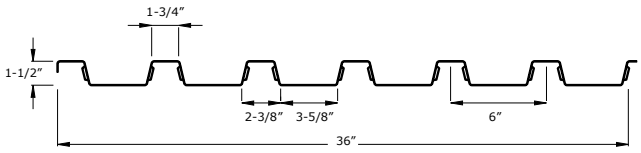
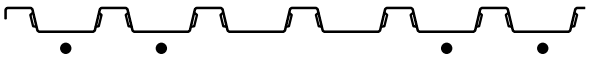
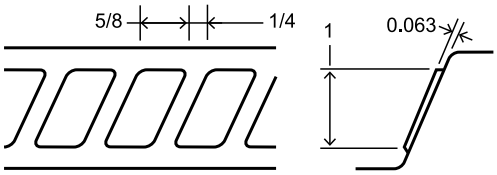
4.5 **BHN-36R**



BHN-36R Profile



36/4 Attachment Pattern



B Series Embossment

Panel Properties

Gage	Weight	Base Metal Thickness	Yield Strength	Tensile Strength	Gross Section Properties				
					Area	Moment of Inertia	Distance to N.A. from Bottom	Section Modulus	Radius of Gyration
	w	t	F_y	F_u	A_g	I_g	y_b	S_g	r
	psf	in	ksi	ksi	in^2/ft	in^4/ft	in	in^3/ft	in
22	1.75	0.0299	50	65	0.497	0.200	0.60	0.329	0.630
20	2.09	0.0359	50	65	0.595	0.233	0.60	0.392	0.628
18	2.76	0.0478	50	65	0.788	0.307	0.60	0.511	0.624
16	3.43	0.0598	50	65	0.981	0.377	0.60	0.626	0.620

Gage	Effective Section Modulus at F_y					Effective Moment of Inertia for Deflection			
	Compression	Bending						Uniform Load Only	
	Area	Section Modulus	Distance to N.A. from Bottom	Section Modulus	Distance to N.A. from Bottom	Moment of Inertia	Moment of Inertia	$I_d = (2I_e+I_g)/3$	
	A_e	S_e+	y_b	S_e-	y_b	I_e+	I_e-	I+	I-
	in^2/ft	in^3/ft	in	in^3/ft	in	in^4/ft	in^4/ft	in^4/ft	in^4/ft
22	0.162	0.180	0.56	0.175	0.80	0.193	0.153	0.196	0.169
20	0.215	0.228	0.58	0.224	0.77	0.233	0.197	0.233	0.209
18	0.325	0.319	0.60	0.304	0.71	0.307	0.283	0.307	0.291
16	0.298	0.393	0.60	0.382	0.66	0.377	0.373	0.377	0.374

Reactions at Supports (plf) Based on Web Crippling

Gage	Condition	Bearing Length of Webs							
		Allowable (R_n/Ω)				Factored (ΦR_n)			
		1"	1.5"	2"	3"	1"	1.5"	2"	3"
22	End	772	874	960	1105	1180	1337	1469	1691
	Interior	1229	1366	1482	1675	1828	2032	2204	2492
20	End	1081	1220	1336	1532	1655	1866	2045	2344
	Interior	1737	1922	2078	2339	2584	2859	3091	3479
18	End	1834	2053	2239	2550	2805	3142	3425	3901
	Interior	2984	3277	3525	3940	4439	4875	5243	5860
16	End	2771	3086	3351	3796	4240	4721	5127	5809
	Interior	4555	4975	5329	5923	6776	7401	7927	8810

Web Crippling Constraints h=1.32" r=0.125" θ=78.3°

BHN-36R Composite Deck 4.6

5" Total Slab Depth

Light Weight Concrete (110 pcf)

Concrete Volume 1.38yd³/100ft²

1 Hour Fire Rating

Maximum Unshored Span (in)

Gage	Single	Double	Triple
22	5' - 8"	6' - 3"	6' - 8"
20	6' - 7"	7' - 4"	7' - 9"

Gage	Single	Double	Triple
18	7' - 8"	8' - 8"	9' - 0"
16	8' - 2"	9' - 9"	10' - 1"

GA	Vertical Load Span (in)	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"
22	**ASD & LRFD - Superimposed Load, W (psf)**															
	ASD, W/Ω	1290	1059	883	746	638	550	478	419	369	327	291	260	233	210	189
	LRFD, ϕW	1745	1430	1191	1005	857	738	641	560	492	435	386	344	307	275	247
	L/360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LRFD - Diaphragm Shear, ϕS_n (plf / ft) 36/4 Attachment Pattern															
	Arc Spot Weld ½" Effective Dia	4225	4150	4088	4125	4073	4028	3989	3955	3924	3958	3930	3905	3882	3862	3842
	PAF Base Steel ≥ .25"	3943	3894	3853	3907	3872	3840	3813	3789	3768	3809	3789	3771	3754	3739	3725
	PAF Base Steel ≥ 0.125"	3921	3874	3835	3891	3856	3826	3799	3776	3755	3798	3778	3760	3744	3729	3716
	#12 Screw Base Steel ≥ .0385"	3901	3855	3818	3875	3841	3812	3787	3764	3744	3787	3768	3751	3735	3721	3707
	Concrete + Deck = 55.9 psf					I_{cr} = 54.5 in⁴/ft				M_{no}/Ω= 44.4 kip-in/ft				V_n/Ω = 5.11 kip/ft		
	$(I_{cr}+I_u)/2$ = 94.27 in⁴/ft					I_u = 134.1 in⁴/ft				ϕM_{no}= 67.9 kip-in/ft				ϕV_n = 7.67 kip/ft		

GA	Vertical Load Span (in)	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"
20	**ASD & LRFD - Superimposed Load, W (psf)**															
	ASD, W/Ω	1525	1253	1046	885	757	654	570	500	441	392	350	313	282	254	230
	LRFD, ϕW	2064	1694	1412	1194	1020	880	765	670	590	523	465	416	373	335	302
	L/360	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	LRFD - Diaphragm Shear, ϕS_n (plf / ft) 36/4 Attachment Pattern															
	Arc Spot Weld ½" Effective Dia	4340	4254	4183	4212	4154	4103	4059	4020	3986	4016	3985	3957	3932	3908	3887
	PAF Base Steel ≥ .25"	3996	3942	3896	3947	3908	3874	3844	3818	3795	3835	3813	3793	3775	3759	3744
	PAF Base Steel ≥ 0.125"	3970	3918	3875	3927	3889	3857	3828	3803	3780	3821	3800	3781	3763	3747	3733
	#12 Screw Base Steel ≥ .0385"	3948	3898	3856	3910	3874	3842	3814	3790	3768	3809	3789	3770	3753	3738	3724
	Concrete + Deck = 56.3 psf					I_{cr} = 62.2 in⁴/ft				M_{no}/Ω= 52.2 kip-in/ft				V_n/Ω = 5.11 kip/ft		
	$(I_{cr}+I_u)/2$ = 99.78 in⁴/ft					I_u = 137.4 in⁴/ft				ϕM_{no}= 79.9 kip-in/ft				ϕV_n = 7.67 kip/ft		

GA	Vertical Load Span (in)	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"
18	**ASD & LRFD - Superimposed Load, W (psf)**															
	ASD, W/Ω	1972	1622	1356	1149	985	853	744	654	579	515	461	414	374	338	297
	LRFD, ϕW	2672	2196	1835	1553	1330	1150	1002	880	777	691	617	553	498	450	407
	L/360	-	-	-	-	-	-	-	-	-	-	-	-	-	338	297
	LRFD - Diaphragm Shear, ϕS_n (plf / ft) 36/4 Attachment Pattern															
	Arc Spot Weld ½" Effective Dia	4571	4464	4374	4387	4316	4254	4199	4152	4109	4132	4095	4061	4030	4002	3977
	PAF Base Steel ≥ .25"	4100	4035	3981	4024	3979	3939	3905	3874	3847	3884	3859	3836	3816	3797	3780
	PAF Base Steel ≥ 0.125"	4065	4004	3952	3998	3954	3916	3883	3854	3828	3866	3842	3820	3800	3782	3766
	#12 Screw Base Steel ≥ .0385"	4041	3982	3932	3979	3937	3900	3868	3840	3815	3853	3830	3809	3789	3772	3756
	Concrete + Deck = 56.9 psf					I_{cr} = 76.0 in⁴/ft				M_{no}/Ω= 67.2 kip-in/ft				V_n/Ω = 5.11 kip/ft		
	$(I_{cr}+I_u)/2$ = 109.84 in⁴/ft					I_u = 143.7 in⁴/ft				ϕM_{no}= 102.8 kip-in/ft				ϕV_n = 7.67 kip/ft		

GA	Vertical Load Span (in)	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"
16	**ASD & LRFD - Superimposed Load, W (psf)**															
	ASD, W/Ω	2045	1859	1652	1401	1202	1042	910	802	710	633	556	480	418	366	322
	LRFD, ϕW	3067	2675	2237	1896	1625	1407	1228	1080	956	851	761	684	617	559	507
	L/360	-	-	-	-	-	-	-	-	-	-	556	480	418	366	322
	LRFD - Diaphragm Shear, ϕS_n (plf / ft) 36/4 Attachment Pattern															
	Arc Spot Weld ½" Effective Dia	4809	4678	4569	4567	4482	4408	4343	4286	4236	4251	4207	4168	4132	4099	4069
	PAF Base Steel ≥ .25"	4201	4126	4063	4100	4048	4003	3964	3929	3898	3932	3904	3879	3856	3835	3816
	PAF Base Steel ≥ 0.125"	4135	4066	4008	4049	4001	3959	3922	3890	3861	3897	3871	3847	3826	3806	3788
	#12 Screw Base Steel ≥ .0385"	4148	4078	4021	4061	4013	3971	3935	3902	3874	3909	3883	3859	3838	3818	3800
	Concrete + Deck = 57.6 psf					I_{cr} = 88.1 in⁴/ft				M_{no}/Ω= 81.4 kip-in/ft				V_n/Ω = 5.11 kip/ft		
	$(I_{cr}+I_u)/2$ = 118.90 in⁴/ft					I_u = 149.7 in⁴/ft				ϕM_{no}= 124.5 kip-in/ft				ϕV_n = 7.67 kip/ft		

All Gages	**LRFD - Diaphragm Shear, ϕS_n (plf / ft) for all vertical load spans, WWF Designation or Area of Steel per foot width**										
	¾" Welded Shear Studs	6x6 W1.4xW1.4		6x6 W2.9xW2.9		6x6 W4.0xW4.0		4x4 W4xW4		4x4 W6xW6	
		A_s = 0.028	in²/ft	A_s = 0.058	in²/ft	A_s = 0.080	in²/ft	A_s = 0.120	in²/ft	A_s = 0.180	in²/ft
	6 in o.c.	n/a		6010		7000		8800		11500	
	12 in o.c.	n/a		6010		7000		8800		11500	
	18 in o.c.	n/a		6010		7000		8790		8790	