MWPS-42' Truss 42' span, 4-web trusses

with plywood gussets.

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.**

WARRANTY DISCLAIMER

This plan provides conceptual information only. **Neither midwest plan service nor any of the cooperating land-grant universities, or their respective agents or employees, have made, and do not hereby make, any representation, warranty or covenant with respect to the specifications in this plan.** 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.

MIDWEST PLAN SERVICE
Cooperative Extension Work in Agriculture and Home Economics and Agricultural Experiment Stations of North Central Region - USDA Cooperating
42' Truss
Title Page
MIDWEST PLAN NO. 42'

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	Table of lengths Roof Rise Slope Rise 312 53" 412 53"	4+4, 4+6, 6+6 indicate stacked lower chord. 444, 64, indicate stacked lower chord.	This sheet is to help you SELECT and ERECT trusses. DO NOT try to BUILD trusses from it, because it does not include enough information on gluing, joints, splices, and fabrication. See "Designs for Glued Trusses," MWPS-9. If you buy metal-plate trusses, use their designer's data.	a 50		66 23 66 48 66 48 66 48 66 96 66 96 66 100-	14 26 14 25 16 54 16 69 100+ 100+
45 ³	E ∉⊗∥©⊉ ⊣	1 446	= Epage2	Bottom Bottom		2x4 2x4 2x4 2x6 2x6 2x6 0 4+4 10 4+4 12 4+6 12 4+6 12 4+6	4 2x4 5 2x6 3 2x6 3 2x6 10 4+4 12 4+6 12 4+6 12 6+6
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				1100f Lumber Top Bottom chord chord	3/12 Slope	4/12 Slope	5/12 Slope

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42' Trisces

Add the weights of the truss, purlins or decking, roofing, and roof insulation to get the dead load on the top chord. Approximate weights of trusses, psf. Example: a 4-web truss for 4: spacing with 2x8 top chord and 2x6 bottom chord weights about 13 + 0.7 = 2.0 psf. Dashed lines in table indicate example. ROOF DEAD LOAD ings without ceilings such as machinery storages, un-insulated livestock buildings, etc. Total cost may be greater if a ceiling is needed. tables short spans and narrow spacings. 4/12 slope—most common for farm buildings. 5/12 slope—most common for farm buildings. 5/12 slope—used in high snow load areas or for long spans and wide spacings. This page is a summary of the information in "Designs for Glued Trusses," MWPS-9. Refer to this publication before building trusses CEILING DEAD LOAD storage buildings. 4' spacing is common in insulated livestock buildings with ceilings and metal roofs, and in some decks 2' spacing uses more material and labor. It is common for buildings with ceilings and plywood roof Roof and ceiling materials and wall framing in-fluence truss spacing selection. In pole buildings it is desirable to support each truss on a pole. truss TRUSS SPACING ROOF SLOPE (inches of rise/Inches of run) buildings)
b gsf ceiling dead load allows for a gypsum board ceiling with insulation (residential or light com-mercial buildings). 0 psf allows for no materials in addition to the Roof slope significantly affects the forces in the uss members. A steeper roof allows higher roof loads. 3/12 slope—used in low snow load areas or for 8' spacing uses least material and labor for buildů, Add the following 2-64-Web Truss 6 Web Truss 2×10 2×12 2×12 Chord Top Three ceiling dead load cases are included in the 2x4 2x6 2x6 2x8 2x8 truss.bracing, and stiffeners. 5 psf ceiling dead load allows for a metal or plywood ceiling with insulation (warm livestock Bottom 2x4+2x4 2x4+2x6 2x6+2x6 2x4 2x4 2x6 2x6 for: 1.4 2.1 4.0 4.4 1.6 2.0 2.4 2.7 Truss 2 0.00 dead weight 0.7 1.6 0.8 £ spacing 0.4 0.8 0.4 0.5 0.7 8 Sheathing, etc. 1 Jumber, solid Trusses are designed to withstand winds mph on a building less than 30' high. 28 ga steel Asphalt shingles Ceiling framing Wind Loads Weights of roofing and ceiling materials. ",2" plywood 0.024" aluminum 1x31urring, 16 ' o.c 2x41urring, 2' o.c 2x4 purtins, 2" o.c 2x6 purtins, 2" o.c Root framing spok on cold Minimum recommercies(editad) s 12 get In areas where all of the maximum show load results from a single storm whout significant wind the maximum roof load may equal the ground sinow load. Use the map above and the table below for termining snow load for your building. SNOW LOAD Uther Recommended snow loads Insulation, per inch of thickness usionmenetably the MMPS and NRAES Committees for roots up to about usione for buildings outside the jurisdiction of a building code arm buildings. Sol-ym analodau 30 dirs. 25 yr. vol Bitrs zown on root here building. Sol-ym map load x 0 dir convert from snow on ground to mmm. Use the map Snow load on the ground, 50-yr recurrence interval. See table below for conversion to roof snow design load Мар 8285 40285 load
 Roof snow load

 Farm
 Other

 12
 12

 14.4
 16

 21.6
 24

 28.8
 32
 64.8 72.0 79.2 36.0 43.2 50.4 57.6 8 D 2.2 pst 111 0.4 0.9 2.6 0.1-0.4 04psf 07 07psf 25886 8887 32 16 32 16 ŝ, 8 de-S³ Ś 1750 Ś 1400 Group Dougtas Fir—L n Plywood Spruce Pine Fir Hem-Hi Hem-Fir aheriaa 1600 Group LUMBER

Use exterior, C-C grade '/_a" or '/_a" plywood with outer pies of Group 1 species wood. Identification In-dexes, 240 and 22/16 respectively. Use 3-ply '/_a" plywood and 5-ply '/_a" plywood or use Structural I, 4-ply, '/_a" plywood. Douglas Fir (South) Southern Pine (15% Southern Pine (19%) Hem—Fir (North) Hem—Fir (North) Douglas Fir (North) 1100 Group Douglas Fir—Larch Spruce—Pine—Fir Douglas Fir—Larch (North) Southern Pine (19%) Southern Pine (15%) Douglas Fir—Larch (North) Douglas Fir—Larch (15%) = moisture content at time of milling. 2x6 + = 2x6, 2x8, 2x10, 2x12. SS = Select structural Three lumber groups are indicated in the tables. Example of species in each group are listed below Hem-Fir (North) Southern Pine (19%) Southern Pine (15%) Larch No. 1 SS No. 2 No. 2 dense No. 1 No. 1 No. 1 No. 2 dense No. 2 No. 1 No. 1 No. 1 No. 2 SS SS Grade 2x4 2x6 2x6 2x4 2x6 2x6 2x4 2x4 2x4 2x4 2x6 2x6 2x6 2x4 2x6 2x6 Size

1 1

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Wal

Poles 8' o.c

Truss Span 20'-24 26'-30' 32'-46' 48'-50' 52'-60' buildings where the poles are spaced eveny and the trusses are not. For poles 8° oc. they may be of alternating 16° and 18° lengths with staggered and lapped end joints if pairs of trusses are mounted on Stagger purlin joints for continuity across the trusses. Purlins may be laid flat with 2° and 4° truss spacings and buttjoints used. Alternating purlin lengths may be used in pole For a 2' to 4' overhang, use the top chord and heel gusset design for a ${\rm V}_3$ larger snow load. Roof Purlins Overhang of each truss. alternate sides of the poles Overhani Wind Anchorage Brace and anchor the trusses as they are placed. Bottom chord stiffeners are required at panel points unless a rigid coiling is to be installed. Use king post crossbracing in all buildings. Mo. A = metal framing anchor 4-30d ring-shank naits = 1/2" bolt 16' Purlin (2x4 on Windbracing X Lap Minimum fasteners for wind anchorage, both ends 6 18' Purli Cross bracing <u>+</u>_ of qu DOIN Ø Dimensions Span For Truss 2' 1A or 1B 32 aĝpa Truss Spacing I russe 4 16' 1A or 18 1A or 18 2A or 18 2A or 18 2A or 18 2A or 28 Seart Cu 18' Purlin Max. Offset - **Size** 1x4 2x4 2x6 Wall Framing $\mathbf{B} = 1/2$ " bolt 8 2A or 18 2A or 28 3A or 28 4A or 28 4A or 38 Ř 1 Truss Spacing 2[:] 8[:] <u>6</u>

V/C10.

BUILDING CONSTRUCTION