PROJECT No. 20

# Green/Shade House

TABMA
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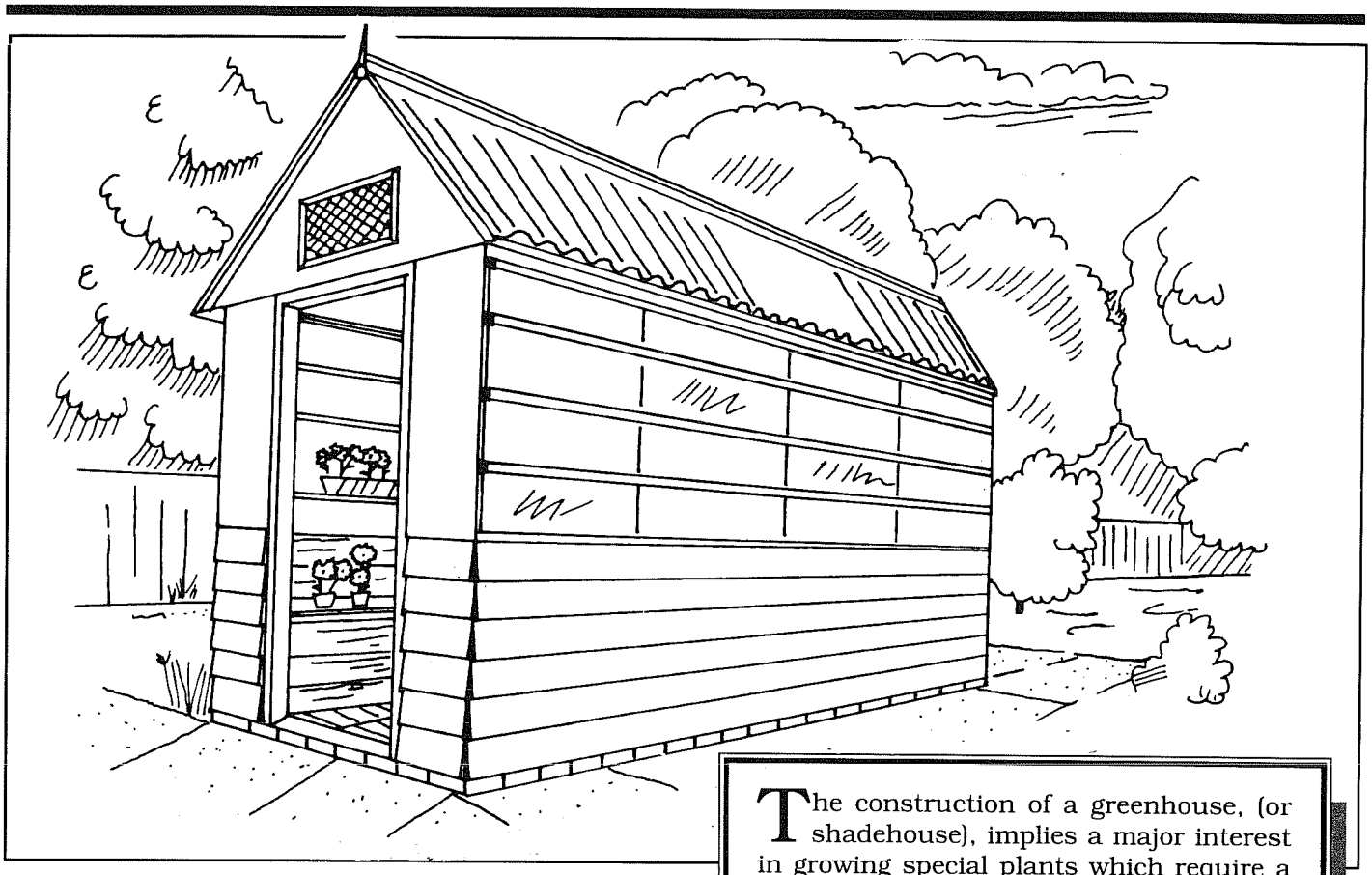
Timber and Building Materials Association (NSW) Limited 2/94



The construction of a greenhouse, (or shadehouse), implies a major interest in growing special plants which require a controllable growing environment. This project No.20 is an extension of TABMA Handyman Project No.19 Garden/Outdoor Shed and the same broad construction details apply However you may wish to expand the shed design to provide additional bench space and we suggest this can best be done by extending the length of the shed. In doing so you will need to consider a few simple procedures and changes from Project No. 19.

## ▼ STEP BY STEP ▼

***Refer to Project No. 19***

* * *

**You will need**

***Refer TABMA Project No. 19 for basic details, alter to suit your particular variation. As a guide consider the undernoted points A to K***

### A. Foundations/Footings

Extend to fit with changed design. Hold down bolts spaced about 900mm.

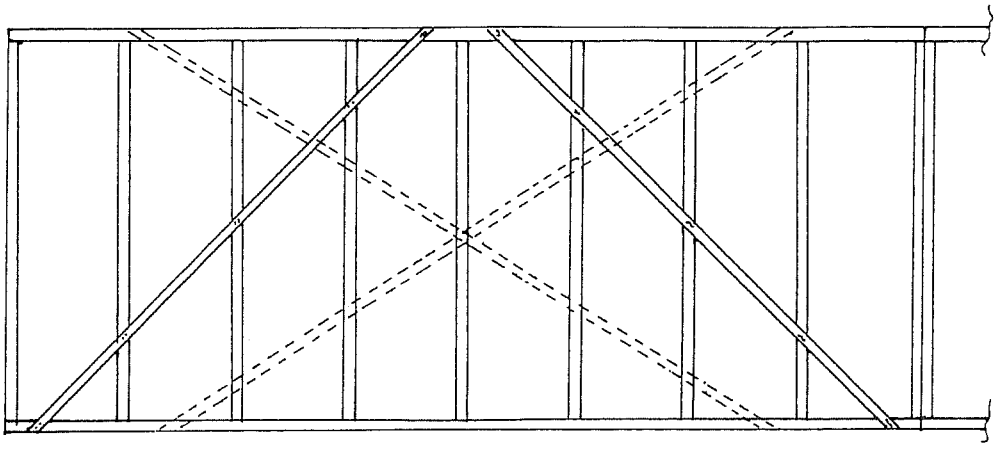
### B. Wall Length

Order extra studs for long walls assume spacing of studs at approximately 600mm centres.

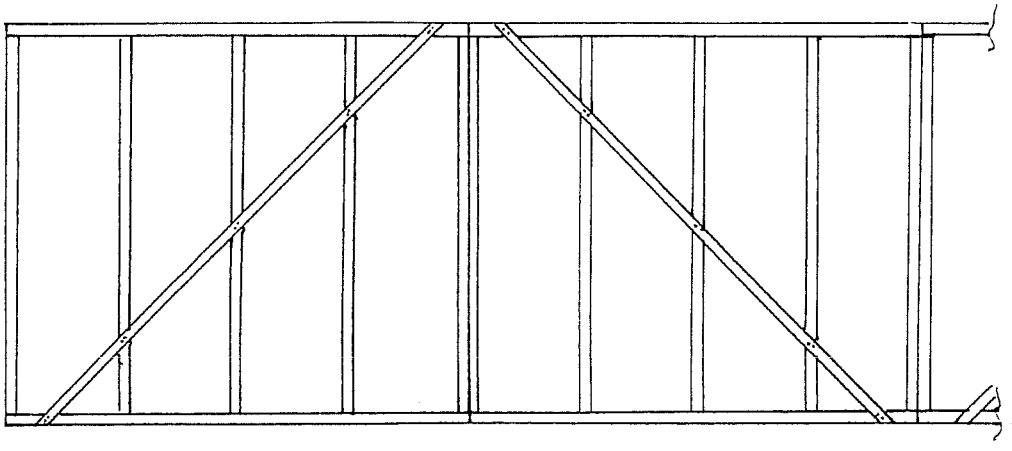
Order wall plates to give continuous run of say up to 4.8m. (Note for prefabrication of frames of this length you will need extra help to carry and put in place), OR you could fabricate 2.4m lengths and bolt them together but make sure you position holding-down bolts clear of studs.

## C. Bracing

Double wall bracing straps on long walls should be longer but the angle made with plates must be more than 30° less than 60°,



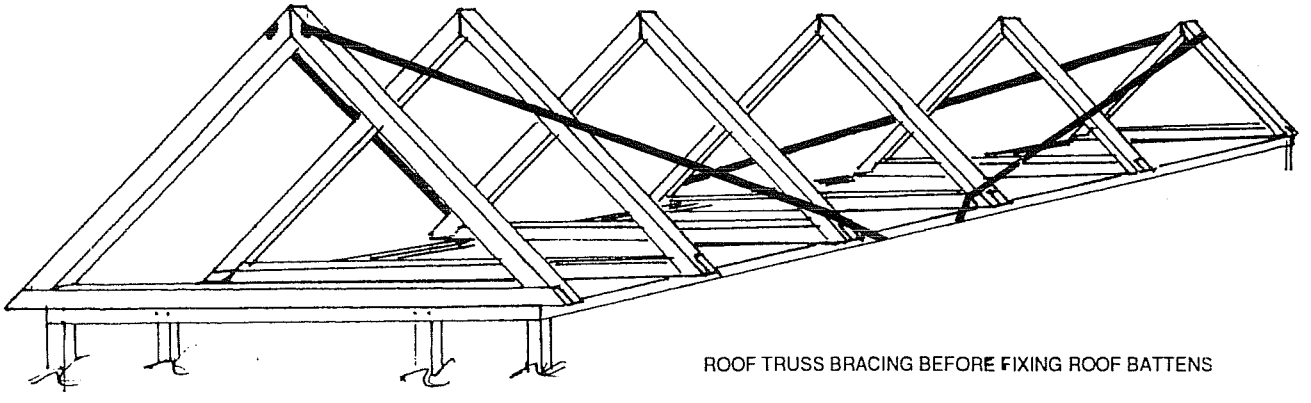
ATERNATIVE BRACING SYSTEMS FOR LONG WALL SECTION



BRACING FOR WALL FRAME MADE FROM TWO JOINED PREFABRICATED SECTIONS

## D. Roof and Roof Bracing

Again construct additional roof trusses to give spacing about 900mm and fit 2 diagonal strap bracing lengths each side before roofing battens are fixed.



ROOF TRUSS BRACING BEFORE FIXING ROOF BATTENS

## E. Cladding and Roofing

With the frame erected and adequately braced, attachment of the cladding chosen can proceed but the procedure will depend on which material you have chosen

Roofing: rigid, hail resistant roof sheeting is recommended for the greenhouse and the manufacturers data sheets and instruction leaflets should be followed with regard to fixing details, overlap, etc.

Wall Cladding: many alternative clear/transparent materials or systems could be used - glass panels in metal channels, fibreglass mesh/shadecloth, corrugated FRP (Alsynite or similar) UV resistant PVC, acrylic or polycarbonate products and many timber cladding products would be suitable for the bottom 600mm - 900mm of each wall.

## F. Ventilation and heating and shading for Greenhouse

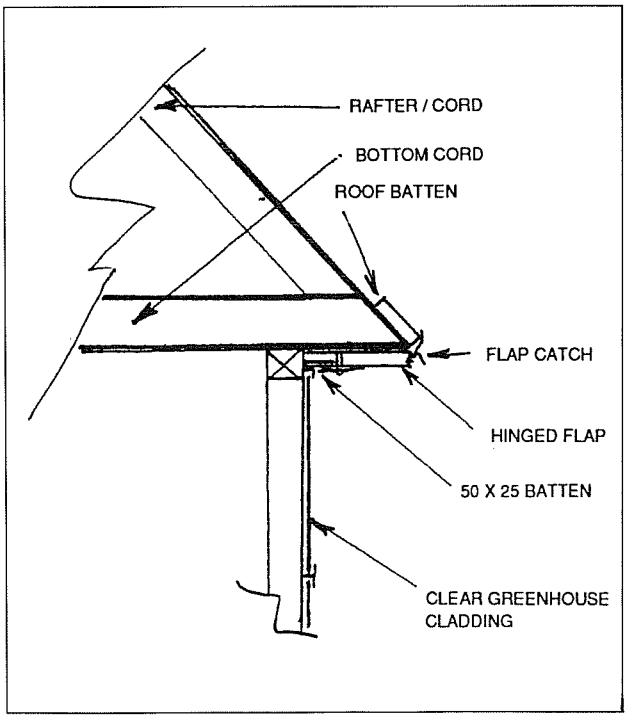
A greenhouse is intended to provide a protected and controlled atmosphere for growing plants.

Depending on the climate conditions you may need to provide ventilation controls - perhaps opening shutters in door and end wall or under-eaves flaps or gable ventilators.

If your greenhouse needs heating to carry the growing plants through winter weather, then some additional sealing of gaps in transparent cladding and roof may be necessary. A greenhouse to these dimensions could probably be warmed overnight by a typical heater fan unit provided adequate electrical safety precautions are followed. However, for severe winter weather, we suggest you consult the heating section in publications about greenhouse design and devise a suitable system for maintaining an adequate temperature within the greenhouse. Some greenhouses may also require provision of movable shading - shade cloth on rollers or removable panels - to reduce the effect of hot summer sun.

### *Hint for under-eaves ventilator/sealing flap*

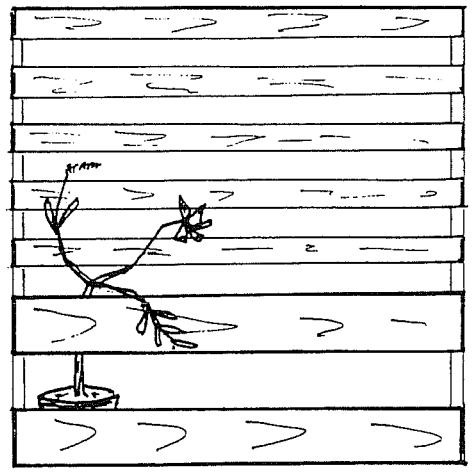
1. Fix to bottom chords of roof truss adjacent to the top plate a timber cleat about 50mm x 25mm x length of roof.
2. Using corrosion resistant hinges, spaced about 900mm attach timber flap 75mm x 25mm to this timber cleat.
3. Fit flap catch at chords as required.



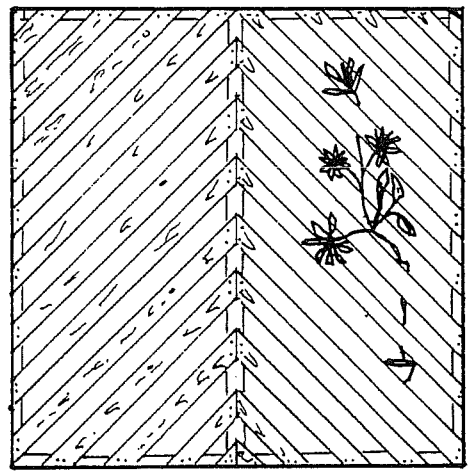

## G. Shadehouse Covering

Traditional shadehouses would use spaced timber lath or battens or wire netting and interwoven ti-tree branches. In present day much of this heavy shading would be replaced by woven shade-cloth, selected according to the amount of shade required. Under certain circumstances a combination of shade-cloth and, say, timber lattice may be desirable - the lattice providing a relatively robust or strong covering where needed.

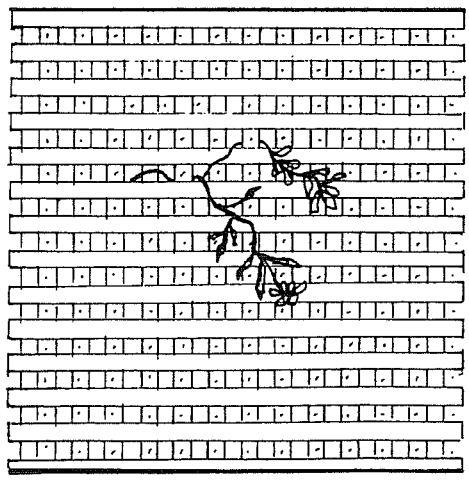
SOME ROBUST TIMBER WALL CLADDING FOR SHADE HOUSES



LATH OR PLANK. SELECT WIDTH THICKNESS AND SPACING TO GIVE SHADE AND PROTECTION.



ANGLED LATH OR PLANK.SELECT WIDTH AND SPACING AS REQUIRED.



LATTICE. SEVERAL PRFABRICATED TYPES AVAILABLE OR BUILD ON - SITE

## H. Timber Product/Species Selection

As mentioned in Project No. 19 it is desirable that you carefully select the timber products for use in this hazardous high humidity, warm application. Good service can be expected from naturally durable species (Durability Class 2 or 1) and plantation pine preservative treated to Hazard Level 3 (H3) or better.

The NSW Timber Framing Manual lists Durability Class 1 and 2 timbers, reasonably available perhaps from selected suppliers, in N.S.W. as below.

Stringybark (yellow and white), river red gum, western red cedar, spotted gum, kwila (merbau), blackbutt, New England blackbutt, grey gum, turpentine, tallowwood, ironbark, cypress pine. To which list of suitable natural species would be added preservative treated radiata, slash or hoop pine.

For additional information on durable species consult your TABMA Timber Merchant or the TDA Timber Advisory Service.

## I. Protective Finishes

While careful selection of timber will enhance service life of the structure, the application of flood coats of brush-on water repellent (perhaps containing fungicide) would be of benefit to the long term performance of the whole framework and any timber product used as cladding. Apply first coat of finish to all fram work end grain (e.g. studs and rafters) and allow to dry BEFORE assembly.

## J. Fixings and Fasteners

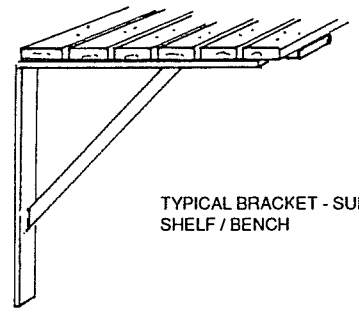
All bolts, nails, metal fixings or fasteners should be non-corroding. Low cost hot-dipped galvanised products are widely available and will give reasonable non-staining performance. Some fittings would benefit from a protective paint coating - hinges, framing anchors. Regular inspection in service will detect any adverse corrosion.

## K. Fit-Out/Trimwork

With the frame erected and covered you would now be considering the internal fittings including perhaps the necessary ventilation and perhaps installation of heating for your greenhouse - or how to control unwelcome winds in your shadehouse - and how to increase or decrease shade throughout the growing year.

## Shelving

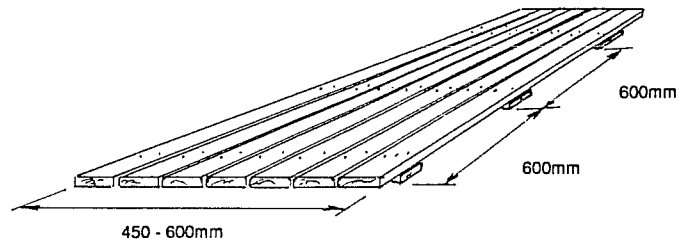
However, much of the internal fit-out of these horticulture sheds will be concerned with working details such as displaying the plants and/or a working bench. You could consider mounting all your small pots on elevated shelving supported on galvanised welded brackets bolted or screwed to the studs. For the shelving or platform, use readily available decking timber - pencil rounded on all four corners flood coated from time to time with a water repellent solution (avoid timber preservative solutions containing fungicide because they may(?) leach out onto plants growing underneath your work bench (shelving).



TYPICAL BRACKET - SUPPORTED SHELF / BENCH

## Duckboards

Often a greenhouse or shade house is characterised by a damp floor - not good working conditions - and you should consider making up duckboards for the central walkway or in the working area. Again a simple fitting - which should be in removable sized sections - made from decking boards should give good service - but use hot dipped galvanised nails for fixings.




DUCKBOARD SECTION



This brochure was prepared with the assistance and co-operation of the Timber Development Association NSW Ltd.

For further advice telephone the TDA Timber Advisory Service on (02) 9360 3088.



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