipping containers used						Paper liners used in			Head wraps for birds packed in shipping containers with, or without liners			
	Wooden barrels	Fiber drums	Boxes	Wire-bound	Sawn wood	Barrels and drums	Boxes	Individual wraps in shipping containers	Individual wraps for birds packed in shipping containers	Individual wraps for birds packed in shipping containers	Individual wraps for birds packed in shipping containers	Individual wraps for birds packed in shipping containers	
	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	
1. A regular (domestic) 100-pound fiber drum pack, accommodating dressed poultry	-	-	57	-	-	-	69	-	70	68	Local chilled shipments under refrigeration. Intermediate storage.		
2. A regular (domestic) 200-pound barrel or fiber drum pack accommodating dressed poultry (See Figure 2, page 4)	16	18	57	-	-	-	69	-	70	68	Do.		
3. A regular (domestic) 250-pound barrel pack, accommodating dressed poultry (See Figure 3, page 6)	16	18	-	-	-	-	69	-	70	68	Iced and frozen shipments and chilled shipments under refrigeration.		
4. A regular (domestic) broiler-fryer box pack, accommodating about 70 pounds of dressed broilers or fryers	-	-	-	-	31	41	-	69	-	-	Chilled shipments under refrigeration and iced shipments. <sup>1/</sup>		
5. A domestic or export chicken box pack, accommodating from 36 to 53 pounds of dressed chickens	-	-	-	27	31	41	-	69	70	68	Storage, frozen shipments, chilled shipments under refrigeration.		
6. A domestic or export chicken box pack, accommodating from 54 to 59 pounds of dressed chickens	-	-	-	27	31	41	-	69	70	68	Do.		
7. A domestic or export chicken box pack, accommodating from 60 to 65 pounds of dressed chickens	-	-	-	27	31	41	-	69	70	68	Do.		
8. A domestic or export turkey box pack, accommodating from 48 to 85 pounds of dressed turkeys	-	-	-	27	31	41	-	69	70	68	Do.		
9. A domestic or export turkey box pack, accommodating from 85 to 105 pounds of dressed turkeys	-	-	-	27	31	41	-	69	70	68	Do.		
10. A domestic or export turkey box pack, accommodating over 100 pounds of dressed turkeys	-	-	-	27	31	41	-	69	70	68	Do.		
11. A domestic duck box pack, accommodating from 33 to 60 pounds of dressed ducklings or ducks	-	-	-	27	31	41	-	69	70	68	Do.		
12. A domestic goose box pack, accommodating from 42 to 60 pounds of dressed geese	-	-	-	27	31	41	-	69	70	68	Do.		

<sup>1/</sup> Iced shipments in wire-bound and wooden boxes.



Figure 3.--Photograph showing wooden slack barrels loaded with iced, dressed poultry, and covered.



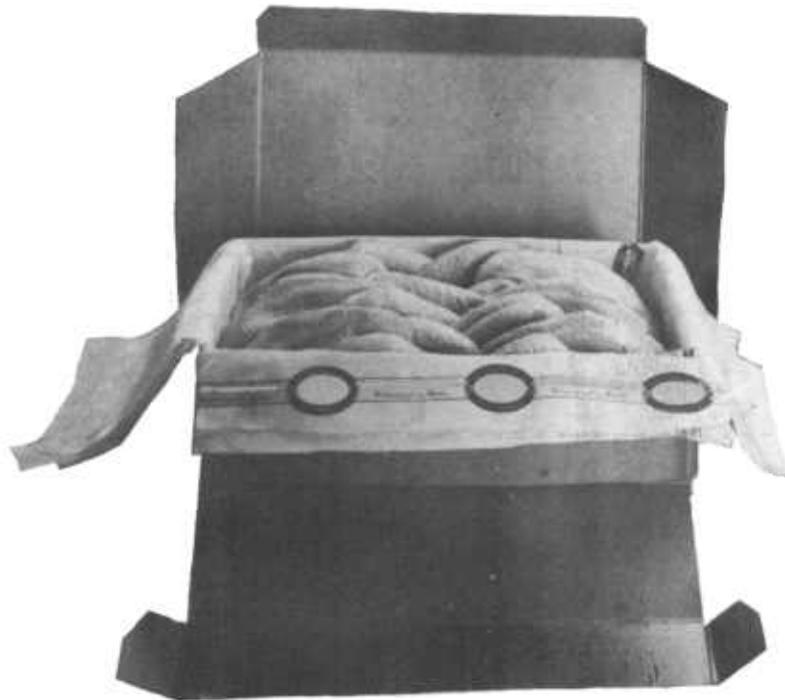
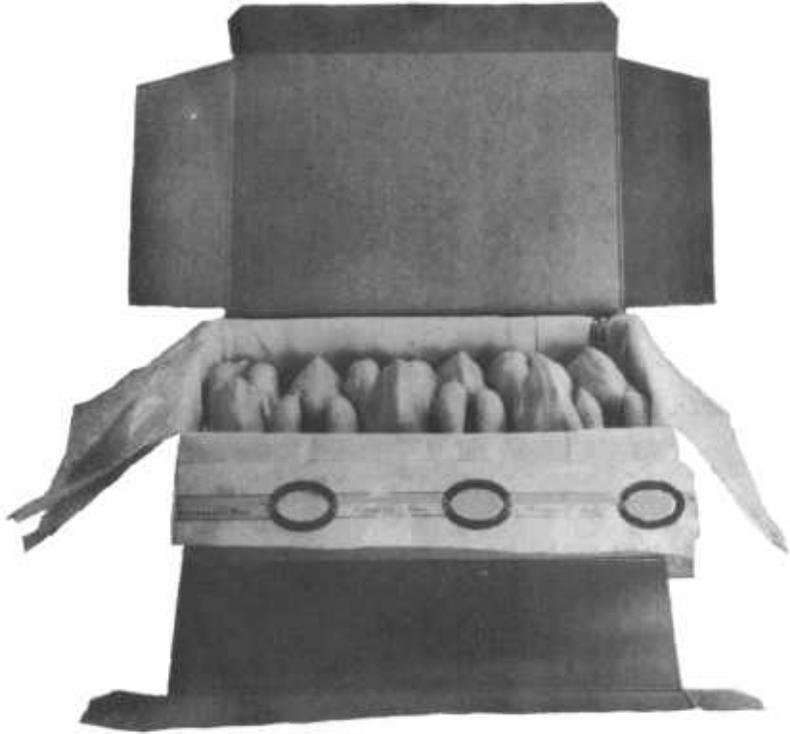


Figure 4.--Showing one style of fiber poultry box with different styles of box-packed birds. The upper photo shows the side-to-side style of pack, the lower, the end-to-end pack.

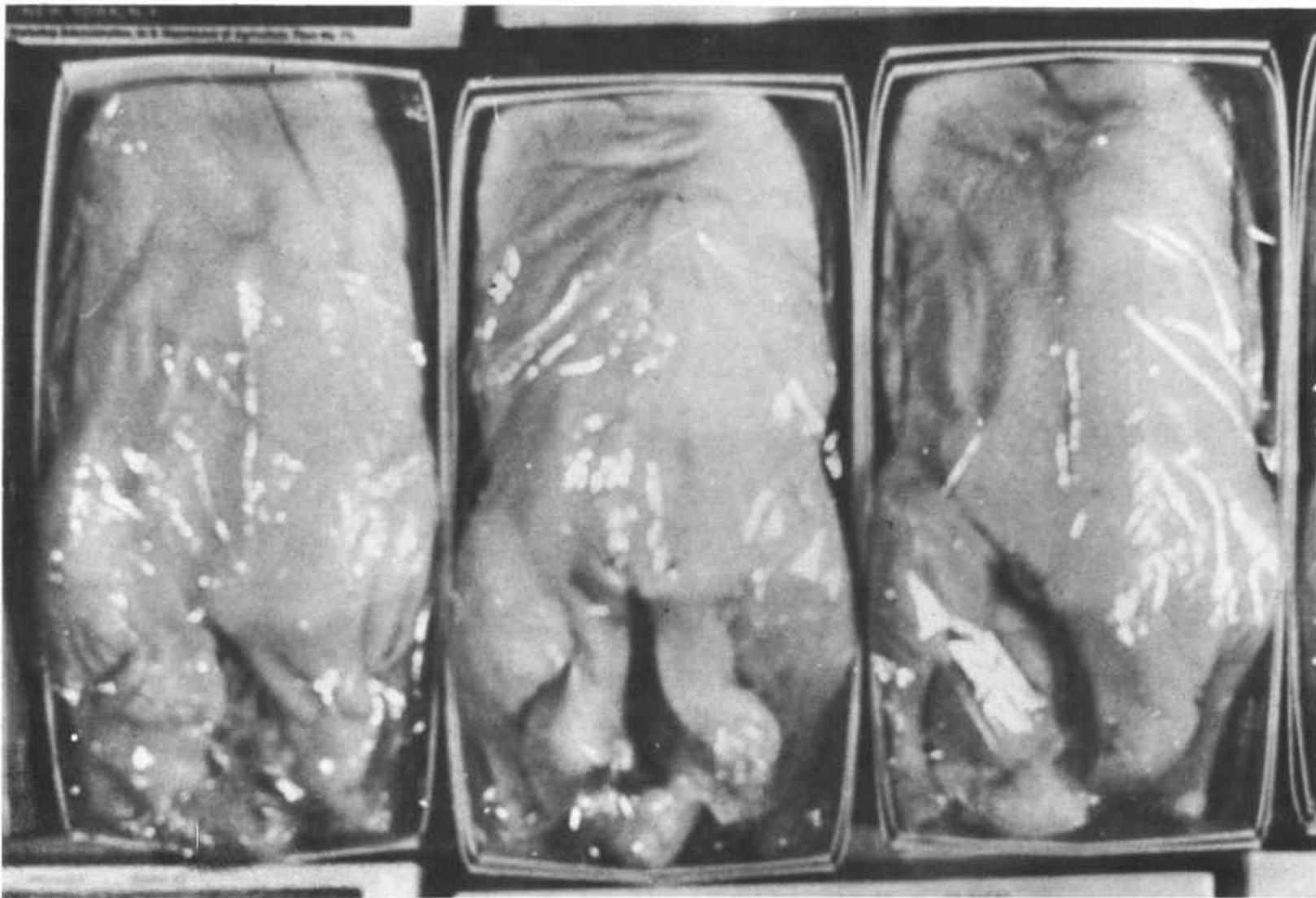


Figure 5.--Whole, frozen ducklings wrapped in film and packed in paperboard waxed cartons.

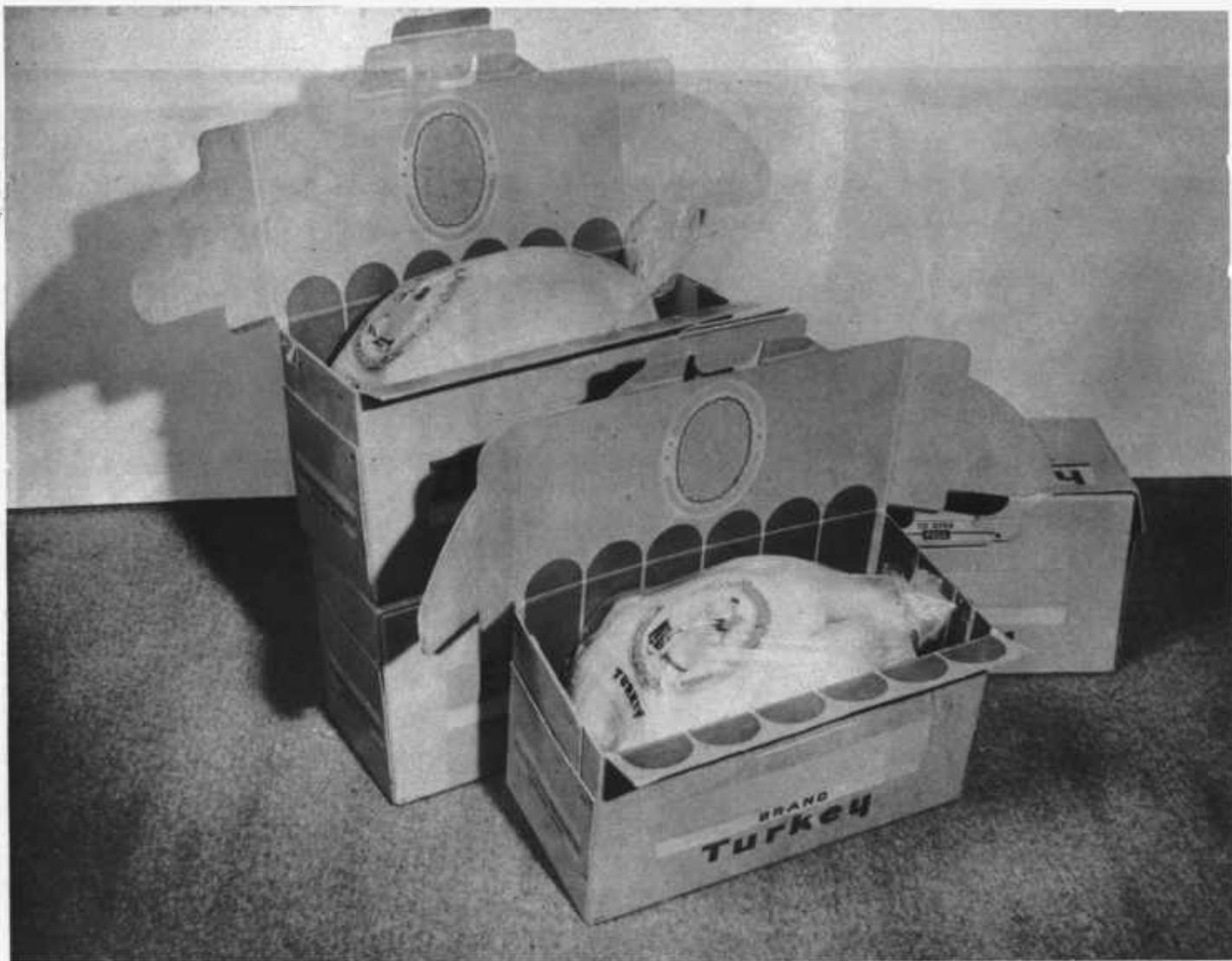


Figure 6.--Individual frozen ready-to-cook turkey pack.



Figure 7.--This photo shows paperboard cartons containing quick-frozen, cut-up, ready-to-cook chicken and packed in a corrugated fiberboard shipping container.

Table 5.--Cooked poultry packs

Pack identification	Reference to specifications for constituent parts of packs														Primary use
	Different kinds of shipping boxes used		Different inner packing materials used in shipping boxes in which jars or cans are packed				Different kinds and types of re-tail packages or wraps that are packed in shipping boxes				Different kinds of individual wraps for birds packed in cartons				
	Fiber-bound	Wire-bound	Sawn wood	Liners	and pads	and pads	jar wrappers and pads	Metal cans	Glass jars	Fiber cartons	Foil carton	Paper-board	Film	Foil	
	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	
1. A domestic 5-ounce jar pack accommodating 5-ounce jars of cooked boned chicken or turkey	27	31	41	61	61	-	61	-	60	-	-	-	-	-	Retail.
2. A regular (domestic) or export 6-ounce can pack accommodating 6-ounce cans of cooked boned chicken or turkey	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Retail.
3. A regular (domestic) or export 1-pound can pack accommodating 1-pound cans of cooked boned chicken or turkey	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Retail, institutional.
4. A domestic can pack accommodating 2-pound 3-ounce cans of cooked boned chicken or turkey	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Institutional.
5. A domestic can pack accommodating 3-pound, 2-ounce cans of whole cooked chicken with bone	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Retail.

6. A domestic can pack accommodating 4- pounds 8-ounce cans of whole cooked chicken with bone	: 27	: 31	: 41	: -	: -	: 67	: -	: 45	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: Retail.
7. A domestic carton pack accommodating one cooked, frozen chicken, half-turkey, etc.	: 27	: 31	: 41	: -	: -	: -	: -	: -	: -	: -	: -	: 64	: 46	: 61	: 64	: 64	: 64	: 64	: 64	: Retail.
8. A domestic carton pack accommodating one cooked frozen turkey	: 27	: 31	: 41	: -	: -	: -	: -	: -	: -	: -	: 46	: 64	: -	: 61	: 64	: 64	: 64	: 64	: 64	: Producer to consumer.
9. A domestic "log" pack accommodating 8 pounds of cooked boned and rolled turkey	: 27	: 31	: 41	: 61	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: -	: 64	: Restaurant, delicatessen.

Table 6.—Poultry Products Packs

Pack identification	References to specifications for constituent parts of packs															Primary use
	Different kinds of shipping containers used		Different inner packing materials used in shipping boxes or cans are packed			Different kinds and types of retail packages that are packed in shipping boxes			Different kinds of individual wraps for birds packed in cartons				Film	Foil		
	Fiber:	Wire-bound	Sawn wood	Liners:	and pads	Partition and pads	Individual jar wrappers	Metal cans	Glass jars	Metal trays	Paperboard carton	Fiber-car-			tons	
Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page	Page		
1. A domestic jar pack accommodating 9-1/2 or 11-ounce jars of poultry products (chicken a-lacking, etc.)	27	31	41	61	61	-	61	-	61	-	-	-	-	-	Retail.	
2. A domestic jar pack accommodating 16-ounce jars of poultry products (chicken with noodles, etc.)	27	31	41	61	61	-	61	-	61	-	-	-	-	-	Retail.	
3. A domestic or export can pack accommodating 5- or 6-ounce cans of poultry products (smoked boned turkey, etc.)	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Retail.	
4. A domestic or export can pack accommodating 1-pound or 1-pound 4-ounce cans of poultry products (chicken a-lacking, chicken broth, etc.)	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Retail.	
5. A domestic can pack accommodating 3-pound 1-ounce or 6-pound 10-ounce cans of poultry products (smoked turkey split pea soup, chicken rice soup, etc.)	27	31	41	-	-	67	-	45	-	-	-	-	-	-	Retail and institutional distribution.	

6. A domestic smoked turkey carton pack accommodating one whole or one-half smoked frozen turkey	27	31	41	61	-	-	-	-	-	-	-	46	61	64	Producer to consumer
7. A domestic or export carton pack accommodating 1-pound cartons of frozen poultry products (won ton soup, chicken chow mein, etc.)	27	31	41	-	-	-	-	-	-	-	46	-	61	-	Retail.
8. A domestic carton pack accommodating 4-pound cartons of frozen poultry products (chicken a-la-king, etc.)	27	31	41	-	-	-	-	-	-	-	46	-	61	-	Retail and institutional distribution.
9. A domestic pie tray pack accommodating 11-ounce trays of frozen chicken pie	27	31	41	-	-	-	-	-	-	64	-	-	61	-	Retail.
10. A domestic pie tray pack accommodating 22-ounce trays of frozen chicken pie	27	31	41	-	-	-	-	-	-	64	-	-	61	-	Retail.
11. A domestic envelope pack accommodating 2-ounce envelopes of dehydrated poultry product soup mix	27	-	-	-	-	-	-	-	-	-	-	-	61	64	Retail.

Part II.--CONTAINERS FOR POULTRY

Barrels, Wire-Bound (for Processed Poultry)

A. Standard domestic wire-bound poultry barrels (See figure 8)

The body of a wire-bound barrel is made of veneer face boards fastened together with binding wires. The top (when used) and bottom is made of veneer, plywood, or sawn wood; the top being "nailed in" or "wired on;" the bottom being "laid in." Barrels such as this shall meet the specifications outlined in B, below, according to the following designations:

1. A regular 200-pound wire-bound barrel.
2. A regular 250-pound wire-bound barrel.

B. Specifications for standard domestic wire-bound poultry barrels

Style of

barrel: Each regular wire-bound barrel shall be octagonal in shape and have looped wire closures.

Size of

barrel: The outside dimensions for each regular barrel shall be as follows:

1. A regular 200-pound barrel = 27-3/4 inches in height by 18-3/8 inches in width measured across the flats.
2. A regular 250-pound barrel = 31 inches in height by 20-7/8 inches in width measured across the flats.

Material-

als: The face boards on the blank shall be one-piece veneer. The bottom and also the top, the latter used when either sized barrel contains frozen poultry, may be made from veneer or resawn boards stitched to two liners to form an octagonal construction, or one-piece plywood of octagonal shape may be used with the full-sized barrel with one bottom batten attached across the center.

Wires: Six 14-gage binding wires shall be applied girthwise around the regular 250-pound barrel and six 15-gage binding wires shall be similarly applied around the regular 200-pound barrel and fastened about every 2 inches around the circumference with staples. The top and bottom wires shall be stapled 3/8 inch from the top and bottom edges of the barrel. The other four wires shall be spaced approximately 6 inches apart for the regular 250-pound barrel and approximately 5-1/2 inches apart for the regular 200-pound barrel.

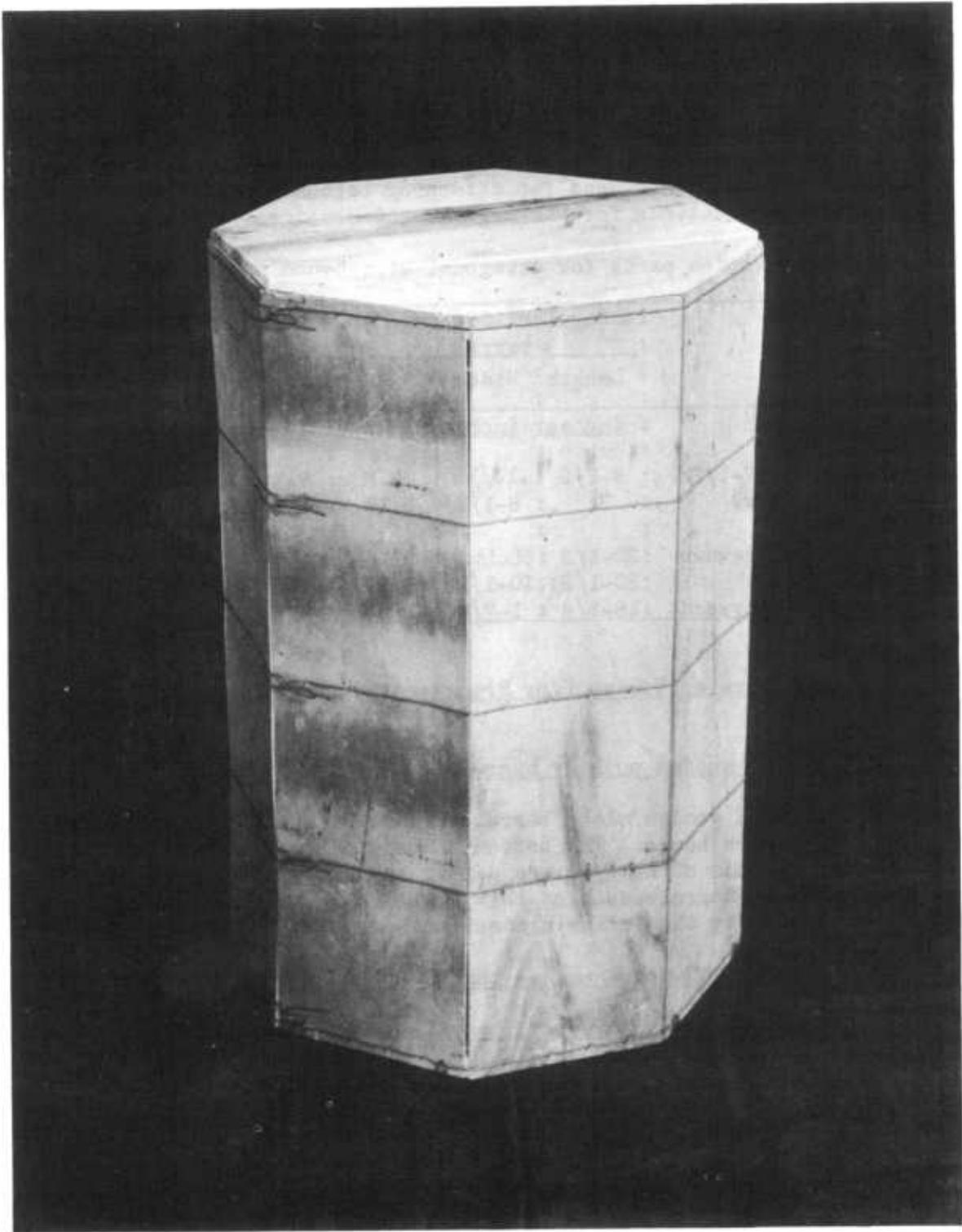


Figure 8.--A regular wire-bound poultry barrel.

**Stapling:** Four staples per face board shall be applied over each binding wire. Staples entering face boards only, shall be of 18-gage, and 5/16-inch in length for either sized barrel. Staples passing through face boards into cleats shall be of 16 gage, 1-1/8-inch long for the regular 250-pound barrel and 1-inch long for the regular 200-pound barrel. Ten 18-gage staples 9/16-inch long shall be used for stitching liners for 3-piece top and bottom construction for either barrel if the material is veneer or resawn lumber. Six 16-gage staples 1 inch long shall be used for attaching battens when plywood is used for tops and bottoms for the regular 250-pound barrel.

Table 7.--Sizes of wooden parts for octagonal wire-bound poultry barrels

Wooden parts	Regular 250-pound barrel			Regular 200-pound barrel		
	Length	Width	Thickness	Length	Width	Thickness
	Inches	Inches	Inches	Inches	Inches	Inches
Cleats, mitered to 67-1/2°	8-1/2	13/16	7/8	7-1/2	13/16	13/16
Face boards (8 pieces)	31	8-1/2	3/16	27-3/4	7-1/2	1/6
Tops and bottoms						
3-piece veneer or resawn	20-1/2	6(min.)	3/16	18	5 1/4(min.)	1/6
1-piece plywood	20-1/2	20-1/2	1/4	18	18	3/16
Batten for 1-piece plywood	18-3/4	1-7/8	13/16	None	None	None

Barrels, Wooden (for Processed Poultry)

A. Standard domestic wooden poultry barrels

The body of a wooden slack barrel is made of staves bound together with wooden or wire hoops. The bottom is made of regular heading. The top or cover is made of heavy crepe paper, osnaburg cloth or burlap laminated kraft. Barrels such as this shall meet the specifications in B below according to the following designations:

1. A regular 250-pound wooden barrel
2. A regular 200-pound wooden barrel

B. Specifications for standard domestic wooden poultry barrels

Type of barrel: The regular 250-pound barrel is a No. 1 barrel and the regular 200-pound barrel is a No. 2 barrel.

Size of barrel: Both the No. 1 and the No. 2 slack barrels for poultry shall be made from 30-inch length staves, the single head diameter of the

former shall be 19-1/8 inches; the single head diameter of the latter shall be 17-1/8 inches. The bilge circumference of the No. 1 barrel shall be 72 inches and the bilge circumference of the No. 2 barrel shall be 64 inches. Standard bilge shall be 3/4 inch.

**Materi-**

**als:** The No. 1 barrel is made of No. 1 grade staves, No. 1 grade single heading, and with plain jointed staves and cant heads.

The No. 2 barrel is made of No. 2 grade staves, No. 2 grade single heading, and with plain jointed staves and plain jointed heads.

The barrels may be made from poplar, southern hardwood cut staves, consisting of gum mixed timber. Staves should not be kiln-dried but well air-dried to a minimum of 12 percent or less moisture content. Pine, if properly dried so as not to impart taste and odor to the poultry may also be used.

Hoops for barrels shall be all wood, all steel, or may consist of two wood hoops and four wire hoops.

Burlap, osnaburg cloth, or crepe kraft paper may be used singly or in a 2-ply lamination as covering for poultry packed in slack barrels.

Bilge and quarter hoops shall be fastened at least four points with nails, hoop fastener nails, or staples.

Bright nails, not less than one inch by twelve gage with one-quarter inch heads, or staples, shall be used for the head hoops.

**Slack barrel  
material**

**definitions:** The term "Gum Mixed Timber Staves" shall be understood to include sycamore, elm, hackberry, maple, sweet gum, red gum, and birch staves, but not to include cypress, oak, ash, tupelo gum, cottonwood, pine, black gum, beech, or box elder.

Dead culls are staves containing knotholes of over 1/2 inch in diameter; or staves with large coarse knots near the quarter or within 1 inch of either end, to prevent staves from being trussed in barrels or properly crozed; or staves cross-grained near the quarter to such an extent as would result in stave breaking when being trussed in barrel; or staves under 1/4 inch in thickness; or staves with bad slanting shakes exceeding 6 inches in length or with rot that seriously impairs strength.

Construc-  
tion

details: No. 1 staves shall be of uniform thickness, well equalized, circled and jointed, free from knots, slanting shakes, worm holes, or dozy wood. However, moderate stain, slight roughness, flat staves less than 4 inches in width across the bilge, and cross graining which will not break or splinter in trussing or slight warpage shall not be considered defects. These staves shall not be less than 2 inches, nor more than 5-1/2 inches, in width, measuring across the bilge.

No. 2 staves shall be free of slanting shakes over 1-1/2 inches long, knotholes and unsound knots (but sound knots over 3/4 inch in diameter shall be allowed), and shall consist of good, sound, workable staves. Moderate stain, mildew, or discoloration shall not be considered defects. No. 2 staves shall be free from dead culls. These staves shall not be less than 2 inches nor more than 6 inches in width.

Thicknesses of staves shall be as shown in stave groups in table 8.

Table 8.--Thicknesses of staves by stave groups for poultry barrels

Wood	:	Staves in group	:	Thicknesses of groups of staves
		<u>Number</u>		<u>Inches</u>
Elm and gum	:	5	:	1-7/8
Cottonwood and basswood	:	5	:	1-15/16
Hardwood (oak, beech, and maple)	:	6	:	2-1/8
White ash	:	5	:	2-1/8

All staves used for these two barrels for poultry shall average 4 inches in width, or 4,000 inches per thousand staves.

No. 1 heading made from basswood, tupelo gum, cottonwood, pine, willow, and poplar shall be 1/2 inch thick after being dressed on one side and straight jointed. When made from hardwood and gum mixed timber, the thickness after being dressed shall be 7/16 inch.

No. 2 heading shall be manufactured from heading blanks culled in the process of manufacturing No. 1 heading and shall be workable and free from dead culls.

Tolerance allowed in diameter of heading shall be 1/8 inch. All heading including pine heading shall be turned with a 90-percent bevel and be 1/4-inch wide on the face side of the head.

Heading that contains knotholes of over 1/2-inch diameter, bad slanting shakes, rotten timber, or other defects that make it unworkable, shall be considered as dead culls.

All heading shall be well bundled, 15 sets to the bundle. For a bundle of headings for the regular barrel 2 wires should be used, but for a bundle of jumbo barrel headings 3 wires are necessary.

The number of pieces required per head shall be as shown in table 9.

Table 9.--The number of pieces required per head in each single-headed wooden poultry barrel

Type of barrel	Diameter of head	Pieces in head
	<u>Inches</u>	<u>Number</u>
No. 1 regular, "sugar"	19-1/8	3, 4, and 5. At least 50% to be 4 piece, or less
No. 2 regular, "flour"	17-1/8	3 and 4 pieces. At least 50% to be 3 piece, or less

Wooden hoops shall be of good sound timber, up to specifications, well finished, and free from broken and other defective hoops in the coil in excess of 3 percent on hoops over 5 feet in length, 5 percent on 5-foot hoops, and 8 percent on hoops less than 5 feet long, which are unfit for use on a barrel, and to be dry when shipped.

Standard dimensions of coiled elm hoops, 5 feet 6 inches, and longer, to be, when finished and seasoned, 9/32 inch by 5/32 inch by 1-3/8 inch.

Boxes. Fiber (for Baby Chicks)

A. Standard domestic and export fiber chick and poult boxes

Fiber chick and poult boxes are made of corrugated or solid fiber-board meeting the specifications outlined in B, below, according to the following designations:

1. A chick or poult "counter" box
2. A "local winter." chick or poult box

3. A "local summer" chick or poult box
4. A regular (domestic) or export "combination" chick or poult box
5. A small (domestic) or export winter chick or poult box
6. A regular (domestic) or export "summer" chick or poult box
7. A jumbo (domestic) or export "oversize" chick or poult box
8. A regular (domestic) started chick box

B. Specifications for standard domestic and export fiber chick and poult boxes

Style of

box: Each baby chick or poult box may embrace one or more of the following styles and designs:

Straight-sided, slope-sided, slope-lidded, stickless (with double or single wall cell partitions extending up through cover), plain smooth top, smooth top with spaces or slits for corrugated V-sticks, or spacing cleats glued to top without staples, stickless and without staples, single unit, 2-cell, 4-cell, 6-cell, attached lid, removable lid; or a started box equipped with water-er, center feeder box, trough feeder, or other style feeder. (See figure 9.)

Size of

box: The inside dimensions for each box are given in table 10.

Construc-  
tion:

1. All counter boxes made from pressed board, jute, or other material, and all other fiber boxes made of corrugated fiberboard for baby chicks, poults, and started chicks, shall meet the requirements for these materials as shown in tables 11 and 12.
2. All facings (container board) of corrugated fiberboard shall be firmly glued to the corrugated sheet (corrugated board) at all points of contact and the outer facings on all regular and jumbo corrugated fiber boxes ("shippers") shall be waterproofed.
3. Chick boxes made by stapling shall have a lap not less than 1-1/4 inches and be fastened with metal stitches not more than 2-1/2 inches apart.
4. For weights of component parts of fiberboard, and bursting strength of fiberboard used in standard fiber baby chick and poult boxes, see table 11.

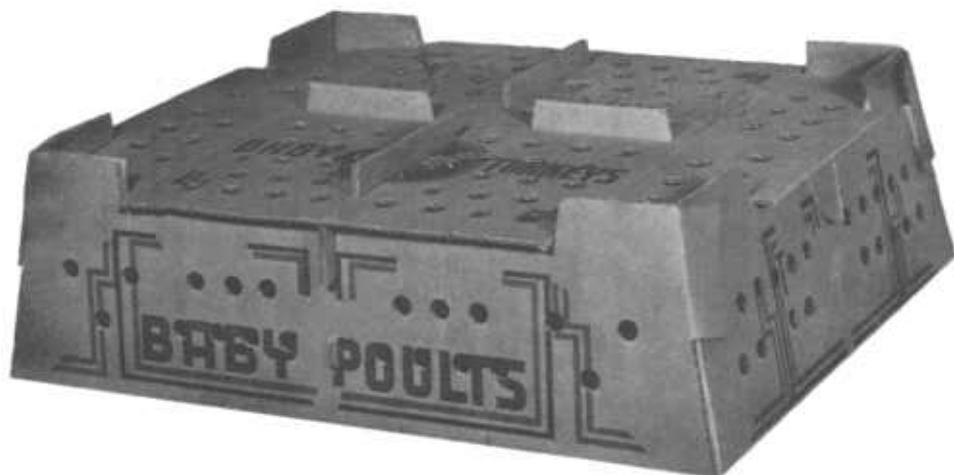


Figure 9.--Baby chick and poult box styles. Top view shows a stickless box, without staples. Middle photo shows a regular stickless box. Bottom shows a standard stapled box with corrugated v-shaped sticks inserted in the cover.

Table 10.—Type of boxes, style of construction, inside dimensions, and air holes in cover, sides, and ends in accordance with number of chicks and poults contained.

Type of box	Chicks or poults	Inside dimension range			Range of number of holes or number of slits for ventilation: in sides, ends, and cover <sup>1/</sup>				General styles of construction
		Length	Width	Height	End		Cover		
					holes	holes	Holes	Slits	
Number	Inches	Inches	Inches	Number	Number	Number	Number		
1. A chick or poult "counter" box	a. 25	16	6	4	0-6	5-6	10-15	0	Usually one-piece construction.
	b. 50	11	9	5	0-8	8-12	20-30	0	
2. A "local winter" chick or poult box	100	22	18	5-1/2	14-22	14-20	20-30	0	Smooth-top standard construction with staples and spacers, such as V-shaped cleats; 4-cell.
3. A "local summer" chick or poult box	100	24	18	6	12-29	10-40	20-172	0	Same as 2, above.
4. A regular (domestic) or export "combination" chick or poult box	a. 25	18	12	5-1/2	5-10	7-14	10	0	a. Standard, with V-shaped cleats for spacing; b. Both stickless and without staples with four projecting corners. Sides may be sloping. Lid may be tuck-in type creased on both ends to make the hinge. May be 4-cell or 6-cell.
	b. 50	12	9	5-1/2	13	14-28	30	0	
5. A small (domestic) or export "winter" chick or poult box	100	a. 22	18	5-1/2	14	14	42-44	0	Same as 4a and 4b, above; and c. Double-walled partitions extending up through the lid (stickless).
		b. 23-3/4	19-1/4	5-5/8	6-19	20-25	96	10	
		c. 23-3/4	17-3/4	7	16	20	0	10	
6. A regular (domestic) or export "summer" chick or poult box	100	a. 24	18	6	24	24	30	0	Same as 4a, 4b, and 5c, above.
		b. 23-3/4	19-1/4	5-5/8	16-19	20-25	90	10	
		c. 23-3/4	17-3/4	7	16	20	0	10	
7. A jumbo (domestic) or export "over-size" chick or poult box	100	a. 24	18	6			30	0	Same as 4a, 4b, and 5c, above.
		b. 24	20	6	16-24	20-25	96	10	
		c. 23-3/4	20	8			0	10	
8. A regular (domestic) started chick box <sup>2/</sup>	50	a. 24	22	8					Smooth top with standard staples and spacers, such as V-shaped cleats. Various feeders and waterer styles.
		b. 24	22	8	6-12	22-29	90-100	0	
		c. 28	24	9					

<sup>1/</sup> Diameter of holes on cover - 3/4". Holes on sides and ends - 5/8", except for 8 (started chick box) see note <sup>2/</sup>.

<sup>2/</sup> Diameter of holes on cover - 1". Holes on sides and end - 7/8".

5. For thickness of material used in baby chick fiber box construction and minimum number of parts, see table 12.

Closure of

fiber boxes: In addition to the usual tie around the outside of baby chick and poult boxes with twine, rope, string, or other materials, whether shipped singly or in bundles of two or more, tops may be "locked on" by the following devices:

1. For "stickless" or "4-poster" boxes for local delivery, tops may be locked on by twisting the center end ends of the dividers (projecting partitions).
2. Covers of tuck-in type may be locked in position by turning the tabs on the corners. The lid is creased on both ends to make the hinge.

Table 11.--Minimum weights of component parts and bursting strength of double-faced corrugated fiberboard used in recommended standard fiber baby chick and poult boxes

Chick and poult boxes	: Minimum com- : bined weight : of 2 facings : of double- : faced corru- : gated fiber- : board	: Minimum weight: : of corrugat- : ing medium in : double-faced : corrugated : fiberboard	: Flute	: Minimum : average : bursting : strength of : board per : square inch : when dry
	: Pounds per : 1,000 sq. ft.	: Pounds per : 1,000 sq. ft.		: Pounds per : square inch
"Counter" boxes	: -	: -	: -	: -
Local "summer and winter" boxes	: 64	: 26	: A	: 150
Regular "started" chick boxes	: 90 kraft or : 120 jute	: 26	: A	: 200 and 350 <sup>1/</sup>
Small, regular, and jumbo (domestic) and export boxes	: 90 kraft or : 120 jute	: 26	: A	: 200

<sup>1/</sup> Partition material for started boxes may be 350-pound test-corrugated fiberboard. All inner surfaces may be waxed.

Table 12.--Type and thickness of material and minimum thickness of parts in recommended standard baby chick fiber boxes

Chick and poult boxes	Type and form of material	Material and thickness				Minimum number of complete thickness of parts					
		Thickness of	Liner	Minimum	Minimum	Top	Sides	Bottom	Ends	Parti-	Feeders
		medium if used (A flute)	material	thickness of liner	pounds per 1,000 sq. ft. of liner	No.	No.	No.	No.	tion	No.
"Counter" boxes	Pressed board, jute stock, or kraft stock	None used	Chip-board, kraft board, or jute	26-32		1	1	1	1	1	-
Local summer and winter boxes	Double-faced corrugated fiberboard	9	Kraft	9	32	1	1	1	1	1	-
Regular "started" chick boxes	Double-faced corrugated fiberboard	9	Kraft or jute	16	45 or 60	1	1	1	1	1	1 or 2 <sup>1</sup> / <sub>2</sub>
Small, regular and jumbo (domestic) and export boxes	Double-faced corrugated fiberboard	9	Kraft or jute	16	45 or 60	1	1	1	1	1 or 2 <sup>2</sup> / <sub>2</sub>	-

1/ All inner surfaces shall be waxed. Feeder chute and trough may be of 350-pound test double-faced corrugated fiberboard or two thicknesses of 200-pound test placed side by side.

2/ Stickless 4-cell or 6-cell boxes may have the lengthwise partition of single thickness; the cross-wise partition of two thicknesses of double-faced corrugated fiberboard placed side by side.

Boxes, Fiber (for Processed Poultry)

A. Standard domestic and export fiber poultry boxes

Fiber poultry boxes are made of corrugated or solid fiberboard meeting the specifications outlined in B, below, and including boxes for the following uses:

1. Domestic fiber boxes for shipping dressed and ready-to-cook poultry, in chilled or frozen form. (See fiber boxes in figure 4.)
2. Export fiber boxes for shipping frozen dressed and ready-to-cook poultry.
3. Domestic fiber boxes for shipping canned, cartoned, trayed and individually wrapped poultry; or poultry in jars. (See fiber box in figure 5.)
4. Export fiber boxes for shipping canned, cartoned, trayed, and individually wrapped poultry, or poultry in jars.
5. Domestic fiber boxes for shipping one whole frozen bird. (See fiber box in figure 6.)

B. Specifications for standard domestic and export fiber poultry boxes

Style of

box: Domestic or export boxes may be of regular slotted, center special slotted, or overlapped slotted. Export boxes shall have tubes or sleeves.

Size of

box: The inside dimensions of domestic and export fiber boxes for shipping dressed or ready-to-cook poultry, whether individually wrapped or not, shall be the same as those given for wire-bound boxes in table 16, on page 34. The inside dimensions for fiber boxes in which canned poultry is shipped are given in table 13.

Fiber-  
board:

1. Fiber boxes (domestic or export) shall be made of solid fiberboard or of double faced corrugated fiberboard having proper bending qualities and meeting the requirements of tables 14 and 15.

Table 13.—Sizes of domestic and export fiber boxes for shipping canned poultry. (See table 29, for kind and amount of product packed in cans.)

Can makers description <sup>1/</sup>	Trade name of cans	Number of cans per box	Arrangement of cans in boxes			Inside box dimensions <sup>2/</sup>		
			Number in a row	Number of rows	Number of layers	Length Inches	Width Inches	Depth Inches
208 x 208		24	4	3	2	10-1/16	7-9/16	5
		48	4	4	3	10-1/16	10-1/16	7-1/2
		96	6	4	4	15-1/16	10-1/16	10-1/16
208 x 212		24	4	3	2	10-1/16	7-9/16	5-1/2
		48	4	4	3	10-1/16	10-1/16	8-1/4
		96	6	4	4	15-1/16	10-1/16	11
211 x 300	8Z short	24	4	3	2	10-13/16	8-1/8	6
		36	4	3	3	10-13/16	8-1/8	9
		48	6	4	2	16-3/16	10-13/16	6
		72	6	4	3	16-3/16	10-13/16	9
		96	6	4	4	16-3/16	10-13/16	12
211 x 400	No. 1	24	6	4	1	16-3/16	10-13/16	4
		48	6	4	2	16-3/16	10-13/16	8
211 x 414		24	6	4	1	16-3/16	10-13/16	4-7/8
		48	6	4	2	16-3/16	10-13/16	9-3/4
300 x 407	No. 300	24	4	3	2	12-1/16	9-1/16	8-7/8
		36	4	3	3	12-1/16	9-1/16	13-5/16
		48	6	4	2	18-1/16	12-1/16	8-7/8
303 x 113		24	4	3	2	12-13/16	9-5/8	3-5/8
		48	4	3	4	12-13/16	9-5/8	7-1/4
		96	6	4	4	19-3/16	12-13/16	7-1/4
303 x 402		12	4	3	1	12-13/16	9-5/8	4-1/8
		24	4	3	2	12-13/16	9-5/8	8-1/4
		36	4	3	3	12-13/16	9-5/8	12-3/8
303 x 406	No. 303	12	4	3	1	12-13/16	9-5/8	4-3/8
		24	4	3	2	12-13/16	9-5/8	8-3/4
		36	6	3	2	19-3/16	9-5/8	8-3/4
307 x 112		24	4	3	2	13-13/16	10-3/8	2-1/2
		48	4	3	4	13-13/16	10-3/8	7
		96	6	4	4	20-11/16	13-13/16	7
307 x 409	No. 2	12	4	3	1	13-13/16	10-3/8	4-9/16
		24	4	3	2	13-13/16	10-3/8	9-1/8
404 x 115		24	4	3	2	17-1/16	12-13/16	3-7/8
		48	4	3	4	17-1/16	12-13/16	7-3/4
404 x 414		24	4	3	2	17-1/16	12-13/16	9-3/4
404 x 700	No. 3 Cyl.	12	4	3	1	17-1/16	12-13/16	7
411 x 708		12	4	3	1	18-13/16	14-1/8	7-1/2
415 x 708		12	4	3	1	19-13/16	14-7/8	7-1/2
603 x 700	No. 10	6	3	2	1	18-5/8	12-3/8	7

<sup>1/</sup> The first three figures represent the outside diameter of each can and the second group of three figures represents the height of each can when sealed. The first digit in each group of figures represents inches and the second and third digits represent sixteenths of an inch. (Example: 211 x 400 means 2-11/16 inches in diameter by 4 inches in height.)

<sup>2/</sup> All dimensions stated are net. If dividing liners between tiers of cans are used, the dimensions shown for depth of box should be increased by the thickness of the liner or liners used. A tolerance of 1/16 of an inch was added to the length and width of each box.

Table 14.--The type and caliper (or thickness) of fiberboard used in domestic and export fiber boxes

Standard fiber boxes	Type of fiberboard		Minimum caliper or thickness of fiberboard		
	Symbol	Meaning	Solid fiberboard	Corrugated fiberboard	Each facing
			Inches	Inches	Inches
All domestic boxes	s or c	Solid or corrugated	0.060	0.016	0.009
All export boxes	V3s, VUS, or V3c	Weatherproof solid or corrugated	0.090	0.023	0.010

Table 15.--Comparative weights of component parts of fiberboard, bursting strength and ply separation of fiberboard used in domestic and export fiber boxes

Minimum weight of standard fiber boxes and contents in pounds	Minimum weight of component fiberboard per 1,000 sq. ft. 1/	Minimum weights of two facings (liners) of corrugated fiberboard per 1,000 sq. ft.	Minimum weight of medium in corrugated fiberboard per 1,000 sq. ft.	Maximum permissible ply separation, when wet 2/	Minimum average bursting strength of fiberboard per square inch 3/	
	Pounds	Pounds	Pounds	Inches	Pounds	Pounds
					Dry	Wet
Domestic boxes						
20	114	52	26		125	
40	149	75	do		175	
65	190	84	do		200	
90	237	138	do		275	
120	283	180	do		350	
Export boxes				1/4	400	150 for V3s & V3c
All weights						200 for VUS

1/ Exclusive of adhesives.

2/ This means ply separation as determined by the standard test outlined on page 75.

3/ As determined by test outlined on page 74.

2. Solid fiberboard used in making domestic boxes shall consist of not less than 2-ply (thickness) when such boxes and their contents weigh 40 pounds or less. When the weight of solid fiber boxes and their contents are over 40 pounds, the solid fiberboard shall consist of not less than 3-ply. Solid fiberboard used in making export boxes shall consist of not less than 4-ply. All plies of fiberboard in these boxes shall be firmly glued together.

All inside surfaces of export fiber boxes and the tubes shall be protected by application of fully refined, paraffin wax which has a melting point of not less than 125° F. Such wax shall cover or impregnate these surfaces. The outer ply of each export box shall be waterproofed.

3. Each outer and inner facing (each liner or container board) of the corrugated fiberboard used in making domestic and export boxes shall be firmly glued (one on each side of corrugating medium) to the corrugated sheet (corrugating medium or corrugated board), at all points of contact. Each outer facing shall be waterproofed.

#### Body

joints: At each joint in the body piece, the fiberboard used in making domestic fiber boxes shall overlap not less than 1-1/4 inches and that used in making export fiber boxes, not less than 1-1/2 inches, and be secured by metal stitches. Such metal stitches shall be spaced not more than 2 inches apart and the distance between the outer stitch and the end of the joint shall not exceed 1 inch. An additional stitch shall be used about 1/2 of an inch from the outer stitch, at each end of the joint. Not less than 6 metal stitches shall be used in making a body joint. In lieu of a tie-stitched joint, boxes may be stitched with the same total number of stitches (including tie-stitch), equally spaced in a single row. Metal fastenings shall pass through all the pieces to be fastened and shall be clinched. In the completed box there shall be no visible cracks in the fastenings. Stitches shall be at least 0.100 x 0.020. (Boxes for round cans or jars packed in one tier (layer) may be stitched with a single row of stitches spaced not more than 2 inches apart, provided the stitches used are not less than 0.100 x 0.028.)

#### Workman- ship:

1. All fiber boxes shall be cut square and of required size.
2. All boxes shall be creased and slotted so that in the assembled box the parts fit closely without undue bending.
3. There shall be no surface breaks nor separation of plies in the fiberboard due to creasing or other causes, excepting as provided for in table 15.

4. In the completed box there shall be no visible cracks in the fastenings.

Strapping  
of boxes:

1. Each export box shall be reinforced by 2 flat straps, each being  $\frac{3}{8}$  of an inch wide by 0.020 of an inch thick.
2. One such strap shall be centered around the top, ends, and bottom with the other strap centered around the top, sides, and bottom of each box. The straps should be applied so they fall over an area of the box under which the cans make contact with it.

Boxes, Wire-bound (for Processed Poultry)

A. Standard domestic and export wire-bound poultry boxes

Boxes in which sides, tops, and bottoms are constructed of veneer or sawn boards fastened to wood cleats and to each other by binding wires and staples, the ends being of veneer or sawn wood, plain or stapled to battens or liners and fastened in place by nails, by staples, or wired on, for holding various quantities and weights not exceeding 500 pounds of box-packed, packaged, and canned poultry or poultry products and meeting the specifications in B, below. The following boxes are included. (See figure 10.)

1. Domestic wire-bound boxes for shipping dressed and ready-to-cook poultry, in chilled or frozen form.
2. Export wire-bound boxes for shipping dressed and ready-to-cook poultry in frozen form.
3. Domestic wire-bound boxes for shipping canned, cartoned, and individually wrapped poultry.
4. Export wire-bound boxes for shipping canned, cartoned, and individually wrapped poultry.

B. Specifications for standard domestic and export wire-bound poultry boxes

Style of

box: Wire-bound boxes shall be one of the following styles:

- Style 2 - A wire-bound box having a looped wire closure.
- Style 2A - A wire-bound box having a twisted wire closure.
- Style 3 - A wire-bound box having a looped wire closure with wired ends.

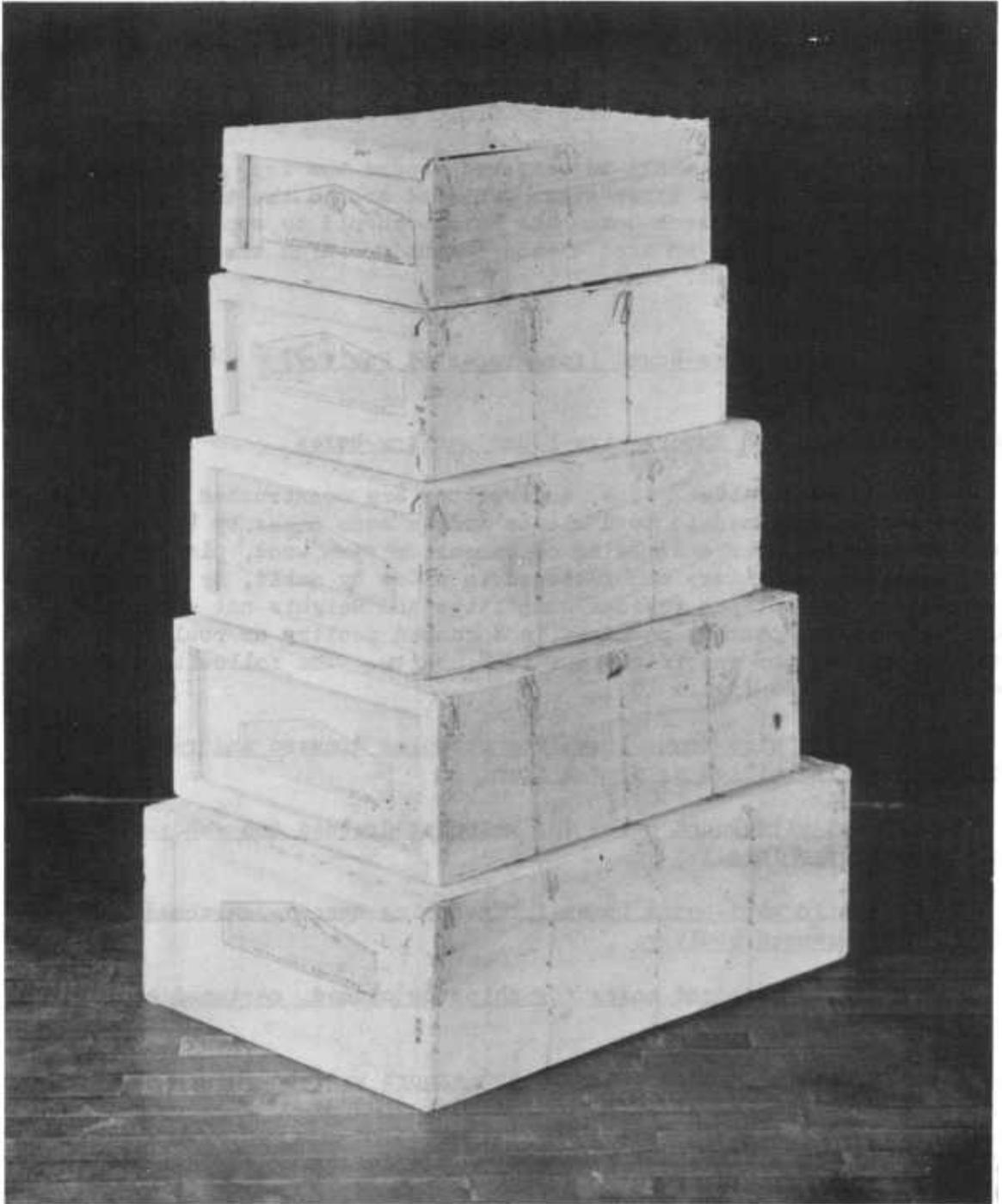


Figure 10.--Various sizes of wire-bound poultry boxes.

**Size of**

**box:** The inside dimensions of wire-bound boxes in which dressed and ready-to-cook poultry is shipped, whether individually wrapped or not, are given in table 16. The inside dimensions of wire-bound boxes for shipping canned poultry are the same as those given for fiber boxes in table 13.

**Materi-  
als:**

1. Wood. Wood used in wire-bound boxes shall be from woods listed below. When any species is specified, any species in that same group of woods may be used. No species of wood which might impart an undesirable odor or flavor to the poultry shall be used.

Group I		:	Group II	:	Group III	:	Group IV
Aspen(popple)	Magnolia	:	Douglas-fir	:	Ash, black	:	Ash, white
Basswood	Pine, jack	:	Hemlock	:	Ash, pumpkin	:	Beech
Buckeye	Pine, lodgepole	:	(Western)	:	Blackgum	:	Birch
Butternut	Pine, ponderosa	:	Larch	:	Elm, white	:	Elm, rock
Cedar	(Western yellow)	:	(tamarack)	:	Maple, soft	:	Hackberry
Chestnut	Pine, red (Norway)	:	Pine	:	Sweetgum	:	Hickory
Cottonwood	Pine, sugar	:	(Southern)	:	(red gum)	:	Maple, hard
Cucumber	Pine, white	:		:	Sycamore	:	Oak
Cypress	Redwood	:		:	Tupelo,	:	Pecan
Fir, alpine	Spruce	:		:	water	:	
Fir, balsam	Willow	:		:		:	
Fir, noble	Yellow Poplar	:		:		:	
Fir, white		:		:		:	

Each piece of wood shall be free from decay. Each cleat and batten shall be free from splits.

In cleats, battens, and liners, the divergence of the grain shall not exceed 1 inch in 10 inches of length. In sawed or veneer boards, the divergence of the grain shall not exceed 1 inch in 8 inches of length.

Knots, if any, shall be sound. In sawed or veneer boards the diameter of any knot shall not exceed 1-1/2 inches nor exceed 1/3 the width of the board. No part of a knot may be closer to an end of the board than 1 inch.

In cleats and battens the cross-sectional area of any knot shall not exceed one-fourth the cross-sectional area of the piece. No part of any knot may be closer to an end of the cleat or batten than 1-1/4 inches.

The moisture content of sawed boards shall not be less than 9 percent nor more than 18 percent of their dry weight

Table 16.--Sizes and capacities of wire-bound boxes for domestic and export shipments of different kinds, classes, and weights of dressed or ready-to-cook poultry

Kinds and classes of poultry	Approximate amount or range, birds per box	Contents, or range	Inside dimensions or range			Capacity
	Number	Pounds	Length Inches	Width Inches	Height Inches	
Broiler-fryers (iced) <sup>1/</sup>	18-36	Up to 70	22	16	10	3,520
Chickens	12	36-53	18-20	14-15-1/2	7-1/4 - 7-1/2	-
Chickens	12	54-59	21	16-1/2	7-3/4	2,685
Chickens	12	60-65	22	17	8	2,992
Turkeys	6	48-85	25-28	21-24	6-1/4	-
Turkeys	3-6	85-105	30	22	8-1/2	5,610
Turkeys	4-12	Over 100	32	28	7-1/4	6,496
Ducklings	12	42-60	24	16	8	3,072
Ducks	6	33-60	24-31	18-1/2-22	3-1/2 - 4-1/2	-
Geese	3-4	42-60	23-1/2-29	18-23-1/4	4-3/4 - 6-1/2	-

<sup>1/</sup> Domestic pack only.

at the time of manufacture of the boxes. The moisture content for veneer shall not be less than 9 percent nor more than 15 percent at the time of manufacture of the boxes.

2. Wire. Binding wires shall be low carbon annealed steel wire.

Wire used for boxes with Style 1 closures shall have sufficient ductility to insure the following number of complete turns when twisted with a Bruce or Toggle Twister.

Gage of wire	:	Number of complete turns
16	:	2-1/2
15	:	2
14	:	2

After removal of the tool the wire shall show no fractures.

Wire used for boxes having Style 2A closures shall have sufficient ductility to permit manufacturing with the number of turns as shown above and give a satisfactory closure.

Wire used for boxes having Style 2 or Style 3 closures shall have such physical properties as to permit satisfactory manufacture of the loops without fracturing the wire and give satisfactory closures.

The surface on binding wires shall be galvanized.

Staples shall be made from carbon steel wire having galvanized finish.

Manufac-

ture: Boxes shall be well manufactured in accordance with high-grade commercial practice. The boxes shall be free from imperfections which may affect the utility.

Face

boards: Face boards may be either sawed lumber or single-thickness veneer of any of the species in group II or III woods or of the following group I woods: Cottonwood, cypress, magnolia, noble fir, white fir, and spruce.

The thicknesses of face boards, cleats, and battens for the various styles of wire-bound boxes for poultry shall conform with the minimum requirements in tables 17, 18, and 19.

Table 17.--Minimum thicknesses of face boards and sizes of cleats for various styles of wire-bound boxes for domestic shipments of chickens, ducks, and geese <sup>1/</sup>

Classes of poultry	Contents	Minimum thicknesses of face boards										Minimum cleat sizes	
		For Style 2 or 2A boxes					For Style 3 boxes					For Style 2 or 2A box	For Style 3 box
		Sides	Top and bottom	Ends	Edge liners	3-inch wide center liner	Sides	Top and bottom	Ends	Edge liners	In.		
cu. in.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
Chickens	Up to 3,000	1/8	1/8	1/8	1/8	-	1/8	1/8	1/8	1/8	9/16 by 13/16	9/16 by 13/16	
Ducks	From 3,001 to 4,000	1/8	1/8	1/6	1/6	1/6	1/8	1/8	1/8	1/8	13/16 by 13/16	13/16 by 13/16	
Geese	Over 4,000	1/6	1/8	3/16	3/16	3/16	1/6	1/8	1/8	1/8	13/16 by 13/16	13/16 by 13/16	

<sup>1/</sup> The thicknesses of face boards indicated in the above table apply to all group II and III woods and to cottonwood, cypress, magnolia, noble fir, white fir, and spruce.

954118 0-51-6

Table 18.--Minimum thicknesses of face boards and sizes of cleats for various styles of wire-bound boxes for domestic shipments of turkeys <sup>1/</sup>

Classes of poultry	Contents	Minimum thicknesses of face boards										Minimum cleat sizes		
		For style 2 or 2A box					For Style 3 box					Style 2 or 2A box	Style 3 box	
		Top	Edge	Wide	Sides and Ends	liners: center:	Top	Edge	Wide	Sides and Ends	liners:			
		:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	:bottom:	
	Cu. in.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.
Turkeys only	Up to 4,000	1/6	1/8	1/6	1/6	1/6	1/6	1/6	1/8	1/8	1/8	13/16 by 13/16	13/16 by 13/16	
Turkeys only	From 4,001 to 5,600	1/6	1/8	3/16	3/16	3/16	1/6	1/8	1/8	1/8	13/16 by 13/16	13/16 by 13/16		
Turkeys only	Over 5,600	3/16	1/6	3/16	3/16	3/16	3/16	1/6	1/7	1/7	13/16 by 13/16	13/16 by 13/16		

<sup>1/</sup> The thicknesses of face boards indicated in the above table apply to all group II and III woods and to cottonwood, cypress, magnolia, noble fir, white fir, and spruce.

**Cleats:** Cleats shall be made from group II, group III, or group IV woods only.

Cleats shall be made with mitered ends or with mortised and tenoned ends (tongue-and-grooved).

Cleats shall be 9/16 inch by 13/16 inch, 13/16 inch by 13/16 inch, or 13/16 inch by 7/8 inch according to the requirements, indicated in tables 17, 18, and 19.

Table 19.--Minimum thicknesses of face boards and sizes of cleats for various styles of wire-bound boxes for export shipments of frozen bulk-packed chickens and turkeys

Classes of poultry	Contents	Minimum thickness of all face boards for all styles of boxes	Minimum cleat size
	Pounds	Inch	Inch
All poultry	Up to 85	3/16	13/16 by 13/16
All poultry	Over 85	1/4	13/16 by 7/8

1/ The thicknesses of face boards indicated in the above table apply to all group II and III woods, and to cottonwood, cypress, magnolia, noble fir, white fir, and spruce.

**Binding**

**wires:** The girth wires shall comply with the requirements as indicated in tables 20 and 21.

On Style 3 boxes, there shall be one wire on each end and the gage shall be one size less than required on the blank. Where two gages are indicated in tables 20 and 21 the wires on the end shall be the same gage as the smaller wire specified in these tables.

**Staples:** Staples shall be used for fastening binding wires to boards and cleats and shall be used for fastening liners to end boards.

Staples driven over binding wires into cleats shall be not less than 0.0625-inch diameter (16 gage). For 9/16 inch by 13/16-inch cleats, staples shall be 7/8-inch long. For 13/16-inch by 13/16 inch cleats, staples shall be 7/8-inch long for boards 1/8 inch thick and 1-inch long for boards more than 1/8-inch thick. For 13/16-inch by 7/8-inch cleats, staples shall be 1-inch long for boards less than 1/4-inch thick and 1-1/8-inches long for boards 1/4-inch thick. Staples shall not be deformed and if an occasional staple point protrudes through a cleat, it shall be clinched.

Staples driven over binding wires into boards only shall be not less than 0.0348-inch diameter (20 gage) and 5/16-inch long for boards not over 3/16-inch thick. For boards more than 3/16-inch in thickness, staples shall be not less than 0.0475 inch-diameter (18 gage) and 1/2-inch long. Staples shall penetrate the boards and the points shall be clinched.

Table 20.--Minimum number and gage of binding wires for wire-bound boxes for domestic shipments of chickens, ducks, geese, and turkeys

Classes of poultry	Kinds of wood	Minimum number and gage of binding wires							
		For inside length of box up to 15 inches		For inside length of box over 15, to 20 inches		For inside length of box over 20, to 29 inches		For inside length of box over 29 inches	
		Number	Gage	Number	Gage	Number	Gage	Number	Gage
Chickens	I	2	15	2	15	2	15	2	15
		1	16	2	16	3	16	4	16
Ducks	II	3	15	4	15	5	15	6	15
Geese	III	2	14	2	14	2	14	2	14
		1	15	2	15	3	15	4	15
Turkeys	I	-	-	-	-	5	15	6	15
Turkeys	II	-	-	-	-	2	14	2	14
		-	-	-	-	3	15	4	15
Turkeys	III	-	-	-	-	2	14	2	14
		-	-	-	-	3	15	4	15

Table 21.--Minimum number and gage of binding wires for wire-bound boxes for export shipments of chickens and turkeys

Classes of poultry	Minimum number and gage of binding wires							
	For inside length of box up to 18 inches		For inside length of box over 18 to 24 inches		For inside length of box over 27 to 30 inches		For inside length of box over 30 inches	
	Number	Gage	Number	Gage	Number	Gage	Number	Gage
Chickens	4	15	5	15	-	-	-	-
Turkeys	-	-	-	-	2	14	2	14
	-	-	-	-	4	15	5	15

Each liner shall be fastened to the end boards by staples. Each staple shall pass through the liner and end boards and shall be clinched. For boards not over 3/16-inch thick the staples shall be 0.0348-inch diameter (20 gage) and 0.0475-inch diameter (18 gage) for boards greater than 3/16-inch in thickness. For boards 1/8-inch thick the staples shall be 3/8-inch long, for boards over 1/8-inch but not more than 7/32-inch thick the staples shall be 1/2-inch long and for boards 1/4-inch thick the staples shall be 9/16-inch long.

The minimum number of staples in any cleat in wire-bound boxes for poultry shall be as listed in table 22.

Liners: Each end shall have two edge liners with the grain perpendicular to the grain of the end boards. Edge liners shall be not less than 1-1/8 inches wide. Where wide center liners are used, these shall be not less than 2-7/8 inches wide and shall be stapled to end boards with two rows of staples.

Table 22.--Minimum number of staples in any cleat for wire-bound boxes for poultry <sup>1/</sup>

<u>Inches</u>	<u>Number</u>
Up to 4-1/2	2
Over 4-1/2, to 6-1/2	3
Over 6-1/2	4

<sup>1/</sup> Not less than two staples shall be driven over each girth wire through each board.

Strapping: All wire-bound boxes for poultry export shipments shall have two girthwise straps applied between the first and second binding wire from each end.

Strapping may be either 3/8-inch by 0.020-inch flat strapping or 15 gage wire strapping having a tensile strength of 140,000 pounds per square inch.

### Boxes, Wooden (for Processed Poultry)

#### A. Standard domestic and export wooden poultry boxes

Boxes made of sawn wood meeting the specifications outlined in B, below. The following boxes are included:

1. Domestic wooden boxes for shipping dressed and ready-to-cook poultry in chilled or frozen form.

2. Export wooden boxes for shipping dressed and ready-to-cook poultry in chilled and frozen form.

3. Domestic wooden boxes for shipping canned, cartoned, and individually wrapped poultry.

4. Export wooden boxes for shipping canned, cartoned, and individually wrapped poultry.

B. Specifications for standard domestic and export wooden poultry boxes

Style of

box: Wooden poultry boxes may be one of the following styles:

Style 1 - Nailed construction, no cleats.

Style 4 - Nailed construction, two exterior vertical cleats on each end.

Style 5 - Nailed construction, two interior vertical cleats on each end.

Size of

box: The inside dimensions of wooden poultry boxes used to ship dressed or ready-to-cook poultry, whether individually wrapped or not, are the same as those given for wire-bound boxes in table 16. The inside dimensions of wooden boxes in which canned poultry and poultry products are shipped would be about the same as those given for fiber boxes in table 13. (Tolerances for inside dimensions of wooden boxes should be 1/8 of an inch instead of 1/16 of an inch.)

Species

of wood: No species of wood which may impart an objectionable odor or flavor to the poultry shall be used in making wooden poultry boxes. The species of wood for such purposes shall be from the following groups:

Group I		Group II	Group III	Group IV
Alpine fir	Lodgepole pine	Douglas fir	Black ash	Beech
Aspen	Magnolia	Hemlock	Black gum	Birch
Balsam fir	Noble fir	Larch	Maple, soft	Hackberry
Basswood	Norway pine	North Carolina pine	Maple, silver	Hickory
Buckeye	Redwood	Southern pine	Pumpkin ash	Maple, hard
Butternut	Spruce	Southern pine	Red gum	Oak
Cedar	Sugar pine	Southern pine	Sycamore	Rock elm
Chestnut	Western yellow pine		Tupelo	White ash
Cottonwood	White fir		White elm	
Cucumber tree	Willow			
Cypress	Yellow poplar			
Jack pine	White pine			

**Materials  
and construction:**

1. The thicknesses of domestic wooden box parts are given in table 23. Those for export wooden box parts are shown in table 24.

**Table 23.--Thicknesses of domestic wooden box parts**

Style of box	Net weight of contents	Minimum thicknesses of wood groups I and II				Minimum thicknesses of wood groups III and IV			
		Sides	and top and bottom	Ends	Cleats	Sides	and top and bottom	Ends	Cleats
	Lb.	In.	In.	In.	In.	In.	In.	In.	In.
No. 1	0 - 60	5/16	5/16	1/2	None	1/4	1/4	1/2	None
No. 4 or 5	61 - 125	3/8	3/8	5/8	5/8x1-3/4	5/16	5/16	9/16	9/16x1-3/4

**Table 24.--Thicknesses of export wooden box parts**

Style of box	Weight of contents	Minimum thickness for group I and II woods			Minimum thickness for group III and IV woods		
		Sides, top, and bottom	Ends	Cleats	Sides, top, and bottom	Ends	Cleats
	Pounds	Inches	Inches	Inches	Inches	Inches	Inches
No. 1	0 - 60	11/32	3/4	No cleats	5/16	5/8	No cleats
No. 4 or 5	61 - 125	7/16	5/8	5/8 x 1-3/4	3/8	9/16	9/16 x 1-3/4

2. Nails used in wooden boxes shall be cement-coated or chemically etched box, cooler, or sinker nails. The sizes of nails used in domestic and export wooden boxes are given in tables 25, 26, and 27, respectively.

**Table 25.--The sizes of nails used in nailing tops and bottoms of domestic wooden boxes to sides of different thicknesses**

Thickness of sides to which tops and bottoms are nailed (Inches)	Nail sizes for different wood groups <sup>1/</sup>			
	Group I	Group II	Group III	Group IV
	Penny	Penny	Penny	Penny
Under 1/2	4	4	3	3
1/2 - 39/64	6	5	4	4
5/8 - 7/8	7	6	5	4

<sup>1/</sup> See footnote, table 27.

Table 26.— The sizes of nails used in nailing sides, tops, and bottoms of domestic wooden boxes to ends and cleats of different thicknesses

Thicknesses of ends or cleats to which sides, tops, and bottoms are nailed (Inches)	Nail sizes for different wood groups <sup>1/</sup>			
	Group I	Group II	Group III	Group IV
	<u>Penny</u>	<u>Penny</u>	<u>Penny</u>	<u>Penny</u>
Under 7/16	4	4	3	3
7/16 - 31/64	5	4	4	3
1/2 - 35/64	5	5	4	4
9/16 - 39/64	6	5	5	4
5/8 - 43/64	7	6	5	4

<sup>1/</sup> See footnote 1, table 27.

Table 27.—The sizes of nails for different styles of export wooden boxes

Style of box	Wood group	Nail sizes <sup>1/</sup>
		<u>Penny</u>
1	All groups	5
4 or 5	I and II	6
4 or 5	III and IV	5

<sup>1/</sup> Threepenny box nails are 1-1/8 inches long by 16 gage; 4-penny = 1-3/8 inches long by 15-1/2 gage; 5-penny = 1-5/8 inches long by 15 gage; 6-penny = 1-7/8 inches long by 13-1/2 gage; and 7-penny = 2-1/8 inches long by 13-1/2 gage. Threepenny sinker or cooler nails = 1-1/2 inches long by 15-1/2 gage; 4-penny = 1-3/8 inches long by 14 gage; 5-penny = 1-5/8 inches long by 13-1/2 gage; 6-penny = 1-7/8 inches long by 13 gage; and 7-penny = 2-1/8 inches long by 12-1/2 gage.

If nails are used which are not cement-coated, except for cleats, their number shall be increased by 25 percent. Sevenpenny nails shall not be spaced more than 2-1/4 inches apart when driven into the end grain of the end. Sixpenny or smaller nails, when driven into the side grain of the end shall not be spaced closer than 2 inches and not more than 1-3/4 inches when driven into the end grain of the end.

- Each board in the side, top, or bottom shall have at least two nails at each nailing end. If the sides are less than 1/2 inch in thickness, neither the top nor the bottom shall be nailed to the sides unless side nailing is specified. When the ends and cleats are the same thickness, approximately half of the nails in the ends of the sides, top, and bottom, shall be driven into the ends and the remainder into the cleats. If the top or bottom is nailed to the side, the nails shall be spaced between 6 and 8 inches.
- The width of cleats for box styles 4 or 5 shall not be less than three times the required thickness. Each piece of the end shall be nailed to each cleat with not less than 2 nails. The nails

shall pass through both the cleat and the end and be clinched. Either cement-coated or uncoated nails may be used for cleats, and nails in each cleat shall be driven in two rows and spaced as noted above. If the cleats are thicker than the ends, the nails shall be driven through the ends into the cleats and clinched.

5. Boxes shall be constructed according to Federal specifications NN-8-621b.

Defects in material:

1. All pieces shall be cut true to length and each box shall be made according to high-grade commercial practice. They shall be free from all defects that materially weaken them, expose the contents of boxes to damage, or that interfere with the fabrication or nailing. No knot, or knot-hole, in any piece shall have a diameter exceeding one-third the width of the piece.
2. All lumber shall be seasoned to a moisture content of not more than 18 percent of its dry weight at the time of manufacture.

Strapping:

Style I wooden export poultry boxes shall have three straps applied--two straps located approximately one-sixth of the length of the box from each end, and one strap shall be centered around the top, ends, and bottom at right angles to the other two straps. The longer strap shall be applied first. For box Styles 4 and 5 there shall be two straps applied around top, sides, and bottom with a strap located approximately one-sixth of the length of the box from each end. All steel straps shall be protected with a rust resistant coating. The minimum gage of round straps and the size of flat straps shall be as specified in table 28.

Table 28.--Minimum strap sizes for export wooden poultry boxes

Weight of box contents (pounds)	Round straps		Flat straps	
	sq. in. minimum tensile strength	sq. in. minimum tensile strength	minimum tensile strength	Thickness
	Gage	Gage	Inches	Width
0 - 60	15	16	0.0150	3/8
61 - 125	14	15	0.0200	3/8

Cans, Metal (for Processed Poultry)

A. Standard metal poultry cans

Metal cans are containers made of tin, usually of 10 gallons or less capacity and usually cylindrical in shape, meeting the specifications given below in B. The identification of standard metal cans is given in table 29.

B. Specifications for standard metal poultry cans

Style of

can: Each can shall be a round, open-top style of metal can capable of being hermetically sealed, and sanitary. Only perfect closure is acceptable for these sealed containers.

Size, material,  
and construc-

tion of cans: Each can, according to its designation (see under A, above), shall comply with the requirements and be of such size as given in table 29. The side seam in each can body shall be soldered, and each can shall be supplied with compound lined, double-seamed ends.

The nominal coating weight per base box for all cans excepting when specified differently shall be 0.50 pounds and the permissible deviation in average weight per base box shall be 0.03 pound, plus or minus, as determined by the Seller's method.

Cartons, Fiber, and Paperboard (for Processed Poultry)

A. Standard fiber and paperboard poultry cartons, and paperboard cartons for poultry parts

Fiber poultry cartons are the same construction as the domestic fiber boxes for shipping one whole frozen bird. (No. 5 on page 27.) Such containers are called boxes when used for shipping and cartons when a number of them are packed in a shipping box for shipments. (See figure 11.)

Paperboard poultry cartons are made from solid bleached sulphite board, solid board, or laminated board that has been wax coated or wax saturated, with or without overwraps or liners, made according to the specifications in B, below. (See cartons in a fiber box in figure 7.)

Table 29.- Comparative tin plate basing weights for different sizes of metal cans for cooked poultry and cooked poultry products

Can identification 1/	Size and description of can		Tin plate basing weight for can bodies and ends			Tin coating or type of finish for cans for each product
	Trade name	Can maker's description 2/	Weight per base box 3/	Equivalent weight per square feet	Approximate thickness	
			Pounds	Pounds	Inches	
<b>Whole chicken with bone</b>						
Regular 3-lb., 2-oz., can	No. 3 cyl.	404 x 700	100	0.4592	0.0110	No. 50 electrolytic
Regular 4-lb., 8-oz., can		411 x 708	100	.4592	.0110	or 1.25 hot dipped
Jumbo 4-lb., 8-oz., can		415 x 708	100	.4592	.0110	tin plate and
Regular 4-lb., 12-oz., can		100 x 112	100	.4592	.0110	enameled.
<b>Boned chicken or boned turkey</b>						
Small 6-oz. can		208 x 212	100	0.4592	0.0110	Enamel-lined.
Jumbo 6-oz. can		303 x 113	100	.4592	.0110	
Regular 1-lb. can	No. 303	303 x 406	100	.4592	.0110	
Regular 2-lb., 3-oz., can	No. 3	404 x 414	100	.4592	.0110	
<b>Smoked turkey (boned and sliced)</b>						
Regular 6-oz. can		307 x 112	85	0.3903	0.0094	Enameled outside and inside.
<b>Chicken fricassee</b>						
Regular 1-lb can		303 x 402	85	0.3903	0.0094	C-enameled lined or plain interior.
<b>Chicken a-la-king</b>						
Regular 8-oz. can	8 Z short	211 x 300	85	0.3903	0.0094	C-enameled lined or plain interior.
Regular 11-oz. can	No. 1	211 x 400	85	.3903	.0094	
Regular 13-1/2-oz. can	No. 211 cyl.	211 x 400	85	.3903	.0094	
Regular 1-lb. can		303 x 402	85	.3903	.0094	
<b>Boneless chicken with jelly</b>						
Regular 8-oz. can	8 Z short	211 x 300	85	0.3903	0.0094	C-enameled lined or plain interior.
Regular 12-oz. can		404 x 115	85	.3903	.0094	
<b>Chicken or smoked turkey spreads</b>						
Regular 5-oz. can		208 x 208	85	0.3903	0.0094	Enameled outside and inside.
Regular 6-oz. can		307 x 112	85	.3903	.0094	
<b>Chicken broth</b>						
Regular 10-1/2-oz. can	No. 1	211 x 400	85	0.3903	0.0094	C-enameled lined or plain interior.
Regular 1-lb. can	No. 303	303 x 406	85	.3903	.0094	
Regular 1-lb., 4-oz., can	No. 2	307 x 409	85	.3903	.0094	
Regular 3-lb., 1-oz., can	No. 3 cyl.	404 x 700	90	.4133	.0099	
Regular 6-lb., 3-oz., can	No. 10	603 x 700	100	.4592	.0110	
<b>Chicken noodle soup</b>						
Regular 10-1/2-oz. can	No. 1	211 x 400	85	0.3903	0.0094	C-enameled lined or plain interior.
Regular 15-oz. can	No. 300	300 x 407	85	.3903	.0094	
<b>Cream of chicken soup</b>						
Regular 1-lb. can	No. 303	303 x 406	85	0.3903	0.0094	C-enameled lined or plain interior.
<b>Chicken gumbo soup</b>						
Regular 1-lb., 4-oz., can	No. 2	307 x 409	85	0.3903	0.0094	C-enameled lined or plain interior.
<b>Smoked turkey split pea soup</b>						
Regular 3-lb., 3-oz., can	No. 3 cyl.	404 x 700	90	0.4133	0.0099	C-enameled lined or plain interior.
<b>Chicken rice soup</b>						
Regular 6-lb., 10-oz., can	No. 10	603 x 700	100	0.4592	0.0110	Plain 1.25 pound hot dipped tin plate, body C-enameled. No. 50 electrolytic tin plate end.

1/ Net weights will not be constant and will depend upon the consistency of the product. It is generally considered that in order to avoid a charge of slack fill, a can must be filled to not less than 90% of its total capacity.

2/ See footnote 1, in table 13, page 28.

3/ Means the weight of 112 sheets, each being 14 inches x 20 inches in size.



Figure 11.--The style of closure shown is one of several used on fiber cartons for whole frozen birds, eliminating the need for sealing tape.

**B. Specifications for standard paperboard poultry cartons, and paperboard cartons for poultry parts**

**Type of carton:**

A carton may be one of the following types:

1. Windowed printed waxed carton, with spot-glued transparent film, such as moistureproof cellophane for carton liner.
2. Nonwindowed, heavily waxed, printed carton, inner-lined with transparent film, such as moistureproof cellophane.
  - a. 1-piece folding box with spot-glued transparent film as carton liner.
  - b. 1-piece folding box with transparent loose film sheet inner liner or wrap.
  - c. 1-piece folding-box with inner surface film-laminated.
  - d. 2-piece folding-box with transparent loose film sheet inner liner or wrap.
  - e. 2-piece folding-box with inner surface film-laminated.
3. Plain, nonwindowed, waxed box, overwrapped with heavily waxed printed paper, film innerlined.
4. Plain, nonwindowed, heavily waxed box, overwrapped with printed, transparent film, such as moistureproof cellophane, and film innerlined.
5. Printed, nonwindowed carton, overwrapped with unprinted moistureproof transparent film, such as cellophane, and film innerlined.
6. Double-cover carton with a cellophane window insertion in the inside cover, and with a color-printed, damage-proof, hinged outside cover.

**Sizes of**

**carton:** Paperboard cartons are made in many sizes. Table 30 gives some of the sizes that are commonly used.

**Finish:** Folding carton stock may be designated by nos. 1, 2, 3, or 4 standard finishes, the exact designation depending upon the degree of pressure applied on the calendar stacks during manufacture of the board. No. 1 finish is applied to board made under lightest pressure. No. 4 is made under heaviest pressure, and therefore has the smoothest finish, highest density, and lowest area per pound of board.

The inside carton board shall be of such finish that will not discolor when paraffin coated. The inside carton board of a box with a spot-glued inner liner may be of Manila finish; the outside finish may be white.

Table 30.—Some sizes for paperboard cartons, corresponding carton liners and carton overwraps for carton-  
ing frozen whole or cut-up ready-to-cook poultry.

Frozen items that are cartoned	Dimensions (sizes)						
	Carton (I. D.)			Film overwrap		Film liner	
	Length	Width	Height	Length	Width	Length	Width
	Inches	Inches	Inches	Inches	Inches	Inches	Inches
Whole Long Island ducks	11	6	3-1/2	20-3/4	16-1/2	17	17
Whole roaster							
a. Regular carton	9	4	5-1/4	20-1/4	15	17	17
b. 1-piece tuck carton	9-1/2	5-1/2	4	-	-	17	17
Whole fryer, 2-piece carton	7-3/4	5	2	-	-	17	17
Whole broiler, 2-piece carton	7-1/4	4-1/4	2	-	-	10	13
Cut-up fowl	7-3/8	5-3/4	2-5/16	17-3/4	11	17	17
Cut-up broilers or fryers	7-7/8	4-1/2	2-3/8	15-1/2	11-3/4	10	13
	or	or	or				
	6-3/4	6	1-5/8 - 3	15-1/2	11-3/4	10	13
Parts (under 1 pound)	5	4	1-3/4	13-1/4	7-3/4	10	13
Parts (1 pound thighs, wings, etc.)	6-1/2	4	1-3/4	13	9-1/4	10	13
(2 pound backs)	7-7/8	5	2-3/4	17-3/4	11	17	17
Livers (10 ounces)	5	3	1-1/2	10-1/2	7-1/4	10	13
Won ton soup and chicken chow mein	5-1/4	4	1-3/4	10-1/2	7-1/4	10	13

Coating: The inside surface of a linerless box shall be treated with a special high-gloss, hard-surface wax and the outside surface shall be coated with a lighter, eggshell wax coating. Before glueing corner, etc., wax shall be removed from the surface to be glued.

For boxes with laminated, or spot-glued innerliner, the inside surface of the box may be coated a dull-finish paraffin, but the outside shall be a high-gloss wax.

Spot-glued  
inner liner

construction: For folding blank with spot-glued inner cellophane liner, carton shall be so die cut as to provide locking corners, locking front, and inner locking side walls. Ears may issue from the front locking flaps to confine the liner which may be anchored, moisture-proof cellophane, so made as to be set up into tray position on a plunger type-forming machine.

### Coops. Metal (for Live Poultry)

#### A. Standard domestic, metal, live poultry coops

Poultry coops made entirely of aluminum (see figure 1) or of steel meeting the specifications in B, below and identified as follows:

1. A regular (domestic) or 1-man all-metal "broiler" coop is a coop made entirely of metal for 14 to 20 broilers.
2. A regular (domestic) or 1-man all-metal "chicken" coop is a coop made entirely of metal for holding 10 to 12 large fowl. 1/
3. A regular (domestic) or 1-man all metal "turkey" 2/coop is a coop made entirely of metal for 5 to 6 turkeys.
4. A regular (domestic) 1-man all-metal, adjustable coop is a coop made entirely of metal and adjustable for the different heights suitable for broilers, chickens, and turkeys.

#### B. Specifications for standard domestic, metal, live poultry coops

Type of

coop: An all-metal coop may be one of the following:

---

1/ The numbers of birds designated for coops are the amounts usually recommended for safety without crowding.

2/ The descriptive terms "chicken" and "turkey" do not imply that these coops are used only for these particular kinds of poultry. "Chicken" coops may be used for broilers, or geese may be placed in "turkey" coops, etc.

1. One-section, 1-man.
2. Two-section shipping, trucking, or huckster coop.
3. Adjustable coop, adjustable for height only, 1-man.
4. One section coop with 1 door on top, or 1 door on one side or 1 door on top and 1 door on one side; or a two-section coop with 1 door for each section either top or side or both.
5. Bottoms made of wood resting on metal frame.
6. Bottoms made of galvanized sheet steel or aluminum and removable.
7. Sloping end channel to facilitate cleaning.

#### Size of

coops: Each coop according to its designation as given in A, above, shall be the same size as those given for similarly designated wooden coops in table 31.

#### Materials

#### and con-

struction: Steel coops may be constructed from good quality heavy steel rods, intermediate rods or wires, and steel sheets for bottoms. All steel parts shall be completely galvanized.

Frames for top, sides, ends, and bottom shall be heavy galvanized steel rods, or steel strips. If steel strips are used for framing, corner steel rods may be 1/2-inch diameter and the intermediate rods may be 3/16-inch diameter.

If heavy steel rods, ranging in diameter from 0.218-inch to 0.250-inch, are used for framing, intermediate rods and horizontal rails may be 0.150-inch diameter. Two crosswise supports for the top frame may be 0.303-inch in diameter. A metal floor or bottom would be a piece of sheet steel 2 feet by 3 feet made of 16-gage and reinforced by steel rods at least 0.250-inch diameter. As additional bottom support, two such rods (0.250-inch diameter) may be placed lengthwise across the bottom and evenly spaced.

Steel coops made of rods or heavy wire of the same diameter throughout may be constructed from material at least 0.1875-inch diameter.

Aluminum coops may be so constructed that the parts, such as the side panels, end panels, and the top may be assembled with screws. The height of the coop may be adjustable. Aluminum corner posts and other supporting posts may be 1/2-inch in diameter and the smaller dowels in between, 3/16-inch diameter. Dowels along the side and ends are usually placed on 1-3/4-inch centers and those between the top framing on 1-1/2-inch centers. Horizontal framing along the sides, ends, top, and bottom may be made of 3/32-inch "T-shaped" aluminum to receive the dowels. No parts are welded. The bottom may be a single sheet or screen of aluminum.

Coops. Wooden (for Live Poultry) 3/

A. Standard domestic wooden live poultry coops

Coops made entirely of wood or of wood with steel rods in the corners (see live poultry coop on cover) meeting the specifications in B, below and identified as follows:

1. A regular (domestic) or "1-man" wooden broiler coop is a coop made of wood for from 14 to 16 small fowl, or from 14 to 20 broilers.
2. A regular (domestic) or "1-man" wooden chicken coop is a coop made of wood for from 10 to 12 large fowl.
3. A regular (domestic) or "1-man" wooden turkey coop is a coop made of wood for from 5 to 6 turkeys.
4. A regular (domestic) or "2-man" wooden poultry coop is a coop made of wood for from 12 to 16 geese, 20 to 24 large fowl, etc.
5. A regular (domestic) or "2-man" wooden turkey coop is a coop made of wood for from 10 to 12 turkeys.

B. Specifications for standard domestic wooden live poultry coops

Type of coop:

Various parts of wooden coops may be constructed as follows:

1. Tops may be of board or slat construction.
2. Corners may be of steel or wood; if wood, they may be of greater diameter than the regular side or end dowels.
3. Dowels at middle of sides and ends are usually of greater diameter than regular side and end dowels, and may be of the same size as the larger wooden corner posts.
4. Middle rails are usually fastened horizontally around all four sides of coops, such as for poultry coops used by hucksters, etc.
5. "Knocked down" or "collapsible" coops are so constructed that they may be collapsed or knocked down when empty. When thus shipped, the shippers can obtain the third-class freight rate, which is usually about 70 percent of the cost of shipping rigid or assembled coops, which take the double, first-class freight rate. When collapsed, either 3 or 4 coops will thus fit in the space occupied by one rigid or set-up coop.

---

3/ Under this section are included wooden coops made entirely of wood or of wood except for such steel parts as door springs, steel corner posts, etc.

6. Doors may be placed in the center of the top of the coop, or made on one side of the coop to facilitate passing of birds in and out when the coops are stacked and loaded, such as at auction sales.
7. Cleats may be used to reinforce floor bottoms, to strengthen coop, prevent warping, or to act as runners when dragging coops over any area.
8. Removable ends may be opened to fill or remove poultry, such as for farm transfers or when coops are stacked.
9. Double-hinged doors may be hinged on either side.
10. Demountable sections, in addition to being collapsible, are demountable or built in sections which can be removed for replacement in case of breakage.

Size of

coop: Each wooden coop, according to its designation under section A, above, shall be of such approximate size as indicated in table 31.

Table 31.--Domestic wooden live poultry coops with respect to ranges of sizes, net shipping weights, and range of contents

Domestic live poultry coops	Outside dimensions (range)			Net weight (range)	Number (range) and classes of poultry per coop	
	Length	Width	Depth		Number	Class
	:Inches:	Inches	:Inches:	:Pounds	: Number	: Class
1. Regular or "1-man" broiler coop	:35-36	: 23-1/4	: 10-12	: 16-18	: 14-16	: Small fowl
	: :	: 24	: :	: :	: 14-20	: Broilers
2. Regular or "1-man" chicken coop	:35-36	: 23-1/4	: 12-14	: 16-20	: 6-8	: Geese
	: :	: 24	: :	: :	: 10-12	: Large fowl
	: :	: :	: :	: :	: 10-12	: Old cocks
3. Regular or "1-man" turkey coop	:35-36	: 23-1/4	: 16-20	: 18-23	: 5-6	: Turkeys
	: :	: 24	: :	: :	: :	: :
4. Regular or "2-man" poultry coop	:47-48	: 29-1/2	: 13-14	: :	: 12-16	: Geese
	: :	: 31-1/4	: :	: :	: 20-24	: Large fowl
5. Regular or "2-man" turkey coop	:47-48	: 29-1/2	: 16-20	: :	: 10-12	: Turkeys
	: :	: 31-1/4	: :	: :	: :	: :

Materials: For frames or rails air-dried poplar or other smooth grain woods may be used.

For floors or bottoms and doors air-dried basswood, poplar, pine, or other suitable woods are recommended.

Dowel rods shall be made from hickory, maple, or other suitable woods.

Defects in material:

1. Each piece of wood shall be free of decay. Each dowel post shall be free from visible splits
2. Knots, if any, shall be sound.
3. Each coop shall be made according to good commercial practice.
4. All lumber shall be seasoned to a moisture content of not more than 18 percent of its dry weight at the time of manufacture.

Construction of coop:

1. Material for rails, bottoms, and dowel rods shall be of the sizes indicated in table 32.

Table 32.--Width and thickness (caliper) of rails, floors, tops, and dowels of wooden live poultry coops

Parts of coop	Range of sizes of material		
	Width	Thickness	Diameter
	Inches	Inches	Inches
Rails (or frames)	1-1/4	1	
Floors, tops, and door material		3/8 - 1/2	
Dowel rods			3/8, 7/16, or 1/2
Larger wooden dowel rods as middle or corner posts			2
Cleats (if used)		5/8	

2. Spacings between dowels or rods.
  - a. Chicken coop. Top rods may be set on 1-1/4-inch centers (or no space between dowels on top to exceed 1 inch); side rods may be set on 2-inch centers (or 1-5/8 inches between rods), to allow poultry to eat between dowels.
  - b. Broiler coop. Top rods may be set on 1-1/8-inch centers; side rods may be set also on 1-1/8-inch centers so that dowels will be spaced 1 inch apart; diameter of dowels 3/8-inch.

- c. Turkey coop. Top rods may be set on 1-1/2-inch centers; side rods on 3-inch centers or 2-5/8-inches between rods; diameter of dowels 3/8-inch.

3. Nailing schedules.

- a. The number of nails used per wooden coop may vary from 100 to 139; nails may be 1-inch box nails. When spikes are used at corners, they may be No. 20.
- b. When board tops are used, two nails are used for even spacing, driven down through the top framing through the board at each junction of framing and board, and clinched. When slat tops are used, one nail shall be similarly driven at junction of framing and slat, and clinched.
- c. A chicken coop 3 by 2 by 1, dowels around sides and ends spaced 1-1/2 inches apart, uses approximately 113 nails.

A turkey coop 3 by 2 by 1-1/3, middle rails around side and ends, uses at least 80 nails.

Broiler coop 3 by 2 by 1, spaces between top rods 1 inch, spaces between side and end rods 1-1/8 inches uses approximately 152 nails.

Trucking coop 3 by 2 by 1, spaces 1-5/8 inches between side rods, and 1-1/8 inches between end dowels, uses approximately 116 nails.

4. Hardware.

For trucking coops, steel parts shall include steel corner rods, steel door rod, and steel door jamb, with no-lip door.

5. Door sizes.

Door sizes may be 10 by 11 inches of same wood as top and hinged with straight steel wire spring, or for broiler coops 8-1/2 by 13-1/2 inches.

Bill of

materials: Typical bill of materials for a collapsible 1-man or rod broiler coop 3 by 2 by 1 feet:

- 1 by 1-3/8 inches . . . . . 10 lineal feet
- 1 by 1 inches . . . . . 15 lineal feet
- 1 by 3/4 inches . . . . . 10 lineal feet
- 1 by 1-1/4 inches . . . . . 4 lineal feet
- 1 by 1-1/2 inches . . . . . 6 lineal feet
- Bottom - 6 square feet of 3/8 inch wood.
- Dowels - 84 lineal feet, 3/8 inch diameter.
- 100 - 152 box nails, 1 inch.
- 10 No. 20 spikes.

**Description:** Built in removable sections. Ends swing in or out. When folded, the coop is fastened at six points. When upright, the coop is fastened at 10 points. Collapsed height is 4 inches. Frames or rails of poplar or other smooth grain woods. Bottoms of basswood, poplar, pine, or other suitable wood 3/8-inch thick. Dowel rods of hickory, maple, or other suitable hard woods, 3/8-inch in diameter.

### Horizontal Slatted Wooden Coop

**Construction:** Tops, sides, and ends between framing of both "1-man" and "2-man" wooden coops may be constructed of horizontal slats instead of dowels. Further, those of either kind of construction may be made in the two-compartment style, for additional strength.

Bottoms are of solid wood and the top has a full-length slat for opening, which is held in place by a heavy wire both at the ends and the center.

**Material:** All slats on the ends and sides may be of 1/2-inch by 2-inch material. End supports and corners may be of 7/8-inch by 2-inch material.

### Coops, Wood and Wire (for Live Poultry)

#### A. Standard domestic wood and wire live poultry coops

Coops made of wood and wire, meeting the specifications in B, below. The identification of standard wood and wire coops shall be the same as those for standard wooden coops as given in 2, 3, 4, and 5, under A, on page 52, when the words "wood and wire" are substituted for the word "wooden" in each designation.

#### B. Specifications for domestic wood and wire live poultry coops

Type of  
coop: Wood and wire coops may be of the following types:

1. One-section coop.
2. Two-section coop with wood or wire partition, or wood and wire partition, with full-length sliding door.

Size of  
coop: Wood and wire coops shall, according to their designation, be about the same size as those given for wooden coops in table 31.

Materials: Wood and wire coops shall be made of selected cottonwood through which is forced wire of not less than No. 11 gage. All slats on the ends and sides shall be of 1/2-inch material. End supports and corners shall be of 7/8-inch by 2-inch material.

Construction: Each end and each side horizontal slat shall be vertically holed at not over 2-inch intervals, and through the holes No. 11 or larger wire shall be passed up to the cross wire and clinched or electrically spot-welded.

Sides, ends, and top horizontal slats shall be made from solid 1/2-inch cottonwood or other suitable lumber.

Bottoms shall be made from solid 1/2-inch lumber.

If coop is a two-section coop, the centers shall preferably be made of wood. At least two pieces of wood of not less than 13/16-inch thick and 1-inch wide shall be used.

Nails used in construction shall be No. 6 cement coated and No. 3 egg case cement coated.

Three wood rails may be used on the side and ends to facilitate handling when loading.

The door may be made from one length lumber; it should slide either way and be held in place by a heavy wire at both the ends and the center.

### Drums, Fiber (for Processed Poultry)

#### A. Standard domestic fiber poultry drums

Fiber drums are cylindrical in shape, and made with fiberboard side walls, and tops and bottoms of metal, fiberboard, or wood meeting the specifications outlined in B, below and identified as follows: (See figure 2.)

1. A regular 100-pound fiber drum.
2. A regular 200-pound fiber drum.

#### B. Specifications for standard domestic fiber poultry drums

Types of

drums: Depending upon the intended use, there are, in general, two types of fiber drums for poultry:

1. WVP - Water vaporproofed either by vapor barrier material fabricated in the construction of the drum, or by suitable coatings, or by means of separate bag or pouch liners.
2. NWVP - Not water vaporproofed.

**Style of**

closure: The various styles of closures used in fiber drums include the following:

1. Top locking bands actuated by levers or other devices.
2. Metal lugs or clips.
3. Nailed.
4. Friction-type or telescopic slip-on covers secured by sealing tape.
5. Other.

**Size of**

drum: The sizes of standard fiber drums are given in table 33.

Table 33.--Sizes for fiber poultry drums

Drum identification	: Capacities : or poultry : contents	: Inside dimensions	
		: Diameter	: Height
		: Inches	: Inches
Regular 100 pound	: ( 100	: 15-1/2	: 23-1/4
	: ( 100	: 15-1/2	: 24-1/2
	: ( 100	: 16	: 23-3/4
Regular 200 pound	: ( 200	: 20	: 28-3/4
	: ( 200	: 20	: 30
	: ( 200	: 20	: 31-3/4
	: ( 200	: 21-1/2	: 26

**Materials and  
construction:**

1. Sidewalls: Side walls of both drum types, WVP and NWVP, shall be convolutely wound, each ply to be not less than 0.012 inch thick. All plies shall be glued together and the outer ply shall be waterproofed. The minimum or side wall strength shall be as shown in table 34.
2. Tops and bottoms: Tops and bottoms may be made from fiber, metal, solid wood, plywood, or any combination of these materials. The thicknesses of the tops and bottoms shall be not less than those shown in table 34.

3. Fastening tops and bottoms to sidewalls: Tops and bottoms shall be fastened to the side walls with metal fastenings, adhesive, or tape, or a combination of these methods, in such a manner as to withstand handling and shipping.
4. Special linings, coatings, etc.: Materials imparting grease-proof or stainproof properties, including paraffins and resins, may be added to the board material.

Table 34.--Side wall strength and minimum top and bottom thicknesses for fiber drums

Maximum limit weight of contents (pounds)	Minimum side wall test	Minimum requirements for tops or bottoms <sup>1/</sup>				
		Fiberboard outer ply--waterproofed Thickness	Test	Steel (U. S.)	Wood thickness Solid ply plywood	
	:Lb. per :sq. in. <sup>2/</sup>	: Inches	: Lb. per : sq.in. <sup>2/</sup>	: Gage	: Inches	: Inches
100	500	.160	400	28	1/2	3/10
			or			
		.120	800			
200	700	.180	500	26	1/2	3/8
			or			
		.120	1000			

<sup>1/</sup> Regular tops may be omitted for drums containing chilled poultry, provided covering material is used to exclude dirt or foreign materials. Coverings may be of creped kraft paper, osnaburg cloth, burlap laminated kraft, or other suitable materials.

<sup>2/</sup> When there is more than a single ply, the test may be determined by multiplying test of single sheet or ply by the number of laminations or plies.

Jars, Glass (for Processed Poultry)

A. Standard domestic cooked poultry or poultry product jars

Jars of several different styles made of glass meeting the specifications in B, below and identified as follows:

1. A regular 5-ounce jar for cooked boned chicken or turkey
2. Domestic jars holding 9-1/2, 11, or 16 ounces of chicken a-la-king, chicken with noodles, etc.
3. Home canning jars holding 1/2 pint, 1 pint, and 1 quart of cooked poultry.

B. Specifications for standard domestic cooked poultry or poultry product jars.

Style of  
jar:

1. Commercial styles--any of the styles now in use.
2. Home-canning style--Mason or lightning-type jars.

Style of  
closure:

1. Commercial styles--standard rubber, hermetically sealed style.
2. Home-canning styles--Mason jars closed by screw cap made of zinc, porcelain lined, screwed down over rubber ring; or closed by metal screw band over glass lid with rubber inside ring; or closed by metal screw band over metal lid edged with sealing compound.

Lightning-type jars closed by glass lid with rubber inside ring held in place by wire bail.

Materials:

1. Glass. Jars may be made from ordinary flint or soda-lime glass.
2. Caps. Caps may be zinc porcelain-lined, glass, or metal screw caps. (Mason jars for home canning.)
3. Seals. Seals may be a rubber ring or sealing compound. (Mason jar for home canning.)
4. Bails. The bail for the lightning-type jar is made of wire. (Jar for home canning.)

Part III.--PACKING AND WRAPPING MATERIALS FOR POULTRY PACKS

Fillers, Fiber

A. Standard domestic and export fillers

Strips of corrugated fiberboard at right angles to each other (half-slotted, interlocking, vertical cell partitions), used as cushioning material, in which poultry and poultry products in glass jars are held in place within a regular shipping container, with or without the partitions having extended tips, and meeting the specifications in B.

**B. Specifications for fillers**

Style of filler: Each filler shall be of honeycomb style.

Materials and construction: The corrugating material, liners, or backings shall be of the minimum thicknesses shown in table 35.

Table 35.--Thicknesses (caliper) of corrugated material used as fillers for glass jars of cooked poultry or poultry products

Minimum thicknesses (caliper) of liners (Inch)	Material (not chipboard)	Minimum thicknesses of corrugating material	Size of corrugation
		Inch	Flute
0.009	Kraft or jute	0.009 or 0.010	A, B, or C

**Films, Plastic and Transparent**

**A. Standard plastic and transparent films for poultry**

Plastic and transparent film in sheets, tubings, or made up in bags and used as close wrapping of whole poultry, cut-up poultry, and poultry parts shall meet the specifications (properties) outlined under B, below. (See film-wrapped bird photo on front cover.)

**B. Specifications for plastic and transparent film poultry bags and sheets**

Size of bags and sheets: The recommended sizes for round-end turkey bags are given in table 36. The recommended sizes for poultry sheets are given in table 37. For sizes of film overwraps see table 30.

Table 36.--Sizes of round-end film bags for ready-to-cook turkeys

Relative sizes of different classes of turkeys	Dimensions of bags	
	Length	Width
	Inches	Inches
Small hens	18	12
Medium hens and small toms	24	14
	20	14
Very large hens and medium toms	24	16
Large toms	26	18
Very large toms	27	20

Table 37.--Approximate film sheet sizes for wrapping fresh whole, or cut-up ready-to-cook poultry in retail stores for self-service, and sizes for direct wraps (close fitting) on ready-to-cook frozen poultry

Items	Size of sheets					
	: For wrapping : whole fresh : poultry in : retail stores : for self service		: For wrapping : cut-up poultry : alone or poultry : in trays for : self service		: For direct, close-fitting wraps on frozen ready-to-cook whole birds	
Kind	Class	From	To	From	To	Sheet size and size ranges
		Inches	Inches	Inches	Inches	Inches
Poultry	Broilers	16 x 18	18 x 20	14 x 16	18 x 20	14 x 16
	Fryers	16 x 18	18 x 22	16 x 18	18 x 20	16 x 18
	Roasters	18 x 20	20 x 22	16 x 18	20 x 20	18 x 20 - 20 x 20
	Fowl	18 x 20	20 x 22	16 x 18	20 x 20	16 x 18 - 18 x 20
Ducks	Duckling	18 x 20	20 x 22	16 x 18	20 x 20	20 x 20
Turkeys	Small	22 x 26	26 x 30	22 x 26	26 x 30	25 x 28
	Medium	26 x 30	30 x 34	26 x 30	30 x 34	29 x 32
	Large	30 x 34	34 x 38	30 x 34	33 x 36	32 x 35

**Properties**

of films: Films are produced in sheet or roll form, in various thicknesses best suited for various classes of poultry. Table 38 gives the properties of some films used for processed poultry.

**Sealing transparent film:**

The temperature of the sealing irons and hot plates for heat-sealing sheets of cellophane-wrapped poultry should be about 300° F. If the iron is being used continuously or for 450-weight films, a slight increase in temperature may be desirable. For intermittent use for heavyweight irons, temperatures as low as 250° F. may be used. In no case should the iron be hot enough to scorch the film sheets. Cellophane may also be satisfactorily sealed by using self-sealing cellophane tape.

**Foils and Metal Trays**

**A. Standard aluminum foils and aluminum trays**

Aluminum foil used in sheet form for frozen poultry or made into trays for frozen cooked poultry products or for self-service fresh cut-up poultry and poultry parts displays, shall meet the specifications (properties) outlined under B, below, and identified as follows:

Table 38.--Various properties of some plastic and transparent films used for frozen poultry and as wraps for short-life fresh poultry displays in retail self-service stores

Type of film	Forms available	Thickness	Resistance to heat	Resistance to cold	Heat sealing range
		<u>Inch</u>	<u>Degree F.</u>	<u>Degree F.</u>	<u>Degree F.</u>
Plastic film	Rolls and sheets, lay-flat tubing, gusseted tubing	0.001 or more	Softens at 200°	Less than - 90°	250° - 300°
Plastic film	Tubes and rolls	0.001 to 0.002	Softens at 300°	Flexible at - 20°	240° - 270°
Plastic film	Continuous rolls and sheets	Normal 0.0008 to 0.00225 Tensilized 0.0002 to 0.0004	160°	Depends on plasticizer:	250° - 350°
Transparent film (heat sealing moistureproof, anchored lacquered, regenerated)	Sheets and rolls	0.0009 to 0.0017	Begins to char at 300°	Depends on type and R. H.	200° - 300°
Transparent film (plain, regenerated, cellulose)	Sheets and rolls	0.0008 to 0.0016	Begins to char at 375°	Depends on type and R. H.	-

1. An aluminum foil poultry top sheet is a sheet of plain aluminum foil for pressing down over box-packed frozen poultry.
2. An aluminum foil direct poultry wrap is a sheet or bag made of plain aluminum foil for wrapping frozen ready-to-cook whole, halved, or quartered birds.
3. An aluminum foil paper for poultry products is a printed foil bonded to paper and used as an overwrap over waxed paperboard cartons containing quick-frozen cooked poultry or frozen poultry products.
4. An aluminum foil poultry tray is a tray made from heavy foil, with a cover, for frozen cooked poultry products such as chicken pies, or, without cover, except for a film overwrap, for fresh cut-up poultry in self-service refrigerated cases.

B. Specifications for aluminum foil

Description and thickness of material:

1. For top sheets for frozen box-packed poultry, or for a direct wrap over frozen ready-to-cook whole, halved, or quartered birds, a 0.0015-inch gage foil may be used. As an additional protection, the foil-wrapped item may be inserted in an aluminum foil bag or in any plastic film bag or sheet. Transparent film 450 MSAT could also be used as an additional protective wrap. Aluminum foil of 0.0015-inch gage for poultry has a bright finish (shiny) on one side and a mat (dull) finish on the other side. The temper is dead soft; that is, it is fully annealed.

Some principal properties of 0.0015-inch gage aluminum foil are listed in table 39.

Table 39.--Some principal properties of 0.0015-inch plain aluminum foil for poultry

Material	Thickness	Mullen	Tensile strength	Moisture-	Weight
	(gage)	test per	per inch in the	vapor	
	square	weaker direction	trans-	mission	(24x36 - 480)
	inch	inch			
	<u>Inch</u>	<u>Pounds</u>	<u>Pounds</u>	<u>Gram</u>	<u>Pounds</u>
Plain aluminum foil	0.0015	28	12.1	0.01	61

2. Printed aluminum foil paper consists of paper bonded by an adhesive to a continuous sheet of aluminum foil. The most common foil thicknesses for bonding are 0.00035 inch and 0.0005 inch. The paper background is generally a high finished ground-wood sulphite sheet. The most common laminant is microcrystalline wax.

3. For trays for frozen cooked poultry products such as chicken pies, or for fresh cut-up poultry in self-service refrigerated cases, sizes, and types of heavy foil used in their manufacture are factory coded with respect to their relative loads in ounces. Codes are R-12, 3S half hard, R-16, 3S half hard, and R-32, 3S half hard. For sizes R-12 and R-16 the thickness, or gage, is 0.004 inch. R-32 is made out of 0.005 inch gage material. The trays are packed for shipments in lots of 1,000 per shipping carton.

### Laminated Combinations (for Processed Poultry)

#### A. Standard materials for laminated wraps and protective coverings for poultry and dehydrated poultry products

Foil, plastic or transparent film, and paper used as ply material for combining into a single-structured wrap for containing dehydrated poultry products, or burlap, cloth, and paper similarly combined or used singly as a protective covering for iced poultry in barrels, shall be identified as indicated below and shall meet the specifications given in B and C.

1. An envelope for dehydrated poultry product mix is an envelope-shaped container made by laminating film, foil, and paper.

2. A protective covering for barrels of iced poultry is a piece of burlap, osnaburg cloth, heavy crepe paper, or burlap or cotton cloth laminated to crinkled or creped kraft papers into a single wall.

#### B. Specifications for a laminated envelope for dehydrated poultry products

An envelope-shaped container made by laminating a three-ply structure of film, foil, and paper has been claimed as suitable for dehydrated poultry product mixes, such as dehydrated chicken rice soup mix. The food mixture contains various proportions of dehydrated vegetables, noodles or macaroni, seasonings, vegetable and dried chicken fats and oils. The purpose of the package is to exclude light, air, and moisture.

Size and contents of

envelope: For containing 2 ounces of a dehydrated poultry product soup mix such as dehydrated chicken rice soup mix, the size of the envelope is approximately 4-1/4 by 5-1/2 inches.

Materials: The laminated structure for the envelope is formed by placing the foil on the outside, the film on the inside and the paper laminated between the foil and the film.

C. Specifications for a laminated covering for iced poultry in barrels

Burlap, osnaburg cloth, or crepe kraft paper may be used singly or in a 2-ply lamination as covering for iced poultry in barrels.

Materials:

1. Burlap. Burlap or Hessian cloth is a product woven from the bast fibers of jute. Weights are commonly 7-1/2, 8, 9, 10, 10-1/2, 12, and 14 ounces. Widths in common use are 32, 36, 40, 45, and 54 inches. The 40-inch width is the basis of weight measurement. A linear yard of 36 inches at 10 ounces per 40-inch, weighs 9 ounces, for example.
2. Osnaburg cloth. The weight of cotton cloth is usually given in yards per pound. The figures--"40 inches, 2.85 yards"--mean that 2 and 85/100 yards of cloth, 40 inches wide, weigh one pound. Osnaburgs are generally woven of the heaviest yarns.

Burlap or cotton (osnaburg) may be laminated to crinkled or creped kraft paper into a single wall. The laminant may be glue or starch adhesive, resin, or wax.

Closure: Tacks, wood or wire hoops, or adhesive may be used for barrel closure.

Pads, Fiber

A. Standard export and domestic fiber pads and liners

Sheets of corrugated fiberboard used as cushioning material as well as for interlocking partitions to hold glass jars of poultry and poultry products, may be placed around the sides of the partitions or placed at the top and the bottom of the regular shipping container. When used around the sides, the sheets are termed "liners"; when used at the top and the bottom, they are referred to as "pads." Pads may also be used between layers of canned poultry or between layers of partitions holding poultry in glass jars. Fiber pads and liners shall be identified as indicated below and shall meet the specifications in B.

1. A corrugated fiber pad for box-packed canned poultry and poultry in glass jars is a sheet of corrugated fiberboard material for horizontal insertion at top and bottom of partitions holding poultry in glass jars, or for horizontal insertion between layers of canned poultry.

2. A corrugated fiber liner for poultry in glass jars is a sheet of corrugated fiberboard material for vertical insertion around the sides of corrugated cell partitions containing glass jars.

**B. Specifications for fiber pads and fiber liners**

**Material:** The corrugating material used for fiber pads and fiber liners shall be of the minimum thicknesses shown in table 35.

**Pads, Wood**

**A. Standard wood (excelsior) pads for baby chick boxes**

Sheets of wood wool or excelsior, of correct size and thickness to fit accurately into the bottom of cells of chick boxes shall be identified as indicated below and shall meet the specifications under B.

1. A wood wool or excelsior baby chick or poult box pad is a pad half the length and half the width of the respective inside length and inside widths of all regular 4-cell 100 baby chick or poult boxes.

**B. Specifications for wood (excelsior) pads**

Excelsior (wood) consists of thin, curled strands or shreds cut by rapidly moving spurs or knives from bolts of wood about 18 inches long. The bolts are held firmly in a machine and scored or slit by sharp spurs or teeth. The scored portion is then pared off with a knife, and the operation of slitting and paring is repeated until the bolt is used up. The width of the strands is determined by the distance between the spurs (expressed as "gage") and the thickness by the amount the paring knife is advanced between each cut (expressed as "knife cuts per inch"). The highest grades of excelsior (wood) consist of the thinnest and narrowest strands, and the lowest grades of the coarsest strands. Excelsior in bale form is sold by weight, the bales weighing about 100 pounds.

Size of

pads: Excelsior pads for chick boxes may be furnished in the following size:

9 by 11 for regular winter boxes  
9 by 12 for regular summer boxes  
10 by 12 for oversized boxes

**Materials:** Excelsior (wood) for pads should be made from straight-grained wood (slope of grain not over 1 in 20), free from decay, discoloration, and pitchy accumulations. The wood shall have been seasoned at least 4 months, and shall be cut from bolts not less than 18 inches long.

The pads shall be thick-meshed and soft; tough, but not brittle, and free from lumps, sticks, dust, and any objectionable odor. They shall resist crushing or close packing and have the ability to expand after being compressed.

Packing and

packaging: Fine excelsior (wood) padding shall be packed and sold in bundles weighing about 30 to 40 pounds, the price varying with the size of the pads and with the species of wood and grade of excelsior used.

Papers

A. Standard papers for poultry

Papers used as liners for poultry packed in boxes, barrels, and drums, papers as wraps for individual birds, and as head wraps and giblet wraps, shall be identified as indicated below and shall meet the specifications given in B, C, D, and E.

1. A domestic poultry head wrap is a wrap of genuine vegetable parchment paper, or paper waxed on one side, made from 25-pound or better basis weight paper.

2. A domestic liner for box-packed poultry is a liner made of genuine vegetable parchment, or whale hide or wet-strength paper, for insertion in fiber, wire-bound, and wood boxes and in barrels or drums of packed poultry.

3. A domestic or export paper individual bird wrap is a paper wrap with proper moisture vaporproof properties to wrap around individual birds for packing and freezing in fiber, wire-bound, and wooden boxes, and in fiber drums.

4. A domestic vegetable parchment giblet wrap is a paper wrap for giblets for insertion in the body cavity of fresh or frozen ready-to-cook whole birds.

5. A domestic tray or backing for self-service poultry is a pulp, wax-board tray for backing, or a U-board tray made of unsized paperboard, for refrigerated case displays in self-service stores.

B. Specifications for head wraps

Sizes: Head wraps range in size from 5 by 5 by 10 inches for broilers to 10 by 10 by 20 inches for extra large turkeys. Sizes of head wraps for dressed poultry are shown in table 40.

Table 40.--Approximate sizes for head wraps in relation to kinds and classes of dressed poultry

Kind	Class	Size
<u>Inches</u>		
Chickens	Broilers	5 x 5 x 10
	Fowl	6 x 6 x 12
Turkeys	Small	7 x 7 x 14
	Large	9 x 9 x 18
	Extra large	10 x 10 x 20
Ducks	Ducklings	8 x 8 x 16

**Materials:** Basis weights for market, wrapping, vegetable parchment and waxed on-one-side papers for head wraps are shown below in table 41.

Table 41.--Basis weights of different papers used as head wraps for dressed poultry

Kind of paper	Basis weight
<u>Pounds</u>	
Regular "market"	40
Regular "wrapping"	40 - 60
Waxed on one side	25 - 30
	30 - 36
	40 - 45
Genuine vegetable parchment	27

C. Specifications for liners

**Sizes:** Two liners shall be used for each box of poultry, each of which shall be at least 2 inches wider than the width and length of each box. They shall be long enough so that after crossing at right angles at the bottom of the box when empty, they will overlap over the birds when packed. Similarly, three liners shall be used for barrel-packed poultry.

**Materials:** For fresh, ice-packed poultry such as broilers shipped in boxes or in barrels, either 27- or 35-pound genuine vegetable parchment shall be used as liners. Whale-hide paper, or kraft paper which has been parchmented, may also be used, as well as various suitable wet-strength papers. Crinkled vegetable parchment and crinkled whale-hide papers are also suitable.

Liners for boxes for frozen poultry, shall be made from either high-grade insoluble vegetable parchment or from bleached or semi-bleached long-fibered pulp, wet strength, treated so as to have a wet-tensile strength after soaking 24 hours of not less than 25 percent of its tensile strength when dry. The minimum basis weight of the paper liners shall be 30 pounds per ream (24 by 36 - 500) (27 pounds if parchment) before waxing with a minimum of 10 pounds of fully refined wax per ream. The wax shall have a melting point not lower than 128° F. All liners shall be of such grade and material as to transmit no color, odor, taste, or toxicity to the poultry.

Liners made from other materials for frozen, box-packed poultry shall have at least equal or better wet tensile strength and moisture-vapor-resistant properties and other specifications described above. Regular waxed paper in either 35- or 40-pound basis weight, waxed on one side, is acceptable.

High greaseproofness and wet strength are characteristics of vegetable parchment. Normally its water vapor transmission rate is quite high, although certain grades have been produced with a rating close to 1.0 gram for 100 square inches per 24 pounds at 90° F. It is available in weights from 25 to 120 pounds per standard ream of 500 sheets, 24 by 36 inches. It is sold plain or printed in sheets, rolls, or die-cut pads.

Paper coated with wax on one side is called wet-waxed, and in its manufacture 20 to 40 percent of wax by weight is coated only on one surface. Either microcrystalline or paraffin waxes or blends may be used. However, since paraffin often becomes brittle and cracks or flakes at low temperature, microcrystalline waxes are superior when making wet-waxed papers for products stored at low temperatures. Wet-waxed paper is always printed before being coated. It is available in rolls, sheets, or die-cut pads and sold on a cost-per-pound basis.

D. Specifications for domestic or export paper wraps for frozen individual birds

Sizes: Sheet sizes for frozen individual birds, box-packed in fiber, wire-bound and wooden boxes, barrels, and fiber drums, shall be the same as shown in table 37, page 62, for various kinds and classes of poultry. See under column "For direct, close-fitting wraps on frozen ready-to-cook whole birds," table 37.

Material: Papers used for individual bird wraps for frozen birds shall be made of good quality moisture resistant material. See table 42 for acceptable wraps for frozen individual birds. Preferably, individually wrapped, frozen poultry for export or for long storage, if box-packed, should also contain moisture-resistant liners within the box.

E. Specifications for giblet wraps

Sizes: The usual size of sheet for wrapping giblets for insertion in the body cavity of ready-to-cook poultry is about 9 inches by 12 inches.

Material: Paper for giblets may be either 27- or 35-pound basis of vegetable parchment. For shipments and for storage up to 3 months, this paper is considered adequate. Vegetable parchment paper may be printed with stay-fast inks which will not rub off in the presence of moisture and grease inside the carcass.

Tables 42 and 43 list papers used as box liners and wraps and their properties.

Stockinettes

A. Standard cotton overwraps for poultry

Cotton overwraps or stockinettes for poultry, and meeting the specifications given under B shall be identified as follows:

1. A regular cotton overwrap or stockinette is a cotton mesh sack drawn over frozen whole birds and tied, used as a protective outer wrap against rough handlings of frozen poultry in storage or during shipment. The inner, or retail wrap may be foil, film, or cellophane.

B. Specifications for stockinettes:

Sizes: Bundles of stockinettes are commonly available in 32-, 36-, and 42-inch lengths. Selection is made on the basis of cutting for individual bird lengths without waste of material, and allowing for sewing and tying. A stockinette 2-1/4 inches wide may be stretched to a width of 16 or 17 inches.

Materials: Good quality cotton open mesh cloth shall be used in the manufacture of stockinettes.

Closure: Cotton thread closures of stockinettes may be sewed either by hand or by machine. After filling, the open end may be gathered and tied.

Table 42.--Description and basic weights of papers used as box liners or as individual bird, giblet, and head wraps for various types of poultry shipments

Type of box-packed poultry for shipment	Papers and their basic weights used as liners and wraps			
	Liners in boxes	Wraps		
		Individual bird	Head	Giblet
Fresh, dressed, domestic; iced	27-or 35-pound vegetable parchment, crinkled whale hide, or wet-strength 1/ 2/	-	-	-
Dressed, domestic, chilled	27-pound vegetable parchment	-	Parchment, waxed-on-one-side	-
Ready-to-cook, domestic, chilled	27-pound vegetable parchment	-	-	27- or 35-pound parchment
Dressed, domestic, or export, frozen	Waxed parchment, 30-pound basis weight before waxing, or regular waxed paper 35- or 40-pound basis weight, waxed-on-one-side, or the equivalent	35- or 40-pound parchment, waxed-on-one-side 3/	-	-
Dressed, domestic, or export, frozen	do	-	Parchment, or waxed-on-one-side	-
Ready-to-cook, domestic or export frozen	do	35- or 40-pound parchment, waxed-on-one-side	-	27- or 35-pound parchment

1/ Whale hide paper--a parchmentized kraft basis paper, usually crinkled.

2/ Wet-strength paper--a paper which retains a substantial degree of its original strength properties upon immersion in water. Generally applied specifically to paper which has been tested, by beater or tub-sizing, with a melamine-formaldehyde resin.

3/ Waxed-on-one-side paper--usually recommended as 26-30 pound, 30-36 pound, or 40-45 pound basis, the heavier the bird the heavier the paper.

Table 43.--Properties of some papers used as box liners for poultry or as individual bird, gible, and head wraps

Kind of paper	General properties			Physical properties		
	Type of pulp or base stock used:	Weight ranges: 500 sheets : 24" x 36"	Resistance: to grease :	Bursting strength (Mullen)	Folding : endurance	Wet strength 1/
		<u>Pounds</u>		<u>Pounds per square inch:</u>		
Vegetable parchment	High alpha cellulose, from sulphite or sulphate pulp	27 - 35 or higher	Good to insoluble, depending upon grade	Approx. 100% basic weight on sulphates. Approx. 70% basic weight on sulphites.	Very good on special grades	Mullen and tear: 50-60% of dry
Kraft (Sulphate)	Kraft, pulp only	25 - 90	None	Not less than 80 percent of basic weight	10 double (Schopper)	Low
Greaseproof	Hydrated sulphite or sulphate not super calendered	20 - 50	Good	Good with sulphate pulp. Fair with sulphite	Moderate Normally brittle	Poor on regular greaseproof
Base paper (for coating or waxing)	Sulphate, sulphite, or mixed pulps	15 - 50	None	At least 60% of basic weight	Good	Low
Wet strength:	Usually sulphate pulp plus melamine resins	15 - 50	Poor	Over 60% of basic weight	Dry. Some what better than base-type paper	Normally from 30 - 50% of dry values after 16-hour immersion

1/ Plain kraft or greaseproof paper can be given wet-strength characteristics by adding suitable resins to the pulp.

STANDARD TESTS AND TESTING PROCEDURES 4/

Performance Tests for Container Parts

Mullen or Cady Test for Fiberboard

This is a bursting strength test in which standard Mullen or Cady testers of the hand, motor-driven, or jumbo types are used. It consists essentially in clamping the wet or dry fiberboard between two surfaces having concentric circular openings of about 1.25 inches in diameter and then applying hydraulic pressure through a rubber diaphragm secured to one of the circular openings so as to burst a hole through the board exposed to the opening. The pressure required to burst the board is recorded by means of a pressure gage calibrated to read in pounds per square inch. The hydraulic system of the tester is filled with glycerine and maintained free from entrapped air when in use.

1. The procedure for making the standard Mullen or Cady test is as follows:

a. Conditioning board for dry bursting strength test

Mullen or Cady test shall be made after the board (fiberboard and paperboard) has been conditioned for 3 hours in an atmosphere of 50 to 70 percent relative humidity and from 70° to 80° F. temperature. In case of dispute, the board specimens for final referee tests shall be conditioned in an atmosphere maintained at 50 percent (plus or minus 2 percent) relative humidity, and 75° F. (plus or minus 5° F.) until moisture in the sample attains an equilibrium with conditioning atmosphere as determined by accurately weighing samples at intervals of not less than 24 hours until the weight is constant.

b. Conditioning board for wet tests

Board and boxes shall be allowed to cure in an atmosphere of 50 to 70 percent relative humidity and 70° to 80° F. temperature for at least 1 week from time of manufacture to time of submission. When the wet bursting strength, ply separation of board, or wet drop test of a box so aged is below specifications, additional samples from the same lot may be aged for a total of 2 weeks from time of manufacture to time of submission and tested for final determination of compliance. Boxes for corner drop test may be further aged for a maximum of 96 hours after sealing if such a period is necessary to prevent failure of sealing bond.

Specimens of fiberboard or boxes, properly aged and conditioned as specified in the above paragraph, shall be immersed for 24 hours in fresh tap water maintained at a temperature of 75° F. (Plus

---

4/ Other performance tests for containers and container parts shall be added to these recommendations as they are proved in commercial handling or in laboratory tests.

or minus 5° F.). The water shall have a pH value between 5.8 and 8.0, a degree of hardness within reasonable limits, and shall be drawn fresh for each batch of samples.

Specimens shall be 6 inches x 10 inches in size cut from sound unscored portions of boxes and shall be submerged vertically with the 10-inch edges horizontal, the top edge 1 inch below the surface of the water and supported so that the water has free access to all surfaces and ply separation is not restricted. Bursting strength specimens taken from the water after the 24 hour period shall have excess surface water removed by suitable means so that the surfaces no longer glisten. Water shall be removed from the flutes of type GF boards by vigorously shaking specimens to fling the water out.

c. Bursting strength method

The bursting strength of fiberboard shall be determined as follows:

- (1) The board shall be clamped firmly in the machine to prevent slipping.
- (2) Pressure shall be applied by the action of a motor-driven or hand wheel. The wheel of the hand-driven testing machine shall be turned at a uniform speed of about 2 revolutions per second. If the board slips during a test, the results shall be disregarded.
  - (a) In testing corrugated fiberboard, double pop tests shall be disregarded.
- (3) Six punctures shall be made, 3 from each side of the board.
- (4) When making wet tests, at least 6 tests shall be made on each 6 by 10 specimen immediately after removal of excess water.
- (5) To comply with this specification, the average of the 6 tests shall not fall below the strength requirements indicated in the specifications, dry or wet.
- (6) If the fiberboard fails to pass the test as specified, then a retest may be made on 4 additional specimens consisting of 24 punctures, 12 from each side of the fiberboard. Specimens shall be conditioned according to paragraph ("a") and ("b"), above. If the average of these tests falls below the strength requirements, the fiberboard would be rejected.

Ply Separation and Bonding Test for Fiberboard

1. Specimens of fiberboard shall be conditioned in accordance with ("1-b") above.

2. Six specimens shall be examined immediately after removal of excess water for ply separation and satisfactory bonding.

3. When separation of the component plies appears at the edge of the fiberboard, such separation shall not extend more than 1/4 of an inch from the edge of the specimen when loose edges are flexed by pressure from the thumb. All other areas shall be satisfactorily bonded.

STANDARD TERMINOLOGY

1. Adhesive - A substance capable of holding materials together by surface attachment.
2. Air-dried or air-seasoned wood - Green wood dried by exposure in a yard without artificial heat.
3. Barrel cleat - A wooden strip fastened across the head of a slack barrel.
4. Barrel liner - A protective bag or sheet, usually made of paper used inside slack barrels to protect the contents from moisture and contamination.
5. Batten - A reinforcing member attached inside or outside, at right angles to the grain of wood in box panel, wooden barrel head, or outside face of the end of a wire-bound box or crate.
6. Base box - The estimative unit area. For tin mill products, 112 sheets, 14 inches by 20 inches, or 31,360 square inches (217.78 square feet).
7. Bead - The outside edge of circled heading of slack barrels which fits into the croze of the staves.
8. Bilge - The bulging, curved part of a slack barrel, equidistant from each head.
9. Black plate - Thin sheets of steel, produced by hot-pack rolling or the cold-reduction method, in widths of from 12 inches to 33 inches and in gages No. 29 and lighter, within the limitations of the "Uniform Classification of Flat Rolled Carbon Steel Products."
  - a. Chemically treated black plate - Black plate that is given chemical treatment for the purpose of improving the adhesion of organic enamels, paints, or lacquers.
10. Blue stain - A bluish or grayish discoloration of the sapwood caused by the growth of certain moldlike fungi on the surface and in the interior of the wood piece; made possible by the same conditions that favor the growth of other fungi.
11. Board -
  - An abbreviated term for fiberboard, paperboard, container board, etc., used in making shipping containers, folding boxes, and cartons.
  - a. Container board - Sheets of fibrous materials, usually in rolls, for use of manufacturers in making solid or corrugated fiber shipping containers.

- b. Corrugated board - A sheet of container board that has passed through a corrugating machine, receiving a number of corrugations (flutes).
- (1) A-flute corrugated board - A corrugated board that has about 36 corrugations (flutes) per foot, approximately 0.180 of an inch high.
  - (2) B-flute corrugated board - A corrugated board that has about 51 corrugations (flutes) per foot, approximately 0.097 of an inch high.
  - (3) C-flute corrugated board - A corrugated board that has about 42 corrugations (flutes) per foot, approximately 0.0140 of an inch high.
- c. Fiberboard - See definition 39, a and b.
- d. Liner board - A term used to designate container board that is used as an inner or outer facing in the manufacture of corrugated or solid fiberboard.
- e. Paperboard - Generically it may include all cellulosic fiber sheet stock, finished or ready for further fabrication or treatment, having a thickness greater than 0.009 inch.
- (1) Fourdrinier-machine-made paperboard - Made by pulp furnish carried on long endless vibrating screens and thence over a series of heated dryer rolls and through calender rolls. The fibers are more evenly distributed directionwise than cylinder board.
  - (2) Cylinder-machine-made paperboard - Paperboard made by drawing a web over a series of large, hollow cylinders covered with fine-mesh screen, which is then drawn over dryer rolls.

Since most of the fibers of cylinder board lie parallel to the direction of the machine, the grain direction of the fiber is more distinctive than in Fourdrinier board.

- f. Test Board - A general term for fiberboard, or paperboard, that is required to meet a specified bursting or puncture test, a definite caliper, and a definite weight.

When pertaining to wood, board refers to lumber less than 2 inches thick and 8 inches or more in width.

12. Bottom - The face on which a container usually rests while it is filled or handled.
13. Box - A container having four closed faces, usually square or rectangular.

14. Bursting strength - The pressure required to rupture a specimen when it is tested in a specified instrument under specified conditions; commonly used as an important measure of the strength of paper, paperboard, or fiberboard.
15. Cady-tester - A machine used to test the bursting strength of paper, paperboard, or fiberboard. (Same as Mullen tester.)
16. Can - A container usually of 10 gallons or less capacity and usually cylindrical in shape.
17. Cant - A single outside piece of a multiple-piece wooden barrel head.
18. Carton - A closed receptacle, made of paperboard or fiberboard, that is used as interior packing or as a consumer package, but not applied to shipping containers.
19. Case - Used synonymously with box. Usually means a reasonably large wooden, wire-bound, or fiberboard box.
20. Cement coating - A coating applied to nails to increase their holding power.
21. Chime - That portion of the stave between the croze and the end of the barrel.
22. Cleat - A wooden, metal, or fiberboard strip attached along the edge of a wooden, wire-bound, or fiberboard container, used to connect an adjacent panel, or to fasten to the panel between the edges for reinforcement and stiffening.
23. Container - Any receptacle (such as bag, barrel, drum, box, crate) used in commerce for packing, storing, or shipping poultry in various forms.
24. Container board - See definition 11a.
25. Corrugated board - See definition 11b.
26. Corrugated fiberboard - A sheet of corrugated board on one or both sides of which a sheet of container board has been pasted.
  - a. Single-faced corrugated fiberboard - A sheet of corrugated board, on one side of which is pasted a sheet of container board.
  - b. Double-faced corrugated fiberboard - A sheet of corrugated board, on both sides of which a sheet of container board has been pasted.
27. Croze - A groove near the ends of the staves into which the head of the wooden barrel fits.

28. Culls - (wooden barrels) - Defective pieces of staves or heading for wooden barrels.
29. Cut-up poultry - A general term for all the parts, including giblets, that result from the cutting up or disjointsing of ready-to-cook birds.
30. Defect - An irregularity occurring in or on material that may lower its strength.
31. Die-cut containers - Corrugated cartons fabricated by using special punching die blades, instead of conventional rotary knife segments, for any cut, flap, or hole. (These are being used to a greater extent, eliminating sealing tape formerly required for the regular slotted carton.)
32. Dowel - A vertical peg, usually cylindrical, for joining and supporting horizontal framing construction, such as for poultry coops.
33. Dressed poultry - Poultry which has been slaughtered for human food with head, feet, and viscera intact and from which the blood and feathers have been removed.
34. Dry-waxed paper - Paper impregnated with wax, applied either at the dry end of the paper machine or as a secondary operation.
35. Edge grain nailing - Wood members so nailed together that the point of the nail follows the grain of the wood in that member holding the point of the nail.
36. Electrolytic tin plate - Black plate additionally processed by pickling and coated on both sides with commercially pure tin by electrodeposition; that is, deposited by means of electricity.
37. Eviscerated poultry - Any dressed poultry from which the pinfeathers, vestigial feathers (hair or down, as the case may be), head, shanks, crop, oil gland, trachea, esophagus, entrails, reproductive organs, and lungs have been removed and, with or without the giblets, is ready-to-cook without need of further processing.
38. Face - Any one of the plane surfaces of a container.
39. Fiberboard - Two or more plies (thickness) of container board pasted together, or one or more sheets of container board pasted to a corrugated sheet to make solid or corrugated fiberboard.
  - a. Solid fiberboard - Two or more plies (thicknesses of container board pasted together).
  - b. Corrugated fiberboard - A sheet of corrugated board, on one or both sides of which a sheet of container board is pasted.

40. Flange (metal can) - The ends of a can body turned outward so as to engage in curl of ends for double seaming.
41. Flute (or corrugation) - Refers to one of the undulations (corrugations) on a corrugated board.
- a. A-flute corrugated board - A corrugated board that has about 36 corrugations (flutes) per foot, approximately 0.180 of an inch high.
  - b. B-flute corrugated board - A corrugated board that has about 51 corrugations (flutes) per foot, approximately 0.097 of an inch high.
  - c. C-flute corrugated board - A corrugated board that has about 42 corrugations (flutes) per foot, approximately 0.140 of an inch high.
42. Framing - The parts or members of a crate forming the main structure to which the sheathing, braces, dowels, and blocks may be added.
43. Gage - Thickness of metal or diameter of steel and iron wire expressed in whole numbers (1-20) or expressed in decimal parts of an inch.
44. Giblets - Liver (with bile sac removed), the heart from which the pericardial sac has been removed, and the gizzard from which the lining and contents have been removed.
45. Grain - The direction, size, arrangement, appearance, or quality of the fiber in wood.
- a. Cross grain - Grain not parallel with the axis of a piece. It may be diagonal or spiral, or a combination of both.
  - b. Diagonal grain - Annual rings at an angle with the axis of a piece as a result of sawing at an angle with the bark of the tree.
  - c. Edge grain - Lumber that has been sawed parallel with the pith of the log and approximately at right angles to the growth rings.
  - d. Vertical grain - Same as edge grain.
46. Groups of staves or bundled staves - Sets of staves for slack barrels, tied up with wire.
47. Gummed cloth tapes - Tapes which may be clay filled, fiber filled, or cloth combined with paper, used by manufacturers of fiberboard containers for the manufacturer's joint.
48. Gummed sealing tape - A kraft paper in a wide range of basis weights (usually 35, 60, and 90 pounds (24 by 36 inches - 500 sheets)), which is gummed on one side and slit into rolls of various widths.

49. Gummed sisal tape - A tape gummed on one side, containing sisal fibers of unusual strength embedded in asphalt between two sheets of kraft paper, whose total weight is 80 pounds, one lamination of kraft paper being 50 pounds and the other 30 pounds. It is used by fiberboard container manufacturers for the manufacturer's joint.
- Common sisal tape - Sisal tape made with the sisal fibers running in the cross-machine direction.
  - Double-duty sisal tape - Sisal tape made with the fibers running in both directions.
50. Heading - The circular pieces fitted into the croze of the staves to form the ends (top and bottom) of a barrel.
51. Heat sealing - The welding or bonding of thermoplastic materials, either by an open flame, heated metal surfaces, or by special electrical means.
52. Hoop - A circular band, of wire or wood, used to hold together the staves of a slack barrel.
- Bilge hoops - The two hoops nearest the center of a slack barrel.
  - Head hoops - The two hoops nearest the ends (top and bottom) of a slack barrel.
  - Quarter hoops - The hoops between the head hoops and the bilge hoops.
53. Iced or Ice-packed poultry - Dressed or ready-to-cook poultry packed in boxes or crates with shaved or cracked ice, or dressed or ready-to-cook poultry packed in barrels in alternate layers with shaved or cracked water-ice under and over each layer of poultry.
54. I. D. - Inside dimensions.
55. Joint - The point where two parts of a container are joined or put together.
- Butt-joint - A type of lumber joint in which two squared surfaces are brought together and fastened with two or more corrugated fasteners.
  - Lindermann joint - Consists of a projection along the edge of one piece of board extending into a corresponding recess in the edge of the adjoining part, the projection and the recess extending the length of the pieces.
  - Manufacturer's joint - Usually refers to the point where the two parts of a box are joined by the manufacturer. This term is usually used in connection with the manufacture of fiberboard boxes.
  - Ship-lap joint - Consists of a groove or slot made in the edge of one piece of board to receive another piece of

board having an identical groove or slot, which when inverted and placed together form a smooth surface.

56. Jumbo - A package or pack larger than average or ordinary size and containing the same number or weight of a product as the regular package or pack.
57. Jute - A fiber furnish made of wood pulp and mixed waste paper.
58. Jute board - Formerly used only for board made from jute fibers. This term now applies to any board made on a cylinder-type paper machine, except solid, unmixed kraft board.
59. Jute liner - Indicates a container liner board made from a fiber furnish of wood pulp and mixed waste paper.
60. Kiln-dried - A term applied to wooden slack barrel staves and heading which have been artificially dried in a kiln to a lower moisture content.
61. Knots - Round, hard defects in timber.
62. Kraft - A common term used to designate paper made from sulphate pulp. Kraft board is specified by thickness in points, that is, number of thousandths of an inch. Plain kraft paper is specified by weight per ream of 500 sheets, 24 by 36 inches.
  - a. Kraft, cylinder - Board or paper made on a cylinder machine. Exhibits a characteristic grain direction when torn.
  - b. Kraft, Fourdrinier - Board or paper made on a Fourdrinier machine. Does not exhibit any grain direction when torn.
63. Lacquer - A solution of resins, plasticizers, and film forming ingredients in solvents.
64. Laminating - To overlay or build up in thin sheets or layers.
  - a. Laminated wood - A piece of wood made up of plies that have been joined together with glue or mechanical fastenings. The grain of all plies is parallel.
  - b. Laminated fiberboard - Two or more pieces of container board pasted together.
  - c. Laminated foil paper - Paper bonded by an adhesive to a continuous sheet of metallic foil, generally aluminum.
65. LSAT transparent film - Film that is less moistureproof than standard, heat sealable, anchored (water resistant), and transparent.
66. Laminated structure material - Any metal foil, plastic, or cellulosic film, paper, cloth, used as a ply of a laminated structure. In many cases combinations of dissimilar materials are necessary to develop the required functional properties. Theoretically,

any number of plies can go into the structure material, although they are usually limited to 3 or 4.

67. Laminant or laminating agent - An adhesive composition which combines two or more plies of material into a single structure.
68. Liner for box - A protection sheet inserted along the sides, ends, top, or bottom of a box. In wire-bound boxes it is a thin board stapled to the end boards, and its grain is perpendicular to the grain at the end boards.
- a. Case liner - A lining, usually paper or treated materials, placed inside a shipping container for the purpose of preventing shifting or entrance of moisture, dust, or dirt.
69. Lumber - The product of the saw and planing mill not further manufactured than by sawing, resawing, and passing lengthwise through a standard planing machine, crosscut to length and matched.
- a. Yard lumber - Lumber less than 5 inches in thickness that is intended for general building purposes.
- b. Boards - Yard lumber less than 2 inches in thickness, 8 inches or more in width.
- c. Dimensions - All yard lumber except boards, strips, and timbers; that is, yard lumber 2 inches and less than 5 inches thick, and of any width.
- d. Strips - Yard lumber less than 2 inches thick and less than 8 inches wide.
70. Medium - A term applied to the container board used for the fluted or corrugated component of corrugated fiberboard.
71. Moisture content of wood - Weight of water contained in the wood, usually expressed in percentage of the weight of the oven dry wood.
72. MSB transparent film - Film that is moistureproof, heat sealable, coating anchored, and transparent.
73. Moisture-resistant paper - Paper that has the ability to resist permeation of moisture (water vapor) through the sheet.
74. Mullen tester - A machine to test the bursting strength of paper or fiberboard.
75. Nail - A pointed piece of metal or wood usually with a broadened head, used for holding materials together or as a peg or ornament.
- a. Blunt point - Nail having a point that is cut off square with the shank.
- b. Box - A nail with a large flat head, usually made with a lighter gauge wire than that used for sinkers.

- c. Cement-coated - A nail with a cement coating applied to increase its holding power.
  - d. Cooler - A nail in which the head is flat underneath and of slightly greater diameter than the heads of other nails of the same penny size.
  - e. Diamond point - A nail with a point having four faces. This is the most common point used.
  - f. Nail, sinker - A nail with a small fillet under the head for extra strength, used for either hand or machine driving.
76. Osnaburg cloth - Cotton cloth generally woven of the heaviest yarns and commonly asphalt laminated to kraft paper, which is used as top coverings over slack barrels of iced poultry.
77. O. D. - Outside dimensions.
78. Pack - A completely packaged product, ready for shipment.
79. Packing - The materials used for cushioning or holding an article or articles in place within a container or for separating the articles from each other; also, the operation of placing an article or articles within a shipping container.
80. Pad - A rectangular or square piece of corrugated or solid fiberboard used at top or bottom of a box, or as a divider between layers, or as a separator between articles when packed for shipment. Usually pads are cut to meet the inside dimensions of the box.
81. Pallet - A low, portable platform of wood, metal, fiberboard, or combinations of the same to facilitate handling, storage, and transportation of materials as a unit.
82. Palletized load-- A regular pile of a commodity placed on a pallet for ease in handling by mechanical equipment. The pile may be fastened to the pallet by means of cordage, metal strapping, wires, or adhesives.
83. Panel - A face or side of a box.
84. Paster or combiner - A machine which applies glue or silicate to various plies of solid fiberboard roll stock and delivers combined (solid) fiberboard.
85. Pickling - To clean metal by immersion in diluted acid.
86. Point - A term used to describe one unit of thickness of paper, paperboard, or containerboard, the actual unit being one thousandth of an inch (a point is 0.001). (The term is sometimes used to designate Mullen or Cady test units.)
87. Polyvinyl acetate - A resin for binding, such as for laminating foil to paper, cellulose acetate to paper, etc.

88. Poultry - Any kind of domesticated bird, including but not being limited to chickens, turkeys, ducks, geese, pigeons, and guineas.
89. Poultry carcass - Each individual carcass is a quantity of dressed or ready-to-cook poultry.
90. Poultry food product - Any article of human food for or capable of being so used which is prepared or derived in whole or in substantial and definite part, from any edible portion of dressed poultry.
91. Prepackaged poultry - A term to designate fresh, whole, or cut-up poultry or poultry parts wrapped in transparent or plastic film for display in self-service refrigerated cases in retail stores. The items may be prepared and wrapped in consumer units, either at the retail store or at the processing plant.
92. Pulpboard - Unsized board using unmixed pulp, usually unbleached sulphite.
93. "Quick-frozen" - A product may be considered "quick frozen" when its temperature has been reduced down to between 31° and 25° F. within 1 hour or less.
94. Ready-to-cook poultry - Any eviscerated poultry or any cut-up or disjointed portion thereof.
95. Regular - A package or pack of average or ordinary size as used by the majority of consumers for a certain quantity of weight of a product.
96. Rock fastener - The design of ends of the wires on wire-bound boxes, which are made so that the container is closed by interlocking one loop through the other.
97. Sawn wood - Rough or surfaced lumber that has been divided into two or more thicknesses by sawing.
98. Score - An impression or a crease in corrugated or solid fiberboard to facilitate folding.
99. Seam - A ridge, fold, or overlapping formed by fastening two pieces of material together by stitching, pasting, soldering, etc.
100. Shake - A separation along the grain of wood, the greater part of which occurs between the rings of annual growth.
101. Shooks - Slack barrels knocked down and packed in bundles, for shipment, or, generally the unassembled but completely fabricated parts of a box, crate, or barrel.

102. Slack barrel - A wooden barrel with wood, wire, or wood and wire hoops. Lighter in construction than tight barrels.
103. Slotter - A machine which cuts a slot into fiberboard so that the board immediately adjacent to both sides of the slot can be folded to form part of the box.
104. Standard - An established or authorized measure of weight, dimensions, quality, or the like; especially something serving as a model.
105. Staple - A U-shaped round or flat wire fastener with pointed ends, to secure box parts together; it may be driven over wires, bands, and hoops to hold them in position and may or may not be clinched.
106. Stapless - Applied to fiber box die-cut surfaces such as ends and tops which are fastened by various self-locking devices or tuck-ins in lieu of staples.
107. Stave - An arched, vertical piece forming the walls or sides of a barrel.
108. Stickless - Applied to fiber boxes for baby chicks, poultts, etc., of special construction, in which single or double wall fiber cell partitions extend up through the cover or lid of the box, making glued sticks, or v-corrugated, inserted sticks on the box cover unnecessary for insuring space and ventilation between boxes when stacking.
109. Stitcher - A machine, using wire drawn from a spool, for stitching manufacturer's joints, container bottoms, and/or tops. Usually operated by a small motor.
110. Strapping - Flexible materials, consisting of textile, paper, and round or flat metal, applied with special stretching and sealing tools or secured with nails or staples, and used to:
- (1) Fasten merchandise within a container;
  - (2) Hold together a bundle or bale; and
  - (3) Reinforce a shipping container.
111. Tape - Gummed fabric or paper used to complete closures on containers.
112. Tensile strength - The resistance to longitudinal strain. Usually applied to wire and/or flat strapping; also to paper.
113. Test - A process or a procedure by which the performance of a material, container, or any other object is determined, as:
- (1) Beach;
  - (2) Cady or mullen;
  - (3) Compression;
  - (4) Flat crush;
  - (5) Impact;
  - (6) Revolving drum.

114. Timber - Lumber 5 inches or larger in least dimension.
115. Tin plate - A black plate additionally processed by pickling and that is coated on both sides with commercially pure tin, either by the hot-dip process (termed coke tin plate, charcoal tin plate, or silver tin) or by electro-deposition (termed electrolytic tin plate).
116. Tolerance - The allowable variation from a standard as of weight, dimensions, thickness of material, etc.
117. Tongued and grooved (for barrels, etc.) - Staves or slack barrel heading pieces which contain a rib on the edge of one piece to fit into a groove on the edge of the adjacent piece to make a flush joint, or a type of lumber joint consisting of a tongue and a groove on opposite edges to provide close fitting into an adjacent grooved or tongued piece.
118. Trim - The material rejected or cut out in making folding paper boxes, folding cartons, etc.
119. Trussing - The holding together of the staves with a hoop or ring while the barrel is formed.
120. Type 2 load - Can be defined as an article of moderate density, such as a poultry pack, which completely fills the box and gives some support to all faces of the box. Used by wooden-box designers in classifying contents to more readily prepare suitable specifications. This is also referred to as an average load.
121. Vegetable parchment paper - This is waterleaf paper, unsized, and made from sulphite or sulphate (kraft) wood pulp, and which has been parchmentized by drawing the stock through a sulphuric acid bath and drying on paper, machine-type dryers.
122. Veneer - A thin sheet of wood, commonly less than 3/8 inch thick.  
a. Rotary-cut veneer. Veneer cut in a continuous strip by rotating a log against the edge of a knife in a lathe.  
b. Sawed veneer. Veneer produced by sawing.  
c. Sliced veneer. Veneer that is sliced off by moving a log against a large knife.
123. Vinyl films - Mixed polymers of either vinyl chloride, vinyl acetate, or copolymers of both.
124. Volume fill - The minimum volume of food in the can after processing and cooling.
125. Waterproof paper - Paper resistance to penetration of water in liquid form through the sheet.

126. Waxed paper - Includes any base paper stocks to which petroleum wax has been added, either as an impregnation or as a surface coating.
127. Weatherproof paper - A flexible paper, laminated, coated, or infused to give water and/or water-vapor resistance. May be creped for added flexibility and/or reinforced with strands of sisal or other fiber, or backed with fabric for added strength.
128. Weight - The force with which a body is attracted toward the earth.
- a. Gross weight - The total weight of goods as shipped or packed, with no deductions.
  - b. Net weight - The weight of the commodity alone.
  - c. Tare weight - The difference between the gross and net weights.
129. Wet-strength papers - Those papers which retain a substantial degree of their original strength properties upon immersion in water. Generally applied specifically to paper which has been treated, by beater or tub sizing, with a urea-formaldehyde or melamine-formaldehyde resin.
130. Wet-waxed - Paper coated with wax on one or two sides, usually the latter.