

# **APPENDIX F**

## **GLOSSARY OF TECHNICAL TERMS AND BRIDGE TRUSS FRAME CONFIGURATIONS**

# APPENDIX F

## GLOSSARY OF TECHNICAL TERMS

(Reference, in part: Covered Bridges of the Northeast by Richard Sanders Allen, 1985.)

**ABUTMENT** - The shore foundation upon which a bridge rests, usually built of stone but sometimes of bedrock, or concrete.

**ARCH** - A structural curved timber, or arrangement of timbers, to support a bridge, usually used in covered bridges together with a truss. Most commonly used with a multiple kingpost truss. Thus, a supplemental or auxiliary arch is one which assists a truss; a true arch bridge is entirely dependent upon the arch for support.

**BEARING BLOCKS** - Timber components used to shim between two components (e.g. blocking pieces between a bolster beam and truss chord).

**BED(DING) TIMBERS** - Timber components typically located between the top of abutment/pier and the underside of the truss bottom chord. Intended to serve as sacrificial components to be easily replaced when deteriorated from rot; thereby protecting truss components from similar deterioration.

**BOLSTER BEAMS** - Longitudinal timber components beneath the truss bottom chord that project past the face of the abutment. Intended to provide additional support of the truss. Most commonly used beneath Town Lattice trusses.

**BRACE** - A diagonal timber in a truss which slants toward the mid-point of the bridge.

**CAMBER** - A slight convexity, upward bowing or "hump" of the chords, built in to allow the bridge to be level after it settles.

**CHORD** - The top (upper chord) or bottom (lower chord) member or members of a bridge truss; may be a single piece or series of long joined pieces. Town Lattice trusses typically contain two levels of top and bottom chords; hence, there may be upper and lower top chords and upper and lower bottom chords.

**COMPRESSION MEMBER** - A timber or other truss member which is subjected to squeeze. Often a diagonal member such as a brace or counterbrace. Also a top chord.

**COUNTER-BRACE** - A diagonal timber in a truss which slants away from the mid-point of the bridge (opposite from brace).

**DISTRIBUTION BEAMS** - Longitudinal timber components aligned below, and supported by, the floor beams of the structure. Intended to force participation of several floorbeams in supporting axle loads of vehicles. Rarely effective.

**FACE OF ABUTMENT** - The side of the abutment toward the center of the stream.

**FLOOR BEAM (OR FLOOR JOIST)** - Transverse beam between bottom chords of trusses on which longitudinal joists (or "stringers") or decking are laid.

**GOOD CONDITION** - Indicator of physical configuration and material properties similar to that at time of original construction. Having no significant defects, such as: cracks, crushing, buckles, rot, insect attack, or impact damage.

**JOIST (OR STRINGER)** - Timbers laid longitudinally on the floor beams of a bridge and over which the floor planking is laid.

**KNEE BRACES** - Transverse timber components connecting the upper portion of the truss with the transverse tie beams, usually positioned at a 45 degree angle.

**LAMINATED ARCH** - A series of planks bolted together to form an arc; constructed in such a manner that the boards are staggered to give extra strength.

**LATERAL BRACING** - An arrangement of timbers between the two top chords or between the two bottom chords of bridge trusses to keep the trusses spaced apart correctly and to insure their strength. The arrangement may be very simple, or complex.

**LONGITUDINAL** - Direction parallel to the bridge.

**PIER** - An intermediate foundation between abutments, built in the stream bed, for additional support for the bridge. May be made of stone, concrete, wood, etc.

**PORTAL** - General term for the entrance or exit of a covered bridge; also used to refer to the boarded section of either end under the roof.

**POST** - Upright or vertical timber in a bridge truss; *center post* is the vertical timber in the center of a truss; *end post* is the vertical timber at either end of the truss.

**RAFTER** - One of a series of relatively narrow beams joined with its opposite number to form an inverted V to support the roof boards of a bridge.

**ROT** - Deterioration of timber material evidenced by soft spots/areas as a result of poor ventilation and/or excessive moisture.

**RUNNING PLANKS** - Longitudinal timber planks on the top of the deck intended to provide an easily replaceable wearing surface. Also tends to guide vehicles along the center of the bridge and causes traffic to reduce travel speeds.

**SAG** - Opposite of camber; permanent downward deflection of trusses at middle of span.

**SISTER** - Additional Town Lattice web member inserted adjacent to a damaged or deteriorated existing web member that provides additional strength to the truss without replacing the existing member.

**SKEWED BRIDGE** - A bridge built diagonally across a stream.

**SPAN** - The length of a bridge between abutments or piers. *Clear span* is the distance across the bridge, measuring from the face of one abutment to the face of the other. The length usually given is for the *truss span*, i.e., the length between one end post of the truss and the other, regardless of how far the truss may overreach the actual abutment. Bridges of more than one span are called multi-span bridges.

**SPLICE** - A method of joining timbers, especially end-to-end, by means of a scarf or other joint, sometimes with keys or wedges inserted to give additional strength and stability to the joint. A *splice-clamp* is a metal or wooden clamp designed to hold two spliced timbers together.

**TENSION MEMBER** - Any timber or rod of a truss which is subjected to pull or stretch.

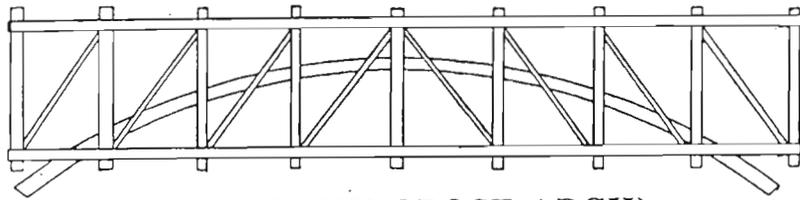
**TIE BEAM** - Transverse timber component connecting tops of top chords. A part of the upper lateral bracing system.

**TRANSVERSE** - Direction at right angle to bridge (i.e. 90° to bridge), opposite of longitudinal.

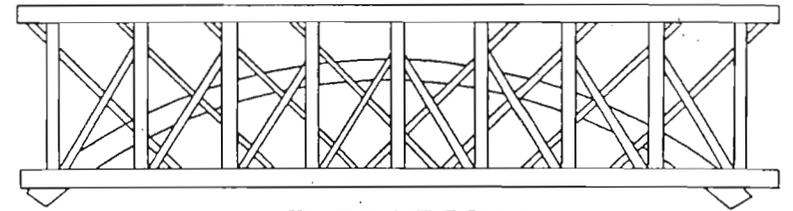
**TREENAILS (TRUNNELS)** - Wooden pins which are driven into holes of slightly smaller diameter to pin members of lattice trusses together. (Pronounced "trunnels").

**TRUSS** - An arrangement of members, such as timbers, rods, etc., in a rigid form so united that they support each other plus whatever weight is put upon the whole. Covered bridge trusses, including arch trusses, employ a triangle or a series of combined triangles, since this is the form which cannot be forced out of shape by external pressure. Truss is also used to refer to just one side of a bridge.

# BRIDGE TRUSS FRAMES

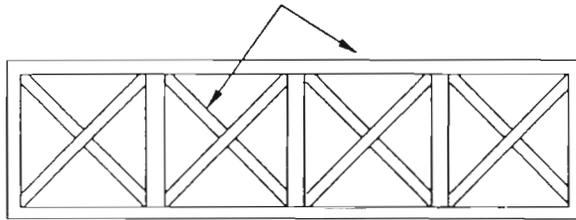


BURR (KINGPOST ARCH)



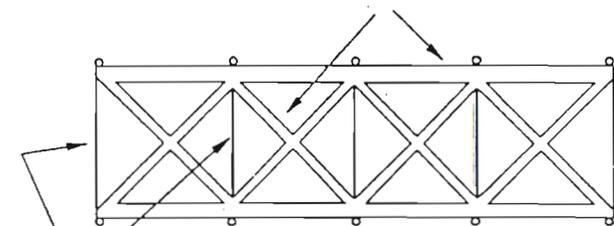
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ALL WOOD



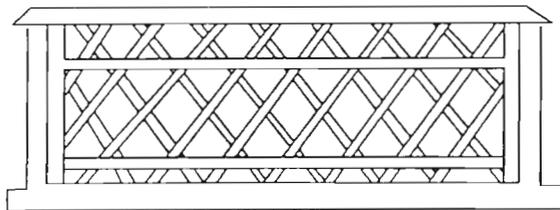
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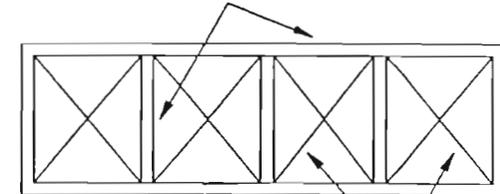
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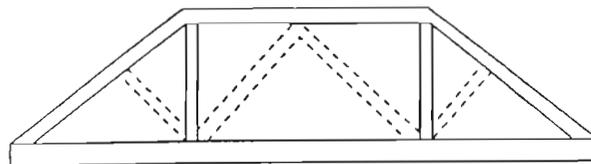
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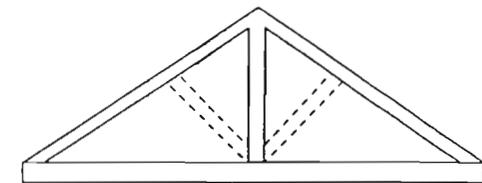


PRATT

IRON



QUEENPOST



KINGPOST