PETTY CREEK BRIDGE, Missoula County, Montana

Type: Stressed TrusJoist Microlam™ T-beam
County: Missoula
Owner: Missoula County
Built in: 1990
Engineer: Merv Eriksson, USDA Forest Service; Fred Crisp, Missoula County; Chris Meyer, TrusJoist, Int.
Spans over: Petty Creek
Bridge length: 38'-6"
Roadway width: 28'-0"

Directions: From Lothrop (Exit 77 on I-90), take Petty Creek Road approximately 6 miles to the bridge site.
**GEOMETRY**

Number of Spans: 1  
Out-to-out length: 38'-6"  
Center-of-bearing length: 37'-0"  
Skew: 30 degrees, left ahead  
Number of lanes: 2  
Out-to-out width: 28'-0"  
Rail-to-rail width: 27'-7 1/2"  
Number of beams and spacing: 14 @ 2'-0"  
Superstructure square footage: 1078

Design load: AASHTO HS-20  
Deadload: Approx. 150 lbs/ft/beam  
Superstructure design by: Trus Joist International, Chris Meyer  
Abutment material: Wood  
Abutment type: Treated timber, Tensar Geogrid™ tieback retaining wall  
Abutment height (bottom of footing to top of deck): 11’-2”  
Abutment design by: Merv Eriksson, USDA Forest Service  
Total project cost: $133,862  
Total project material cost: $51,228  
Total superstructure cost: $66,813  
Total superstructure cost/sq. ft.: $62.80  
Total superstructure material cost: $35,644  
Total superstructure material cost/sq. ft.: $33.06

**MATERIAL**

**DECK/BEAMS/STRINGERS**

Material: Wood (Stressed Microlam™ laminated veneer lumber t-beams)  
Species: Coast Douglas-fir  
Allowable bending stress: 3,080 psi  
Preservative treatment: Pentachlorophenol, Type A solvent  
Retention: 0.6 pcf

**ABUTMENTS**

Lumber greater that 8” in the least dimension: Coast Douglas-fir glulam  
Remaining lumber: Ponderosa pine, No. 2 grade  
Hardware: A36 black steel, A307 bolts and nuts (uncoated)  
Tie backs: High density polyethylene geogrid, tensile strength 1,000 lbs/ft or greater

**GUIDERAIL CURB** (none)

**GUIDERAIL**

Bridge material: 12 guage steel w-beam and steel tube (2” x 12” x 1/4”)  
Approach material: Steel w-beam

**STRESSING STEEL**

Manufacturer: Dwidag Systems Int.  
Bar Diameter: 5/8” galvanized  
Prestressing rods: 5/8” diameter Dwidag bars  
Bearing plates: 1/2” x 5” x 6”

**ABUTMENT POSTS**

Bridge material: Wood (Microlam™)  
Approach material: Western white wood, No. 1 Grade timber

**LOCAL IMPACT:** This bridge carries County Road L0001 over Petty Creek in Missoula County.  

**BRIDGE PERFORMANCE:** This two-lane, stressed laminated veneer lumber bridge replaced a deteriorated single lane timber bridge. The new Petty Creek Bridge is the first “t-beam” laminated veneer lumber bridge installed by Trus Joist International (now Trus Joist Macmillan), and the first bridge designed using an adjustable tension geogrid tieback system.

**FUNDING SOURCES:** USDA Forest Service: $30,000; Balance of funding from Missoula County, Montana.

**LOCAL CONTACT:**  
Fred Crisp, County Engineer  
Missoula County Highway Department  
Missoula County Courthouse  
Missoula, MT 59807  
Phone: 406-721-5700 ext. 3280

Information provided by Merv Eriksson, USDA Forest Service

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State and Private Forestry  
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