

20' Walkway Bridge

**Structural Check Calculations**

for:

**TSR Trench Bridge to 20 ft. Span**

**PREPARED FOR:**

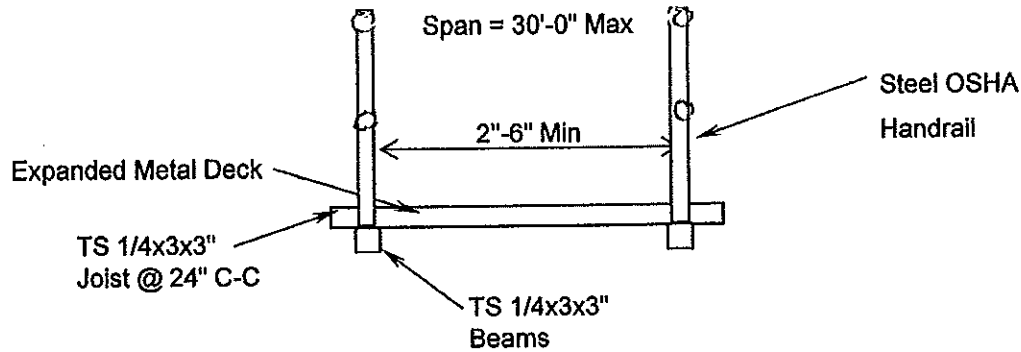
**Trench Shore Rentals  
3020 S. 19th Avenue  
Phoenix, AZ 85009**

**CALCULATIONS BY:**

**EGW Engineering, P.C.  
4220 East San Remo Avenue  
Gilbert, AZ 85234**

**Eugene G. Washington, PE  
Principle Engineer**

## 20' Walkway Bridge



Spans 8', 10', 12', 16' & 20'  
Design Length used: 20 feet  
**Walkway Bridge Section**

## TSR Trench Bridge to 20 ft. Span

Loadings per OSHA

### Typical Bridge Section

#### Check Deck

Wc =	Deck Weight	15.00	psf	
Lj =	Joist Span	2.50	ft	
Pg =	Max Foot Print Load	300	lb	
Md =	Dead Load Moment = $WcLj^2/8$	12	ft-lb	
Me =	Live Load Moment = $PgLj/4$	188	ft-lb	
Mt =	Total JoistMoment = $Md + Me$	199	ft-lb	
Bj =	Deck Width	12.00	in	
Dj =	Deck Depth	0.50	in	
Aj =	Deck Area = $BjDj$	4.00	sqin	
Sd =	Deck Section Modulus	0.17	cin	
Fb =	Bending Stress = $12Mt/Sd$	14,315	psi	OK

#### Check Joist

Mj =	Joist Moment = $PgLj/4 + WcLj^2/4$	211	ft-lb	
Sj =	Joist Section Modulus	2.10		
Fb =	Bending Stress = $12Mt/Sd$	1.0	psi	OK

#### Check Joist Beam for Pedestrian Uniform Load

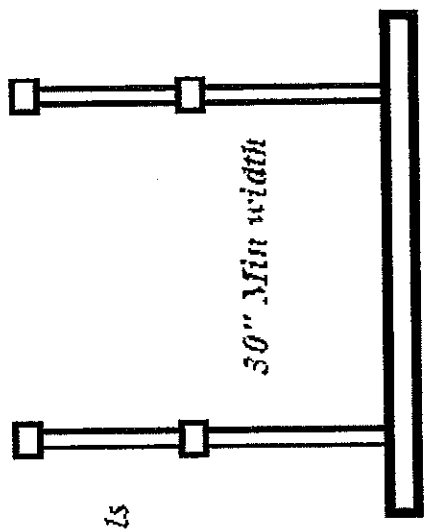
Wb =	Bridge Weight	70	plf	
Lj =	Deck Span	2.50	ft	
Wp =	Pedestrian Uniform Load	25	psf	
Lb =	Max Bridge Span	20.00	ft	
Md =	DLoad Moment = $WbLb^2/8$	3,500	ft-lb	
Me =	Live Load Moment = $WbLjLb^2/8$	3,125	ft-lb	
Mj =	Total Beam Moment = $Md + Me$	6,625	ft-lb	OK
Sb =	Beam Section Modulus	2.10	cin	
Fb =	Allowable Bending Stress	24,000	psi	
Ma =	Allowable Moment = $2FbSx/12$	8,400	ft-lb	
Ab =	Beam Area	2.59	sqin	
Vj =	Beam Shear = $WcLb/4 + WpLjLb/4$	663	lb	
Va =	Beam Allowable Shear	21,000	lb	OK

Bridge Lengths Come in 8', 10', 12', 16', 20'.

# Trench Bridge

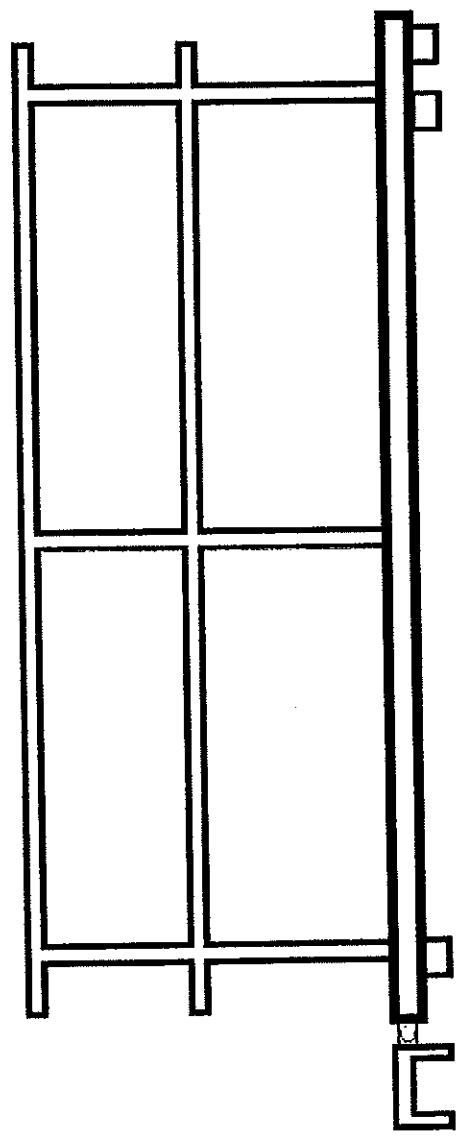
45" Max Height

42" Gaurdrails  
- 1/2" 3"

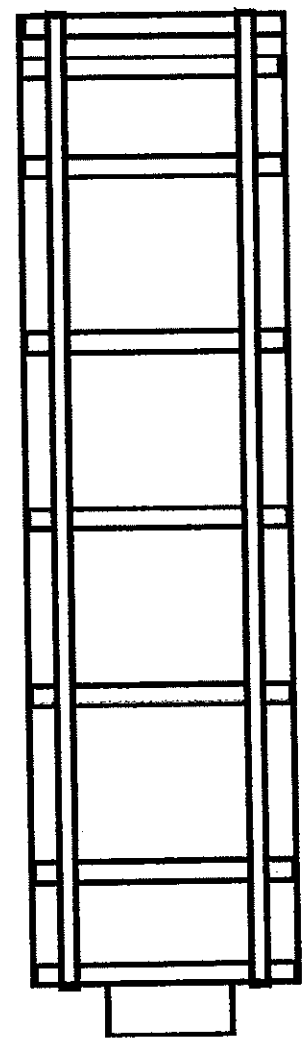


21" Midrails  
- 1/2" 3"

30" Min width

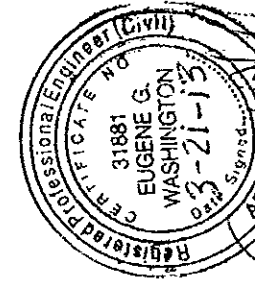


4" 6" Box Was  
Clasp



\* Uprights, braces and crossbraces  
composed of 1 4" x 3" x 3" Stock

1. 1 2" Expanded Metal For Floor



*Eugene G. Washington*  
 Expires 9/30/15