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Post-Tier Rail and Typar® or Metal-Covered Tobacco Field Curing Structures

George A. Duncan

Tobacco producers are rapidly adopting field curing structures with several variations in construction materials and methods. They are looking to lower costs and increase efficiency by installing structures that require less maintenance and last longer.

Two recently designed structures appear to provide more permanent options for producers who dislike the tedious tasks of covering and securing the plastic over the tobacco during the curing season. Both structures use two-rail-wide, two-post wooden construction, but they differ in their roof coverings. One uses Typar®, and the other uses metal.

The drawings shown on the following pages are designed to allow the 9-foot-wide Typar material to cover from eave *and* allow the metal roof to be added to the same structure either during construction or at a later date. Two roof options are shown: a gable roof and a single-slope roof.

Some of the sidewall wood is exposed to the weather. Therefore, weather-resistant species or preservative-treated wood is recommended to increase its life expectancy.

The drawings show the use of full-dimension, 4x4 tier rails or optional 2x6s on the edge. The 2x6s provide a stronger structure and are recommended if heavy tobacco is to be packed tightly. They are also more suitable when using commercial-dimension, preservative-treated lumber. The commercial-dimension sizes represent about one-third less strength than the full-dimension sizes because of the smaller dimension of its members.

Although the structure may be strong enough to allow for tight packing of heavy tobacco, this practice is not recommended. Some producers believe you can “push the wilted tobacco as tight as you can and it will cure fine,” but many seasons of curing evaluations have proved that this is pushing good luck a little too far. A more reasonable spacing of 3.5 to 4.5 inches per stick seems to give better ventilation and curing year after year. Only very small, dry-weather tobacco might be successfully cured in warm, low-humidity conditions at the “push as tight as possible” spacing.

The capacity of a curing structure for various stick spacings is shown in the following tables.

Table 1. Sticks per 14 feet of length,* two rails wide, based on stick spacing.

Stick Spacing	No. of Sticks
5.0 inch	68
4.5 inch	74
4.0 inch	84
3.5 inch	96

* The 5.0-inch spacing should be used for large, barely wilted tobacco with potential yields over 3,000 pounds per acre. The 4.0-inch spacing is typical for most medium-size tobacco. The 3.5-inch and closer spacings should be used only for smaller, well-wilted tobacco that may yield less than 2,500 pounds per acre. Weather conditions and management of the plastic covering during the cure greatly affect the quality of the cure with any spacing.

Table 2. Capacity of a 96-foot framework.*

Stick Spacing	Capacity	
	Sticks	(Ac)
5.0 inch	230	0.32
4.5 inch	256	0.36
4.0 inch	288	0.41
3.5 inch	329	0.46

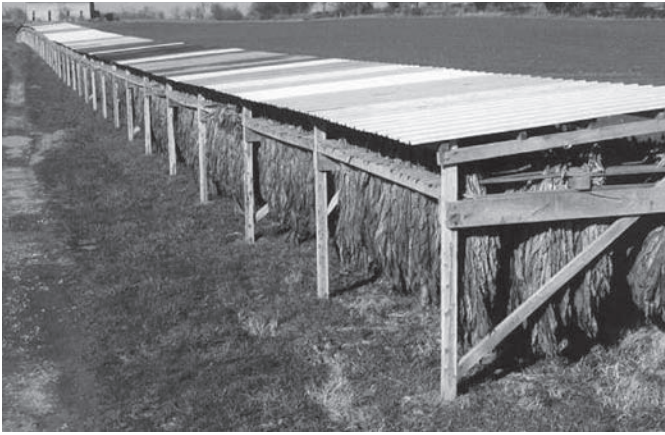
* The 96-foot length is a convenient length that permits a 100-foot roll of plastic to cover the framework. For longer frameworks, attach the ends of plastic at a rafter. Acreage capacity is based on about 7,100 plants per acre (40 inches by 22 inches with 97% stand) and six plants per stick.



A gable-roof structure.

Special Management Considerations

- As with conventional barn tier rails, sticks of wilted tobacco are supported at each end. Two workers stand at ground level and receive the tobacco from an adjacent wagon or transport trailer. They then pass the tobacco under a 6-foot-high tier rail and hang the sticks up on the tier rails. Some workers may have difficulty reaching this height tier rail with heavy tobacco.
- The tobacco tip leaves may be very close to the sod and vegetation, creating the possibility of higher moisture and potential damage during the cure.



A single-slope roof structure.

- A weed trimmer, push lawnmower, or low-riding mower will be needed to trim any year-old vegetation from the area before hanging. A tractor mower will not be able to get between the posts.
- Side protection of the tobacco may be provided by a 5-foot-wide strip of 6-mil plastic that is stretched and attached to the tier rail

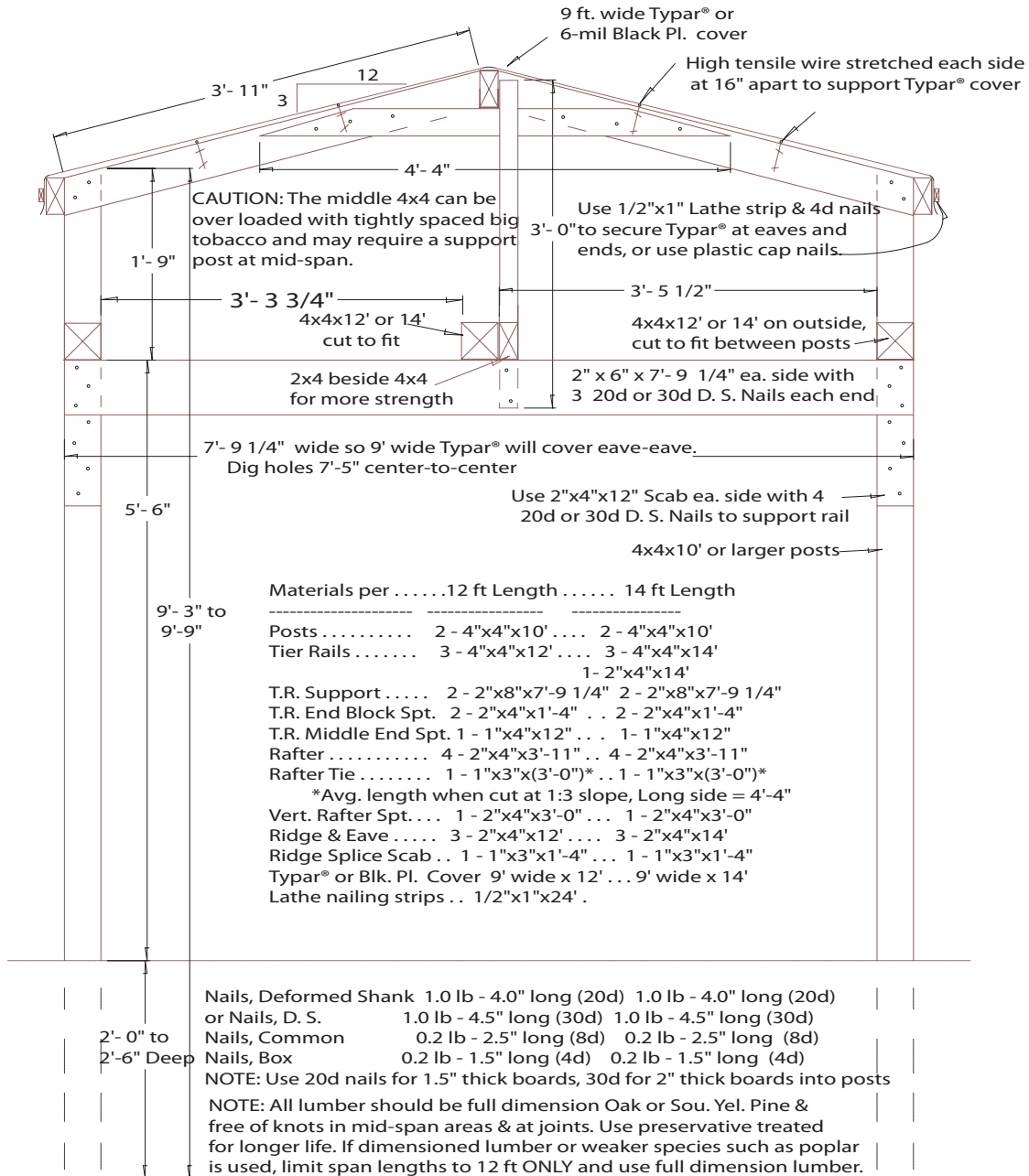
and posts with nailing strips or plastic cap nails. An extra nailing board (1x4, 2x4, or other size) along the lower edge may help secure the plastic against strong winds. Wire, baler twine, small rope, or a similar support may also be used to support the plastic. There should be at least 12 inches of opening at the bottom to provide ventilation under the tobacco tips.

Guidelines for hanging the tobacco and managing the cure in these structures is much the same as described in ID-116, *Low-Cost Post-Row Field Tobacco Curing Framework*, from the Kentucky Cooperative Extension Service (available on the Web at www.ca.uky.edu/agc/pubs/id/id116/id116.htm). Specific guidelines for spacing the tobacco, covering, etc. are detailed in this publication and should be reviewed if you are not familiar with these outside curing procedures. The main guidelines are:

1. Capitalize on good curing weather and avoid inclement weather during late fall and early winter. In other words, “Early in, early out.”
2. Spread the plants evenly on the sticks and space them about 4 inches apart on the rail for good curing.
3. Cover the tobacco within a week after hanging or before the first rain of more than 1/4 inch.

*Prepared by George Duncan, Extension Specialist;
reviewed by L. Walton, Professor, and L. Swetnam,
Extension Specialist, Biosystems and Agricultural Engineering Department,
College of Agriculture, University of Kentucky, Lexington, Kentucky.*

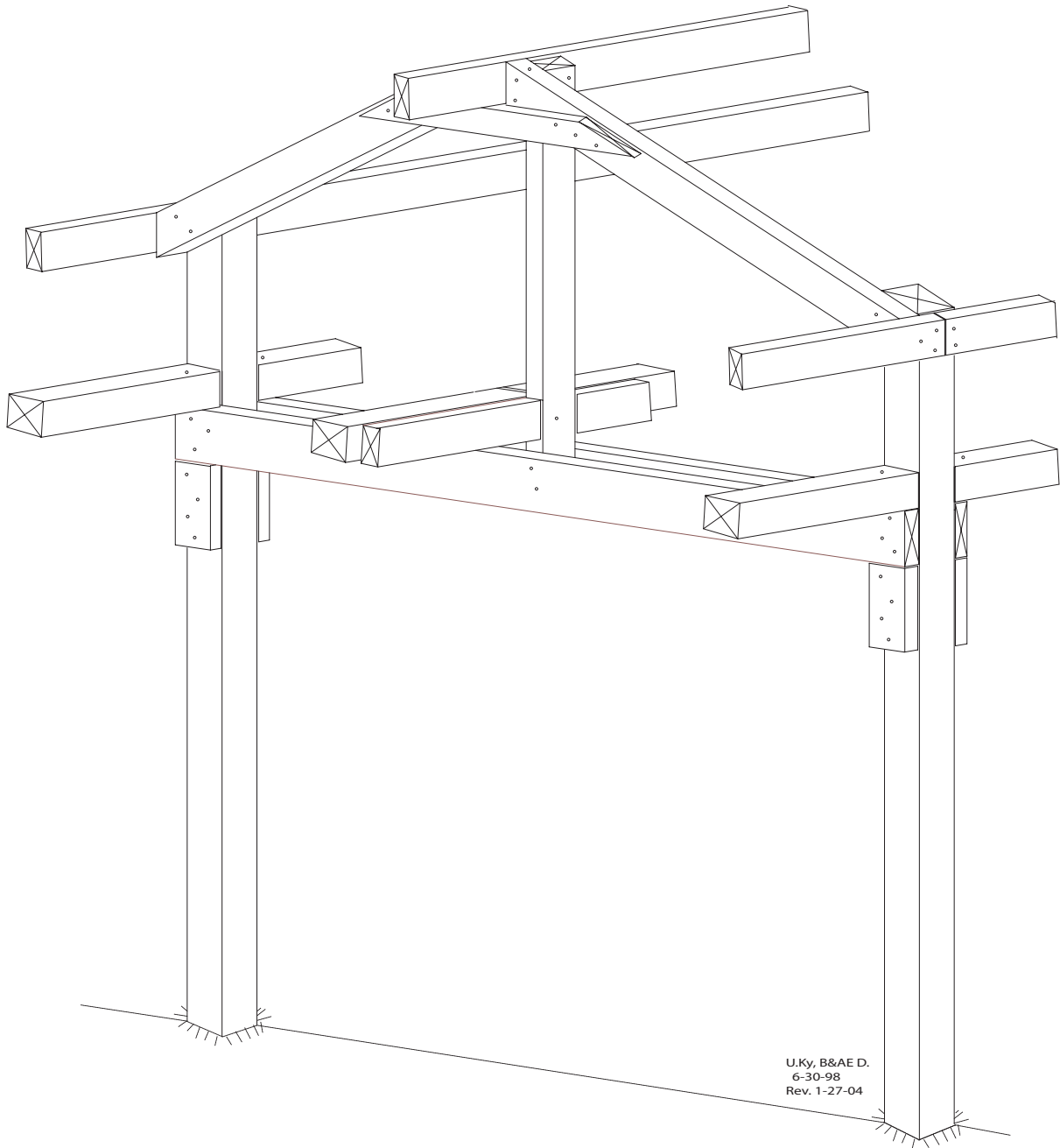
4x4 Tier Rails and Typar® Cover Construction



See separate drawing for optional metal roof details

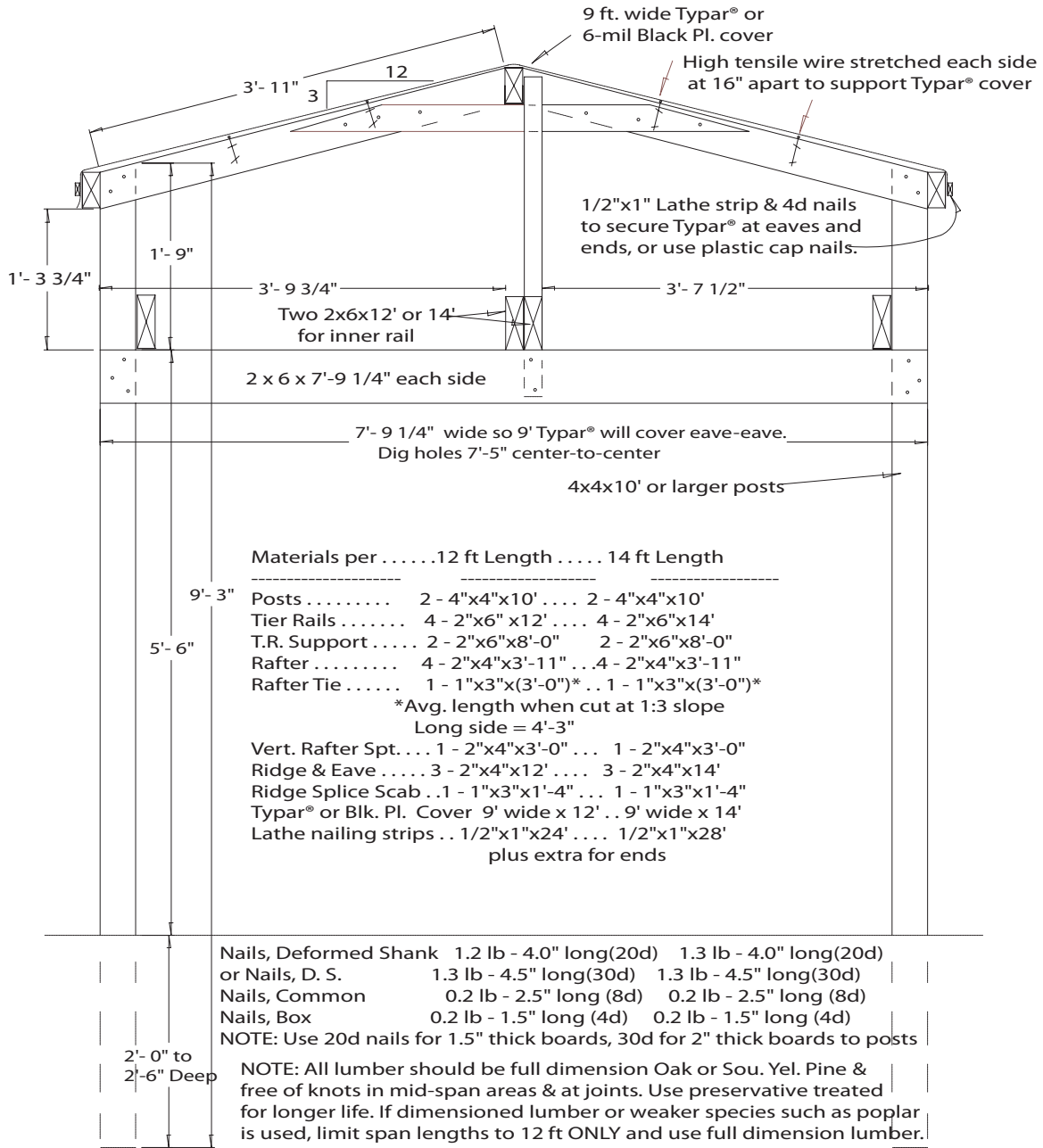
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Perspective view of Post & 4x4 Tier Rail Construction



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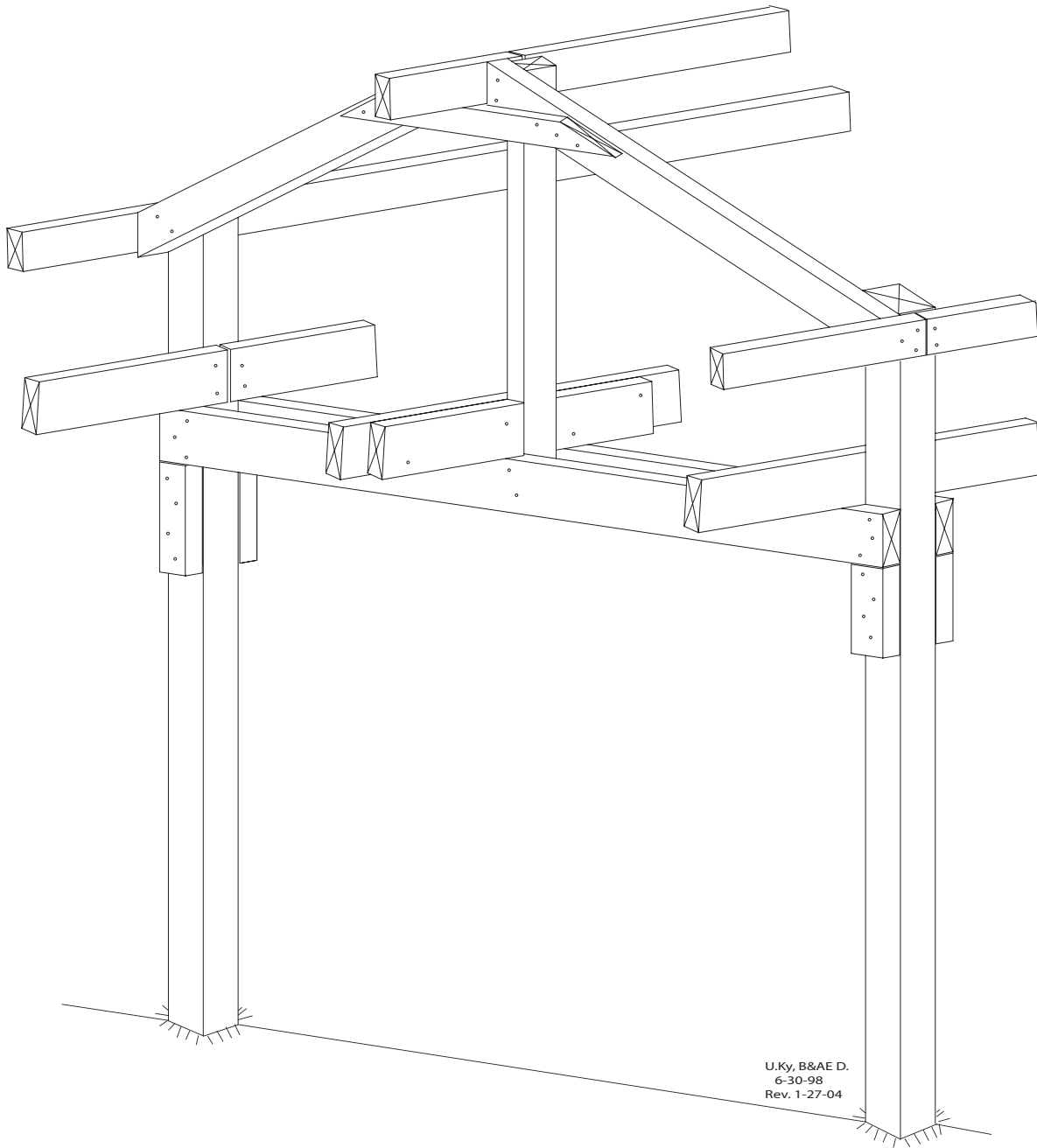
2x6 Tier Rails and Typar® Cover Construction



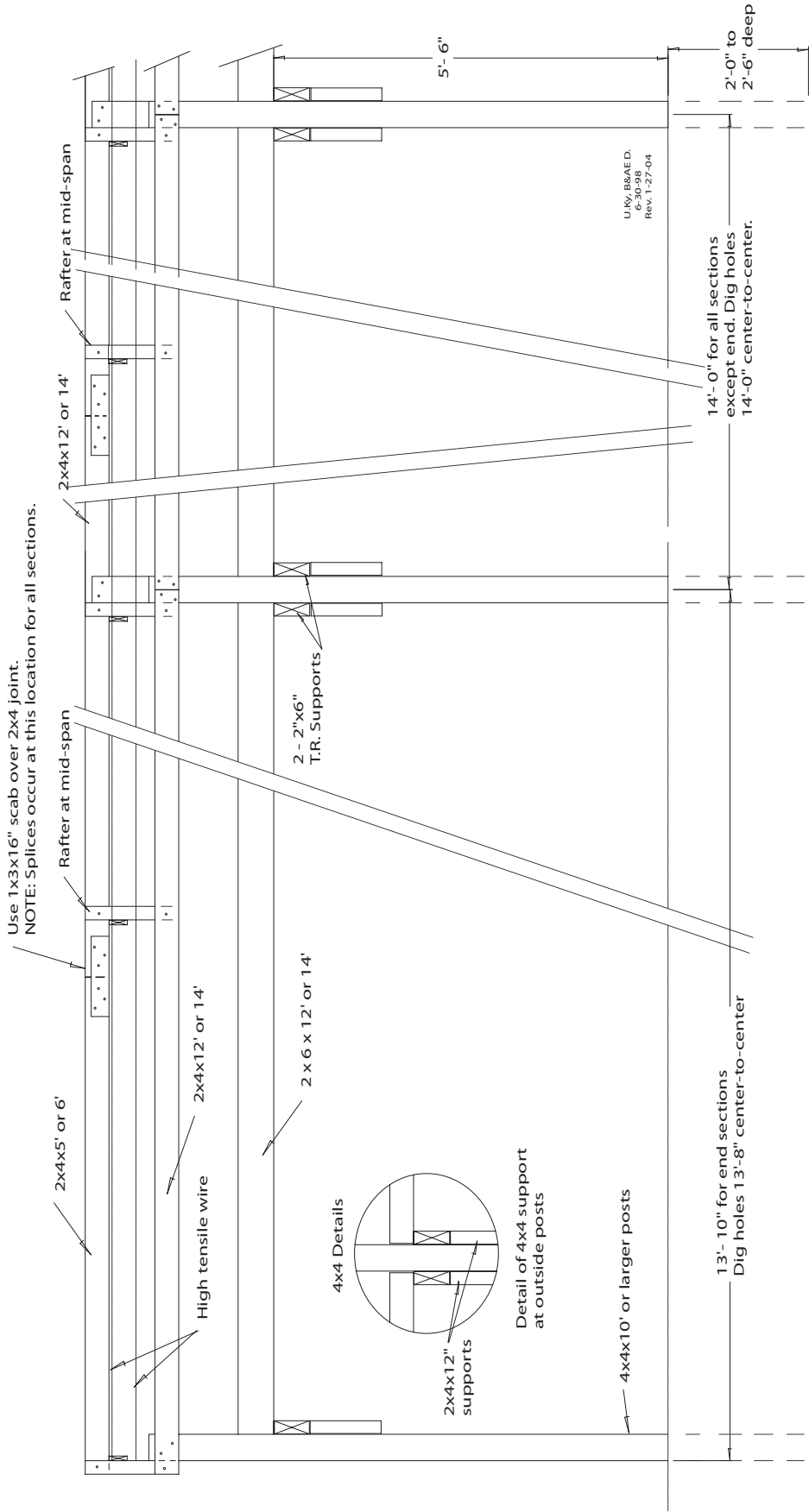
See separate drawing for optional metal roof details

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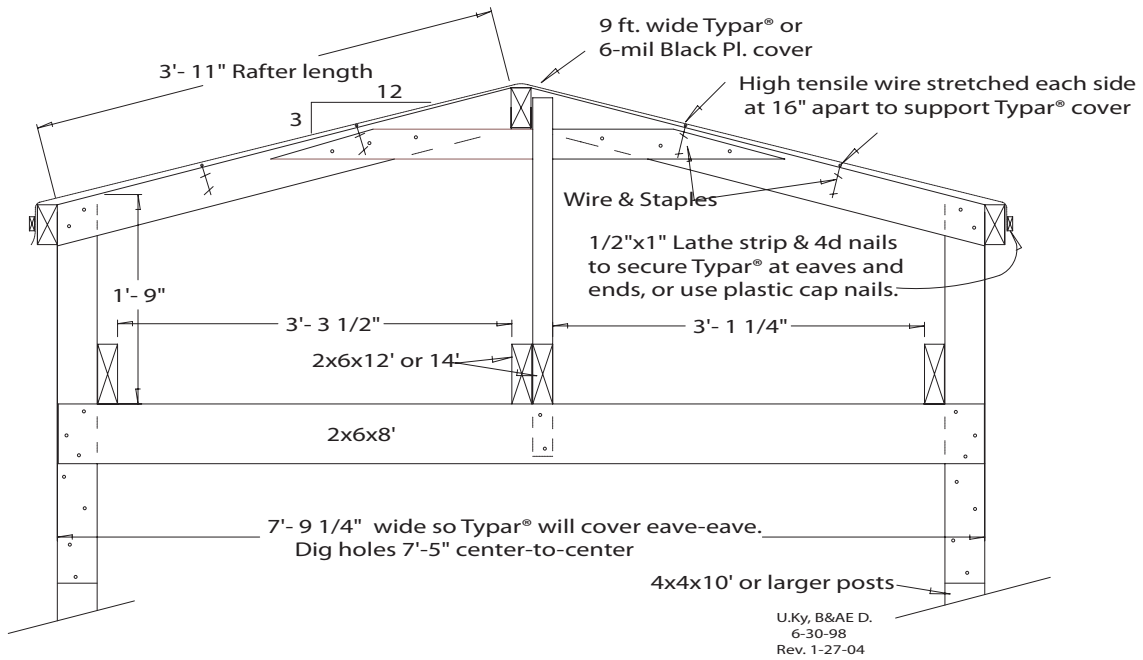
Perspective view of Post & 2x6 Tier Rail Construction



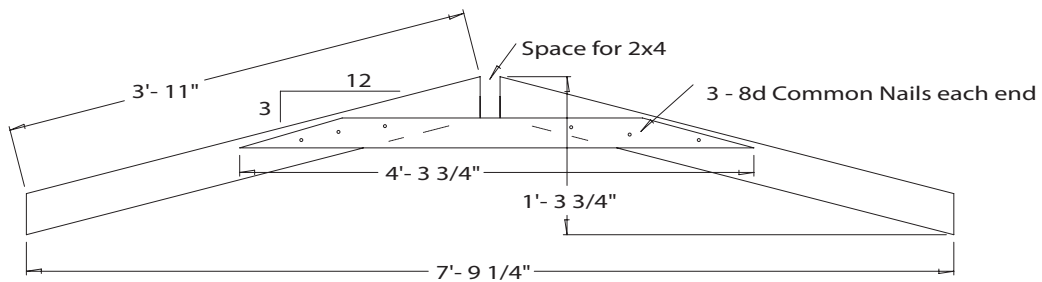
Side Elevation View (Uncovered)



2x6 Tier Rails and Typar® Cover Construction

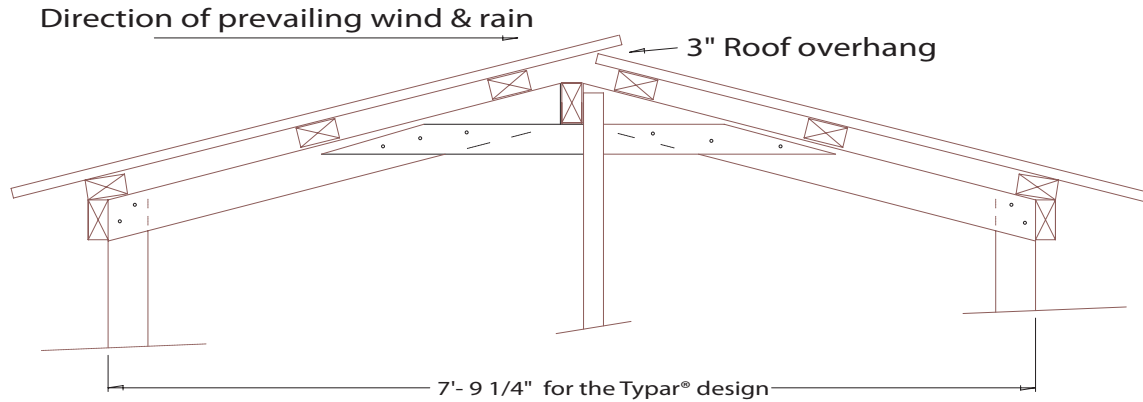


Prefab Rafter & Tie

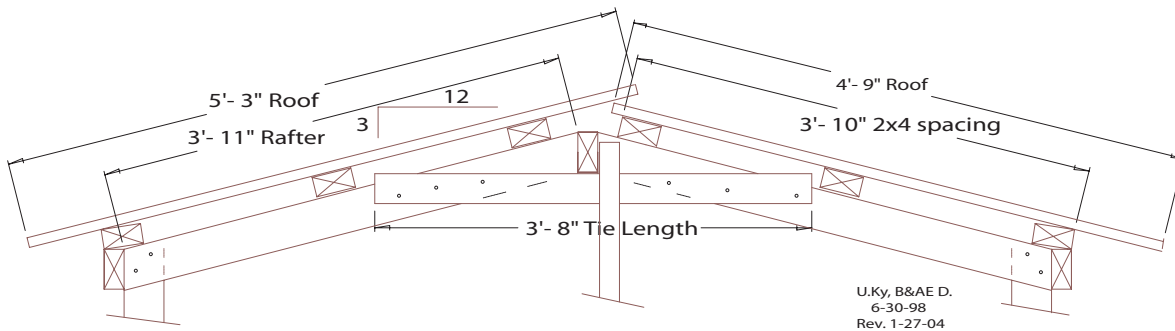


Use blocks on bench or wagon bed to form jig for prefab of rafters and tie.

Purlin and Metal Roof Construction



Rafter-Metal Roof Details

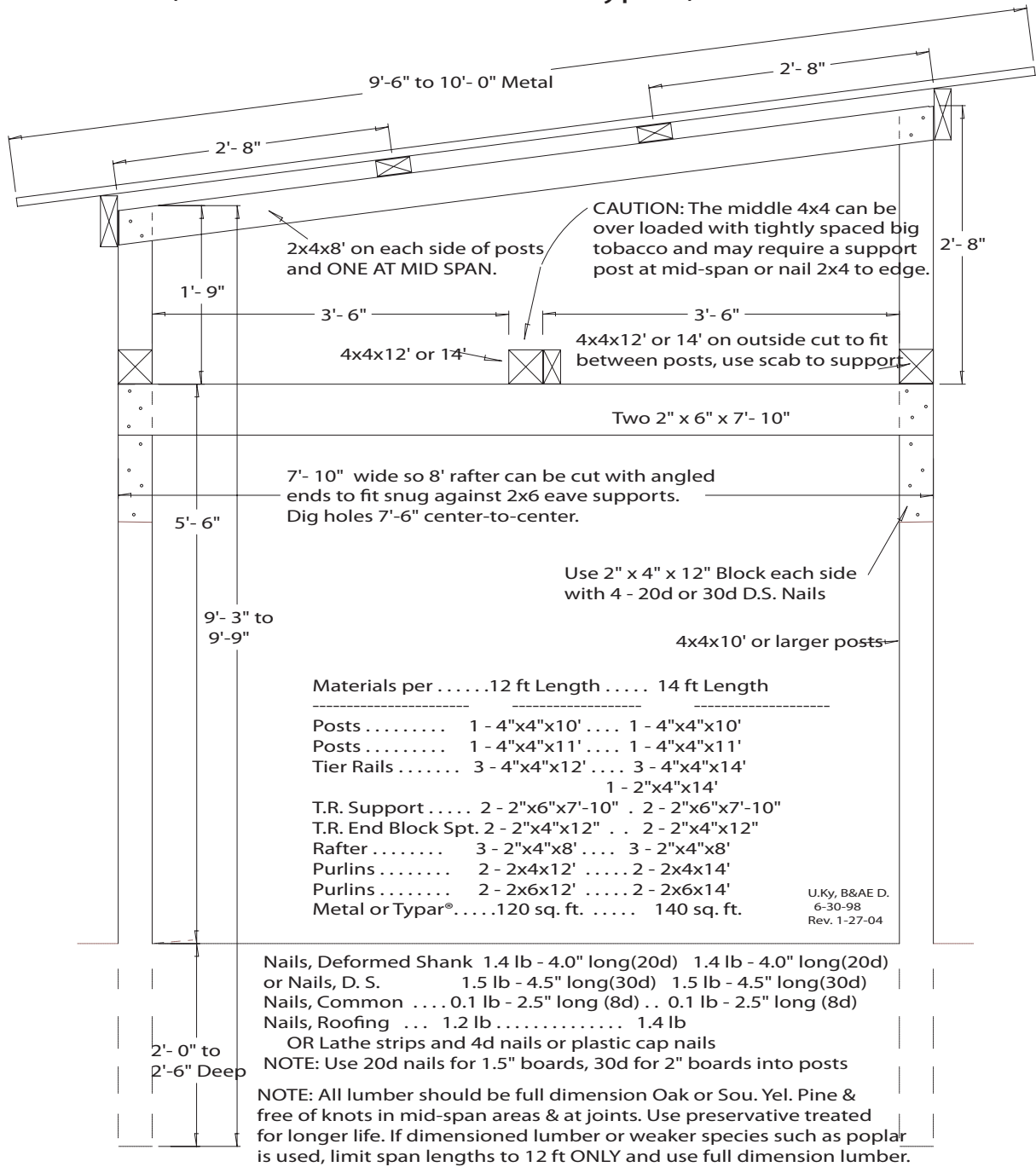


Materials per12 ft Length14 ft Length

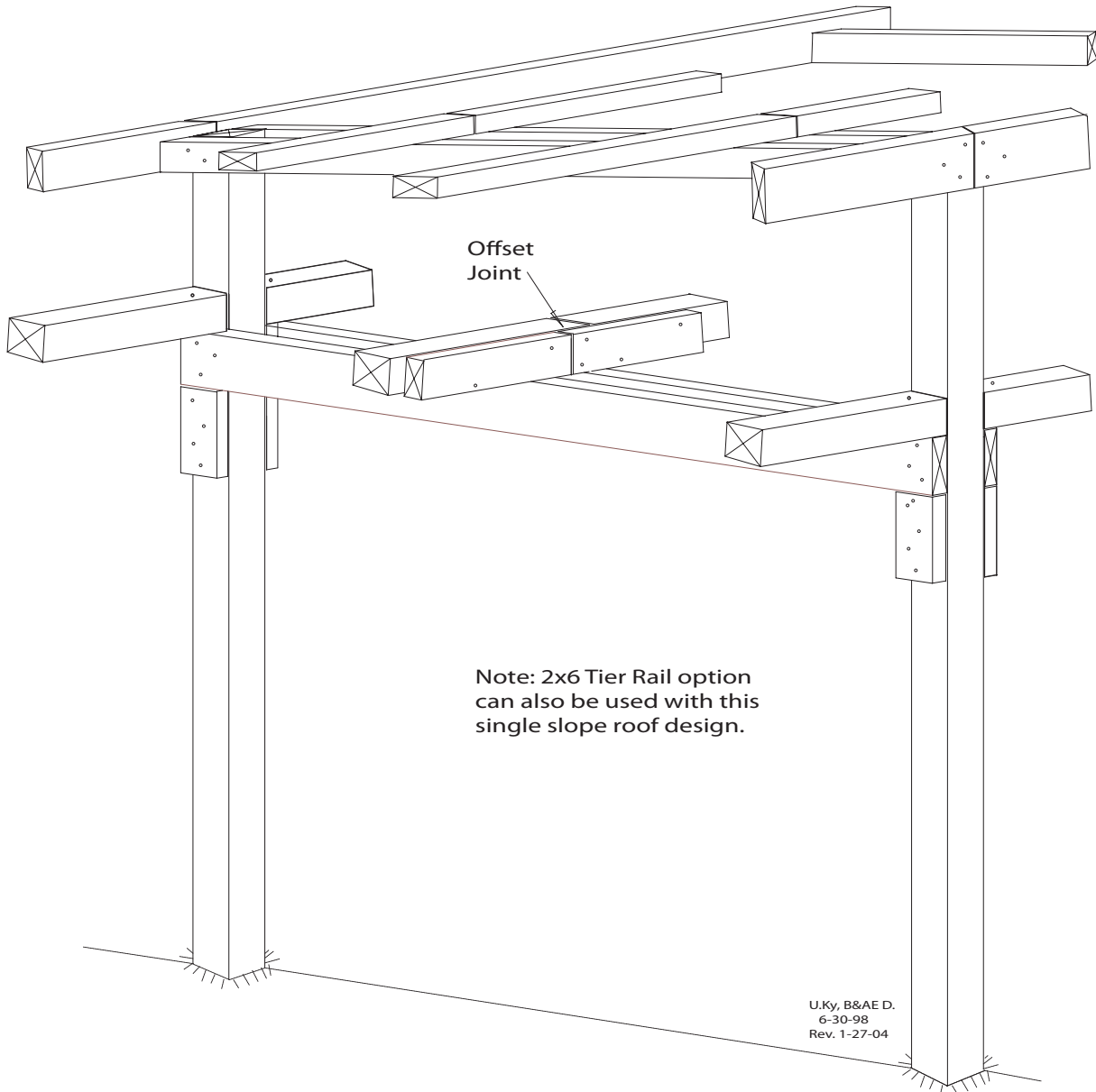
OMIT:
Typar®, Lathe Strips & 4d nails (or plastic cap nails)

ADD:
Purlins 6 - 2"x6"x12' 6 - 2"x6"x14'
Metal Roof, Galv. 120 sq. ft. 140 sq. ft.
Nails, Pole Barn 1.0 lb 4.5" (30d) 1.0 lb 4.5" (30d)
Nails, Roofing 1.0 lb 1.0 lb

4x4 Tier Rails and Single Slope Roof Construction (Can be used with Metal or Typar®)



Perspective view of 4x4 Tier Rail & Single Slope Roof Construction (Can be used with metal or Typar®)



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