

Hughes Engineering

Consulting Engineers

107 N. Front Street
Clearfield, PA 16830
V (814) 765-8691
F (814) 765-8692

August 20, 2009

Parker Block
30243 Millsboro Highway
Millsboro, DE 19966

Gentlemen:

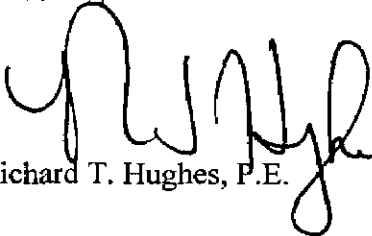
This letter is to certify that the lintels as shown in the 4 x 8 and 6 x 8 load tables manufactured by Parker Block comply with the latest steel standards as specified by ASTM 615 for 60,000 psi reinforcement. The masonry mix has been tested in accordance with ASTM C109 and has a compressive strength in excess of 3,000 psi.

Furthermore, the methods of design and the calculated capacities of the lintels as shown in the load tables used the ACI 318-05 section 9.1 Ultimate Design method, the building code requirements for masonry ACI 530/ASCE 5-88 and conform to the latest NCMA TEK-17.2-2002 specifications. The loads developed for use in the design of the lintel is also in compliance with the UBC Code. In all lengths of lintels, bond, flexure and shear values were calculated and studied to ensure the proper governing load values are shown in the tables. In all instances of lintels (up to 12 ft in length) as a minimum the members carry the apex area of hollow masonry block above the span unless otherwise noted. A 1.4 dead load factor was used in the design of the members for both self-weight and allowable loads as expressed in the tables.

Parker Block Company lintels also carry a 1-½ hour UL fire rating when the lintels are restrained. I would like to certify the structural integrity of this product as long as it is used within the standard industry application.

Please do not hesitate to call if you have any questions or require additional information.

Sincerely,



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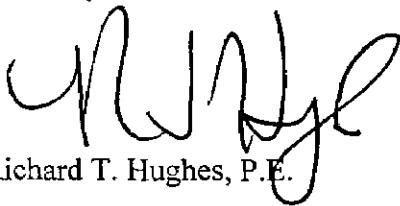
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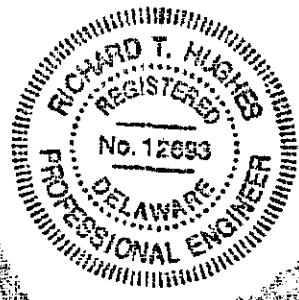
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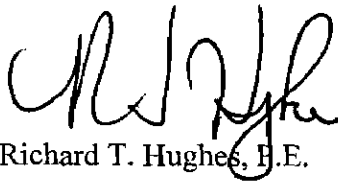
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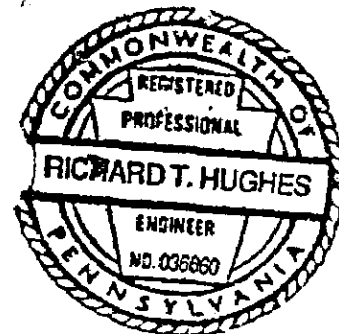
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4 X 8 LINTELS 3,000 psi (Dry mix)

For further technical information about shear strengths, deflections and other issues, please call our office at 302-934-9237

Design Data

$f'_c = 3,000$ psi (minimum)
 $f_y = 60,000$ psi (per ASTM-A615)
 Average weight per linear foot of beam - 28 lbs.

Design formulas as per ACI 318-95

$M_u =$ Moment governed by ultimate strength = $0.9 (A_s) (f_y) (d-a/2)$
 $V_u =$ Shear governed by ultimate strength $\leq 1/2 \phi (2\lambda' f_y A_s d)$
 $M_n = 1/8 W_u (L_e)^2$
 $V_n = 1/2 W_u L_e$
 $\Delta_{max} =$ Maximum allowable deflection = $L_e/360 \leq 0.3"$
 UL Fire Ratings 1 1/2 hour

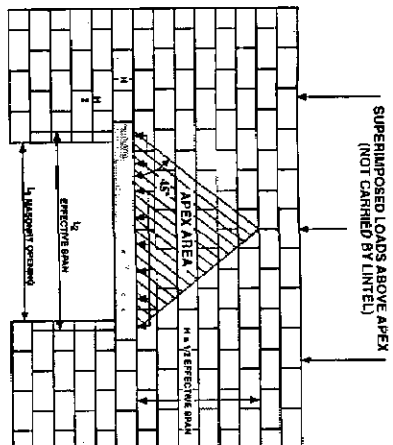
Typical Section:

Width (W) = 3.625 inches
 Height (H) = 7.625 inches
 Eff. Depth (d) = H - 1 1/2" 1/2 bar dia.

As a minimum, the lintels carry the apex area above the span. An example of the uniform equivalent apex load calculation follows:
 Hollow masonry block weights for determining uniform equivalent apex load on lintel:
 8" block weight - 35 psf (Hollow)
 12" block weight - 50 psf (Hollow)

Equivalent load of apex area - .33 WL
 Effective span "L" of lintel (centerline of bearing to centerline of bearing).
 Weight of masonry block - "W" PSF

EXAMPLE
 Equivalent apex load for 4" X 8" Lintel with effective span of 48"
 Apex Load = $(.33) (W) (L) = .33 (35 \text{ psf}/2) (48") (12) = 23\#/\text{FT}$
 Capacity of 4 X 8 lintel with effective span of 48"
 (from load table for live loads) = 852 #/FT
 Therefore, the lintel has significant excess capacity. If superimposed load is located within apex area, then refer to the load tables to ensure sufficient capacity.



1. Reinforcement rods (A _s)	Top		Bottom		Not required																							
	Bottom	Top	Bottom	Top	1#3	2#3	3#3	4#3	5#3	6#3	7#3	8#3	9#3	10#3	11#3	12#3	13#3	14#3	15#3	16#3	17#3	18#3	19#3	20#3				
2. Nominal lintel length (inches)	32	36	40	42	44	48	54	56	60	64	66	72	78	80	84	88	90	96	102	104	108	112	114	120	128	132	136	144
3. Masonry opening L _e (inches)	16	20	24	26	28	32	38	40	44	48	50	56	62	64	68	72	74	80	86	88	92	96	98	104	112	116	120	128
4. Effective span L _e (inches)	24	28	32	34	36	40	46	48	52	56	58	64	70	72	76	80	82	88	94	96	100	104	106	112	120	124	128	136
5. Maximum allowable load Balanced condition (lbs.-ft.)	5797	4271	3701	3253	2957	2091	1605	1449	1236	1063	1006	816	1166	1088	980	881	847	729	644	613	565	521	507	450	392	368	345	306
Dead Load (lbs.-ft.)	4141	3051	2644	2324	2112	1494	1147	1035	883	759	719	583	832	777	700	629	605	521	460	438	404	372	362	321	280	263	246	219
Live Load (lbs.-ft.)	3410	2512	2177	1914	1739	1230	945	852	727	625	592	480	685	640	576	518	498	429	379	361	332	306	298	265	231	216	203	180
6. Maximum Bending moment Capacity, W _u (lbs.-ft.)	2993	2996	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898	2898

**Maximum allowable superimposed W_u, uniformly distributed load covered by bearing (lbs.-ft.) balanced condition

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