

# MWPS-73250

## Small Storage Buildings

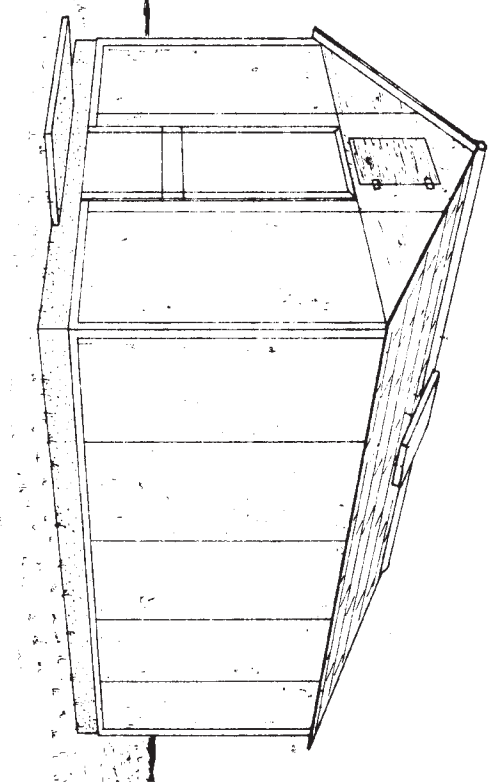
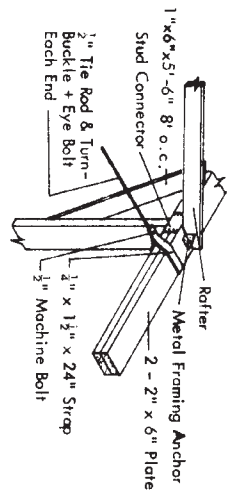
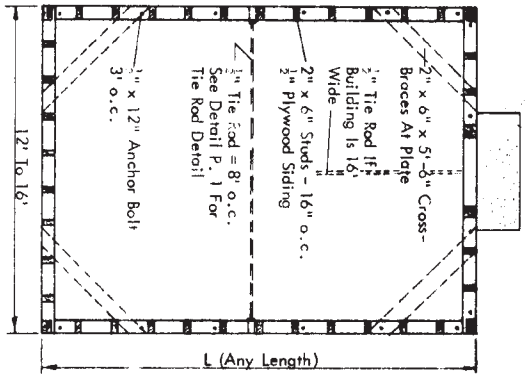
### **CAUTION!**

Additional professional services will be required to tailor this plan to your situation, including but not limited to: assurance of compliance with codes and regulations; review of specifications for materials and equipment; supervision of site selection, bid letting and construction; and provision for utilities, waste management, roads or other access. **Furthermore, any deviation from the given specifications may result in structural failure, property damage, and personal injury including loss of life.**

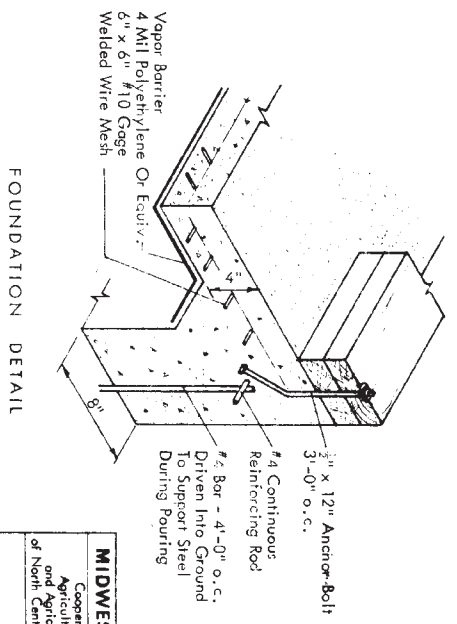
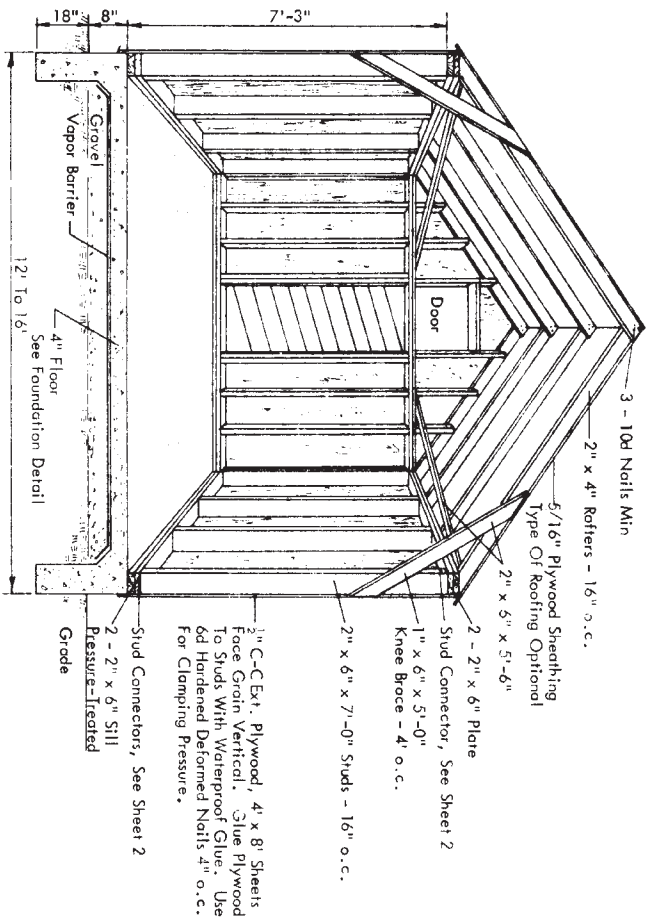
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Small Storage Buildings
Title Page
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This storage bin has been designed for width of 12 to 16 ft. It can be as long - A 12 by 16 bin will hold 1200 bushels, and a 16 by 20 bin will hold 2000 bushels. This building can use either drying system described on sheet 3.



FLOOR FOR DRYING SYSTEM NO. 1

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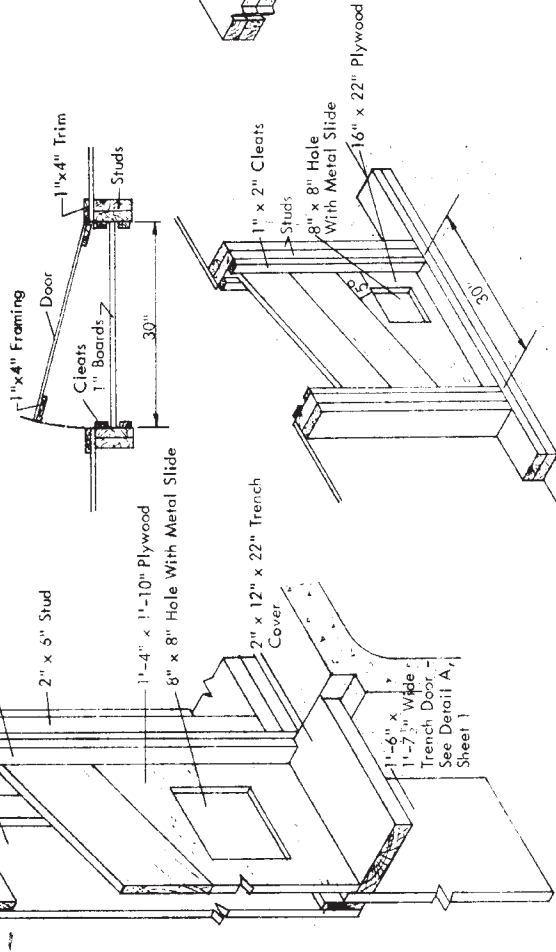
Sheet 1 of 4 Sheets

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**BILL OF MATERIALS — 12' x 16' BUILDING**

ITEM	DESCRIPTION	NO
Concrete Sills	5½ cu yds 2"x6"x16'-0"	4
Studs	2"x6"x12'-0"	4
Plates	2"x6"x7'-0"	46
	2"x6"x16'-0"	46
	2"x6"x12'-0"	4
Cross-Braces	2"x6"x5'-6"	4
Knee Braces	1"x6"x5'-0"	26
Rafters	2"x4"x7'-3"	24
	(total)	22
Gable End Framing	¾" x 12"	120
Anchor Bolts	¾" 4 Rod	200
Reinforcing Bar	6"x6"x10'/10 Cage	200
Wire Mesh	4 mil	16
Polyethylene	Metal	26
Ridge Roll	(Sill) 4"x11½"	38
Metal Framing Anchors	(Plate) 4"x13½"	38
Stud Connectors	(Corner) 8½"x10½"	8
See Sheet 2	¾" Steel	12
(22 Gage Galvanized Metal)		
Tie Rod		

Turn Buckle & Eyebolt  
Plywood (includes doors) 1"x4"x8' C-C Ext. 16  
Roof Sheathing 5' 16" Plywood 8

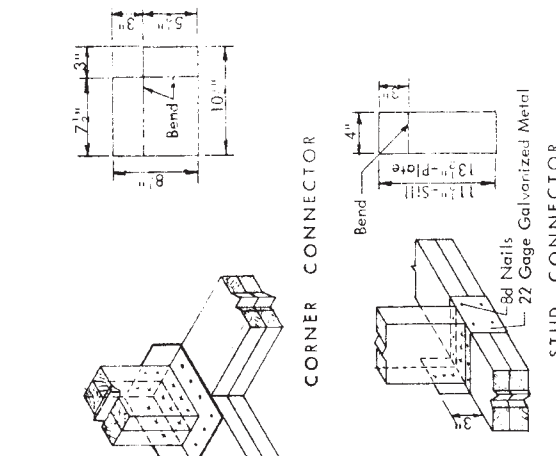


**DOOR DETAIL**  
DRYING SYSTEM NO. 1

**BILL OF MATERIALS — 12' x 20' BUILDING**

ITEM	DESCRIPTION	NO
Concrete Sills	6 cu yds 2"x6"x20'-0"	4
Studs	2"x6"x12'-0"	4
Plates	2"x6"x7'-0"	52
	2"x6"x20'-0"	4
	2"x6"x12'-0"	4
Cross-Braces	2"x6"x5'-6"	4
Knee Braces	1"x6"x5'-0"	6
Rafters	2"x4"x7'-3"	32
	(total)	24
Gable End Framing	¾" x 12"	26
Anchor Bolts	¾" 4 Rod	130
Reinforcing Bar	6"x6"x10'/10 Cage	250
Wire Mesh	4 mil	20
Polyethylene	Metal	32
Ridge Roll	(Sill) 4"x11½"	44
Metal Framing Anchors	(Plate) 4"x13½"	44
Stud Connectors	(Corner) 8½"x10½"	8
See Sheet 2	¾" Steel	12
(20 Gage Galvanized Metal)		
Tie Rod		

Turn Buckle & Eyebolt  
Plywood (includes doors) 1"x4"x8' C-C Ext. 18  
Roof Sheathing 5' 16" Plywood 10  
Hatch and Misc

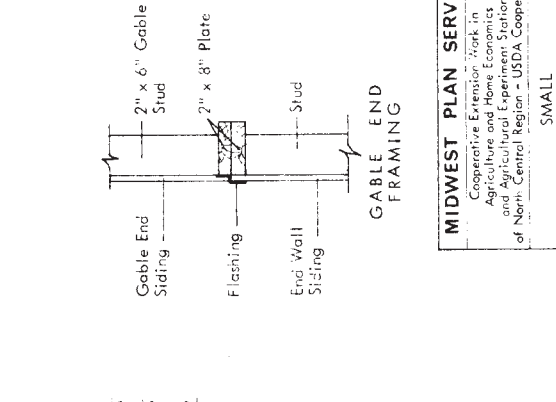


**CORNER CONNECTOR**  
Bend connectors at right angles as shown; nail to each end and outside edges of stud as shown by X's; nail connector to sill and plate as shown by dot.

**BILL OF MATERIALS — 16' x 20' BUILDING**

ITEM	DESCRIPTION	NO
Concrete Sills	7½ cu yds 2"x6"x20'-0"	4
Studs	2"x6"x16'-0"	4
Plates	2"x6"x7'-0"	58
	2"x6"x20'-0"	4
	2"x6"x16'-0"	4
Cross-Braces	2"x6"x5'-6"	4
Knee Braces	1"x6"x5'-0"	6
Rafters	2"x4"x9'-7"	32
	(total)	36
Gable End Framing	¾" x 12"	28
Anchor Bolts	¾" 4 Rod	150
Reinforcing Bar	6"x6"x10'/10 Cage	340
Wire Mesh	4 mil	340
Polyethylene	Metal	20
Ridge Roll	(Sill) 4"x11½"	32
Metal Framing Anchors	(Plate) 4"x13½"	48
Stud Connectors	(Corner) 8½"x10½"	8
See Sheet 2	¾" Steel	16
(20 Gage Galvanized Metal)		20
Tie Rod		4

Turn Buckle & Eyebolt  
Plywood (includes doors) 1"x4"x8' C-C Ext. 20  
Roof Sheathing 5' 16" Plywood 13  
Hatch and Misc



**GABLE END FRAMING**

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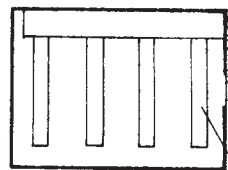
**SMALL STORAGE BUILDINGS**  
Sheet 2 of 4 Sheets

**MIDWEST PLAN NO. 73250**

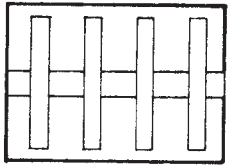
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**DOOR DETAIL**  
DRYING SYSTEM NO. 2

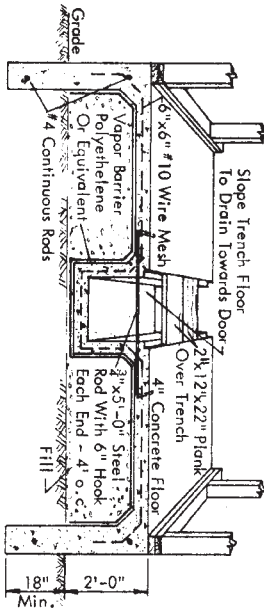
Lateral Ducts Spaced 1/2 Grain Depth. See Fan Requirement Table.



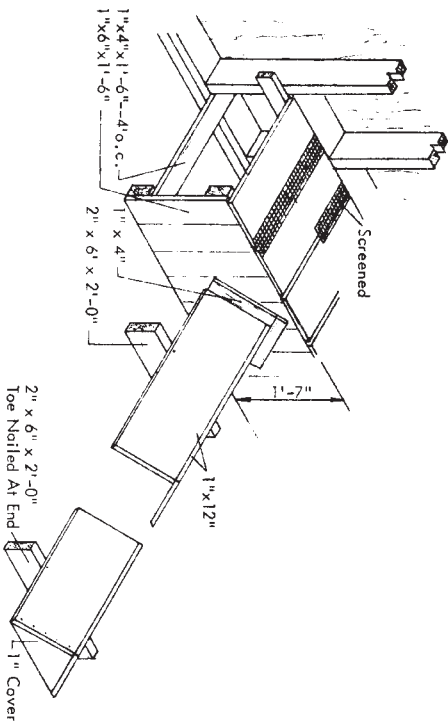
SYSTEM NO. 1  
SIDE DUCT



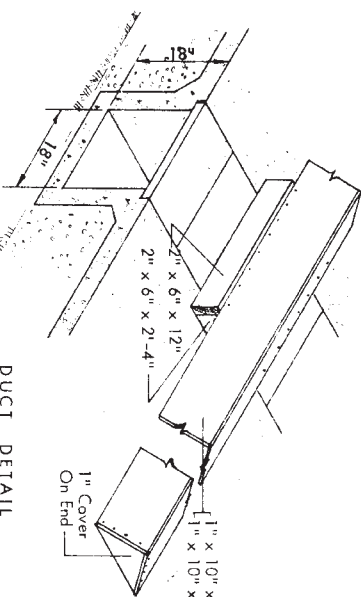
SYSTEM NO. 2  
TRENCH DUCT



FLOOR FOR DRYING SYSTEM NO. 2



DUCT DETAIL  
DRYING SYSTEM NO. 1



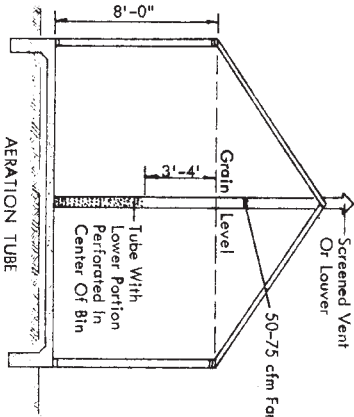
DUCT DETAIL  
DRYING SYSTEM NO. 2

FAN REQUIREMENTS

GRAIN	Moisture %	Depth Ft.	Pressure In. Water	BUILDING					
				12' x 16'	12' x 20'	16' x 20'			
			FAN	AIR	AIR	AIR			
				Cfm	H. P.	Cfm	H. P.		
WHEAT & SORGHUM	20	4	1.2	1800	3/4	2250	1	3000	1 1/2
		6	2.3	2700	3	3375	3	4500	5
		4	0.8	1200	1/3	1500	1/2	2000	1
		8	2.5	2400	2 1/2	3000	3	4000	5
OATS	16	8	1.3	1200	3/4	1500	3/4	2000	1
		4	0.8	1800	1/2	2250	3/4	3000	1
		6	1.7	2700	2	3375	2	4500	3
		20	1.1	1800	3/4	2250	1	3000	1 1/2
CORN	18	8	1.8	2400	1 1/2	3000	2	4000	3 1/2
		8	1.4	1800	1	2250	1 1/2	3000	1 1/2
		8	0.9	1200	1/2	1500	1/2	2000	3/4
	25	4	0.7	3000	3/4	3750	1	5000	1 1/2
	6	1.6	4500	3	5625	3	7500	5	
	20	0.9	2700	1	3375	1 1/2	4500	1 1/2	
	18	8	1.5	3600	2	4500	3	6000	5
	16	8	0.5	2400	3/4	3000	1 1/3	4000	1 1/2
		8		1200	1/4	1500	1/3	2000	1/2

DRYING  
Fan and motor requirements are given in the table. Typical duct systems are illustrated.

BIN COOLING  
To cool grain, put in the bin hot from the drier: Draw air (approximately 1/50 cfm per bushel) down through the grain. Use either drying ducts or an aeration tube vented to the outdoors. Continue cooling until grain temperature is within 10° F of average outside temperature.



AERATION

Purpose: To prevent the surface spoilage which results from moisture migration during periods when the outside temperature is below that within the grain mass.

Equipment: A fan (approximately 1/50 cfm per bushel) and drying ducts or aeration tube to draw air down through the grain. Anchor tube in grain before filling. Protect the fan and the top of the tube during filling.

Management: Aerate all bins of 1000 bushels or more if the grain will be held more than one year. Aerate all bins over 2000 bushels.

Start the fan when the average outside temperature is 20° F cooler than the grain. Continue until grain has cooled at least 15°. Stop fan, but restart it when the average temperature has lowered another 20° F.

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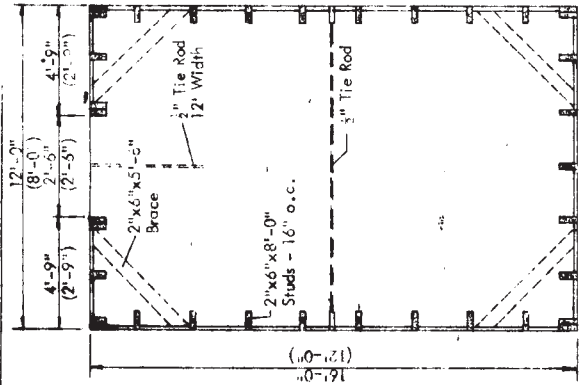
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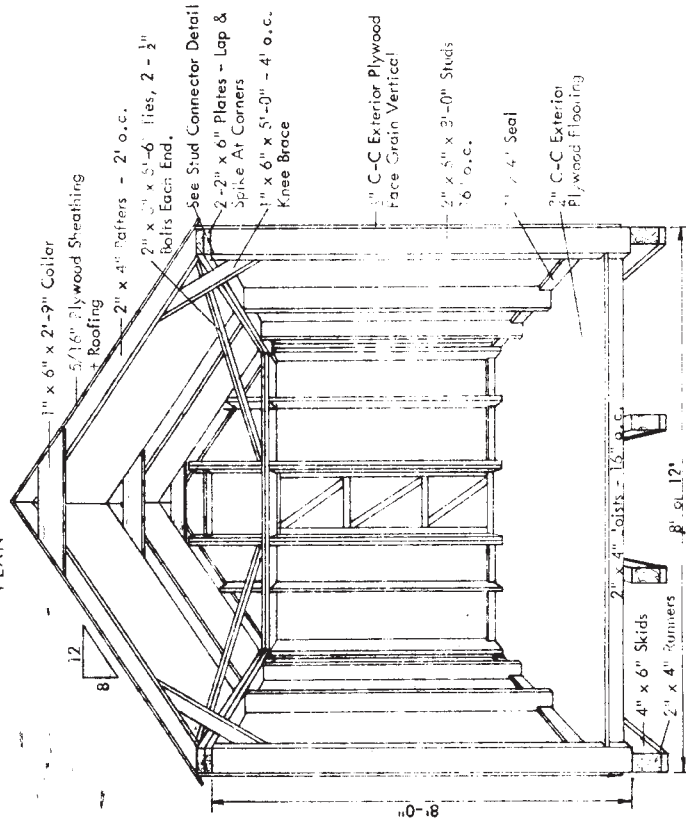
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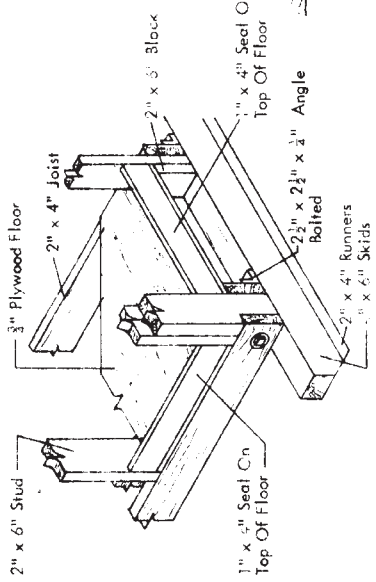
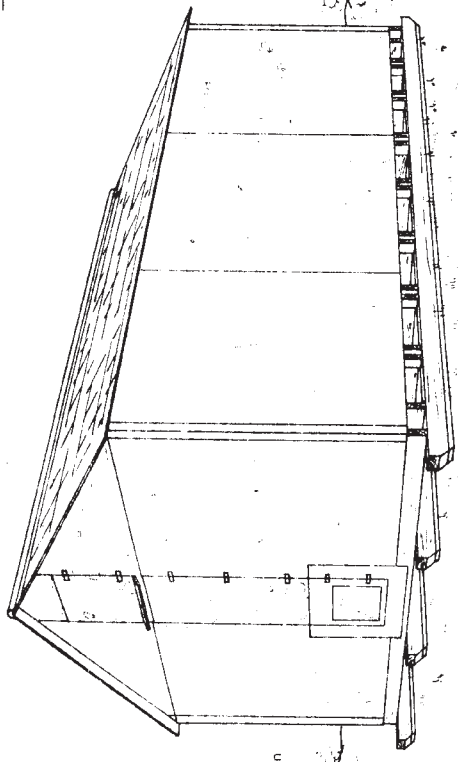
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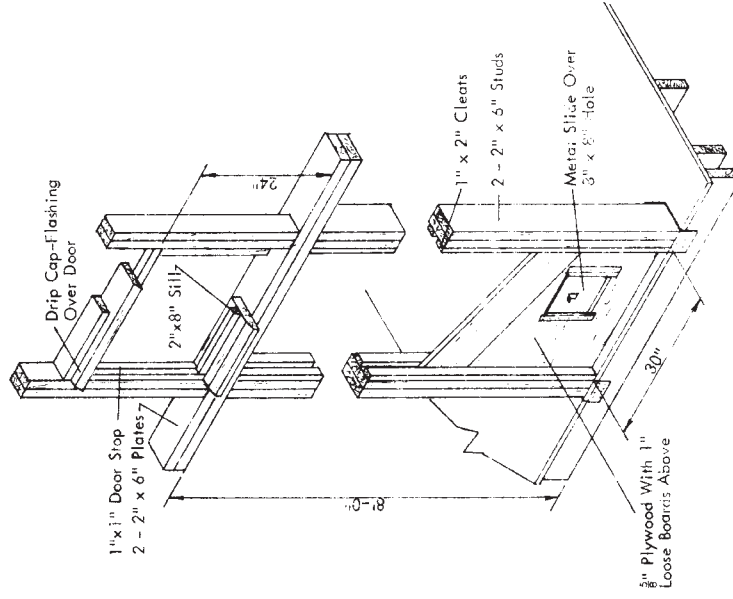
PLAN



SECTION



FRAMING DETAIL



DOOR FRAMING DETAIL

NOTES:

Rodentproofing: Place 3/4" hardware cloth over joists, under flooring, extending 2' up on sidewalls between sheathing and siding. Add 8" wide 28 gage metal continuous around building. Cover edges and bottom of door and doorframe with 28 gage metal.

Roofing and siding type optional. Install to manufacturer's specifications. Place 2 mil. plastic, 15# roofing felt, or equivalent between sheathing and siding.

Purchase skids, floor joists and tie pressure treated with a non-toxic oil base preservative.

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SMALL STORAGE BUILDINGS

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