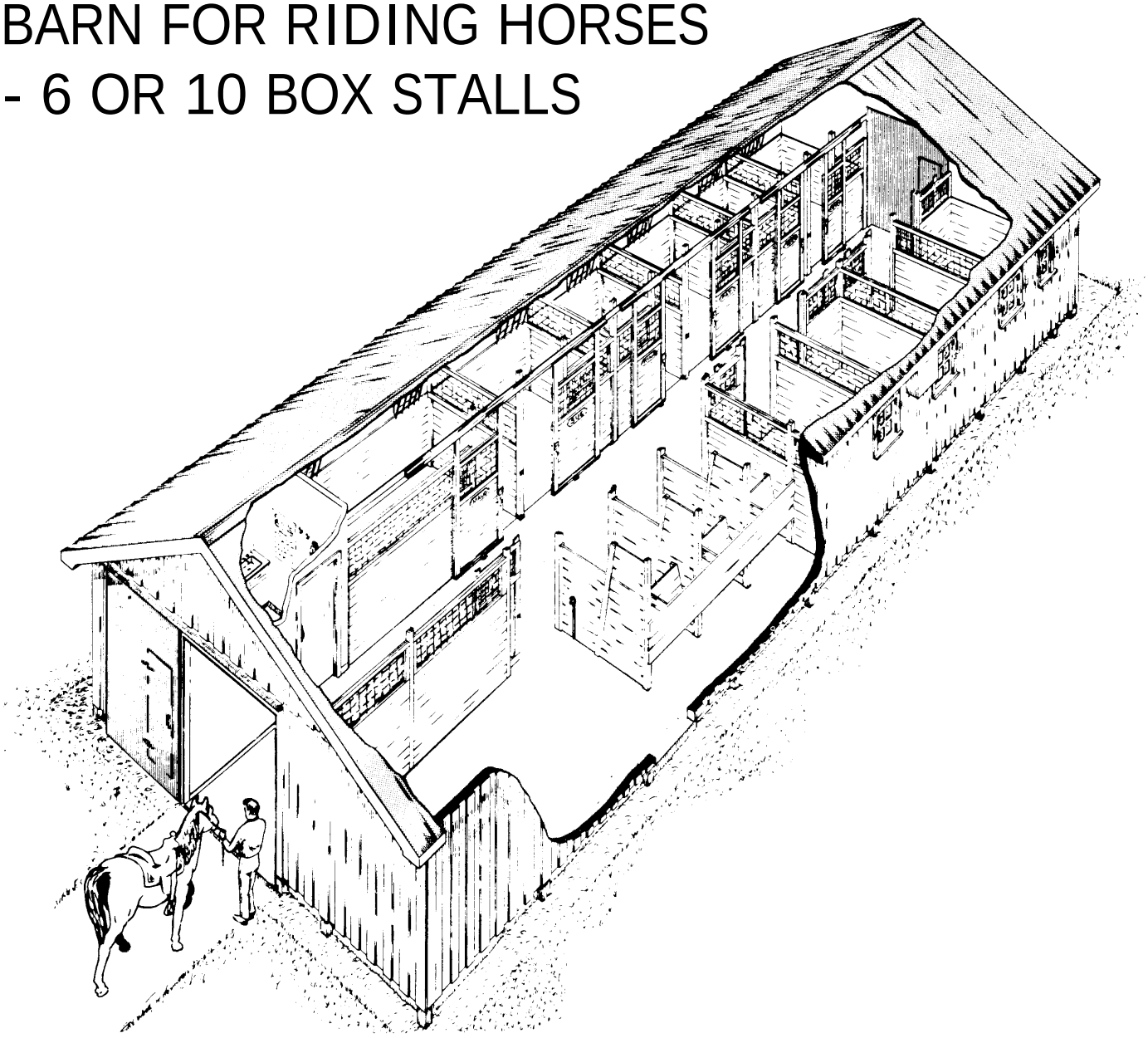
PLAN
8202

BARN FOR RIDING HORSES - 6 OR 10 BOX STALLS



CANADA
PLAN SERVICE

The Canada Plan Service prepares detailed plans showing how to construct modern farm buildings, livestock housing systems, storages and equipment for Canadian Agriculture.

This leaflet gives the details for a farm building component or piece of farmstead equipment. To obtain another copy of this leaflet, contact your local provincial agricultural engineer or extension advisor.

PLAN 8202

BARN FOR RIDING HORSES - 6 OR 10 BOX STALLS

This plan is for a single story barn for light horses. It is a larger version of plan 8201, with box stalls on both sides of a central passage. The construction is well-insulated post frame with a 36-foot clear-span truss roof, and is designed to keep the riding horses in a dry comfortable environment free from drafts and extremes of temperature. The central work alley is 10 feet wide for easy and safe horse-handling.

The floor plan gives two options, 56 feet long for 6 box stalls plus a larger foaling pen, or 176 feet long for 10 box stalls plus foaling pen. One tie stall is shown, and an adjacent box stall can be divided into two more tie stalls if desired.

Box Stalls

Box stalls 10 ft. x 12 ft. 8 in. feature plank walls and earth floors. Alternative flooring is planking, asphalt, or concrete. The upper portion of the partitions and doors are made of heavy welded wire mesh. The suggested layout in the box stall provides for a corner manger, heavy screw eye in wall for grain and water bucket, and mineral bowl. Four-foot sliding doors open from each box stall into the central work alley.

Tie Stalls

Stall partitions are of plank construction and floors may be asphalt, concrete, or plank-on-concrete. A built-in plank manger has compartments for hay and grain feeding. Stalls are 5 feet wide and about 9 feet long including manger; the stall length may be adjusted by varying the width of the feed passage in front.

Feed Room

The feed room has an outside door for unloading feed and bedding and an inside door to the work alley. Space is provided for about 150 bales of hay and straw and about a ton of grain. Feed room walls are built to match the box stalls.

Tack Room

A tack room 10 x 12 ft. provides important storage for horse equipment and supplies. The room is insulated, so if it is also to be used as an office, a small electric space heater can be added.

Ventilation

For warm weather, ventilation can be adjusted by opening doors and windows. In cold weather however, exhaust fans work better since they can be controlled by thermostats, for automatic temperature control. Three fans are shown for the 10-box-stall barn, to provide stepped ventilation rates for different weather conditions.

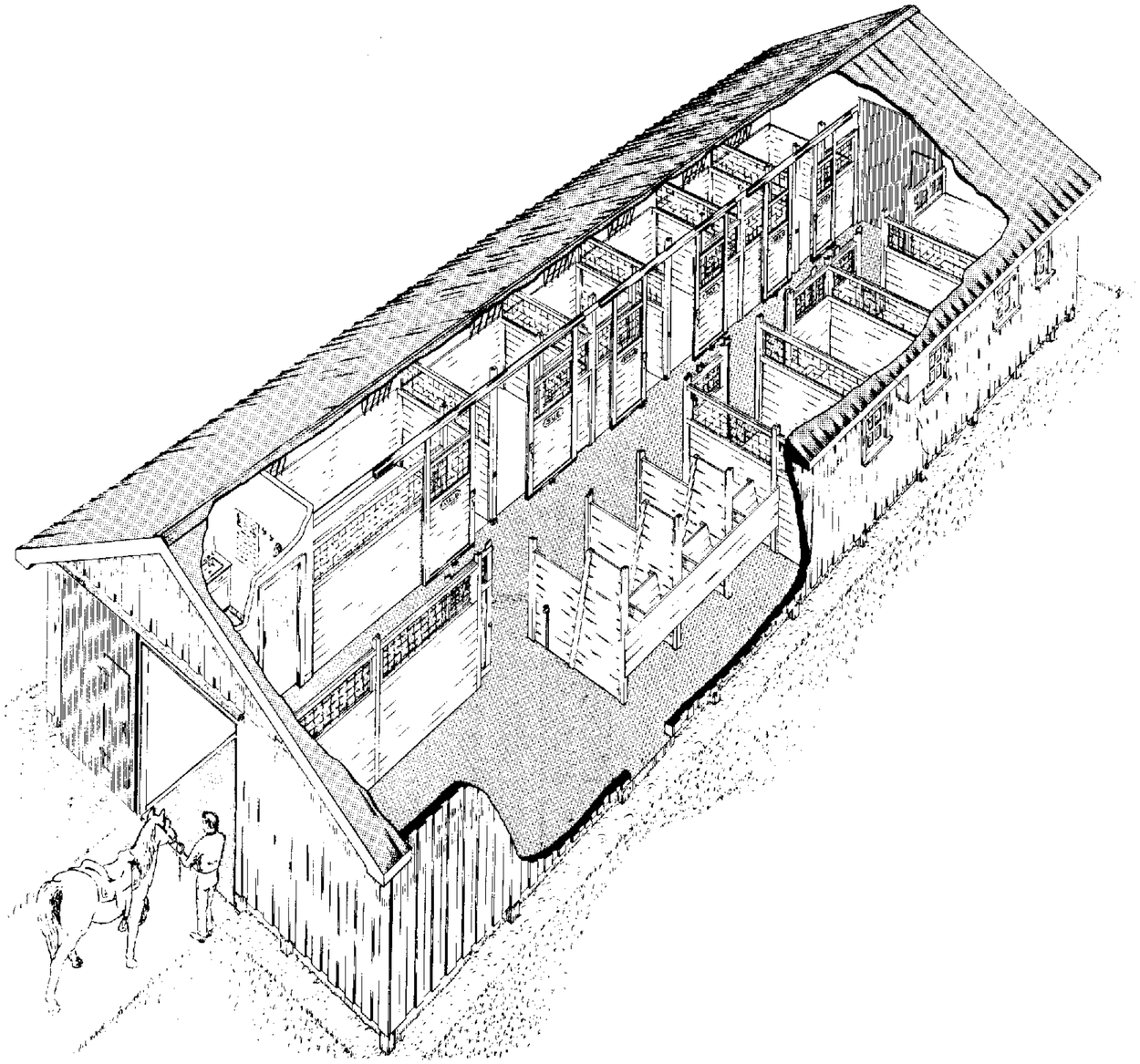
Three air inlets with adjustable baffles spread fresh air across the ceiling for draft-free winter ventilation, and a ventilation heating schedule gives fan sizes, thermostat settings and inlet adjustments for best results. In summer, the ceiling baffles are closed.

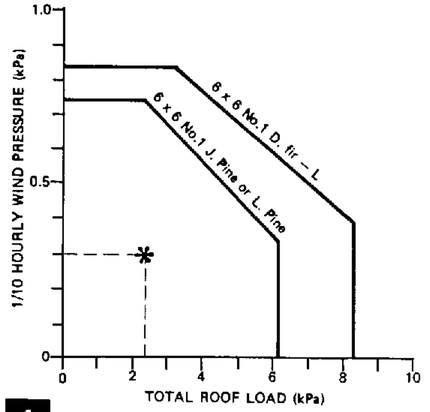
Manure Handling and Storage

The 10-foot work alley with large sliding doors at each end make it easy to load manure directly into trailer, truck or spreader.

Check local regulations for storage and disposal of manure. If regulations do not exist, consider the following recommendations

- Dispose of manure daily when possible.
- Provide temporary storage for manure that cannot be disposed of daily; this requires at least two cubic feet of storage per horse per day.
- Locate the storage in an approved or safe area for convenient removal, away from any water source and out of natural drainage channels.
- Empty the storage at least weekly during fly breeding season (spring temperatures above 65°F until the first killing frost in the fall) .
- Keep all runoff that may be polluted with animal waste from reaching usable or public waters.





1

EXAMPLE

Determine pole size for Edmunston, N.B. (ground snow load 3.5 kPa, 1/10 hourly wind pressure 0.30 kPa).

If the roof is fully exposed to wind, the total roof load is:

0.6 x 3.5 (snow) + 0.2 (dead) = 2.3 kPa

Enter the pole selection chart at 2.3 kPa total roof load and 0.30 kPa wind pressure (see *)

6 x 6 Jack Pine or Lodgepole Pine poles would be adequate.

2

Plate beam safe uniform total roof load, kPa

Plate beam No.2 S-P-F	Truss spacing, inches on centre 48	32	24
2 - 2 x 8	1.60	1.35	1.29
2 - 2 x 10	2.40	1.94	1.75
2 - 2 x 12	3.06	2.37	2.13
No.2 D. Fir			
2 - 2 x 8	1.36	1.15	1.09
2 - 2 x 10	2.03	1.71	1.63
2 - 2 x 12	2.73	2.31	2.20

SPECIFICATIONS

Unless otherwise specified, all cast-in-place concrete is to be at least 3000 psi @ 28 days, 6% air entrained.

All reinforcing steel to be at least 40,000 psi deformed bars; provide 2" concrete cover over reinforcing steel.

All exposed steel to be galvanized or painted to resist corrosion from moisture and manure gases.

All framing lumber is No. 2 (or better), S-P-F species group, unless otherwise specified.

All wood indicated 'pressure-treated' is CCA pressure-treated to a net retention of 0.4 lb/ft^3 (ground contact specification, CSA-080 Wood Preservation).

All nails exposed to treated wood, humid atmosphere or weather to be hot-dip galvanized.

This plan is designed to meet the requirements of the Canadian Farm Building Code.

Notes thus marked indicate where this plan gives structural choices to be selected to meet local climatic loads (wind, snow), soil bearing capacity and other local conditions. The plan user must ensure that these requirements are met. Consult an engineer if you are not familiar with the details required.

ONE SET OF DRAWINGS AND LEAFLETS SHOULD INCLUDE:

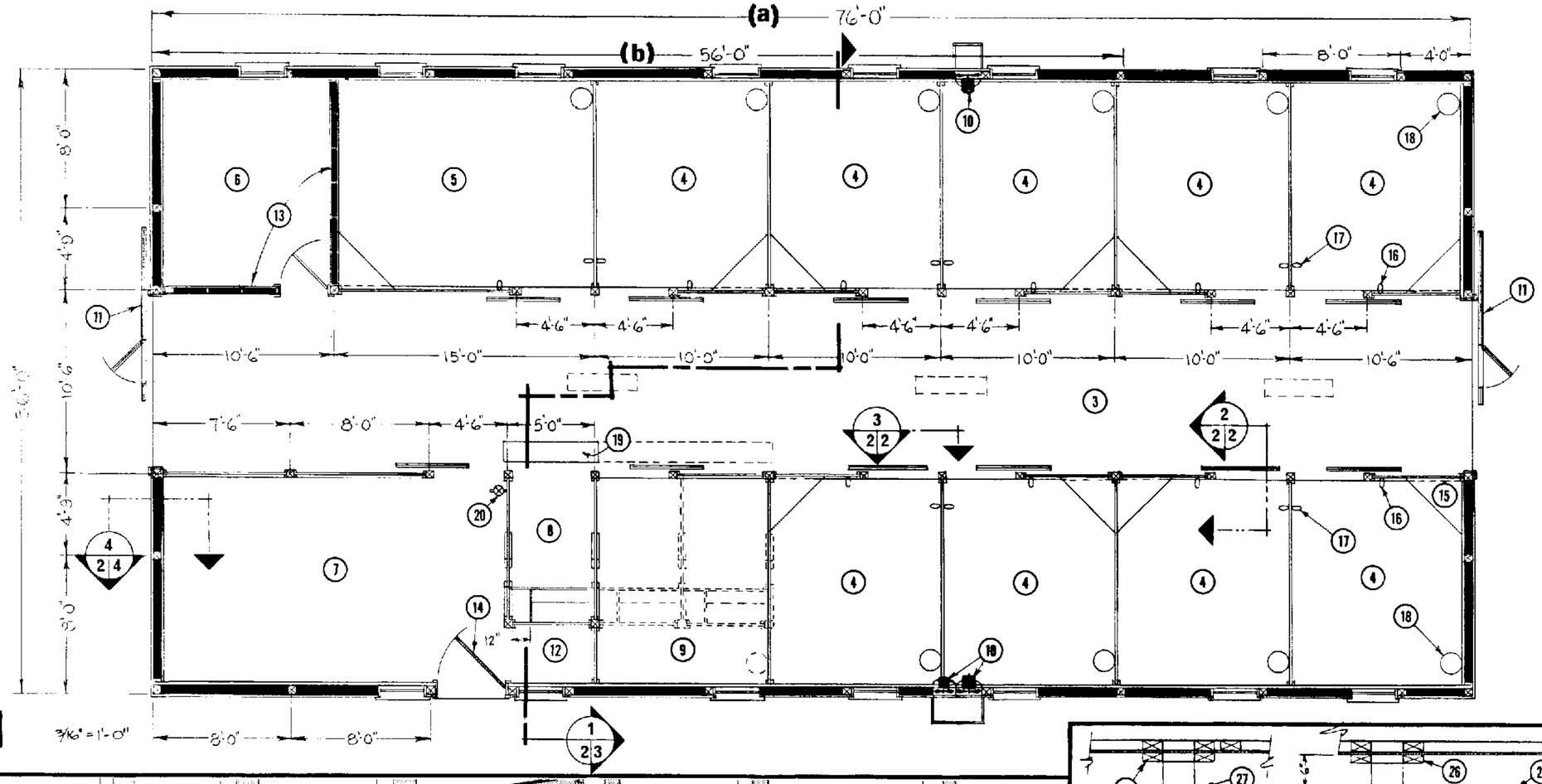
CPS no.	sheet no.	Title
8202	-1-	Barn for riding horses (6 or 10 box stalls)
8202	-2-	Floor plan and details
8202	-3-	Section and details
8202	-4-	Ventilation, heating & details
		Truss design and spacing to suit local snow + dead load
AND LEAFLETS		
8202		Barn for riding horses (6 or 10 box stalls)
9102		Truss erecting and bracing
9301		Roof purlins
9451		Rodent and bird control in farm buildings

SYM	REVISIONS	CHECKED	DATE	APPROVED
	REVISED & RE-ISSUED	H.A.J	88 – 01	JET

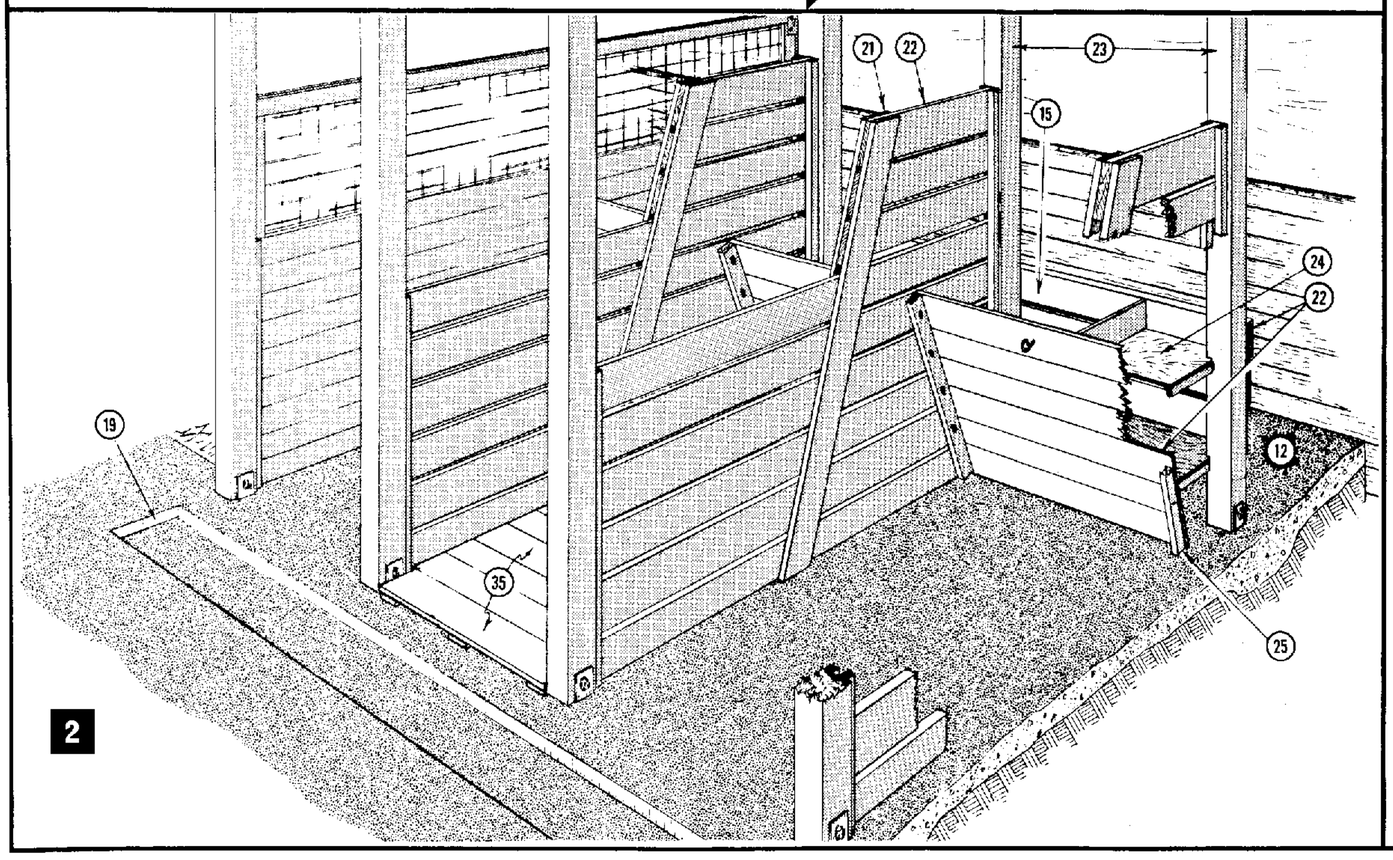
CANADA PLAN SERVICE

BARN FOR RIDING HORSES
6 OR 10 BOX STALLS

DESIGNED JET	DATE 72 – 11	PLAN 8202
DRAWN L.BLAIS	REVISED	
TRACED	DETAIL NUMBER A B C ORIGINATES ON SHEET DRAWN ON SHEET	SHEET 1 OF 4
CHECKED H.A.J.		



1



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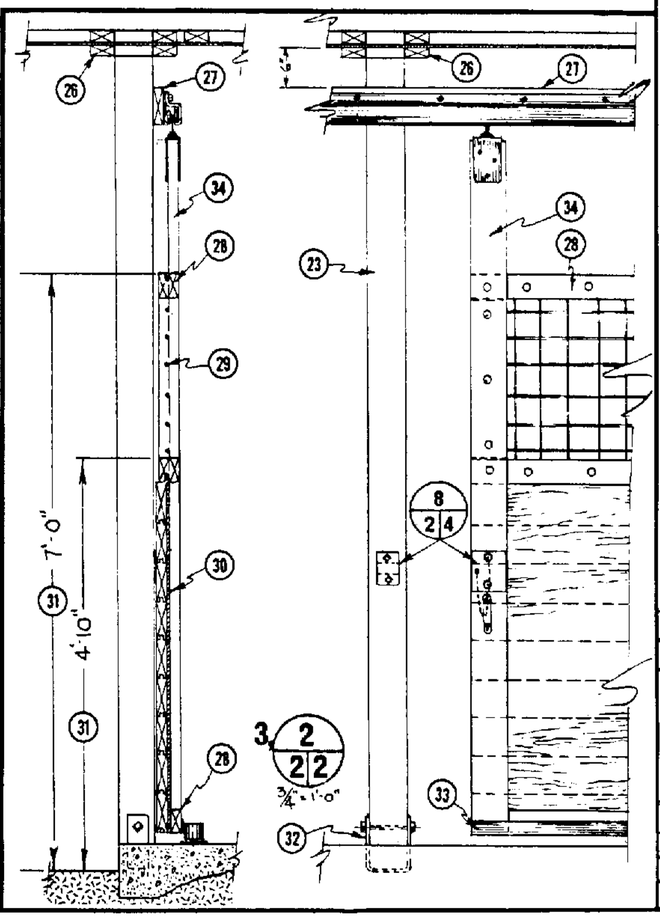

1 floor plan (a) 10 stall horse barn, 76'-0"
(b) 6 stall horse barn, 56'-0"

2 pictorial view of tie stall construction

3 work alley, concrete floor

4 box stall, clay floor (alternatives: plank, asphalt or concrete floor)

5 foaling pen, clay floor

6 tack room, concrete floor

7 feed and bedding storage, concrete floor

8 tie stall, concrete, plank on concrete, or asphalt floor

9 option, 1 box stall (④) or 2 tie stalls (⑧)

10 exhaust fans (see sheet 4)

11 10'-0" x 8'-6" insulated slide door c/w 2'-0" x 6'-0" man door, secure sliding door with 2 turnbuckle hooks recessed into side jamb

12 feed passage concrete floor

13 insulated stud wall, sheathed floor to ceiling

14 4'-0" x 8'-0" insulated door

15 hay manger

16 screw eye for grain bucket

17 screw eye for water bucket

18 mineral bowl

19 14" x 2" gutter at tie stall

20 hose bib; frostproof hydrant if risk of freezing

21 1 x 6 both sides

22 2" planking

23 6 x 6 posts, butt dipped in preservative after drilling for (32)

24 grain trough

25 2 x 4 bolted through

26 2 x 4 blocks 4 sides of post, and in ceiling

27 2 x 6 track board

28 2 x 4 framing, 3/8" carriage bolts @ 12" o.c., nuts recessed

29 4 x 4 x 6/6 welded wire mesh

30 ¼" plywood (at doors only)

31 height to match stall dividers

32 ¼" x 3" x 24" U-strap in concrete, ½" diam. bolt thru post

33 2" wide galv. metal strap

34 2 x 6 upright

35 optional 2" plank floor on 1 x 3 sleepers

SYM	REVISIONS	CHECKED	DATE	APPROVED
	REVISED & RE-ISSUED	H.A.J.	88 – 01	J.E.T.

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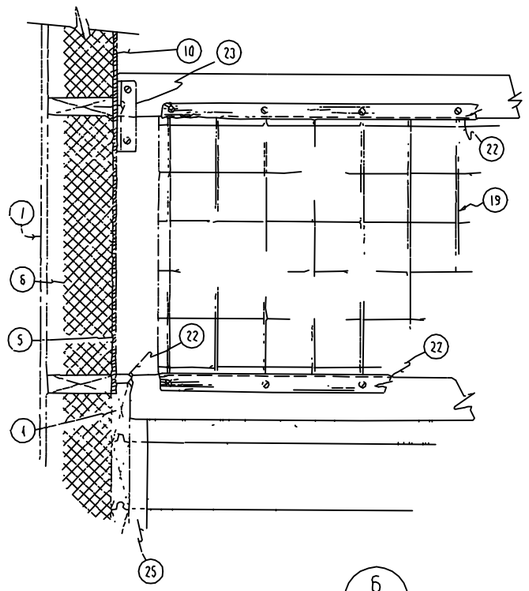
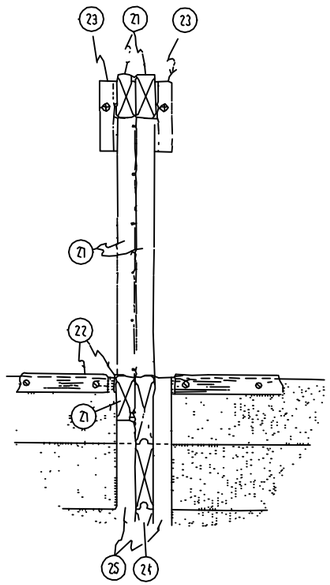
FLOOR PLAN & DETAILS

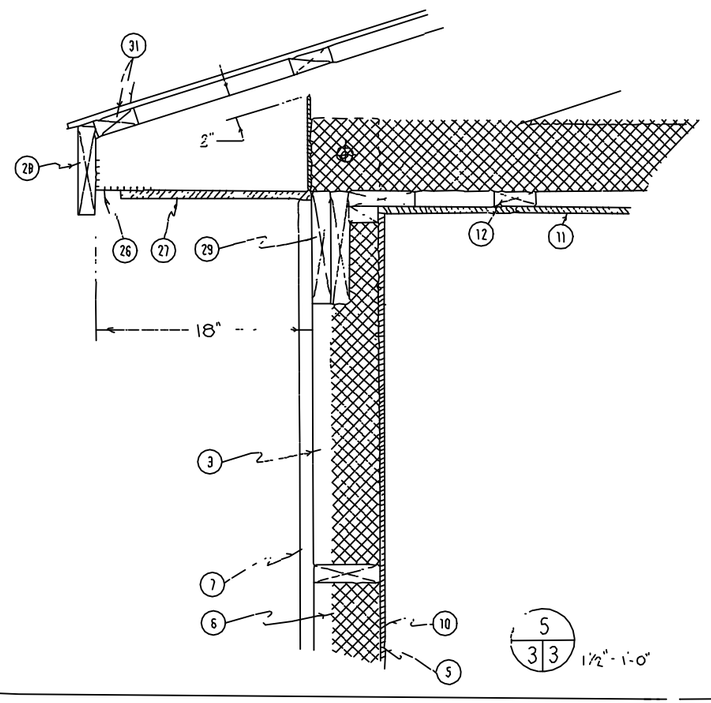
DESIGNED J.E.T.	DATE 72 – 11	PLAN 8202
DRAWN L. BLAIS	REVISED	
TRACED	DETAIL NUMBER A B C ORIGINATES ON SHEET ___ DRAWN ON SHEET ___	SHEET 2 OF 4
CHECKED H.A.J.		

ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS OTHERWISE SPECIFIED

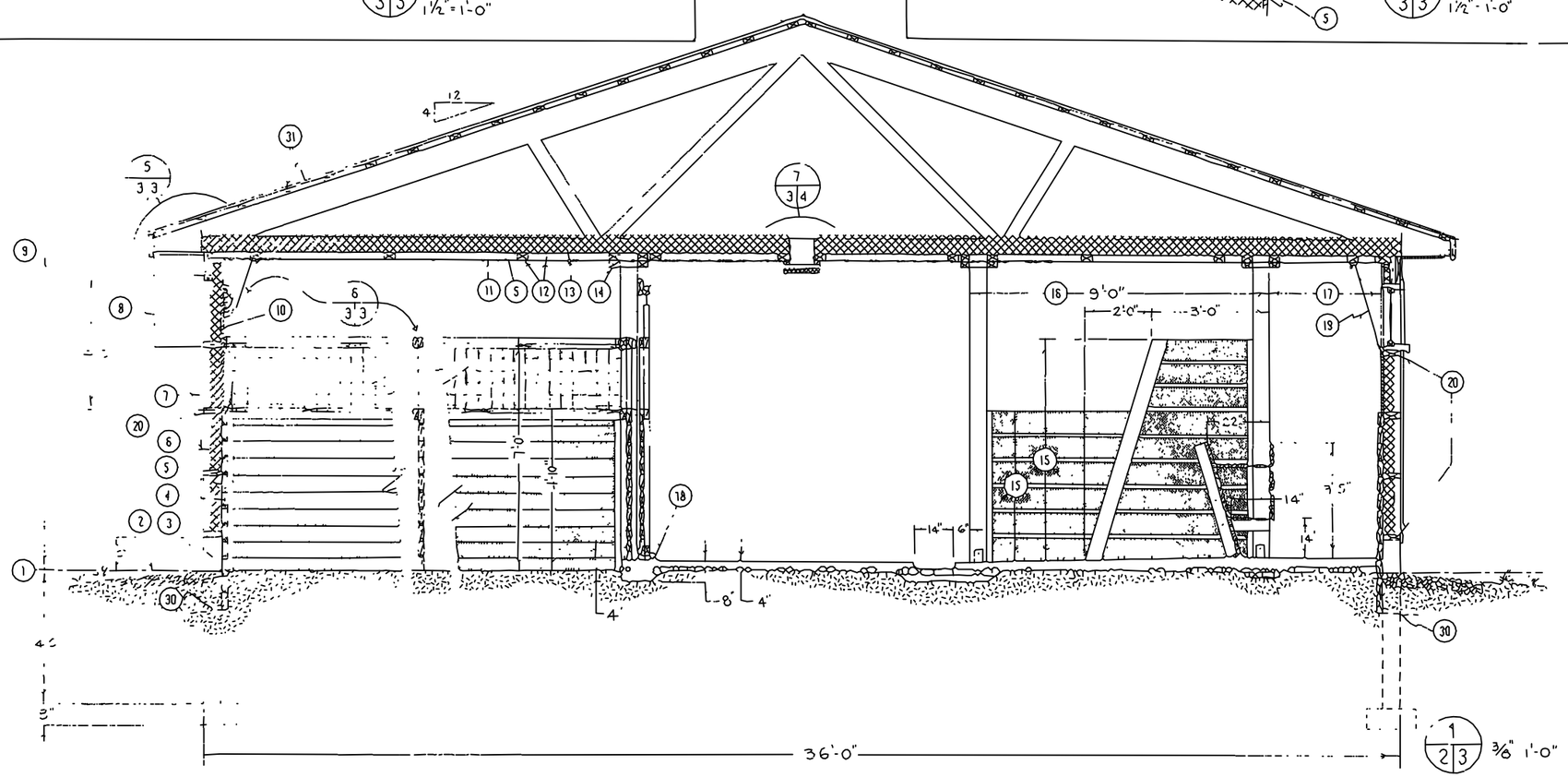


6 / 3 3 — 1½" = 1'-0"





5 / 3 3 — 1½" = 1'-0"



5 / 3 3 — 7 / 3 4 — 6 / 3 3 — 1 / 2 3 — 3/8" = 1'-0"

1 datum line, clay floor level

2 3'-0" x 4" deep coarse gravel splash pad

3 6 x 6 x 14'-0" pressure-treated post on 8" x 18" concrete pad @ 8'-0" o c

4 2 x 6 x 16'-0" T & G splash planking, stagger joints @ 8'-0" on posts, rabbet top plank for plywood and nail thru into girt; bottom 5 planks in outside wall to be pressure-treated

5 4 mil polyethylene vapour barrier

6 4" friction-fit insulation batts

7 vertical wood or metal siding over 15 lb asphalt felt wind stop

8 fan exhaust hood, open at bottom only

9 top of plate

10 3/8" plywood, 4'-0" high, face grain vertical

11 3/8" plywood ceiling

12 2 x 4 blocking @ 4'-0" o c , both ways

13 6" friction-fit insulation batts laid perpendicular to trusses

14 2 x 4 blocks 4 sides of post, and in ceiling

15 height to match partition heights

16 stall length may vary, slope 2" towards gutter

17 feed alley, min 3'-6"

18 door roller guide

19 window guard of 4 x 4 x 6/6 welded wire mesh or ½" diam rebars @ 4'-0" o c

20 2 x 6 blocking between posts, top to suit height of window, bottom one pressure-treated

21 2 x 4 framing, notch for wire mesh

22 1½" x 1½" galv steel angle at exposed edges to prevent horses biting & chewing at the wood

23 ½" x 1½" x 1½" x 6" galv steel angle fastened with lag bolts to wall and posts

24 2 x 6 T & G planking

25 2 x 2 framing at walls and at posts

26 2" screened inlet continuous

27 3/4" wood soffit

28 2 x 8 face board

29 2 - 2 x 10 x 16' plate beam (3 in end spans), joints staggered 8' @ poles; No 2 spruce safe to 2.4 kPa total roof load, for truss spacings other than 48" o c and/or heavier roof loads, see table 1, sheet 1

30 ½" x ½" x 16" galv hardware cloth fitted and stapled to pole and planking

31 metal roofing on 2 x 4 purlins (trusses 4'-0" o c)

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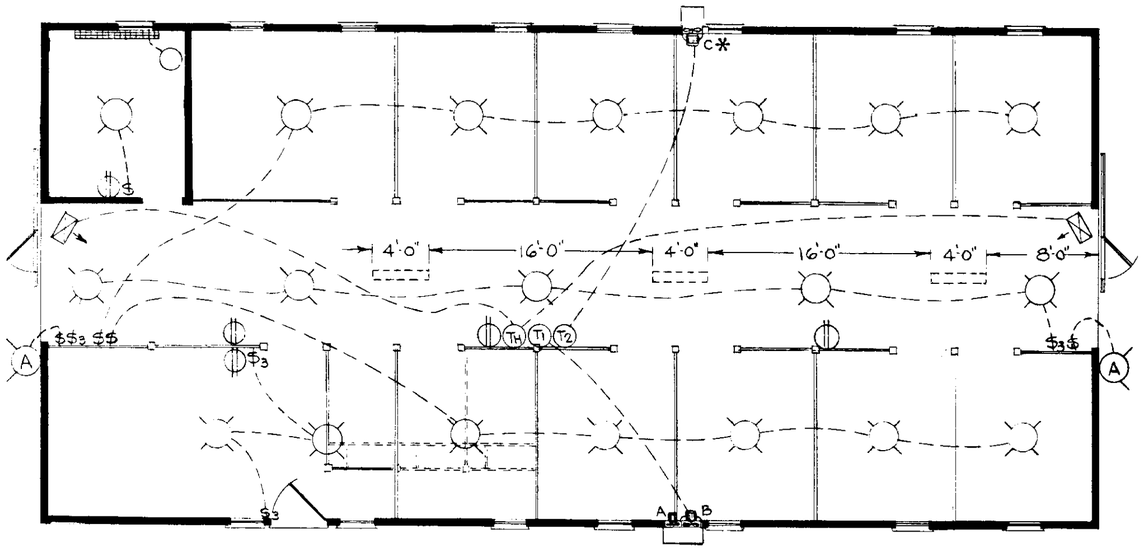
SECTION & DETAILS

DESIGNED	J.E.T.	DATE	72-11
DRAWN	BLAIS	REVISED	
SCALE		DETAIL NUMBER ___ A, ORIGINATES ON SHEET ___ B, DRAWN ON SHEET ___ C	
CHECKED	H.A.J.		

PLAN 8202

SHEET 3 OF 4

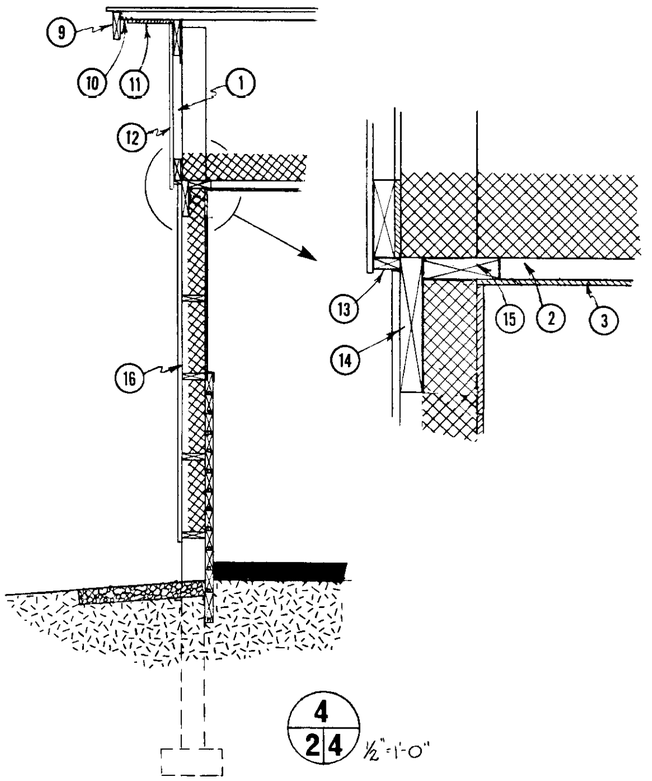


1/8"=1'-0"

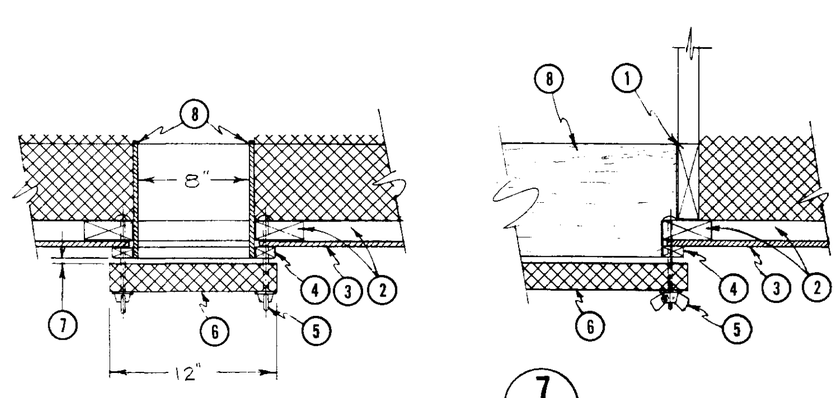
VENTILATION & HEATING SCHEDULE

UNIT	TYPE	CAPACITY	THERMOSTAT CONTROL	ON AT	OFF AT	INLET ADJUSTMENT
FAN A	Single speed exhaust	500 cfm @ 1/8" s.p.	Continuous			Cold weather - 3/16"
FAN B	Single speed exhaust	1200 cfm @ 1/8" s.p.	T_1	52°	50°	Mild weather - 3/4"
FAN C	Single speed exhaust	2000 cfm @ 1/8" s.p.	T_2*	62°	60°	Hot weather - open end doors and windows, ceiling inlets closed
UNIT HEATERS	Fan-forced	(see power supplier or heating contractor)	T_H	45°	47°	

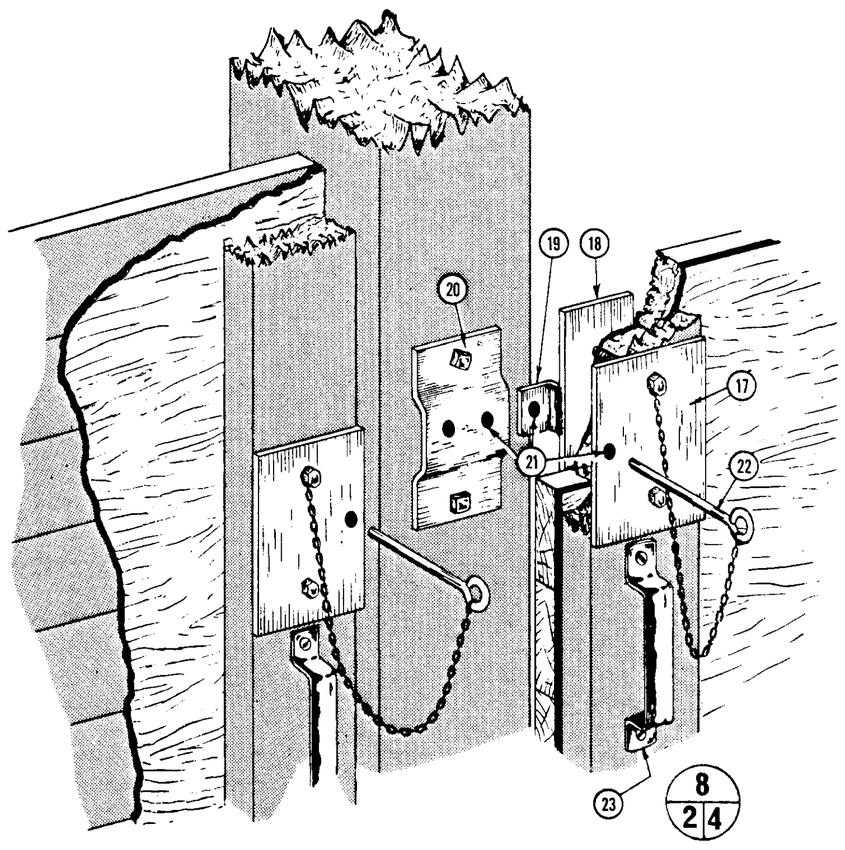
* Fan C and thermostat T_2 are optional. If automatic temperature control is not required in mild weather, open windows for extra ventilation as required.



4/24 1/2"=1'-0"



7/34 1½"=1'-0"



8/24

1 36'-0" trusses, select truss and spacing to suit local snow load, end trusses to have gussets on inside face only

2 2 x 4 nailing girts @ 4'-0" o.c.

3 3/8" plywood ceiling

4 1 x 2 trim, 4 sides of opening

5 ¼" diam. plated carriage bolts, washer and wing nuts for inlet adjustments, 6 per inlet

6 2" extruded polystyrene baffle

7 see ventilation table for inlet adjustment

8 3/8" plywood baffle

9 2 x 8 face board

10 2" screened inlet, continuous

11 3/4" wood soffit

12 outside cladding

13 1 x 2 filler piece

14 2 x 10 beam notched into post

15 2 x 6 blocking

16 endwall construction similar to side wall (see sheet 3)

17 1/8" x 5½" x 6" steel outer plate, drilled for 2 - 3/8" diam. bolts

18 1/8" x 4" x 6" steel inner plate, drilled for 2 - 3/8" diam. bolts

19 1/8" x 1½" high x approx. 2" long; bend and weld to (18) as shown

20 1/8" x 3" wide x 6" long, bend to suit (19), drill for 2 - 3/8" diam. lag bolts

21 (17), (18) & (20) to be bolted in place and a 3/8" diam. locking hole to be drilled to receive (22)

22 3/8" diam. locking pin

23 door pull

$ lighting switch

$3 three way lighting switch

(A) 150 watt par 30 floodlight

100 watt incandescent pigtail light fixture

115 volts, duplex convenience outlet

(TH) (T1) (T2) ventilation thermostat, mounted 5'-6" from floor

1 kw base board unit heater (with thermostat) if tack room has insulated walls floor to ceiling

fan forced unit heater, bracket hung

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VENTILATION, HEATING & DETAILS

DESIGNED JET.	DATE 72 – 11	PLAN 8202
DRAWN L. BLAIS	REVISED	
TRACED	DETAIL NUMBER A, ORIGINATES ON SHEET B, DRAWN ON SHEET C	SHEET 4 OF 4
CHECKED H. A. J.		