NOTES:

1. REFRIGERATION: Many vegetables are best stored at 32°F. Some at 45°F and others, like tomatoes, closer to 55°F. Usually a compromise is made - accepting somewhat shorter shelf life for a lower initial warmer temperature, with box temperatures below 40°F. If housing on equipment choices, refrigeration is needed for cools, to avoid freezing of cools, operate above this range. Continuous operation of the cooling coil blower will reduce the chances of frost build-up and improve air circulation.

Assuming a temperature difference of 50°F between inside and outside air and using 6000 BTU/hr for the heat load due to conduction through surfaces and air exchange, a 2½ HP unit (about 9000 BTU/hr) should cool 1/4 ton in 5 hours. A 1 HP unit should cool 1/4 ton in 5 hours. More vegetables could be cooled with less than a 50°F temperature difference if vegetables were brought to at temperature less than that of the hot part of the day.

2. FRESH AIR: Good sanitation and management reduces the need for fresh air. Ordinarily the door will be opened often enough to supply fresh air. If not, a small 60 CFM fan could be installed near the ceiling in one end to blow air into the box. With another similarly sized opening at the other end to release the air. A flap should be installed to close both openings when the fan is off. Openings should be covered with screening. Knowledge of produce needs is important, i.e., tomatoes emit ethylene to which some other products are sensitive. Fresh air dilutes the ethylene.

3. SHELVING: Perforated or expanded metal treated to prevent rust would supply better air circulation. Metal post and shelf supports would be a further improvement. Note 20" shelf depth may be too narrow for some operators. Preservative-treated shelf supports and shelf would lengthen life but be sure that the preservative is approved for this use.

4. INSULATION: To minimize surface heat exchange use R-19 insulation with 2½" studs, 2½" O.C., but many operators prefer the extra 4" of interior width that 2½" studs provide.

5. Lamps should be installed as needed but used sparingly to reduce heat gain.

SECTION/SHELF DETAIL

IF NOT WITHIN A BUILDING TOP SURFACE
WILL NEED TO BE SEALED AND GIVEN
WATERPROOF PROTECTION OR A ROOF

2X6 ROOF JOIST 2'-0" O.C.

COMPRESSION AND CODENSING UNIT
(MAY ALSO BE MOUNTED
ON ROOF OR AT GROUND
LEVEL)

2X4 BRACE

REFRIGERATION EVAPORATOR COILS

THERMOSTAT

PERSPECTIVE WITH OPTIONAL SHED ROOF

(1/2 EXT PLYWOOD OR CORRUGATED METAL ROOF)

SIDE VIEW

1/2 EXT PLYWOOD OR CORRUGATED METAL ROOF

2X6 RAFTER

2X4 TIE

2X4 STRUTS

2X4 PLATE 12"-0"

20" FRAME-NAIL AND GLUE PLYWOOD TO FRAME

3 1/2" FOAM BOARD INSULATION

INSULATED WALL

CONVENTIONAL ENTRY DOOR

WEATHER STRIPPIN

2X4 FRAME-NAIL AND GLUE PLYWOOD TO FRAME

3 1/2" FOAM BOARD INSULATION

INSULATED WALL

2X4 FRAME

3 1/2" PLYWOOD

LATCH

GASKET

RUBBER SEAL AROUND DOOR

ALTERATIVE DOOR DETAILS

(1/2 EXT PLYWOOD OR CORRUGATED METAL ROOF)

CHECK WITH LOCAL SUPPLIER
FOR AVAILABLE HANDLE

AND HINGE

PROVIDE INSIDE LATCH RELEASE
TO ASSURE SAFE OPERATION

COOPERATIVE EXTENSION SERVICE
AGRICULTURE AND HOME ECONOMICS

FARM MARKET WALK-IN REFRIGERATOR

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