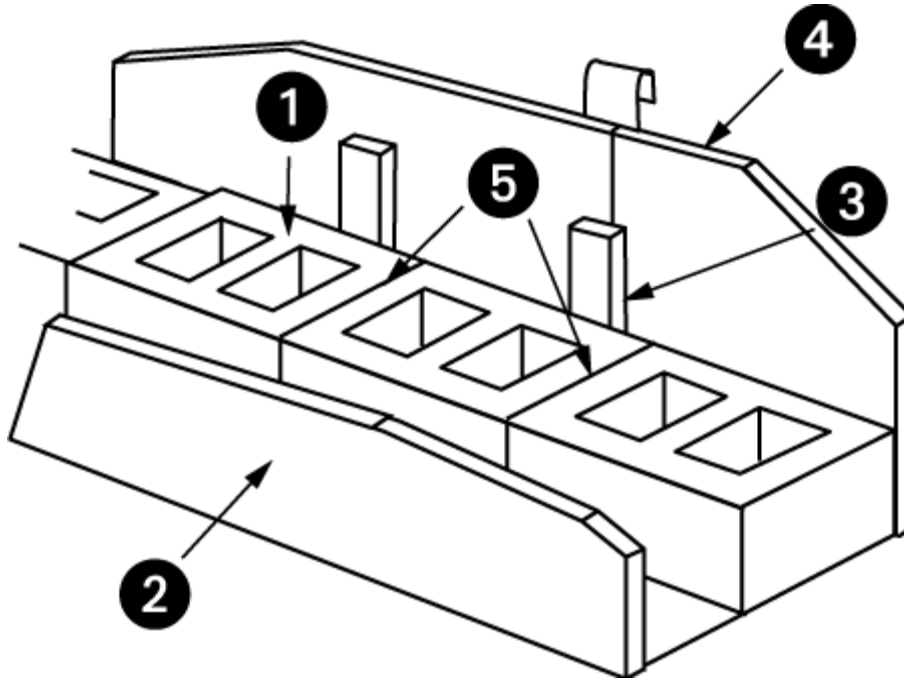


## 4-Hour Fire Rating

12" C.M.U.

Fire Rating: 4 Hour

No. 12-4-910110SD



### Assembly Information

1. Preferred product 910110 c.m.u. 12" x 8" x 16" nominal
2. Portland cement stucco - 5/8" thick applied directly to C.M.U.
3. Wood or steel furring members - 16" o.c. maximum.
4. Gypsum wallboard, 5/8" thick, long dimension parallel to furring members - all joints finished.
2. ASTM C-270 Masonry Mortar, Type M or S. Face shell or full mortar bedding as required.
3. Masonry grout, reinforcing steel, joint reinforcement, anchors, ties and accessories (Not depicted above - optional). Use where specified.

***Preferred Materials Inc. accepts no responsibility for proper application of the rated wall assembly above, or responsibility for the construction of such assemblies.***

**Fire Rating: 4 Hour      No. 12-4-910110SD**

## **Concrete Masonry Unit**

**Section 3.1 of ACI 216.1**

<b>Unit Description</b>	<b>Size WxHxL Nominal</b>	<b>Equivalent Thickness Inches</b>	<b>Fire Rating Minutes</b>
<b>910110</b>	<b>12x8x16</b>	<b>5.14</b>	<b>180*</b>

*\* Linear interpolation from Table 3.1 of ACI 216.1 for Exposed Finish Block Mix – 55% limestone & 45% siliceous aggregates.*

**Sections 3.2.2 and 3.2.3**

**Solid Grouted construction and/or cells filled with loose-fill materials**

<b>Included</b>	<b>Equivalent Thickness Inches</b>	<b>Fire Rating Minutes</b>
<b>No</b>	<b>5.14</b>	<b>180</b>
<b>Yes</b>	<b>N/A</b>	<b>N/A</b>

*\* Linear interpolation from Table 3.1 of ACI 216.1 for Exposed Finish Block Mix – 55% limestone & 45% siliceous aggregates.*

**Fire Rating: 4 Hour**

**No. 12-4-910110SD**

**Nonfire-exposed side**

**Side 1**

**Section 5.2.2 of ACI 216.1**

<b>Finish</b>	
5/8 inch thick Portland cement-sand Stucco	.625
Multiplying factor Table 5.1	1
Adjusted Thickness	.625
<b>Concrete Masonry Unit</b>	
Unit Description	910110
Size WxHxL Nominal	12x8x16
Equivalent Thickness	5.14
Fire Rating Minutes	180
Total Thickness, CMU + Finish	5.76
Fire Resistance Rating of CMU & Finish, Table 5.1	221.4*

*\* Linear interpolation from Table 3.1 of ACI 216.1 for Exposed Finish Block Mix – 55% limestone & 45% siliceous aggregates.*

Max. allowable assembly Fire Resistance Block + finishes	270
Fire-Resistance Rating of Block and Finish	221.4

**Side 2**

**Section 5.2.2 of ACI 216.1**

<b>Finish</b>	
5/8 inch thick Gypsum Wallboard	.625
Multiplying factor Table 5.1	3
Adjusted Thickness (inches)	1.875
<b>Concrete Masonry Unit</b>	
Unit Description	910110
Size WxHxL Nominal	12x8x16
Equivalent Thickness (inches)	5.14
Fire Rating Minutes	180
Total Thickness, CMU + Finish (inches)	7.01

<b>Fire Resistance Rating of CMU &amp; Finish, Table 5.1</b>	<b>240*</b>
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*\* Linear interpolation from Table 3.1 of ACI 216.1 for Exposed Finish Block Mix – 55% limestone & 45% siliceous aggregates.*

<b>Max. allowable assembly Fire Resistance Block + finishes</b>	<b>270 6.04</b>
<b>Fire-Resistance Rating of Block and Finish</b>	<b>240 6.04</b>

**Fire Rating: 4 Hour      No. 12-4-910110SD**

**Fire-exposed side**

**Side 1**

Section 5.2.3 of ACI 216.1

<b>Finish</b>	
5/8 inch thick Gypsum Wallboard	
Time assigned to finish materials Table 5.2	<b>20</b>
Fire Resistance of CMU and Nonfire-exposed side Finish Table 3.1	<b>221.4</b>
Assembly Fire-Resistance Rating	<b>241.4</b>
Max. allowable assembly Fire Resistance Block + finishes	<b>270</b>
Total Assembly Fire-Resistance Rating	<b>240</b>

**Side 2**

Section 5.2.3 of ACI 216.1

<b>Finish</b>	
5/8 inch thick Portland cement-sand Stucco	
Time assigned to finish materials Table 5.2	<b>0 .625</b>
Fire Resistance of CMU and Nonfire-exposed side Finish Table 3.1	<b>0 6.04</b>
Assembly Fire-Resistance Rating	<b>240 6.66</b>
Max. allowable assembly Fire Resistance Block + finishes	<b>270</b>
Total Assembly Fire-Resistance Rating	<b>240</b>

<b>Assembly Fire-Resistance Rating</b>	<b>240 Minutes</b>
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**Fire Resistance Rating, minutes per inches of equivalent thickness**  
**Linear Interpolation from Table 3.1 of ACI 216.1**  
**Exposed Finish Mix - 55% limestone + 45% siliceous aggregates**

et	min	et	min	et	min	et	min	et	min	et	min	et	min	et	min	et	min
2.75	60.0	3.16	76.6	3.57	94.0	3.98	114.5	4.39	137.1	4.80	160.5	5.21	184.7	5.62	212.0	6.03	239.4
2.76	60.4	3.17	77.0	3.58	94.5	3.99	115.0	4.40	137.7	4.81	161.1	5.22	185.3	5.63	212.7	6.04	240.0
2.77	60.8	3.18	77.4	3.59	95.0	4.00	115.5	4.41	138.3	4.82	161.7	5.23	186.0	5.64	213.3		
2.78	61.2	3.19	77.8	3.60	95.5	4.01	116.0	4.42	138.8	4.83	162.3	5.24	186.7	5.65	214.0		
2.79	61.6	3.20	78.2	3.61	96.0	4.02	116.5	4.43	139.4	4.84	162.8	5.25	187.3	5.66	214.7		
2.80	62.0	3.21	78.6	3.62	96.5	4.03	117.0	4.44	140.0	4.85	163.4	5.26	188.0	5.67	215.4		
2.81	62.4	3.22	79.0	3.63	97.0	4.04	117.5	4.45	140.6	4.86	164.0	5.27	188.7	5.68	216.0		
2.82	62.8	3.23	79.4	3.64	97.5	4.05	118.0	4.46	141.1	4.87	164.5	5.28	189.3	5.69	216.7		
2.83	63.2	3.24	79.8	3.65	98.0	4.06	118.5	4.47	141.7	4.88	165.1	5.29	190.0	5.70	217.4		
2.84	63.6	3.25	80.2	3.66	98.5	4.07	119.0	4.48	142.3	4.89	165.7	5.30	190.7	5.71	218.0		
2.85	64.0	3.26	80.7	3.67	99.0	4.08	119.5	4.49	142.8	4.90	166.3	5.31	191.3	5.72	218.7		
2.86	64.5	3.27	81.1	3.68	99.5	4.09	120.0	4.50	143.4	4.91	166.8	5.32	192.0	5.73	219.4		
2.87	64.9	3.28	81.5	3.69	100.0	4.10	120.6	4.51	144.0	4.92	167.4	5.33	192.7	5.74	220.0		
2.88	65.3	3.29	81.9	3.70	100.5	4.11	121.1	4.52	144.6	4.93	168.0	5.34	193.3	5.75	220.7		
2.89	65.7	3.30	82.3	3.71	101.0	4.12	121.7	4.53	145.1	4.94	168.5	5.35	194.0	5.76	221.4		
2.90	66.1	3.31	82.7	3.72	101.5	4.13	122.3	4.54	145.7	4.95	169.1	5.36	194.7	5.77	222.0		
2.91	66.5	3.32	83.1	3.73	102.0	4.14	122.9	4.55	146.3	4.96	169.7	5.37	195.3	5.78	222.7		
2.92	66.9	3.33	83.5	3.74	102.5	4.15	123.4	4.56	146.8	4.97	170.2	5.38	196.0	5.79	223.4		
2.93	67.3	3.34	83.9	3.75	103.0	4.16	124.0	4.57	147.4	4.98	170.8	5.39	196.7	5.80	224.0		
2.94	67.7	3.35	84.3	3.76	103.5	4.17	124.6	4.58	148.0	4.99	171.4	5.40	197.3	5.81	224.7		
2.95	68.1	3.36	84.7	3.77	104.0	4.18	125.1	4.59	148.5	5.00	172.0	5.41	198.0	5.82	225.4		
2.96	68.5	3.37	85.1	3.78	104.5	4.19	125.7	4.60	149.1	5.01	172.5	5.42	198.7	5.83	226.0		
2.97	68.9	3.38	85.5	3.79	105.0	4.20	126.3	4.61	149.7	5.02	173.1	5.43	199.3	5.84	226.7		
2.98	69.3	3.39	85.9	3.80	105.5	4.21	126.9	4.62	150.3	5.03	173.7	5.44	200.0	5.85	227.4		
2.99	69.7	3.40	86.3	3.81	106.0	4.22	127.4	4.63	150.8	5.04	174.2	5.45	200.7	5.86	228.0		
3.00	70.1	3.41	86.7	3.82	106.5	4.23	128.0	4.64	151.4	5.05	174.8	5.46	201.3	5.87	228.7		
3.01	70.5	3.42	87.1	3.83	107.0	4.24	128.6	4.65	152.0	5.06	175.4	5.47	202.0	5.88	229.4		
3.02	70.9	3.43	87.5	3.84	107.5	4.25	129.1	4.66	152.5	5.07	176.0	5.48	202.7	5.89	230.0		
3.03	71.3	3.44	87.9	3.85	108.0	4.26	129.7	4.67	153.1	5.08	176.5	5.49	203.3	5.90	230.7		
3.04	71.7	3.45	88.3	3.86	108.5	4.27	130.3	4.68	153.7	5.09	177.1	5.50	204.0	5.91	231.4		
3.05	72.1	3.46	88.8	3.87	109.0	4.28	130.8	4.69	154.3	5.10	177.7	5.51	204.7	5.92	232.0		
3.06	72.6	3.47	89.2	3.88	109.5	4.29	131.4	4.70	154.8	5.11	178.2	5.52	205.3	5.93	232.7		
3.07	73.0	3.48	89.6	3.89	110.0	4.30	132.0	4.71	155.4	5.12	178.8	5.53	206.0	5.94	233.4		
3.08	73.4	3.49	90.0	3.90	110.5	4.31	132.6	4.72	156.0	5.13	179.4	5.54	206.7	5.95	234.0		
3.09	73.8	3.50	90.5	3.91	111.0	4.32	133.1	4.73	156.5	5.14	180.0	5.55	207.3	5.96	234.7		
3.10	74.2	3.51	91.0	3.92	111.5	4.33	133.7	4.74	157.1	5.15	180.7	5.56	208.0	5.97	235.4		
3.11	74.6	3.52	91.5	3.93	112.0	4.34	134.3	4.75	157.7	5.16	181.3	5.57	208.7	5.98	236.0		
3.12	75.0	3.53	92.0	3.94	112.5	4.35	134.8	4.76	158.3	5.17	182.0	5.58	209.3	5.99	236.7		
3.13	75.4	3.54	92.5	3.95	113.0	4.36	135.4	4.77	158.8	5.18	182.7	5.59	210.0	6.00	237.4		
3.14	75.8	3.55	93.0	3.96	113.5	4.37	136.0	4.78	159.4	5.19	183.3	5.60	210.7	6.01	238.0		
3.15	76.2	3.56	93.5	3.97	114.0	4.38	136.6	4.79	160.0	5.20	184.0	5.61	211.3	6.02	238.7		