

LOG BRIDGE STRINGERS
and
NEEDLE BEAM SIZING
(METRIC EDITION)

Design Section
Engineering Branch
Ministry of Forests

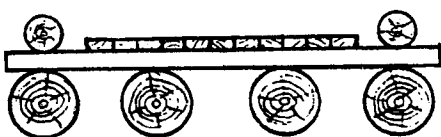
October, 1981

LOG BRIDGE STRINGER AND NEEDLE BEAM SIZING

The following tables include the minimum required mid-diameter (in millimetres) of each peeled stringer for loadings of 45, 100 and 150 Imperial tons; for various species and their expected end uses; for spans of 3 m to 25 m in increments of 1 m. In addition, where the curb logs (of same mid-diameter as stringers) are included in the structural system, the minimum mid-diameter (in millimetres) of the peeled midspan needle beam is indicated below each stringer and curb size.

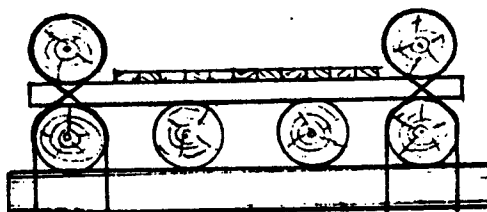
The assumptions used in the calculation of these tabulated values are as follows:

(1) **TYPE A**
Layout:



Curbs not tied in;
No needle beam.

TYPE B



Curbs tied in; midspan
needle beam used

- (2) The minimum practical peeled stringer and needle beam mid-diameter is 254 mm.
- (3) The standard centre-to-centre stringer spacings are as follows:

<u>No. of Stringers</u>	<u>Spacing (mm)</u>
4	1524
5	1219
6	914
7	762
8	686
9	610
10	533
11	457
12	381

If the required mid-diameter of the stringers is greater than the standard spacing, the new spacing is the mid-diameter of the log; i.e., the stringers are placed as tightly against each other as possible.

- (4) Again, for practical purposes, the maximum distance between centres of the two outside stringers is considered to be 6096 mm. Where this distance has been exceeded in the tables, the required stringer mid-diameter (and needle beam mid-diameter if applicable) is shown as a blank. Where the largest span in any table is less than 25 m, the 6096 mm distance has been exceeded for all species and uses for those missing spans.

- (5) The curb logs that are part of the structural system are assumed to be placed directly above the outside stringers; they are assumed to be the same size as the stringers.
- (6) The needle beam is considered to be at midspan of the stringers. For especially long spans (say 15 metres plus), it is recommended that needle beams be placed at the quarter points of the span (i.e., 3 needle beams instead of just 1) to improve the overall stiffness of the bridge.
- (7) Log stringers should reasonably match in diameter and taper and be free of decay and excessive sweep; spiral grain should be less than 1 in 8; there should not be knots in excess of 125 mm along the bottom edge of the middle half of the installed stringers.
- (8) In the cases of short spans where the required mid-diameter of the needle beam is greater than that for the stringers, and there are no logs large enough to handle the size requirement, it is suggested that the required layout be selected from the tables for no needle beam (i.e., more stringers of a size similar to those needed for the case involving the needle beam).
- (9) Tie sizes are shown on the page following and are based on using S4S timbers with a 102 mm thick timber deck of the same species as the ties.

TIE SIZING (mm)
(Douglas Fir ties on flat)

No. of Stringers	Stringer Spacing (mm)	TRUCK LOADING								
		L45			L100			L150		
		TIE SPACING (mm)			TIE SPACING (mm)			TIE SPACING (mm)		
		305	406	508	305	406	508	305	406	508
4	1524	191x191	191x191	191x191	191x191	191x241	241x241	241x241	241x241	241x292
5	1219	140x191	140x191	191x191	191x191	191x191	191x241	191x241	241x241	241x241
6	914	140x140	140x140	140x140	140x191	140x191	191x191	191x191	191x241	191x241
7	762	140x140	140x140	140x140	140x140	140x140	140x191	191x191	191x191	191x241
8	686	89x140	140x140	140x140	140x140	140x140	140x140	140x191	140x191	191x191
9	610	89x140	89x140	89x140	140x140	140x140	140x140	140x140	140x140	140x191
10	533	89x140	89x140	89x140	89x140	89x140	89x140	89x140	140x140	140x140
11	457	89x140	89x140	89x140	89x140	89x140	89x140	89x140	89x140	89x140
12	381	89x140	89x140	89x140	89x140	89x140	89x140	89x140	89x140	89x140

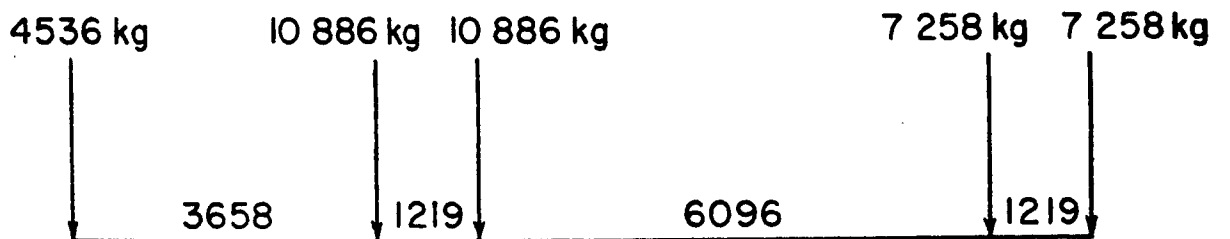
TIE SIZING (mm)
(Spruce, Pine, Cedar ties on flat)

No. of Stringers	Stringer Spacing (mm)	TRUCK LOADING								
		L45			L100			L150		
		TIE SPACING (mm)			TIE SPACING (mm)			TIE SPACING (mm)		
		305	406	508	305	406	508	305	406	508
4	1524	191x191	191x191	191x241	241x241	241x241	241x292	292x292	292x292	292x343
5	1219	191x191	191x191	191x191	191x241	241x241	241x241	241x292	292x292	292x343
6	914	140x191	140x191	191x191	191x191	191x241	191x241	241x292	292x292	292x343
7	762	140x140	140x140	140x191	191x191	191x191	191x241	241x241	241x241	292x292
8	686	140x140	140x140	140x140	140x191	140x191	191x191	191x241	241x241	241x241
9	610	89x140	89x140	140x140	140x140	140x140	140x191	191x191	191x241	191x241
10	533	89x140	89x140	89x140	89x140	89x140	140x140	140x191	140x191	191x191
11	457	89x140	89x140	89x140	89x140	89x140	89x140	140x140	140x140	140x191
12	381	89x140	89x140	89x140	89x140	89x140	89x140	89x140	89x140	89x140

L-45

(FOR 45 TON LOGGING TRUCKS)

LOAD CONFIGURATION :



Number of Stringers = 4

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	356	330	305	381	356	330	406	381	356
4	406	381	356	432	406	381	457	432	406
5	432	406	381	483	432	406	508	483	457
6	483	432	406	533	483	432	559	533	508
7	508	483	432	559	508	483	584	559	533
8	533	508	483	584	533	508	635	584	559
9	584	533	508	635	584	533	686	635	610
10	610	559	533	660	610	559	711	660	635
11	635	584	559	711	635	584	762	711	660
12	660	610	584	737	660	610	787	737	686
13	686	635	584	762	686	635	813	762	711
14	711	660	610	787	711	660	864	787	762
15	737	686	635	838	737	686	889	838	787
16	787	711	660	864	787	711	940	864	813
17	813	737	686	914	813	737	965	914	838
18	838	762	711	940	838	762	1016	940	889
19	864	787	737	965	864	787	1041	965	914
20	889	813	762	1016	889	813	1092	1016	940
21	914	838	787	1041	914	838	1118	1041	965
22	940	864	813	1067	940	864	1168	1067	1016
23	991	889	838	1118	991	889	1194	1118	1041
24	1016	914	864	1143	1016	914	1245	1143	1067
25	1041	940	864	1168	1041	940	1270	1168	1092

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 45 Type A

Number of Stringers = 5

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	330	305	279	356	330	305	381	356	330
4	381	356	330	406	381	356	432	406	381
5	406	381	356	457	406	381	483	457	432
6	432	406	381	483	432	406	508	483	457
7	483	432	406	533	483	432	559	533	508
8	508	457	432	559	508	457	584	559	533
9	533	508	457	584	533	508	635	584	559
10	559	533	483	635	559	533	660	635	584
11	584	559	508	660	584	559	711	660	610
12	610	584	533	686	610	584	737	686	660
13	635	584	559	711	635	584	762	711	686
14	660	610	584	737	660	610	813	737	711
15	711	635	610	787	711	635	838	787	737
16	737	660	635	813	737	660	864	813	762
17	762	686	660	838	762	686	914	838	787
18	787	711	686	889	787	711	940	889	838
19	813	737	686	914	813	737	991	914	864
20	838	762	711	940	838	762	1016	940	889
21	864	787	737	991	864	787	1067	991	914
22	889	813	762	1016	889	813	1092	1016	940
23	914	838	787	1041	914	838	1143	1041	965
24	940	864	813	1067	940	864	1168	1067	1016
25	965	889	813	1118	965	889	1219	1118	1041

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 45 Type A

Number of Stringers = 6

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	305	279	279	330	305	279	356	330	330
4	356	330	305	381	356	330	406	381	381
5	381	356	356	432	381	356	457	432	406
6	432	406	381	457	432	406	508	457	432
7	457	432	406	508	457	432	533	508	483
8	483	457	432	533	483	457	559	533	508
9	508	483	457	559	508	483	610	559	533
10	533	508	483	610	533	508	635	610	559
11	559	533	483	635	559	533	660	635	584
12	584	559	508	660	584	559	711	660	635
13	610	559	533	686	610	559	737	686	660
14	635	584	559	711	635	584	762	711	686
15	660	610	584	737	660	610	813	737	711
16	711	635	610	787	711	635	838	787	737
17	737	660	635	813	737	660	889	813	762
18	762	686	635	838	762	686	914	838	787
19	787	711	660	889	787	711	940	889	813
20	813	737	686	914	813	737	991	914	864
21	838	762	711	940	838	762	1016	940	889
22	864	787	737	965	864	787	1067	965	914
23	889	813	762	1016	889	813	1092	1016	940
24	914	838	762	1041	914	838	1143	1041	965
25	940	864	787	1067	940	864	1168	1067	991

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 7

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	305	279	254	330	305	279	356	330	305
4	330	305	305	381	330	305	406	381	356
5	381	356	330	406	381	356	432	406	381
6	406	381	356	457	406	381	483	457	432
7	432	406	381	483	432	406	508	483	457
8	457	432	406	508	457	432	533	508	483
9	483	457	432	533	483	457	584	533	508
10	508	483	457	584	508	483	610	584	533
11	533	508	483	610	533	508	635	610	559
12	559	533	483	635	559	533	686	635	584
13	584	559	508	660	584	559	711	660	610
14	610	559	533	686	610	559	737	686	635
15	635	584	559	711	635	584	762	711	686
16	660	610	584	762	660	610	813	762	711
17	686	635	610	787	686	635	838	787	737
18	711	660	610	813	711	660	889	813	762
19	762	686	635	838	762	686	914	838	787
20	787	711	660	864	787	711	940	864	813
21	813	737	686	914	813	737	991	914	838
22	838	762	711	940	838	762	1016	940	864
23	864	787	711	965	864	787		965	914
24	889	787	737	991	889	787		991	940
25	914	813	762		914	813			965

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 8

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	279	254	254	305	279	254	330	305	305
4	330	305	279	356	330	305	381	356	330
5	356	330	305	406	356	330	432	406	381
6	381	356	330	432	381	356	457	432	406
7	406	381	356	457	406	381	483	457	432
8	432	406	381	483	432	406	533	483	457
9	483	432	406	533	483	432	559	533	483
10	508	457	432	559	508	457	584	559	533
11	533	483	457	584	533	483	610	584	559
12	533	508	483	610	533	508	660	610	584
13	559	533	483	635	559	533	686	635	584
14	584	533	508	660	584	533	711	660	610
15	610	559	533	686	610	559	737	686	660
16	635	584	559	711	635	584	787	711	686
17	660	610	584	762	660	610	813	762	711
18	686	635	584	787	686	635	838	787	737
19	711	660	610	813	711	660		813	762
20	737	686	635	838	737	686		838	787
21	762	711	660	864	762	711		864	813
22	787	737	660		787	737			838
23	813	737	686		813	737			864
24	838	762	711		838	762			
25	864	787	737		864	787			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 9

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	279	254	254	305	279	254	330	305	279
4	305	279	279	356	305	279	356	356	330
5	356	330	305	381	356	330	406	381	356
6	381	356	330	406	381	356	432	406	381
7	406	381	356	432	406	381	483	432	432
8	432	406	381	483	432	406	508	483	457
9	457	432	406	508	457	432	533	508	483
10	483	432	406	533	483	432	559	533	508
11	508	457	432	559	508	457	610	559	533
12	533	483	457	584	533	483	635	584	559
13	559	508	483	610	559	508	660	610	584
14	559	533	483	635	559	533	686	635	610
15	610	559	508	660	610	559	711	660	635
16	635	584	533	686	635	584	762	686	660
17	660	584	559	737	660	584		737	686
18	660	610	584	762	660	610		762	711
19	686	635	584		686	635			737
20	711	660	610		711	660			762
21	737	686	635		737	686			
22	762	711	660		762	711			
23		711	660			711			
24		737	686			737			
25		762	711			762			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 10

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	254	254	254	279	254	254	305	279	279
4	305	279	279	330	305	279	356	330	330
5	330	305	305	381	330	305	406	381	356
6	356	330	330	406	356	330	432	406	381
7	381	356	330	432	381	356	457	432	406
8	406	381	356	457	406	381	483	457	432
9	432	406	381	483	432	406	533	483	457
10	457	432	406	508	457	432	559	508	483
11	483	457	432	533	483	457	584	533	508
12	508	483	432	559	508	483	610	559	533
13	533	483	457	584	533	483	635	584	559
14	559	508	483	610	559	508	660	610	584
15	584	533	508	660	584	533		660	610
16	610	559	508		610	559			635
17	635	584	533		635	584			660
18	660	610	559		660	610			
19		610	584			610			
20		635	584			635			
21		660	610			660			
22			635						
23			660						
24			660						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 11

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	254	254	254	279	254	254	305	279	279
4	305	279	254	330	305	279	356	330	305
5	330	305	279	356	330	305	381	356	356
6	356	330	305	381	356	330	406	381	381
7	381	356	330	432	381	356	457	432	406
8	406	381	356	457	406	381	483	457	432
9	432	406	381	483	432	406	508	483	457
10	457	432	406	508	457	432	533	508	483
11	483	432	406	533	483	432	559	533	508
12	508	457	432	559	508	457	610	559	533
13	533	483	457	584	533	483		584	559
14	533	508	457	610	533	508		610	584
15	559	533	483		559	533			610
16	584	533	508		584	533			
17	610	559	533		610	559			
18		584	559			584			
19		610	559			610			
20			584						
21			610						
22			610						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 12

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	254	254	254	279	254	254	305	279	279
4	305	279	254	330	305	279	330	330	305
5	330	305	279	356	330	305	381	356	330
6	356	330	305	381	356	330	406	381	356
7	381	356	330	406	381	356	432	406	406
8	406	381	356	432	406	381	483	432	432
9	432	406	381	483	432	406	508	483	457
10	457	406	381	508	457	406	533	508	483
11	483	432	406	533	483	432		533	483
12	483	457	432		483	457			508
13	508	483	432		508	483			533
14	533	483	457		533	483			
15		508	483			508			
16		533	508			533			
17			508						
18			533						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 4 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	305	279	254	330	305	279	356	330	305
	needle beam	330	305	305	356	330	305	381	356	356
4	str. & curbs	330	305	305	381	330	305	406	381	356
	needle beam	356	330	305	381	356	330	406	381	356
5	str. & curbs	381	356	330	406	381	356	432	406	406
	needle beam	356	330	305	381	356	330	406	381	381
6	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	356	330	305	406	356	330	432	406	381
7	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	356	330	330	406	356	330	432	406	381
8	str. & curbs	457	432	406	508	457	432	559	508	483
	needle beam	381	356	330	406	381	356	432	406	381
9	str. & curbs	483	457	432	559	483	457	584	559	508
	needle beam	381	356	330	406	381	356	432	406	381
10	str. & curbs	533	483	457	584	533	483	610	584	559
	needle beam	381	356	330	406	381	356	432	406	406
11	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	381	356	330	406	381	356	432	406	406
12	str. & curbs	584	533	483	635	584	533	686	635	610
	needle beam	381	356	330	432	381	356	457	432	406
13	str. & curbs	584	559	508	660	584	559	711	660	635
	needle beam	381	356	330	432	381	356	457	432	406
14	str. & curbs	610	559	533	686	610	559	737	686	660
	needle beam	381	356	330	432	381	356	457	432	406
15	str. & curbs	660	584	559	737	660	584	787	737	686
	needle beam	381	356	356	432	381	356	457	432	406
16	str. & curbs	686	610	584	762	686	610	813	762	711
	needle beam	406	381	356	432	406	381	457	432	406
17	str. & curbs	711	635	610	787	711	635	838	787	737
	needle beam	406	381	356	432	406	381	457	432	432
18	str. & curbs	737	660	635	813	737	660	889	813	762
	needle beam	406	381	356	457	406	381	483	457	432
19	str. & curbs	762	686	635	838	762	686	914	838	787
	needle beam	406	381	356	457	406	381	483	457	432
20	str. & curbs	787	711	660	889	787	711	965	889	813
	needle beam	406	381	356	457	406	381	483	457	432
21	str. & curbs	813	737	686	914	813	737	991	914	864
	needle beam	406	381	356	457	406	381	483	457	432
22	str. & curbs	838	762	711	940	838	762	1016	940	889
	needle beam	406	381	356	457	406	381	483	457	432
23	str. & curbs	864	787	737	965	864	787	1067	965	914
	needle beam	406	381	356	457	406	381	483	457	432
24	str. & curbs	889	813	737	1016	889	813	1092	1016	940
	needle beam	432	381	356	457	432	381	483	457	432
25	str. & curbs	914	838	762	1041	914	838	1143	1041	965
	needle beam	432	381	381	457	432	381	483	457	432

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 5 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	279	254	254	305	279	254	330	305	305
	needle beam	356	330	330	406	356	330	432	406	381
4	str. & curbs	330	305	279	356	330	305	381	356	330
	needle beam	381	356	330	406	381	356	432	406	406
5	str. & curbs	356	330	305	406	356	330	432	406	381
	needle beam	381	356	330	432	381	356	457	432	406
6	str. & curbs	381	356	330	432	381	356	457	432	406
	needle beam	406	356	356	432	406	356	457	432	406
7	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	406	381	356	432	406	381	457	432	406
8	str. & curbs	457	406	381	483	457	406	533	483	457
	needle beam	406	381	356	432	406	381	457	432	432
9	str. & curbs	483	432	406	533	483	432	559	533	483
	needle beam	406	381	356	457	406	381	483	457	432
10	str. & curbs	508	457	432	559	508	457	584	559	533
	needle beam	406	381	356	457	406	381	483	457	432
11	str. & curbs	533	483	457	584	533	483	610	584	559
	needle beam	406	381	356	457	406	381	483	457	432
12	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	432	381	356	457	432	381	483	457	432
13	str. & curbs	559	533	483	635	559	533	686	635	610
	needle beam	432	381	381	457	432	381	483	457	432
14	str. & curbs	584	533	508	660	584	533	711	660	635
	needle beam	432	406	381	457	432	406	483	457	432
15	str. & curbs	610	559	533	686	610	559	737	686	660
	needle beam	432	406	381	483	432	406	508	483	457
16	str. & curbs	635	584	559	737	635	584	787	737	686
	needle beam	432	406	381	483	432	406	508	483	457
17	str. & curbs	660	610	584	762	660	610	813	762	711
	needle beam	432	406	381	483	432	406	508	483	457
18	str. & curbs	686	635	584	787	686	635	838	787	737
	needle beam	432	406	381	483	432	406	508	483	457
19	str. & curbs	711	660	610	813	711	660	889	813	762
	needle beam	457	406	381	483	457	406	508	483	457
20	str. & curbs	737	686	635	838	737	686	914	838	787
	needle beam	457	406	406	483	457	406	533	483	457
21	str. & curbs	762	711	660	864	762	711	940	864	813
	needle beam	457	432	406	508	457	432	533	508	483
22	str. & curbs	787	737	686	914	787	737	991	914	838
	needle beam	457	432	406	508	457	432	533	508	483
23	str. & curbs	813	762	686	940	813	762	1016	940	864
	needle beam	457	432	406	508	457	432	533	508	483
24	str. & curbs	838	762	711	965	838	762	1067	965	914
	needle beam	457	432	406	508	457	432	533	508	483
25	str. & curbs	864	787	737	991	864	787	1092	991	940
	needle beam	457	432	406	508	457	432	533	508	483

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 6 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	279	254	254	305	279	254	330	305	279
	needle beam	356	330	330	406	356	330	432	406	381
4	str. & curbs	305	305	279	356	305	305	356	356	330
	needle beam	381	356	330	406	381	356	432	406	406
5	str. & curbs	356	330	305	381	356	330	406	381	356
	needle beam	381	356	330	432	381	356	457	432	406
6	str. & curbs	381	356	330	406	381	356	432	406	406
	needle beam	406	356	356	432	406	356	457	432	406
7	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	406	381	356	432	406	381	457	432	406
8	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	406	381	356	432	406	381	483	432	432
9	str. & curbs	457	432	406	508	457	432	533	508	483
	needle beam	406	381	356	457	406	381	483	457	432
10	str. & curbs	483	457	432	533	483	457	584	533	508
	needle beam	406	381	356	457	406	381	483	457	432
11	str. & curbs	508	457	432	559	508	457	610	559	533
	needle beam	406	381	356	457	406	381	483	457	432
12	str. & curbs	533	483	457	584	533	483	635	584	559
	needle beam	432	381	381	457	432	381	483	457	432
13	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	432	406	381	457	432	406	483	457	432
14	str. & curbs	584	533	508	635	584	533	686	635	610
	needle beam	432	406	381	457	432	406	508	457	457
15	str. & curbs	610	559	508	686	610	559	737	686	635
	needle beam	432	406	381	483	432	406	508	483	457
16	str. & curbs	635	584	533	711	635	584	762	711	660
	needle beam	432	406	381	483	432	406	508	483	457
17	str. & curbs	660	610	559	737	660	610	787	737	686
	needle beam	432	406	381	483	432	406	508	483	457
18	str. & curbs	686	610	584	762	686	610	813	762	711
	needle beam	457	406	381	483	457	406	508	483	457
19	str. & curbs	711	635	610	787	711	635	864	787	737
	needle beam	457	406	381	483	457	406	533	483	457
20	str. & curbs	737	660	610	813	737	660	889	813	762
	needle beam	457	432	406	483	457	432	533	483	483
21	str. & curbs	762	686	635	864	762	686	914	864	787
	needle beam	457	432	406	508	457	432	533	508	483
22	str. & curbs	787	711	660	889	787	711	965	889	813
	needle beam	457	432	406	508	457	432	533	508	483
23	str. & curbs	813	737	686	914	813	737	991	914	864
	needle beam	457	432	406	508	457	432	559	508	483
24	str. & curbs	838	762	686	940	838	762	1041	940	889
	needle beam	457	432	406	508	457	432	559	508	483
25	str. & curbs	864	762	711	965	864	762	1067	965	914
	needle beam	457	432	406	508	457	432	559	508	483

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 7 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	254	254	254	305	254	254	305	305	279
	needle beam	381	356	330	406	381	356	432	406	381
4	str. & curbs	305	279	279	330	305	279	356	330	330
	needle beam	381	356	330	432	381	356	457	432	406
5	str. & curbs	330	305	305	381	330	305	406	381	356
	needle beam	406	381	356	432	406	381	457	432	406
6	str. & curbs	356	330	330	406	356	330	432	406	381
	needle beam	406	381	356	457	406	381	483	457	432
7	str. & curbs	381	356	330	432	381	356	457	432	406
	needle beam	406	381	356	457	406	381	483	457	432
8	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	406	381	356	457	406	381	483	457	432
9	str. & curbs	432	406	381	483	432	406	533	483	457
	needle beam	432	381	381	457	432	381	483	457	432
10	str. & curbs	457	432	406	508	457	432	559	508	483
	needle beam	432	406	381	457	432	406	483	457	432
11	str. & curbs	483	457	432	533	483	457	584	533	508
	needle beam	432	406	381	483	432	406	508	483	457
12	str. & curbs	508	483	432	584	508	483	610	584	533
	needle beam	432	406	381	483	432	406	508	483	457
13	str. & curbs	533	483	457	610	533	483	635	610	559
	needle beam	432	406	381	483	432	406	508	483	457
14	str. & curbs	559	508	483	635	559	508	660	635	584
	needle beam	432	406	381	483	432	406	508	483	457
15	str. & curbs	584	533	508	660	584	533	711	660	610
	needle beam	432	406	381	483	432	406	508	483	457
16	str. & curbs	610	559	533	686	610	559	737	686	635
	needle beam	457	406	381	483	457	406	533	483	457
17	str. & curbs	635	584	533	711	635	584	762	711	660
	needle beam	457	432	406	508	457	432	533	508	483
18	str. & curbs	660	610	559	737	660	610	813	737	686
	needle beam	457	432	406	508	457	432	533	508	483
19	str. & curbs	686	635	584	762	686	635	838	762	711
	needle beam	457	432	406	508	457	432	559	508	483
20	str. & curbs	711	635	610	787	711	635	864	787	737
	needle beam	457	432	406	508	457	432	559	508	483
21	str. & curbs	737	660	610	838	737	660	914	838	762
	needle beam	457	432	406	533	457	432	584	533	483
22	str. & curbs	762	686	635	864	762	686	940	864	813
	needle beam	457	432	406	533	457	432	584	533	508
23	str. & curbs	787	711	660	889	787	711	965	889	838
	needle beam	483	432	406	533	483	432	584	533	508
24	str. & curbs	813	737	686	914	813	737	1016	914	864
	needle beam	483	432	406	559	483	432	610	559	508
25	str. & curbs	838	762	686	965	838	762		965	889
	needle beam	483	432	406	559	483	432		559	508

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life span or where an alternative exists.

Number of Stringers = 8 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	254	254	254	279	254	254	305	279	279
	needle beam	381	356	330	432	381	356	457	432	406
4	str. & curbs	305	279	254	330	305	279	356	330	305
	needle beam	406	381	356	432	406	381	457	432	432
5	str. & curbs	330	305	279	356	330	305	381	356	330
	needle beam	406	381	356	457	406	381	483	457	432
6	str. & curbs	356	330	305	381	356	330	406	381	381
	needle beam	406	381	356	457	406	381	483	457	432
7	str. & curbs	381	356	330	406	381	356	457	406	406
	needle beam	432	406	381	457	432	406	483	457	432
8	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	432	406	381	483	432	406	508	483	457
9	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	432	406	381	483	432	406	508	483	457
10	str. & curbs	457	406	381	508	457	406	533	508	483
	needle beam	432	406	381	483	432	406	508	483	457
11	str. & curbs	483	432	406	533	483	432	559	533	508
	needle beam	432	406	381	483	432	406	508	483	457
12	str. & curbs	508	457	432	559	508	457	584	559	533
	needle beam	457	406	381	483	457	406	508	483	457
13	str. & curbs	508	483	457	584	508	483	610	584	533
	needle beam	457	406	381	483	457	406	533	483	457
14	str. & curbs	533	508	457	610	533	508	660	610	559
	needle beam	457	432	406	483	457	432	533	483	483
15	str. & curbs	559	508	483	635	559	508	686	635	584
	needle beam	457	432	406	508	457	432	533	508	483
16	str. & curbs	584	533	508	660	584	533	711	660	635
	needle beam	457	432	406	508	457	432	533	508	483
17	str. & curbs	610	559	533	686	610	559	737	686	660
	needle beam	457	432	406	508	457	432	559	508	483
18	str. & curbs	635	584	533	711	635	584	787	711	686
	needle beam	483	432	406	533	483	432	584	533	483
19	str. & curbs	660	610	559	737	660	610	813	737	711
	needle beam	483	432	406	533	483	432	584	533	508
20	str. & curbs	686	635	584	787	686	635	838	787	737
	needle beam	483	432	406	559	483	432	584	559	508
21	str. & curbs	711	635	610	813	711	635		813	762
	needle beam	483	457	432	559	483	457		559	508
22	str. & curbs	737	660	610	838	737	660		838	787
	needle beam	483	457	432	559	483	457		559	533
23	str. & curbs	762	686	635	864	762	686		864	813
	needle beam	508	457	432	584	508	457		584	533
24	str. & curbs	787	711	660		787	711			838
	needle beam	508	457	432		508	457			533
25	str. & curbs	813	737	686		813	737			864
	needle beam	508	457	432		508	457			559

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 9 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str.& curbs	254	254	254	279	254	254	279	279	254
	needle beam	406	356	356	432	406	356	457	432	406
4	str.& curbs	279	279	254	305	279	279	330	305	305
	needle beam	406	381	356	457	406	381	483	457	432
5	str.& curbs	330	305	279	356	330	305	381	356	330
	needle beam	432	381	356	457	432	381	483	457	432
6	str.& curbs	356	330	305	381	356	330	406	381	356
	needle beam	432	406	381	457	432	406	508	457	457
7	str.& curbs	381	330	330	406	381	330	432	406	381
	needle beam	432	406	381	483	432	406	508	483	457
8	str.& curbs	381	356	330	432	381	356	457	432	406
	needle beam	432	406	381	483	432	406	508	483	457
9	str.& curbs	406	381	356	457	406	381	483	457	432
	needle beam	432	406	381	483	432	406	508	483	457
10	str.& curbs	432	406	381	483	432	406	533	483	457
	needle beam	457	406	381	483	457	406	508	483	457
11	str.& curbs	457	432	406	508	457	432	559	508	483
	needle beam	457	406	406	483	457	406	533	483	483
12	str.& curbs	483	457	406	533	483	457	584	533	508
	needle beam	457	432	406	508	457	432	533	508	483
13	str.& curbs	508	457	432	559	508	457	610	559	533
	needle beam	457	432	406	508	457	432	533	508	483
14	str.& curbs	533	483	457	584	533	483	635	584	559
	needle beam	457	432	406	508	457	432	533	508	483
15	str.& curbs	559	508	483	610	559	508	660	610	584
	needle beam	457	432	406	508	457	432	559	508	483
16	str.& curbs	584	533	483	635	584	533	686	635	610
	needle beam	483	432	406	533	483	432	559	533	483
17	str.& curbs	610	559	508	686	610	559	737	686	635
	needle beam	483	432	406	533	483	432	584	533	508
18	str.& curbs	635	559	533	711	635	559	762	711	660
	needle beam	483	457	432	559	483	457	610	559	508
19	str.& curbs	635	584	559	737	635	584		737	686
	needle beam	483	457	432	559	483	457		559	533
20	str.& curbs	660	610	559	762	660	610		762	711
	needle beam	508	457	432	584	508	457		584	533
21	str.& curbs	686	635	584		686	635			737
	needle beam	508	457	432		508	457			533
22	str.& curbs	711	660	610		711	660			762
	needle beam	508	457	432		508	457			559
23	str.& curbs	737	660	610		737	660			
	needle beam	533	483	432		533	483			
24	str.& curbs	762	686	635		762	686			
	needle beam	533	483	432		533	483			
25	str.& curbs		711	660			711			
	needle beam		483	457			483			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 10 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	254	254	254	279	254	254	279	279	254
	needle beam	406	381	356	432	406	381	457	432	406
4	str. & curbs	279	254	254	305	279	254	330	305	305
	needle beam	406	381	356	457	406	381	483	457	432
5	str. & curbs	305	279	279	330	305	279	356	330	330
	needle beam	432	381	381	457	432	381	483	457	432
6	str. & curbs	330	305	305	381	330	305	406	381	356
	needle beam	432	406	381	483	432	406	508	483	457
7	str. & curbs	356	330	305	406	356	330	432	406	381
	needle beam	432	406	381	483	432	406	508	483	457
8	str. & curbs	381	356	330	432	381	356	457	432	406
	needle beam	432	406	381	483	432	406	508	483	457
9	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	457	406	381	483	457	406	508	483	457
10	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	457	406	406	483	457	406	533	483	457
11	str. & curbs	457	406	381	508	457	406	533	508	483
	needle beam	457	432	406	508	457	432	533	508	483
12	str. & curbs	483	432	406	533	483	432	559	533	508
	needle beam	457	432	406	508	457	432	533	508	483
13	str. & curbs	483	457	432	559	483	457	584	559	508
	needle beam	457	432	406	508	457	432	559	508	483
14	str. & curbs	508	483	432	584	508	483	610	594	533
	needle beam	457	432	406	533	457	432	559	533	483
15	str. & curbs	533	483	457	610	533	483	660	610	559
	needle beam	457	432	406	533	457	432	584	533	508
16	str. & curbs	559	508	483	635	559	508		635	584
	needle beam	483	432	406	559	483	432		559	508
17	str. & curbs	584	533	508	660	584	533		660	610
	needle beam	483	457	432	559	483	457		559	533
18	str. & curbs	610	559	508		610	559			635
	needle beam	508	457	432		508	457			533
19	str. & curbs	635	584	533		635	584			660
	needle beam	508	457	432		508	457			533
20	str. & curbs	660	610	559		660	610			
	needle beam	533	483	432		533	483			
21	str. & curbs		610	584			610			
	needle beam		483	432			483			
22	str. & curbs		635	584			635			
	needle beam		483	457			483			
23	str. & curbs		660	610			660			
	needle beam		483	457			483			
24	str. & curbs			635						
	needle beam			457						
25	str. & curbs			635						
	needle beam			457						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 11 + 2 curb logs

L 45 Type B

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	254	254	254	254	254	254	279	254	254
	needle beam	381	356	356	432	381	356	457	432	406
4	str. & curbs	279	254	254	305	279	254	330	305	279
	needle beam	406	381	356	457	406	381	483	457	432
5	str. & curbs	305	279	279	330	305	279	356	330	330
	needle beam	406	381	356	457	406	381	483	457	432
6	str. & curbs	330	305	279	356	330	305	381	356	356
	needle beam	432	406	381	457	432	406	483	457	432
7	str. & curbs	356	330	305	381	356	330	406	381	381
	needle beam	432	406	381	483	432	406	508	483	457
8	str. & curbs	381	356	330	406	381	356	457	406	406
	needle beam	432	406	381	483	432	406	508	483	457
9	str. & curbs	406	381	356	432	406	381	483	432	432
	needle beam	432	406	381	483	432	406	533	483	457
10	str. & curbs	432	381	356	483	432	381	508	483	432
	needle beam	457	406	381	508	457	406	533	508	457
11	str. & curbs	457	406	381	483	457	406	533	483	457
	needle beam	457	406	406	508	457	406	559	508	457
12	str. & curbs	457	432	406	508	457	432	559	508	483
	needle beam	457	432	406	508	457	432	559	508	483
13	str. & curbs	483	457	406	533	483	457	584	533	508
	needle beam	457	432	406	533	457	432	584	533	483
14	str. & curbs	508	457	432	559	508	457	610	559	533
	needle beam	483	432	406	533	483	432	584	533	508
15	str. & curbs	533	483	457	584	533	483	584	559	508
	needle beam	483	432	406	559	483	432	559	508	508
16	str. & curbs	559	508	483	559	508				584
	needle beam	508	457	406	508	457				533
17	str. & curbs	584	533	483	584	533				610
	needle beam	508	457	432	508	457				533
18	str. & curbs	610	559	508	610	559				
	needle beam	533	483	432	533	483				
19	str. & curbs		559	533		559				
	needle beam		483	432		483				
20	str. & curbs		584	533		584				
	needle beam		483	457		483				
21	str. & curbs		610	559		610				
	needle beam		508	457		508				
22	str. & curbs			584						
	needle beam			457						
23	str. & curbs			610						
	needle beam			483						
24	str. & curbs			610						
	needle beam			483						
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 12 + 2 curb logs

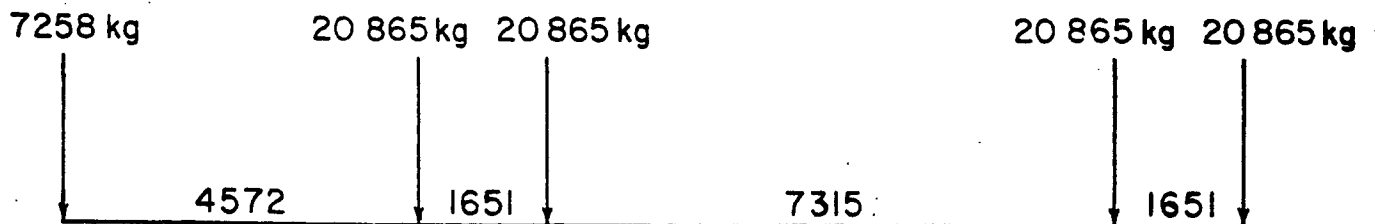
SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	254	254	254	254	254	254	279	254	254
	needle beam	381	356	330	432	381	356	457	432	406
4	str. & curbs	279	254	254	305	279	254	330	305	279
	needle beam	406	381	356	432	406	381	457	432	432
5	str. & curbs	305	279	254	330	305	279	356	330	305
	needle beam	406	381	356	457	406	381	483	457	432
6	str. & curbs	330	305	279	356	330	305	381	356	330
	needle beam	406	381	356	457	406	381	483	457	432
7	str. & curbs	356	330	305	381	356	330	406	381	356
	needle beam	432	381	381	457	432	381	508	457	432
8	str. & curbs	381	356	330	406	381	356	432	406	381
	needle beam	432	406	381	483	432	406	508	483	457
9	str. & curbs	406	356	356	432	406	356	457	432	406
	needle beam	432	406	381	483	432	406	533	483	457
10	str. & curbs	406	381	356	457	406	381	508	457	432
	needle beam	457	406	381	508	457	406	559	508	483
11	str. & curbs	432	406	381	483	432	406	533	483	457
	needle beam	457	406	381	533	457	406	584	533	483
12	str. & curbs	457	432	406	508	457	432		508	483
	needle beam	483	432	406	533	483	432		533	508
13	str. & curbs	483	432	406	533	483	432		533	508
	needle beam	483	432	406	559	483	432		559	508
14	str. & curbs	508	457	432		508	457			533
	needle beam	483	432	406		483	432			533
15	str. & curbs	533	483	457		533	483			
	needle beam	508	457	432		508	457			
16	str. & curbs		508	457			508			
	needle beam		457	432			457			
17	str. & curbs		533	483			533			
	needle beam		483	432			483			
18	str. & curbs		533	508			533			
	needle beam		483	457			483			
19	str. & curbs			533						
	needle beam			457						
20	str. & curbs			533						
	needle beam			457						
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life

L-100
(FOR 100 TON LOGGING TRUCKS)

LOAD CONFIGURATION :



Number of Stringers = 4

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	406	381	356	432	406	381	457	432	406
4	457	432	406	508	457	432	533	508	483
5	508	483	457	559	508	483	610	559	533
6	559	533	483	610	559	533	660	610	584
7	610	559	533	660	610	559	711	660	635
8	635	584	559	711	635	584	762	711	660
9	686	635	584	737	686	635	787	737	711
10	711	660	610	787	711	660	838	787	737
11	737	686	660	838	737	686	889	838	787
12	787	711	686	864	787	711	914	864	813
13	813	762	711	889	813	762	965	889	864
14	838	787	737	940	838	787	991	940	889
15	864	813	762	965	864	813	1041	965	914
16	914	838	787	1016	914	838	1067	1016	940
17	940	864	813	1041	940	864	1118	1041	991
18	991	914	838	1092	991	914	1168	1092	1041
19	1016	940	864	1143	1016	940	1219	1143	1067
20	1067	965	914	1194	1067	965	1270	1194	1118
21	1092	991	940	1219	1092	991	1321	1219	1143
22	1118	1041	965	1270	1118	1041	1372	1270	1194
23	1168	1067	991	1295	1168	1067	1422	1295	1219
24	1194	1092	1016	1346	1194	1092	1448	1346	1270
25	1219	1118	1041	1397	1219	1118	1499	1397	1295

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 5

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	381	356	330	406	381	356	432	406	381
4	432	406	381	483	432	406	508	483	457
5	483	457	432	533	483	457	559	533	508
6	533	483	457	584	533	483	610	584	559
7	559	533	483	635	559	533	660	635	584
8	610	559	533	660	610	559	711	660	635
9	635	584	559	711	635	584	737	711	660
10	660	610	584	737	660	610	787	737	686
11	686	635	610	762	686	635	813	762	737
12	737	686	635	813	737	686	864	813	762
13	762	711	660	838	762	711	889	838	787
14	787	737	686	864	787	737	940	864	838
15	813	762	711	914	813	762	965	914	864
16	838	787	737	940	838	787	1016	940	889
17	889	813	762	991	889	813	1067	991	940
18	914	838	787	1041	914	838	1118	1041	965
19	965	889	813	1067	965	889	1143	1067	1016
20	991	914	838	1118	991	914	1194	1118	1041
21	1016	940	889	1143	1016	940	1245	1143	1092
22	1067	965	914	1194	1067	965	1295	1194	1118
23	1092	991	940	1219	1092	991	1321	1219	1143
24	1118	1016	965	1270	1118	1016	1372	1270	1194
25	1168	1067	991	1295	1168	1067	1422	1295	1219

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 6

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	356	330	305	381	356	330	406	381	381
4	406	381	356	457	406	381	483	457	432
5	457	432	406	508	457	432	533	508	483
6	508	457	432	559	508	457	584	559	533
7	533	508	483	584	533	508	635	584	559
8	584	533	508	635	584	533	686	635	610
9	610	559	533	660	610	559	711	660	675
10	635	584	559	711	635	584	762	711	660
11	660	610	584	737	660	610	787	737	711
12	686	635	610	762	686	635	838	762	737
13	737	660	635	813	737	660	864	813	762
14	762	686	660	838	762	686	889	838	787
15	787	711	686	864	787	711	940	864	813
16	813	737	686	914	813	737	965	914	864
17	838	787	737	940	838	787	1016	940	889
18	889	813	762	991	889	813	1067	991	940
19	914	838	787	1016	914	838	1118	1016	965
20	940	864	813	1067	940	864	1143	1067	991
21	991	889	838	1118	991	889	1194	1118	1041
22	1016	940	864	1143	1016	940		1143	1067
23	1041	965	889	1194	1041	965		1194	1118
24	1092	991	914	1219	1092	991		1219	1143
25	1118	1016	940		1118	1016			1168

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 7

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	330	305	305	381	330	305	406	381	356
4	406	381	356	432	406	381	457	432	406
5	432	406	381	483	432	406	508	483	457
6	483	457	432	533	483	457	559	533	508
7	508	483	457	559	508	483	610	559	533
8	559	508	483	610	559	508	635	610	584
9	584	533	508	635	584	533	686	635	610
10	610	559	533	686	610	559	711	686	635
11	635	584	559	711	635	584	762	711	660
12	660	610	584	737	660	610	787	737	711
13	686	635	610	762	686	635	838	762	737
14	711	660	635	813	711	660	864	813	762
15	762	686	635	838	762	686	889	838	787
16	787	711	660	864	787	711	940	864	813
17	813	737	711	914	813	737	965	914	864
18	838	787	737	940	838	787	1016	940	889
19	889	813	762	991	889	813		991	940
20	914	838	787	1016	914	838		1016	965
21	940	864	813		940	864			991
22	965	889	838		965	889			
23	1016	914	864		1016	914			
24		940	889			940			
25		965	914			965			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 8

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	330	305	279	356	330	305	381	356	330
4	381	356	330	406	381	356	432	406	406
5	432	406	381	457	432	406	508	457	432
6	457	432	406	508	457	432	533	508	483
7	508	457	432	559	508	457	584	559	508
8	533	483	457	584	533	483	610	584	533
9	559	508	483	610	559	508	660	610	584
10	584	533	508	635	584	533	686	635	610
11	610	559	533	686	610	559	737	686	635
12	635	584	559	711	635	584	762	711	660
13	660	610	584	737	660	610	787	737	711
14	686	635	610	762	686	635	838	762	737
15	711	660	610	813	711	660	864	813	762
16	737	686	635	838	737	686		838	787
17	787	711	660	864	787	711		864	813
18	813	737	686		813	737			864
19	838	787	711		838	787			
20		813	737			813			
21		838	762			838			
22		864	787			864			
23			813						
24			838						
25			864						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 9

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	305	279	279	356	305	279	356	356	330
4	356	330	330	406	356	330	432	406	381
5	406	381	356	457	406	381	483	457	432
6	457	406	381	483	457	406	533	483	457
7	483	432	406	533	483	432	559	533	508
8	508	483	432	559	508	483	610	559	533
9	533	508	457	584	533	508	635	584	559
10	559	533	483	635	559	533	660	635	584
11	584	559	508	660	584	559	711	660	610
12	610	584	533	686	610	584	737	686	660
13	635	584	559	711	635	584	762	711	686
14	660	610	584	737	660	610		737	711
15	686	635	610		686	635			737
16	711	660	610		711	660			762
17	762	686	635		762	686			
18		711	686			711			
19		762	711			762			
20			711						
21			737						
22			762						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 10

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	305	279	279	330	305	279	356	330	330
4	356	330	305	381	356	330	406	381	381
5	406	381	356	432	406	381	457	432	406
6	432	406	381	483	432	406	508	483	457
7	457	432	406	508	457	432	533	508	483
8	483	457	432	533	483	457	584	533	508
9	508	483	457	584	508	483	610	584	533
10	559	508	483	610	559	508	635	610	584
11	584	533	508	635	584	533		635	610
12	610	559	533	660	610	559		660	635
13	635	584	533		635	584			660
14	660	610	559		660	610			
15		610	584			610			
16		635	610			635			
17			635						
18			660						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 11

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	305	279	254	330	305	279	356	330	305
4	356	330	305	381	356	330	406	381	356
5	381	356	330	432	381	356	457	432	406
6	432	381	381	457	432	381	508	457	432
7	457	432	406	508	457	432	533	508	483
8	483	457	432	533	483	457	559	533	508
9	508	483	432	559	508	483	610	559	533
10	533	508	457	584	533	508		584	559
11	559	508	483		559	508			584
12	584	533	508		584	533			610
13	610	559	533		610	559			
14		584	559			584			
15		610	559			610			
16			584						
17			610						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 100 Type A

Number of Stringers = 12

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	305	279	254	330	305	279	330	330	305
4	356	330	305	381	356	330	406	381	356
5	381	356	330	432	381	356	457	432	406
6	406	381	356	457	406	381	483	457	432
7	457	406	381	483	457	406	533	483	457
8	483	432	406	533	483	432		533	508
9	508	457	432		508	457			533
10	533	483	457		533	483			
11		508	483			508			
12		533	508			533			
13			533						
14			533						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 4 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	330	305	305	381	330	305	406	381	356
	needle beam	381	356	330	432	381	356	457	432	406
4	str. & curbs	406	381	356	432	406	381	457	432	406
	needle beam	406	381	356	457	406	381	483	457	432
5	str. & curbs	457	406	381	483	457	406	508	483	457
	needle beam	432	406	381	457	432	406	483	457	432
6	str. & curbs	483	457	432	533	483	457	559	533	508
	needle beam	432	406	381	483	432	406	508	483	457
7	str. & curbs	508	483	457	584	508	483	610	584	533
	needle beam	432	406	381	483	432	406	508	483	457
8	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	432	406	381	483	432	406	508	483	457
9	str. & curbs	584	533	508	635	584	533	686	635	610
	needle beam	457	406	381	483	457	406	533	483	457
10	str. & curbs	610	559	533	686	610	559	711	686	635
	needle beam	457	432	406	508	457	432	533	508	483
11	str. & curbs	635	584	559	711	635	584	762	711	686
	needle beam	457	432	406	508	457	432	533	508	483
12	str. & curbs	660	610	584	737	660	610	787	737	711
	needle beam	457	432	406	508	457	432	533	508	483
13	str. & curbs	711	635	610	787	711	635	838	787	737
	needle beam	457	432	406	508	457	432	533	508	483
14	str. & curbs	737	660	635	813	737	660	864	813	762
	needle beam	457	432	406	508	457	432	533	508	483
15	str. & curbs	762	686	660	838	762	686	889	838	787
	needle beam	483	432	406	508	483	432	559	508	483
16	str. & curbs	787	711	660	864	787	711	940	864	813
	needle beam	483	432	406	508	483	432	559	508	483
17	str. & curbs	813	762	711	914	813	762	991	914	864
	needle beam	483	457	432	533	483	457	559	533	508
18	str. & curbs	864	787	737	965	864	787	1016	965	889
	needle beam	483	457	432	533	483	457	559	533	508
19	str. & curbs	889	813	762	991	889	813	1067	991	940
	needle beam	508	457	432	533	508	457	584	533	508
20	str. & curbs	914	838	787	1041	914	838	1118	1041	965
	needle beam	508	457	432	559	508	457	584	559	533
21	str. & curbs	940	864	813	1067	940	864	1143	1067	991
	needle beam	508	483	457	559	508	483	584	559	533
22	str. & curbs	991	889	838	1118	991	889	1194	1118	1041
	needle beam	508	483	457	559	508	483	610	559	533
23	str. & curbs	1016	914	864	1143	1016	914	1245	1143	1067
	needle beam	508	483	457	559	508	483	610	559	533
24	str. & curbs	1041	940	889	1168	1041	940	1270	1168	1092
	needle beam	508	483	457	584	508	483	610	584	533
25	str. & curbs	1067	991	914	1219	1067	991	1321	1219	1143
	needle beam	533	483	457	584	533	483	610	584	559

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 5 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	330	305	279	356	330	305	381	356	330
	needle beam	432	381	381	457	432	381	483	457	432
4	str. & curbs	381	356	330	406	381	356	432	406	406
	needle beam	457	406	381	483	457	406	533	483	457
5	str. & curbs	432	406	381	457	432	406	508	457	432
	needle beam	457	432	406	508	457	432	533	508	483
6	str. & curbs	457	432	406	508	457	432	533	508	483
	needle beam	483	432	406	508	483	432	559	508	483
7	str. & curbs	508	457	432	559	508	457	584	559	508
	needle beam	483	457	432	533	483	457	559	533	508
8	str. & curbs	533	483	457	584	533	483	610	584	559
	needle beam	483	457	432	533	483	457	559	533	508
9	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	483	457	432	533	483	457	559	533	508
10	str. & curbs	584	533	508	635	584	533	686	635	610
	needle beam	483	457	432	533	483	457	584	533	508
11	str. & curbs	610	559	533	686	610	559	737	686	635
	needle beam	508	457	432	559	508	457	584	559	533
12	str. & curbs	635	584	559	711	635	584	762	711	686
	needle beam	508	457	432	559	508	457	584	559	533
13	str. & curbs	660	610	584	737	660	610	787	737	711
	needle beam	508	483	457	559	508	483	584	559	533
14	str. & curbs	686	635	610	762	686	635	838	762	737
	needle beam	508	483	457	559	508	483	584	559	533
15	str. & curbs	711	660	610	813	711	660	864	813	762
	needle beam	508	483	457	559	508	483	610	559	533
16	str. & curbs	737	686	635	838	737	686	889	838	787
	needle beam	508	483	457	559	508	483	610	559	533
17	str. & curbs	787	711	660	864	787	711	940	864	813
	needle beam	533	483	457	584	533	483	610	584	559
18	str. & curbs	813	737	711	914	813	737	991	914	864
	needle beam	533	508	457	584	533	508	635	584	559
19	str. & curbs	838	787	737	940	838	787	1016	940	889
	needle beam	533	508	483	584	533	508	635	584	559
20	str. & curbs	889	813	762	991	889	813	1067	991	940
	needle beam	559	508	483	610	559	508	635	610	584
21	str. & curbs	914	838	787	1016	914	838	1118	1016	965
	needle beam	559	508	483	610	559	508	635	610	584
22	str. & curbs	940	864	787	1067	940	864	1143	1067	991
	needle beam	559	533	483	610	559	533	660	610	584
23	str. & curbs	965	889	813	1092	965	889	1194	1092	1016
	needle beam	559	533	483	610	559	533	660	610	584
24	str. & curbs	991	914	838	1143	991	914	1219	1143	1067
	needle beam	559	533	508	635	559	533	660	635	584
25	str. & curbs	1041	940	864	1168	1041	940	1270	1168	1092
	needle beam	584	533	508	635	584	533	686	635	610

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 6 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	305	305	279	356	305	305	356	356	330
	needle beam	432	406	381	457	432	406	483	457	432
4	str. & curbs	381	330	330	406	381	330	432	406	381
	needle beam	457	406	406	483	457	406	533	483	457
5	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	457	432	406	508	457	432	533	508	483
6	str. & curbs	457	406	381	483	457	406	533	483	457
	needle beam	483	432	406	533	483	432	559	533	508
7	str. & curbs	483	457	432	533	483	457	559	533	508
	needle beam	483	457	432	533	483	457	559	533	508
8	str. & curbs	508	483	457	559	508	483	610	559	533
	needle beam	483	457	432	533	483	457	559	533	508
9	str. & curbs	533	508	457	584	533	508	635	584	559
	needle beam	483	457	432	533	483	457	584	533	508
10	str. & curbs	559	533	483	635	559	533	660	635	584
	needle beam	508	457	432	533	508	457	584	533	508
11	str. & curbs	584	559	508	660	584	559	711	660	635
	needle beam	508	457	432	559	508	457	584	559	533
12	str. & curbs	635	584	533	686	635	584	737	686	660
	needle beam	508	483	432	559	508	483	584	559	533
13	str. & curbs	660	610	559	711	660	610	762	711	686
	needle beam	508	483	457	559	508	483	584	559	533
14	str. & curbs	686	610	584	762	686	610	813	762	711
	needle beam	508	483	457	559	508	483	610	559	533
15	str. & curbs	711	635	610	787	711	635	838	787	737
	needle beam	508	483	457	559	508	483	610	559	533
16	str. & curbs	737	660	635	813	737	660	864	813	762
	needle beam	508	483	457	559	508	483	610	559	533
17	str. & curbs	762	686	660	838	762	686	914	838	787
	needle beam	533	483	457	584	533	483	610	584	559
18	str. & curbs	787	737	686	889	787	737	965	889	838
	needle beam	533	508	483	584	533	508	635	584	559
19	str. & curbs	813	762	711	914	813	762	991	914	864
	needle beam	533	508	483	610	533	508	660	610	559
20	str. & curbs	864	787	737	965	864	787	1041	965	889
	needle beam	559	508	483	610	559	508	660	610	584
21	str. & curbs	889	813	762	991	889	813	1067	991	940
	needle beam	559	508	483	635	559	508	686	635	584
22	str. & curbs	914	838	787	1041	914	838	1118	1041	965
	needle beam	559	533	483	635	559	533	711	635	610
23	str. & curbs	940	864	813	1067	940	864	1168	1067	991
	needle beam	584	533	508	660	584	533	711	660	610
24	str. & curbs	965	889	813	1092	965	889	1194	1092	1041
	needle beam	584	533	508	660	584	533	737	660	610
25	str. & curbs	991	914	838	1143	991	914		1143	1067
	needle beam	584	533	508	686	584	533		686	635

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist

Number of Stringers = 7 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	305	279	279	330	305	279	356	330	330
	needle beam	432	406	381	483	432	406	508	483	457
4	str. & curbs	356	330	305	381	356	330	406	381	381
	needle beam	457	432	406	508	457	432	533	508	483
5	str. & curbs	406	381	356	432	406	381	457	432	406
	needle beam	483	432	406	533	483	432	559	533	508
6	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	483	457	432	533	483	457	559	533	508
7	str. & curbs	457	432	406	508	457	432	559	508	483
	needle beam	483	457	432	533	483	457	584	533	508
8	str. & curbs	483	457	432	559	483	457	584	559	508
	needle beam	508	457	432	559	508	457	584	559	533
9	str. & curbs	533	483	457	584	533	483	610	584	559
	needle beam	508	457	432	559	508	457	584	559	533
10	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	508	483	457	559	508	483	584	559	533
11	str. & curbs	584	533	508	635	584	533	686	635	610
	needle beam	508	483	457	559	508	483	610	559	533
12	str. & curbs	610	559	533	660	610	559	711	660	635
	needle beam	508	483	457	559	508	483	610	559	533
13	str. & curbs	635	584	533	711	635	584	762	711	660
	needle beam	533	483	457	584	533	483	610	584	559
14	str. & curbs	660	610	559	737	660	610	787	737	686
	needle beam	533	483	457	584	533	483	610	584	559
15	str. & curbs	686	635	584	762	686	635	813	762	711
	needle beam	533	483	457	584	533	483	635	584	559
16	str. & curbs	711	635	610	787	711	635	838	787	737
	needle beam	533	508	457	584	533	508	635	584	559
17	str. & curbs	737	686	635	813	737	686	889	813	787
	needle beam	533	508	483	610	533	508	660	610	584
18	str. & curbs	762	711	660	864	762	711	940	864	813
	needle beam	559	508	483	635	559	508	686	635	584
19	str. & curbs	787	737	686	889	787	737	965	889	838
	needle beam	559	508	483	635	559	508	711	635	610
20	str. & curbs	838	762	711	940	838	762	1016	940	864
	needle beam	584	533	508	660	584	533	737	660	610
21	str. & curbs	864	787	737	965	864	787		965	914
	needle beam	584	533	508	686	584	533		686	635
22	str. & curbs	889	813	762	1016	889	813		1016	940
	needle beam	610	559	508	686	610	559		686	635
23	str. & curbs	914	838	787		914	838			965
	needle beam	610	559	508		610	559			660
24	str. & curbs	940	864	787		940	864			991
	needle beam	635	559	508		635	559			660
25	str. & curbs	965	889	813		965	889			
	needle beam	635	584	533		635	584			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life

Number of Stringers = 8 + 2 curb logs

SPAN (m)	STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*									
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar			
	USE			USE			USE			
	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	
3	str. & curbs	305	279	254	330	305	279	356	330	305
	needle beam	457	406	381	483	457	406	533	483	457
4	str. & curbs	356	330	305	381	356	330	406	381	356
	needle beam	483	432	406	533	483	432	559	533	508
5	str. & curbs	381	356	330	432	381	356	457	432	406
	needle beam	483	457	432	533	483	457	584	533	508
6	str. & curbs	432	381	356	457	432	381	483	457	432
	needle beam	508	457	432	559	508	457	584	559	533
7	str. & curbs	457	406	381	508	457	406	533	508	483
	needle beam	508	483	457	559	508	483	584	559	533
8	str. & curbs	483	432	406	533	483	432	559	533	508
	needle beam	508	483	457	559	508	483	610	559	533
9	str. & curbs	508	457	432	559	508	457	584	559	533
	needle beam	508	483	457	559	508	483	610	559	533
10	str. & curbs	533	483	457	584	533	483	635	584	559
	needle beam	533	483	457	584	533	483	610	584	559
11	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	533	483	457	584	533	483	610	584	559
12	str. & curbs	584	533	508	660	584	533	686	660	610
	needle beam	533	508	483	584	533	508	635	584	559
13	str. & curbs	610	559	533	686	610	559	737	686	635
	needle beam	533	508	483	584	533	508	635	584	559
14	str. & curbs	635	584	533	711	635	584	762	711	660
	needle beam	533	508	483	610	533	508	660	610	559
15	str. & curbs	660	610	559	737	660	610	787	737	686
	needle beam	559	508	483	610	559	508	660	610	559
16	str. & curbs	686	635	584	762	686	635	813	762	711
	needle beam	559	508	483	635	559	508	686	635	584
17	str. & curbs	711	660	610	787	711	660	864	787	762
	needle beam	559	533	483	635	559	533	711	635	610
18	str. & curbs	737	686	635	838	737	686		838	787
	needle beam	584	533	508	660	584	533		660	610
19	str. & curbs	762	711	660	864	762	711		864	813
	needle beam	610	533	508	686	610	533		686	635
20	str. & curbs	813	737	686		813	737			838
	needle beam	610	559	508		610	559			660
21	str. & curbs	838	762	711		838	762			
	needle beam	635	559	533		635	559			
22	str. & curbs	864	787	737		864	787			
	needle beam	635	584	533		635	584			
23	str. & curbs		813	762			813			
	needle beam		584	533			584			
24	str. & curbs		838	787			838			
	needle beam		610	559			610			
25	str. & curbs		864	787			864			
	needle beam		610	559			610			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 9 + 2 curb logs

L 100 Type B

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	279	279	254	305	279	279	330	305	305
	needle beam	457	432	406	508	457	432	533	508	483
4	str. & curbs	330	305	305	381	330	305	381	381	356
	needle beam	483	457	432	533	483	457	559	533	508
5	str. & curbs	381	356	330	406	381	356	432	406	381
	needle beam	508	457	432	559	508	457	584	559	533
6	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	508	483	457	559	508	483	584	559	533
7	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	508	483	457	559	508	483	610	559	533
8	str. & curbs	457	432	406	508	457	432	559	508	483
	needle beam	533	483	457	584	533	483	610	584	559
9	str. & curbs	483	457	432	533	483	457	584	533	508
	needle beam	533	483	457	584	533	483	610	584	559
10	str. & curbs	508	483	457	584	508	483	610	584	533
	needle beam	533	508	457	584	533	508	635	584	559
11	str. & curbs	533	508	483	610	533	508	635	610	559
	needle beam	533	508	483	584	533	508	635	584	559
12	str. & curbs	559	533	483	635	559	533	686	635	584
	needle beam	533	508	483	610	533	508	660	610	559
13	str. & curbs	584	559	508	660	584	559	711	660	635
	needle beam	559	508	483	610	559	508	686	610	584
14	str. & curbs	610	559	533	686	610	559	737	686	660
	needle beam	559	508	483	635	559	508	686	635	584
15	str. & curbs	635	584	559	711	635	584	762	711	660
	needle beam	559	508	483	635	559	508	686	635	584
16	str. & curbs	660	610	559	737	660	610		737	711
	needle beam	584	508	483	660	584	508		660	610
17	str. & curbs	686	635	584		686	635			737
	needle beam	584	533	508		584	533			635
18	str. & curbs	737	660	610		737	660			762
	needle beam	610	559	508		610	559			660
19	str. & curbs	762	686	635		762	686			
	needle beam	635	559	533		635	559			
20	str. & curbs		711	660			711			
	needle beam		584	533			584			
21	str. & curbs		737	686			737			
	needle beam		584	559			584			
22	str. & curbs		762	711			762			
	needle beam		610	559			610			
23	str. & curbs			737						
	needle beam			559						
24	str. & curbs			762						
	needle beam			584						
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 10 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	279	254	254	305	279	254	330	305	305
	needle beam	457	432	406	508	457	432	533	508	483
4	str. & curbs	330	306	279	356	330	305	381	356	330
	needle beam	483	457	432	533	483	457	559	533	508
5	str. & curbs	356	330	330	406	356	330	432	406	381
	needle beam	508	457	432	559	508	457	584	559	533
6	str. & curbs	406	381	356	432	406	381	457	432	406
	needle beam	508	483	457	559	508	483	610	559	533
7	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	533	483	457	584	533	483	610	584	533
8	str. & curbs	457	432	406	508	457	432	533	508	483
	needle beam	533	483	457	584	533	483	610	584	559
9	str. & curbs	483	457	406	533	483	457	559	533	508
	needle beam	533	508	457	584	533	508	635	584	559
10	str. & curbs	508	457	432	559	508	457	610	559	533
	needle beam	533	508	483	610	533	508	660	610	559
11	str. & curbs	533	483	457	584	533	483	635	584	559
	needle beam	533	508	483	610	533	508	660	610	584
12	str. & curbs	559	508	483	610	559	508	660	610	584
	needle beam	559	508	483	635	559	508	686	635	584
13	str. & curbs	584	533	508	635	584	533		635	610
	needle beam	559	508	483	635	559	508		635	610
14	str. & curbs	610	559	508	660	610	559		660	635
	needle beam	584	533	483	660	584	533		660	610
15	str. & curbs	635	584	533		635	584			660
	needle beam	584	533	483		584	533			635
16	str. & curbs	660	584	559		660	584			
	needle beam	610	533	508		610	533			
17	str. & curbs		635	584			635			
	needle beam		559	508			559			
18	str. & curbs		660	610			660			
	needle beam		584	533			584			
19	str. & curbs			635						
	needle beam			559						
20	str. & curbs			660						
	needle beam			559						
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 11 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	279	254	254	305	279	254	330	305	279
	needle beam	457	432	406	508	457	432	533	508	483
4	str. & curbs	330	305	279	356	330	305	381	356	330
	needle beam	483	457	432	533	483	457	559	533	508
5	str. & curbs	356	330	305	406	356	330	432	406	381
	needle beam	508	457	432	559	508	457	584	559	533
6	str. & curbs	381	356	330	432	381	356	457	432	406
	needle beam	508	483	457	559	508	483	584	559	533
7	str. & curbs	432	381	356	457	432	381	483	457	432
	needle beam	508	483	457	559	508	483	610	559	533
8	str. & curbs	457	406	381	483	457	406	533	483	457
	needle beam	533	483	457	584	533	483	635	584	559
9	str. & curbs	483	432	406	533	483	432	559	533	483
	needle beam	533	483	457	610	533	483	660	610	559
10	str. & curbs	508	457	432	559	508	457	584	559	533
	needle beam	559	508	457	635	559	508	660	635	584
11	str. & curbs	533	483	457	584	533	483	610	584	559
	needle beam	559	508	483	635	559	508	686	635	610
12	str. & curbs	559	508	483	610	559	508		610	584
	needle beam	584	533	483	660	584	533		660	610
13	str. & curbs	559	533	483		559	533			610
	needle beam	584	533	483		584	533			635
14	str. & curbs	584	533	508		584	533			
	needle beam	610	533	508		610	533			
15	str. & curbs	610	559	533		610	559			
	needle beam	610	559	508		610	559			
16	str. & curbs		584	559			584			
	needle beam		559	533			559			
17	str. & curbs		610	584			610			
	needle beam		584	533			584			
18	str. & curbs			584						
	needle beam			559						
19	str. & curbs			610						
	needle beam			559						
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 12 + 2 curb logs

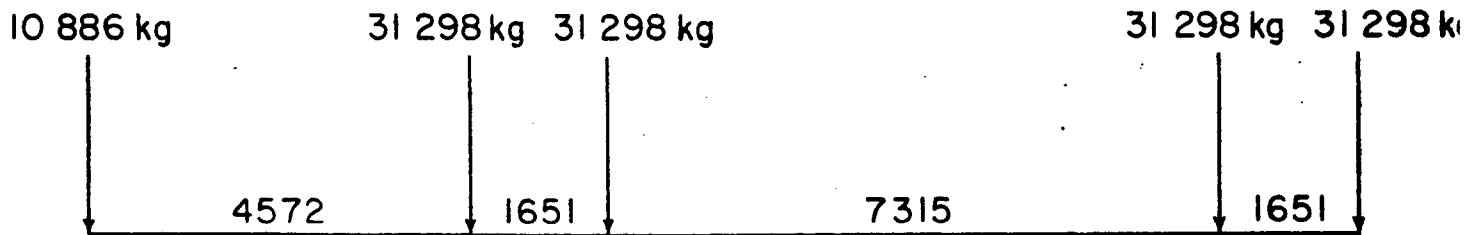
SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str.& curbs	279	254	254	305	279	254	330	305	279
	needle beam	457	406	381	483	457	406	508	483	457
4	str.& curbs	330	305	279	356	330	305	381	356	330
	needle beam	483	432	406	508	483	432	559	508	483
5	str.& curbs	356	330	305	381	356	330	406	381	381
	needle beam	483	457	432	533	483	457	584	533	508
6	str.& curbs	381	356	330	432	381	356	457	432	406
	needle beam	508	457	432	584	508	457	610	584	533
7	str.& curbs	406	381	356	457	406	381	483	457	432
	needle beam	508	483	457	584	508	483	635	584	559
8	str.& curbs	432	406	381	483	432	406	533	483	457
	needle beam	533	483	457	610	533	483	660	610	559
9	str.& curbs	457	432	406	508	457	432		508	483
	needle beam	559	508	457	635	559	508		635	584
10	str.& curbs	483	457	432	533	483	457		533	508
	needle beam	559	508	483	635	559	508		635	610
11	str.& curbs	508	483	457		508	483			533
	needle beam	584	533	483		584	533			610
12	str.& curbs	533	508	457		533	508			
	needle beam	584	533	508		584	533			
13	str.& curbs		508	483			508			
	needle beam		559	508			559			
14	str.& curbs		533	508			533			
	needle beam		559	508			559			
15	str.& curbs			533						
	needle beam			533						
16	str.& curbs			533						
	needle beam			533						
	str.& curbs									
	needle beam									
	str.& curbs									
	needle beam									
	str.& curbs									
	needle beam									
	str.& curbs									
	needle beam									
	str.& curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L - 150
(FOR 150 TON LOGGING TRUCKS).

LOAD CONFIGURATION :



L 150 Type A

Number of Stringers = 4

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	457	432	406	508	457	432	533	508	483
4	533	483	457	584	533	483	610	584	559
5	584	559	508	635	584	559	686	635	610
6	635	584	559	711	635	584	762	711	660
7	686	635	610	762	686	635	813	762	711
8	737	686	635	813	737	686	864	813	762
9	762	711	660	838	762	711	889	838	813
10	813	737	711	889	813	737	940	889	838
11	838	787	737	940	838	787	991	940	889
12	889	813	762	965	889	813	1041	965	914
13	914	838	787	1016	914	838	1092	1016	965
14	940	889	813	1041	940	889	1118	1041	991
15	991	914	838	1092	991	914	1168	1092	1041
16	1016	940	889	1118	1016	940	1219	1118	1067
17	1067	965	914	1168	1067	965	1270	1168	1118
18	1092	1016	940	1219	1092	1016	1321	1219	1168
19	1143	1041	991	1270	1143	1041	1372	1270	1194
20	1194	1092	1016	1321	1194	1092	1422	1321	1245
21	1219	1118	1041	1372	1219	1118	1473	1372	1295
22	1270	1168	1092	1422	1270	1168	1524	1422	1321
23	1295	1194	1118	1448	1295	1194	1575	1448	1372
24	1346	1219	1143	1499	1346	1219	1626	1499	1397
25	1372	1245	1168	1549	1372	1245	1676	1549	1448

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 150 Type A

Number of Stringers = 5

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	432	381	381	457	432	381	483	457	432
4	483	457	432	533	483	457	584	533	508
5	559	508	483	610	559	508	635	610	584
6	610	559	533	660	610	559	711	660	635
7	635	584	559	711	635	584	762	711	660
8	686	635	584	762	686	635	787	762	711
9	711	660	635	787	711	660	838	787	762
10	762	686	660	838	762	686	889	838	787
11	787	737	686	864	787	737	940	864	838
12	813	762	711	914	813	762	965	914	864
13	864	787	737	940	864	787	1016	940	889
14	889	813	762	991	889	813	1067	991	940
15	914	838	787	1016	914	838	1092	1016	965
16	940	889	813	1067	940	889	1143	1067	991
17	991	914	864	1118	991	914	1194	1118	1041
18	1041	940	889	1143	1041	940	1245	1143	1092
19	1067	991	914	1194	1067	991	1295	1194	1118
20	1118	1016	965	1245	1118	1016	1346	1245	1168
21	1143	1067	991	1295	1143	1067	1397	1295	1219
22	1194	1092	1016	1321	1194	1092	1422	1321	1245
23	1219	1118	1041	1372	1219	1118	1473	1372	1295
24	1245	1143	1067	1422	1245	1143	1524	1422	1321
25	1295	1168	1092	1448	1295	1168		1448	1372

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 150 Type A

Number of Stringers = 6

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	406	381	356	432	406	381	483	432	432
4	483	432	406	508	483	432	559	508	483
5	533	483	457	584	533	483	610	584	559
6	584	533	508	635	584	533	660	635	610
7	610	559	533	686	610	559	711	686	635
8	660	610	559	711	660	610	762	711	686
9	686	635	610	762	686	635	813	762	711
10	711	660	635	787	711	660	838	787	762
11	762	711	660	838	762	711	889	838	787
12	787	737	686	864	787	737	940	864	838
13	813	762	711	914	813	762	965	914	864
14	864	787	737	940	864	787	1016	940	889
15	889	813	762	991	889	813	1041	991	914
16	914	838	787	1016	914	838	1092	1016	965
17	965	889	813	1067	965	889	1143	1067	991
18	991	914	864	1118	991	914	1194	1118	1041
19	1041	940	889	1143	1041	940		1143	1092
20	1067	991	914	1194	1067	991		1194	1118
21	1092	1016	940		1092	1016			1168
22	1143	1041	965		1143	1041			1194
23	1168	1067	991		1168	1067			
24	1194	1092	1016		1194	1092			
25		1143	1067			1143			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 150 Type A

Number of Stringers = 7

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	381	356	330	432	381	356	457	432	406
4	457	432	406	508	457	432	533	508	483
5	508	457	432	559	508	457	584	559	533
6	559	508	483	610	559	508	635	610	584
7	584	533	508	635	584	533	686	635	610
8	635	584	533	686	635	584	737	686	660
9	660	610	584	737	660	610	762	737	686
10	686	635	610	762	686	635	813	762	711
11	711	660	635	813	711	660	864	813	762
12	762	686	660	838	762	686	889	838	787
13	787	737	686	864	787	737	940	864	813
14	813	762	711	914	813	762	965	914	864
15	838	787	737	940	838	787	1016	940	889
16	864	813	762	965	864	813		965	914
17	914	838	787	1016	914	838		1016	965
18	940	864	813		940	864			991
19	991	914	838		991	914			
20	1016	940	889		1016	940			
21		965	914			965			
22		991	940			991			
23			965						
24			991						
25			1016						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 150 Type A

Number of Stringers = 8

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	381	356	330	406	381	356	432	406	381
4	432	406	381	483	432	406	508	483	457
5	483	457	432	533	483	457	559	533	508
6	533	483	457	584	533	483	610	584	559
7	559	533	483	610	559	533	660	610	584
8	584	559	508	660	584	559	711	660	635
9	635	584	559	686	635	584	737	686	660
10	660	610	584	737	660	610	787	737	686
11	686	635	610	762	686	635	813	762	737
12	711	660	635	813	711	660	864	813	762
13	762	686	660	838	762	686		838	787
14	787	711	686	864	787	711		864	813
15	813	737	711		813	737			838
16	838	762	711		838	762			
17	864	813	762		864	813			
18		838	787			838			
19		864	813			864			
20			838						
21			864						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 150 Type A

Number of Stringers = 9

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	356	330	305	381	356	330	406	381	381
4	406	381	356	457	406	381	483	457	432
5	457	432	406	508	457	432	533	508	483
6	508	457	432	559	508	457	584	559	533
7	533	508	483	610	533	508	635	610	559
8	584	533	508	635	584	533	686	635	610
9	610	559	533	660	610	559	711	660	635
10	635	584	559	711	635	584	762	711	660
11	660	610	584	737	660	610		737	711
12	686	635	610	762	686	635		762	737
13	737	660	635		737	660			762
14	762	686	660		762	686			
15		711	686			711			
16		737	686			737			
17			737						
18			762						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

L 150 Type A

Number of Stringers = 10

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	356	330	305	381	356	330	406	381	356
4	406	381	356	432	406	381	483	432	432
5	457	406	406	508	457	406	533	508	483
6	483	457	432	533	483	457	584	533	508
7	533	483	457	584	533	483	610	584	559
8	559	508	483	610	559	508	660	610	584
9	584	533	508	660	584	533		660	610
10	610	584	533		610	584			660
11	660	610	559		660	610			
12		635	584			635			
13		660	610			660			
14			635						
15			660						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 11

L 150 Type A

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	330	305	305	381	330	305	406	381	356
4	406	356	356	432	406	356	457	432	406
5	432	406	381	483	432	406	508	483	457
6	483	457	432	533	483	457	559	533	508
7	508	483	457	559	508	483	610	559	533
8	559	508	483	610	559	508		610	584
9	584	533	508		584	533			610
10	610	559	533		610	559			
11		584	559			584			
12		610	584			610			
13			610						
14			610						

* See Assumption 7 on page 2 regarding stringer quality

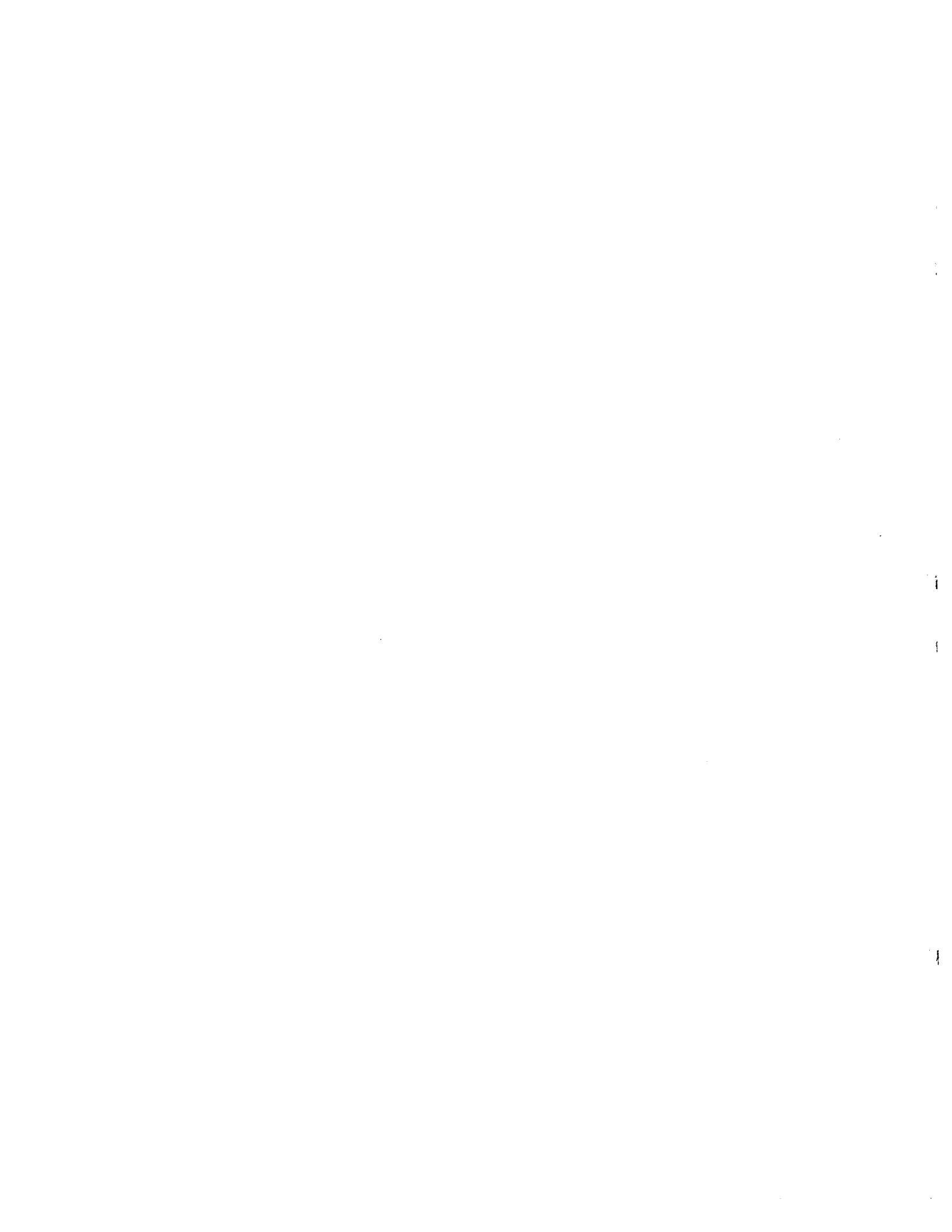
** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 12

SPAN (m)	STRINGER MIDDIAMETER (mm)*								
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
	USE			USE			USE		
	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads	Lifetime of Timber	One to Two Years	Rare Over- Loads
3	330	305	305	356	330	305	381	356	356
4	381	356	330	432	381	356	457	432	406
5	432	406	381	483	432	406	508	483	457
6	483	432	406	533	483	432		533	483
7	508	483	432		508	483			533
8	533	508	457		533	508			
9		533	483			533			
10			508						
11			533						

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.



Number of Stringers = 4 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	381	356	330	432	381	356	457	432	406
	needle beam	432	406	381	483	432	406	508	483	457
4	str. & curbs	457	432	406	508	457	432	533	508	483
	needle beam	457	432	406	508	457	432	533	508	483
5	str. & curbs	508	457	432	559	508	457	584	559	533
	needle beam	483	457	432	533	483	457	559	533	508
6	str. & curbs	559	508	483	610	559	508	635	610	584
	needle beam	483	457	432	533	483	457	584	533	508
7	str. & curbs	584	559	508	660	584	559	686	660	610
	needle beam	508	457	432	559	508	457	584	559	533
8	str. & curbs	635	584	533	686	635	584	737	686	660
	needle beam	508	483	432	559	508	483	584	559	533
9	str. & curbs	660	610	584	737	660	610	787	737	686
	needle beam	508	483	457	559	508	483	584	559	533
10	str. & curbs	686	635	610	762	686	635	813	762	737
	needle beam	508	483	457	559	508	483	610	559	533
11	str. & curbs	737	660	635	813	737	660	864	813	762
	needle beam	533	483	457	584	533	483	610	584	533
12	str. & curbs	762	711	660	838	762	711	889	838	787
	needle beam	533	483	457	584	533	483	610	584	559
13	str. & curbs	787	737	686	864	787	737	940	864	838
	needle beam	533	483	457	584	533	483	610	584	559
14	str. & curbs	813	762	711	914	813	762	965	914	864
	needle beam	533	508	457	584	533	508	610	584	559
15	str. & curbs	838	787	737	940	838	787	1016	940	889
	needle beam	533	508	483	584	533	508	635	584	559
16	str. & curbs	889	813	762	965	889	813	1041	965	914
	needle beam	533	508	483	584	533	508	635	584	559
17	str. & curbs	914	838	787	1016	914	838	1092	1016	965
	needle beam	559	508	483	610	559	508	635	610	584
18	str. & curbs	965	889	813	1067	965	889	1143	1067	1016
	needle beam	559	508	483	610	559	508	660	610	584
19	str. & curbs	991	914	864	1118	991	914	1194	1118	1041
	needle beam	559	533	508	635	559	533	660	635	584
20	str. & curbs	1016	940	889	1143	1016	940	1245	1143	1092
	needle beam	584	533	508	635	584	533	660	635	610
21	str. & curbs	1067	965	914	1194	1067	965	1295	1194	1118
	needle beam	584	533	508	635	584	533	686	635	610
22	str. & curbs	1092	1016	940	1219	1092	1016	1321	1219	1168
	needle beam	584	533	508	635	584	533	686	635	610
23	str. & curbs	1118	1041	965	1270	1118	1041	1372	1270	1194
	needle beam	584	559	508	635	584	559	686	635	610
24	str. & curbs	1168	1067	991	1321	1168	1067	1422	1321	1219
	needle beam	584	559	508	660	584	559	686	660	610
25	str. & curbs	1194	1092	1016	1346	1194	1092	1473	1346	1270
	needle beam	610	559	533	660	610	559	686	660	635

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life

Number of Stringers = 5 + 2 curb logs

L 150 Type B

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	381	356	330	406	381	356	432	406	381
	needle beam	483	457	432	533	483	457	559	533	508
4	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	508	483	457	559	508	483	584	559	533
5	str. & curbs	483	457	432	533	483	457	559	533	508
	needle beam	533	483	457	584	533	483	610	584	559
6	str. & curbs	533	483	457	584	533	483	610	584	559
	needle beam	533	508	483	584	533	508	635	584	559
7	str. & curbs	559	533	483	610	559	533	660	610	584
	needle beam	559	508	483	610	559	508	635	610	584
8	str. & curbs	584	559	508	660	584	559	711	660	635
	needle beam	559	508	483	610	559	508	635	610	584
9	str. & curbs	635	584	559	686	635	584	737	686	660
	needle beam	559	508	483	610	559	508	660	610	584
10	str. & curbs	660	610	584	737	660	610	787	737	686
	needle beam	559	533	483	610	559	533	660	610	584
11	str. & curbs	686	635	610	762	686	635	813	762	737
	needle beam	559	533	508	635	559	533	660	635	584
12	str. & curbs	711	660	635	813	711	660	864	813	762
	needle beam	584	533	508	635	584	533	660	635	610
13	str. & curbs	762	686	660	838	762	686	889	838	787
	needle beam	584	533	508	635	584	533	686	635	610
14	str. & curbs	787	711	686	864	787	711	940	864	813
	needle beam	584	533	508	635	584	533	686	635	610
15	str. & curbs	813	737	711	889	813	737	965	889	838
	needle beam	584	533	508	635	584	533	686	635	610
16	str. & curbs	838	762	711	940	838	762	991	940	889
	needle beam	584	559	508	660	584	559	686	660	610
17	str. & curbs	889	813	762	991	889	813	1041	991	914
	needle beam	610	559	533	660	610	559	711	660	635
18	str. & curbs	914	838	787	1016	914	838	1092	1016	965
	needle beam	610	559	533	660	610	559	711	660	635
19	str. & curbs	940	864	813	1067	940	864	1143	1067	991
	needle beam	610	584	533	686	610	584	711	686	635
20	str. & curbs	991	914	838	1092	991	914	1194	1092	1041
	needle beam	635	584	559	686	635	584	737	686	660
21	str. & curbs	1016	940	864	1143	1016	940	1219	1143	1067
	needle beam	635	584	559	686	635	584	737	686	660
22	str. & curbs	1041	965	889	1168	1041	965	1270	1168	1118
	needle beam	635	584	559	711	635	584	762	711	660
23	str. & curbs	1092	991	914	1219	1092	991	1321	1219	1143
	needle beam	635	610	559	711	635	610	762	711	686
24	str. & curbs	1118	1016	940	1270	1118	1016	1372	1270	1168
	needle beam	660	610	559	711	660	610	787	711	686
25	str. & curbs	1143	1041	965	1295	1143	1041	1397	1295	1219
	needle beam	660	610	584	737	660	610	787	737	686

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 6 + 2 curb logs

SPAN (m)	STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*									
	Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar			
	USE			USE			USE			
	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	
3	str. & curbs	356	330	305	381	356	330	406	381	381
	needle beam	483	457	432	533	483	457	559	533	508
4	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	508	483	457	559	508	483	610	559	533
5	str. & curbs	457	432	406	508	457	432	533	508	483
	needle beam	533	483	457	584	533	483	610	584	559
6	str. & curbs	508	483	432	559	508	483	584	559	533
	needle beam	533	508	483	584	533	508	635	584	559
7	str. & curbs	533	508	483	610	533	508	635	610	559
	needle beam	559	508	483	610	559	508	635	610	584
8	str. & curbs	584	533	508	635	584	533	686	635	610
	needle beam	559	508	483	610	559	508	660	610	584
9	str. & curbs	610	559	533	686	610	559	711	686	635
	needle beam	559	533	483	610	559	533	660	610	584
10	str. & curbs	635	584	559	711	635	584	762	711	660
	needle beam	559	533	508	610	559	533	660	610	584
11	str. & curbs	660	610	584	737	660	610	787	737	711
	needle beam	584	533	508	635	584	533	660	635	610
12	str. & curbs	711	660	610	787	711	660	838	787	737
	needle beam	584	533	508	635	584	533	686	635	610
13	str. & curbs	737	686	635	813	737	686	864	813	762
	needle beam	584	533	508	635	584	533	686	635	610
14	str. & curbs	762	711	660	838	762	711	914	838	787
	needle beam	584	533	508	635	584	533	686	635	610
15	str. & curbs	787	737	686	864	787	737	940	864	838
	needle beam	584	559	508	635	584	559	686	635	610
16	str. & curbs	813	762	711	914	813	762	965	914	864
	needle beam	584	559	508	660	584	559	711	660	610
17	str. & curbs	864	787	737	940	864	787	1016	940	889
	needle beam	610	559	533	660	610	559	737	660	635
18	str. & curbs	889	813	762	991	889	813	1067	991	940
	needle beam	610	559	533	686	610	559	762	686	635
19	str. & curbs	914	838	787	1041	914	838	1118	1041	965
	needle beam	635	584	533	711	635	584	762	711	660
20	str. & curbs	965	864	813	1067	965	864	1143	1067	1016
	needle beam	635	584	559	737	635	584	787	737	686
21	str. & curbs	991	914	838	1118	991	914	1194	1118	1041
	needle beam	660	584	559	737	660	584	813	737	686
22	str. & curbs	1016	940	864	1143	1016	940		1143	1067
	needle beam	660	610	559	762	660	610		762	711
23	str. & curbs	1041	965	889	1194	1041	965		1194	1118
	needle beam	686	610	559	787	686	610		787	711
24	str. & curbs	1092	991	914	1219	1092	991		1219	1143
	needle beam	686	610	584	787	686	610		787	737
25	str. & curbs	1118	1016	940		1118	1016			1168
	needle beam	711	635	584		711	635			737

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life

Number of Stringers = 7 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str.& curbs	356	330	305	381	356	330	406	381	356
	needle beam	483	457	432	533	483	457	584	533	508
4	str.& curbs	406	381	356	457	406	381	483	457	432
	needle beam	533	483	457	584	533	483	610	584	559
5	str.& curbs	457	432	406	508	457	432	533	508	483
	needle beam	533	508	483	610	533	508	635	610	559
6	str.& curbs	483	457	432	533	483	457	584	533	508
	needle beam	559	508	483	610	559	508	635	610	584
7	str.& curbs	533	483	457	584	533	483	610	584	559
	needle beam	559	533	483	610	559	533	660	610	584
8	str.& curbs	559	508	483	610	559	508	660	610	584
	needle beam	559	533	508	635	559	533	660	635	584
9	str.& curbs	584	559	508	660	584	559	686	660	610
	needle beam	584	533	508	635	584	533	660	635	610
10	str.& curbs	610	584	533	686	610	584	737	686	660
	needle beam	584	533	508	635	584	533	686	635	610
11	str.& curbs	660	610	559	711	660	610	762	711	686
	needle beam	584	533	508	635	584	533	686	635	610
12	str.& curbs	686	635	584	762	686	635	813	762	711
	needle beam	584	559	508	660	584	559	711	660	610
13	str.& curbs	711	660	610	787	711	660	838	787	737
	needle beam	584	559	533	660	584	559	711	660	635
14	str.& curbs	737	686	635	813	737	686	889	813	762
	needle beam	610	559	533	686	610	559	737	686	635
15	str.& curbs	762	711	660	838	762	711	914	838	813
	needle beam	610	559	533	686	610	559	737	686	635
16	str.& curbs	787	737	686	889	787	737	940	889	838
	needle beam	610	559	533	711	610	559	762	711	660
17	str.& curbs	838	762	711	914	838	762	991	914	864
	needle beam	635	584	533	711	635	584	787	711	686
18	str.& curbs	864	787	737	965	864	787		965	914
	needle beam	660	584	559	737	660	584		737	686
19	str.& curbs	889	813	762	991	889	813		991	940
	needle beam	660	610	559	762	660	610		762	711
20	str.& curbs	914	838	787		914	838			965
	needle beam	686	610	584		686	610			737
21	str.& curbs	965	889	813		965	889			1016
	needle beam	711	635	584		711	635			737
22	str.& curbs	991	914	838		991	914			
	needle beam	711	660	584		711	660			
23	str.& curbs	1016	940	864		1016	940			
	needle beam	737	660	610		737	660			
24	str.& curbs		965	889			965			
	needle beam		660	610			660			
25	str.& curbs		991	914			991			
	needle beam		686	635			686			

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 8 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	330	305	305	356	330	305	381	356	356
	needle beam	508	483	457	559	508	483	584	559	533
4	str. & curbs	381	356	356	432	381	356	457	432	406
	needle beam	533	508	483	584	533	508	635	584	559
5	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	559	533	483	610	559	533	660	610	584
6	str. & curbs	483	432	406	533	483	432	559	533	508
	needle beam	584	533	508	635	584	533	660	635	610
7	str. & curbs	508	483	457	559	508	483	610	559	533
	needle beam	584	533	508	635	584	533	686	635	610
8	str. & curbs	533	508	483	610	533	508	635	610	559
	needle beam	584	559	508	635	584	559	686	635	610
9	str. & curbs	559	533	508	635	559	533	660	635	610
	needle beam	584	559	508	660	584	559	686	660	610
10	str. & curbs	610	559	533	660	610	559	711	660	635
	needle beam	610	559	533	660	610	559	711	660	635
11	str. & curbs	635	584	559	686	635	584	737	686	660
	needle beam	610	559	533	660	610	559	711	660	635
12	str. & curbs	660	610	559	737	660	610	787	737	686
	needle beam	610	559	533	686	610	559	737	686	635
13	str. & curbs	686	635	584	762	686	635	813	762	711
	needle beam	610	584	533	711	610	584	762	711	660
14	str. & curbs	711	660	610	787	711	660	838	787	737
	needle beam	635	584	533	711	635	584	762	711	660
15	str. & curbs	737	686	635	813	737	686		813	787
	needle beam	635	584	559	711	635	584		711	686
16	str. & curbs	762	711	660	864	762	711		864	813
	needle beam	660	584	559	737	660	584		737	686
17	str. & curbs	787	737	686		787	737			838
	needle beam	660	610	559		660	610			711
18	str. & curbs	838	762	711		838	762			
	needle beam	686	635	584		686	635			
19	str. & curbs	864	787	737		864	787			
	needle beam	711	635	584		711	635			
20	str. & curbs		813	762			813			
	needle beam		660	610			660			
21	str. & curbs		838	787			838			
	needle beam		660	610			660			
22	str. & curbs			813						
	needle beam			635						
23	str. & curbs			838						
	needle beam			635						
24	str. & curbs			864						
	needle beam			660						
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 9 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str.& curbs	330	305	279	356	330	305	381	356	330
	needle beam	508	483	457	559	508	483	610	559	533
4	str.& curbs	381	356	330	406	381	356	432	406	406
	needle beam	559	508	483	610	559	508	635	610	584
5	str.& curbs	432	406	381	457	432	406	508	457	432
	needle beam	559	533	508	635	559	533	660	635	584
6	str.& curbs	457	432	406	508	457	432	533	508	483
	needle beam	584	533	508	635	584	533	686	635	610
7	str.& curbs	508	457	432	559	508	457	584	559	508
	needle beam	584	559	508	660	584	559	686	660	610
8	str.& curbs	533	483	457	584	533	483	610	584	559
	needle beam	610	559	533	660	610	559	686	660	635
9	str.& curbs	559	508	483	610	559	508	660	610	584
	needle beam	610	559	533	660	610	559	711	660	635
10	str.& curbs	584	533	508	635	584	533	686	635	610
	needle beam	610	559	533	686	610	559	737	686	635
11	str.& curbs	610	559	533	686	610	559	737	686	635
	needle beam	610	584	533	711	610	584	762	711	660
12	str.& curbs	635	584	559	711	635	584	762	711	660
	needle beam	635	584	533	711	635	584	787	711	660
13	str.& curbs	660	610	584	737	660	610		737	711
	needle beam	635	584	559	737	635	584		737	686
14	str.& curbs	686	635	610	762	686	635		762	737
	needle beam	660	584	559	737	660	584		737	711
15	str.& curbs	711	660	610		711	660			762
	needle beam	660	610	559		660	610			711
16	str.& curbs	737	686	635		737	686			
	needle beam	686	610	559		686	610			
17	str.& curbs		711	660			711			
	needle beam		635	584			635			
18	str.& curbs		737	686			737			
	needle beam		660	610			660			
19	str.& curbs		762	711			762			
	needle beam		660	610			660			
20	str.& curbs			737						
	needle beam			635						
21	str.& curbs			762						
	needle beam			635						
	str.& curbs									
	needle beam									
	str.& curbs									
	needle beam									
	str.& curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist

Number of Stringers = 10 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	330	305	279	356	330	305	381	356	330
	needle beam	533	483	457	584	533	483	610	584	559
4	str. & curbs	381	356	330	406	381	356	432	406	381
	needle beam	559	508	483	610	559	508	660	610	584
5	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	584	533	508	635	584	533	660	635	610
6	str. & curbs	457	432	406	508	457	432	533	508	483
	needle beam	584	559	508	635	584	559	686	635	610
7	str. & curbs	483	457	432	533	483	457	559	533	508
	needle beam	584	559	533	660	584	559	711	660	635
8	str. & curbs	508	483	457	559	508	483	610	559	533
	needle beam	610	559	533	660	610	559	737	660	635
9	str. & curbs	533	508	483	610	533	508	635	610	559
	needle beam	610	559	533	686	610	559	762	686	635
10	str. & curbs	559	533	508	635	559	533		635	610
	needle beam	635	559	533	711	635	559		711	660
11	str. & curbs	610	559	508	660	610	559		660	635
	needle beam	660	584	533	737	660	584		737	686
12	str. & curbs	635	584	533		635	584			660
	needle beam	660	610	559		660	610			711
13	str. & curbs	660	610	559		660	610			
	needle beam	686	610	559		686	610			
14	str. & curbs		635	584			635			
	needle beam		635	584			635			
15	str. & curbs		635	610			635			
	needle beam		635	584			635			
16	str. & curbs		660	635			660			
	needle beam		635	584			635			
17	str. & curbs			660						
	needle beam			610						
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life

Number of Stringers = 11 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	305	279	279	356	305	279	356	356	330
	needle beam	508	483	457	559	508	483	610	559	533
4	str. & curbs	356	330	330	406	356	330	432	406	381
	needle beam	559	508	483	610	559	508	635	610	584
5	str. & curbs	406	381	356	457	406	381	483	457	432
	needle beam	559	533	508	635	559	533	686	635	584
6	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	584	533	508	660	584	533	711	660	610
7	str. & curbs	483	432	406	533	483	432	559	533	508
	needle beam	610	559	508	686	610	559	737	686	635
8	str. & curbs	508	457	432	559	508	457	584	559	533
	needle beam	610	559	533	711	610	559	762	711	660
9	str. & curbs	533	483	457	584	533	483		584	559
	needle beam	635	559	533	711	635	559		711	660
10	str. & curbs	559	508	483	610	559	508		610	584
	needle beam	660	584	533	737	660	584		737	686
11	str. & curbs	584	533	508		584	533			610
	needle beam	660	610	559		660	610			711
12	str. & curbs	610	559	533		610	559			
	needle beam	686	610	584		686	610			
13	str. & curbs		584	559			584			
	needle beam		635	584			635			
14	str. & curbs		610	584			610			
	needle beam		635	610			635			
15	str. & curbs			584						
	needle beam			610						
16	str. & curbs			610						
	needle beam			610						
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist.

Number of Stringers = 12 + 2 curb logs

SPAN (m)		STRINGER & CURB AND NEEDLE BEAM MIDDIAMETER (mm)*								
		Douglas Fir Western Larch			Hemlock**, Spruce, Pine, Balsam**			Cedar		
		USE			USE			USE		
		Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads	Life- time of Timber	One to Two Years	Rare Over- Loads
3	str. & curbs	305	279	279	330	305	279	356	330	330
	needle beam	508	483	457	559	508	483	584	559	533
4	str. & curbs	356	330	305	406	356	330	432	406	381
	needle beam	533	508	483	610	533	508	660	610	559
5	str. & curbs	406	381	356	432	406	381	483	432	432
	needle beam	559	508	483	635	559	508	711	635	610
6	str. & curbs	432	406	381	483	432	406	508	483	457
	needle beam	584	533	508	686	584	533	737	686	635
7	str. & curbs	483	432	406	508	483	432		508	483
	needle beam	635	559	508	711	635	559		711	660
8	str. & curbs	508	457	432		508	457			533
	needle beam	635	584	533		635	584			686
9	str. & curbs	533	483	457		533	483			
	needle beam	660	584	559		660	584			
10	str. & curbs		508	483			508			
	needle beam		610	559			610			
11	str. & curbs		533	508			533			
	needle beam		635	584			635			
12	str. & curbs			533						
	needle beam			584						
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									
	str. & curbs									
	needle beam									

* See Assumption 7 on page 2 regarding stringer quality

** Hemlock and Balsam are usually considered to have a low resistance to decay; because of this it is suggested that they be used only for bridges with a short life and where no alternatives exist