



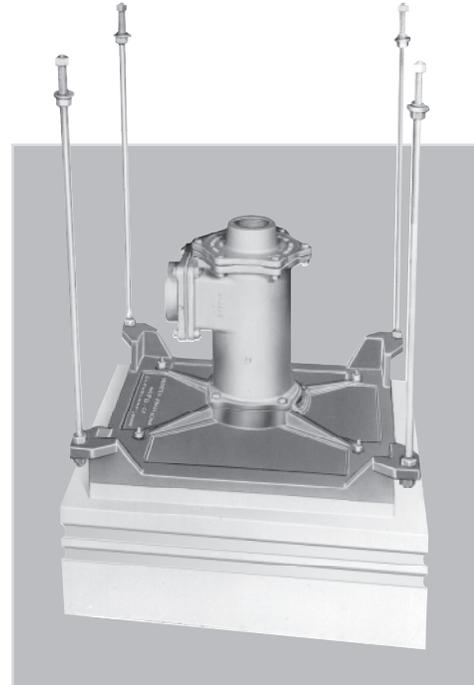
4836 Flat Flame Roof Section burners are sealed-in nozzle-mix burners that produce disc-shaped flame with no forward velocity. Spinning gases exit the burner parallel to the tile face and adjacent refractory, scrubbing and heating them to incandescence. These surfaces then become sources of intense, uniform radiant heat.

Flat Flame Roof Sections can be installed close to workloads without risking overheating or hot spots due to flame impingement: The 4836 Burner heats the refractory surrounding it uniformly (per centerline spacing in Table 3). This arrangement often allows significant savings in furnace construction: less volume; a flat, suspended roof; no complex refractory baffling to prevent flame impingement.

**Operating Characteristics.** Nozzle-mixing 4836 Burners cannot flashback, so turndown is limited only by the accuracy of the control system. Effective turndown can be extended by use of excess air at low fire--see Table 2. Gas pressure required for stoichiometric operation at 12 osi air pressure is 0.1"wc for 4836-2 through -6, 4.0"wc for 4836-7, 1.2"wc for 4836-8-A, and 1.4"wc for 4836-8-B. 4836-8-A and -8-B are not stable on stoichiometric ratio in a cold tight furnace (<1400 F furnace temperature).

**Pilots, Flame Supervision.** Interrupted pilot operation is mandatory when burners are monitored by flame detectors. 4836 Burners accept UV type flame detectors using an 883\_-B Adapter.

To monitor pilots, flame detectors must be downstream of pilots relative to direction of flame spin (clockwise as viewed from rear of burner as shipped).



**Construction.** 4836 Burners have cast iron bodies and heat resistant iron mountings. All internals that see flame are stainless steel. Tiles are suitable for 3000 F tile temperature. Four hanger rods are furnished with each burner.

**Burner Placement.** Table 3 (on other side) lists suggested burner spacing--these figures are general guidelines only. Burner placement also is a function of furnace volume, input required per unit volume, and other factors. Consult a North American combustion engineer for help in locating burners on a furnace.

**Table 1. COMBUSTION AIR CAPACITIES, scfh**  
(for burner capacities in Btu/hr, multiply by 100)

Burner designation	air pressure across the burner in osi			
	1	8	12	16
4836-2	585	1 650	2 010	2 340
4836-3	885	2 500	3 050	3 540
4836-4	1 450	4 100	5 999	5 800
4836-5	2 370	6 700	8 150	9 500
4836-6	3 710	10 500	12 900	14 800
4836-7	6 550	18 500	22 700	26 200
4836-8-A	11 000	31 100	38 100	44 000
4836-8-B	16 500	46 700	57 000	66 000

**Table 2. MAXIMUM %EXCESS AIR without pilot**

Burner designation	air pressure across the burner in osi			
	4	8	12	16
4836-2	400	300	250	150
4836-3	290	190	150	100
4836-4	250	220	150	140
4836-5	250	250	250	300
4836-6	500	500	500	500
4836-7	500	500	300	280
4836-8-A	180	130	110	80
4836-8-B	120	75	55	35

## DIMENSIONS

inches

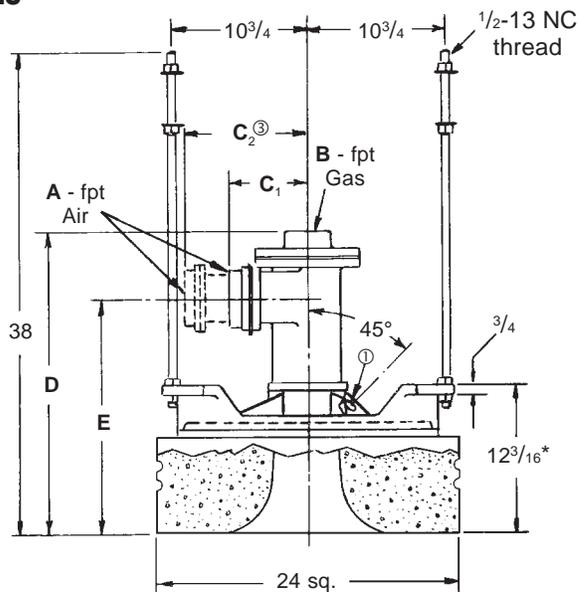


Table 3. SUGGESTED BURNER SPACING

Burner designation	Tile-to-load min.	℄ to ℄ min.	℄ to ℄ max.
4836-2	9	13 1/2	30
4836-3	9	16	36
4836-4	9	18	48
4836-5	11	24	62
4836-6-A	12	27	77
4836-7-A	14	33	100
4836-8-A	15	35	120
4836-8-B	15	40	140

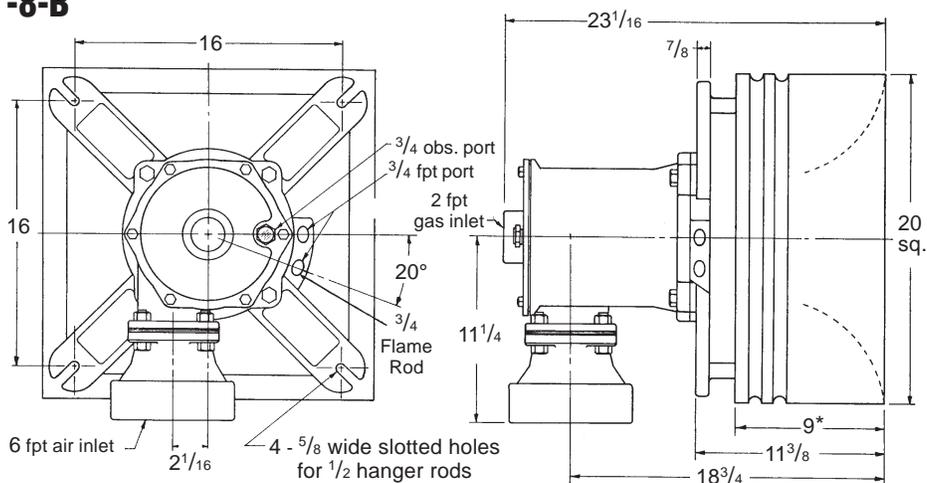
Burner designation	dimensions in inches									wt in lb 4836	recommended Pilot Tip	Flame Rod length <sup>②</sup>
	A	B	C <sub>1</sub> , C <sub>2</sub> <sup>③</sup>	D	E	F	G	H				
4836-2	1 1/4	1	9 1/16 <sup>③</sup>	21 1/4	16	13 3/4	7 1/8	19 3/4	630	4021-12	4"	
4836-3	1 1/2	1	9 1/16 <sup>③</sup>	21 1/4	16	13 3/4	7 1/8	20	630	4021-12	4"	
4836-4	2	1 1/4	5 7/16	21 1/4	16	14 7/8	7 1/8	17 5/8	610	4021-12	4"	
4836-5	2 1/2	1 1/2	9 13/16 <sup>③</sup>	23 7/8	18 1/2	15 5/8	8	24 1/4	660	4021-12	4"	
4836-6	3	2	6 1/16	23 7/8	18 1/2	17 5/8	8 3/8	20 5/8	630	4021-12	4"	
4836-7	4	2 1/2	6 1/16	23 7/8	18 1/2	20	9 1/8	21 1/8	630	4021-12	4"	

① 2 holes, 3/4" fpt, for pilot and flame detector or observation port, 15° on either side of centerline

② from outer boss of flame rod connection

③ dimension applies only to 4836 in -2, -3, and -5 sizes

## 4836-8-A and -8-B



\* Consult North American Mfg. Co. for 13" deep tile options.

Recommended Pilot Tip: 4021-12

Flame Rod length (from outer boss of flame rod connection)

4836-8-A: 7"

4836-8-B: 6 1/4"

DIMENSIONS SHOWN ARE SUBJECT TO CHANGE. PLEASE OBTAIN CERTIFIED PRINTS FROM NORTH AMERICAN MFG. CO. IF SPACE LIMITATIONS OR OTHER CONSIDERATIONS MAKE EXACT DIMENSION(S) CRITICAL.

**WARNING:** Situations dangerous to personnel and property can develop from incorrect operation of combustion equipment. North American urges compliance with National Safety Standards and Insurance Underwriters recommendations, and care in operation.

North American Mfg. Co., 4455 East 71st Street, Cleveland, OH 44105-5600 USA, Phone 216-271-6000, Facsimile 216-641-7852  
E-mail sales@namfg.com • www.namfg.com