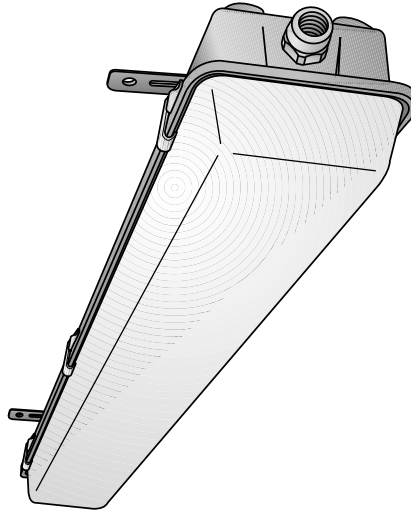


## NFR/NFD/NFZ Series

### Non-Metallic Fluorescent Lighting For Adverse and Hazardous Locations

#### Standard Design Features:

- Housing is smooth, seamless, one piece injection molded.
- \* Lens comes in high impact polycarbonate plastic or impact resistant acrylic.
- \* Fixtures are washable, non-conductive and corrosion-resistant.
- A compressible, one-piece, non-thixotropic polyol gasket is bonded to the housing around the entire perimeter. It forms a continuous tight seal with the lens to keep out dirt, vapor and moisture.
- Lens is securely clamped to fixture using six captive corrosion-proof molded celcon tension latches. Lens is impact resistant acrylic to protect lamps against breakage, and protect work area from broken lamp glass.
- Fixtures are available with one or two watertight 1/2" hubs for electrical feed mounting or single entry mounting.
- Electrical components are mounted on a metallic wireway. Reflector support by internal safety springs to simplify installation and servicing.
- Fixtures are available with ballasts to support T12 and T8 lamps in most voltage and frequency combinations.
- Low operating cost—substantially less than mercury vapor or incandescent lighting.
- NFZ Series fixtures use impact resistant polycarbonate lens that protects against internal fixture damage due to impact with surrounding equipment while protecting surrounding environment against any possible broken glass from lamps.
- Ballasts options for nearly all U.S. and foreign voltage and frequency combinations are available.
- Enclosure is rated IP65 (using polycarbonate lens, dust proof and protected against water spray).
- Either 1/2" NPT or cable gland entries are supported. (Cable glands not available with NFD fixtures. NFZ fixtures are not for use in Class I, Div. 2 areas when cable entry is used.
- A tight seal is ensured by the 6 celcon tension latches provided with the fixture.
- Optional fusing protects circuitry against occasional line voltage spikes.
- Heavy-duty polycarbonate lampholders.



#### Compliances:

UL Listed

#### Applicable Third Party Standards:

UL Standard: 1598  
 Suitable for wet locations  
 NFD Series: NEC Class I, Div. 2, Class I, Zone 2 IIC T5  
 IP65 (only when using polycarbonate lens  
 Catalog Number NFPLENS)  
 NFZ Series: IEC Zone 2; AEx nA IIC IP 65;  
 NEC Class I, Zone 2 IIC; Class I, Div. 2,  
 Groups A, B, C, D and T5.

#### Components:

**Housing** - Fiberglass reinforced polyester

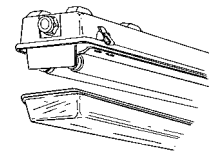
**Lens** - Polycarbonate or acrylic. (Fixture has IP65 rating with polycarbonate lens.)

**Latches** - Celcon

**Gasket** - Non-thixotropic Polyol

**Hubs** - Zinc-plated steel with neoprene o-ring

**Lampholders** - Polycarbonate



Non-thixotropic polyol gasket is bonded to housing. With plastic latches closed, it forms a continuous, tight seal with lens. Keeps out moisture, vapor and dirt — allows fast, easy fixture washing.

# NFR/NFD/NFZ Series

Non-Metallic Fluorescent Lighting For Adverse and Hazardous Locations

## CATALOG LOGIC

<b>NFR</b>	<b>N1</b>	<b>C</b>	<b>2</b>	<b>4</b>	<b>08</b>	<b>S</b>	<b>126</b>	<b>F</b>
1	2	3	4	5	6	7	8	9

Catalog Number Segment	Description
<b>1 – Series Designation</b>	<p>NFR = NFR Series Fixture for Ordinary Locations<sup>(3)</sup>            NFD = Class I, Div. 2, Groups A, B, C, D<sup>(1)(3)</sup>            NFZ = Zone 2, AEx nA</p>
<b>2 – Conduit/Cable Entry</b>	<p>N1 = ½" NPT Conduit, Single Entry            M1 = Cable Single Entry<sup>(2)(4)</sup>            N2 = ½" NPT Conduit Two Hubs Provided            M2 = Cable Feed Thru<sup>(4)</sup></p>
<b>3 – Mounting Configuration</b>	<p>C = Ceiling            P = Pendant</p>
<b>4 – Number of Lamps</b>	<p>2 = 2 Lamps</p>
<b>5 – Lamp Length</b>	<p>4 = 4 Feet</p>
<b>6 – Lamp Diameter</b>	<p>08 = T8            12 = T12</p>

Catalog Number Segment	Description
<b>7 – Ballast Type</b>	<p>S = Solid State</p>
<b>8 – Voltage</b>	<p>126 = 120V 60Hz            276 = 277V 60Hz            226 = 220V 60Hz            246 = 240V 60Hz            125 = 120V 50Hz            275 = 277V 50Hz            225 = 220V 50Hz            245 = 240V 50Hz</p>
<b>9 – Options</b>	<p>F = Fused            T = Terminal Blocks            P = Polycarbonate lens<sup>(3)</sup> for IP 65 rating            (Polycarbonate lens is standard on NFZ Series)</p>

(1) Fixture is not available with M1 cable entry options

(2) Fixture will be supplied with a length of cable preinstalled, when ordered with cable gland. Fixture with cable gland can only be used with hook and chain mounting.

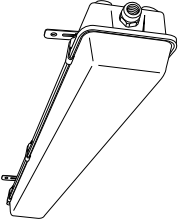
(3) Use polycarbonate lens (Catalog Number FPLENS) for IP rating

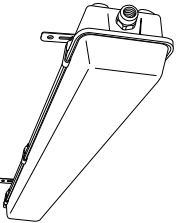
(4) NFZ Series fixtures are not UL Listed for Class I, Div. 2 when used with cable glands. NFZ Series fixtures are UL Classified for Class I, Zone 2 when used with cable glands.

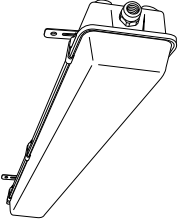
# NFR/NFD/NFZ Series

## Non-Metallic Fluorescent Lighting For Adverse and Hazardous Locations

### Catalog Number Selection Guide:

NFR SERIES <sup>(1)</sup> – FOR USE IN WET AND DAMP LOCATIONS						
	Catalog Number	Ballast	Wattage Lamp	Volts <sup>(2)</sup>	Frequency	Lamp Type
	NFRN2C2412S126 <sup>(2)</sup>	Electronic	40	120	60	T12
	NFRN2C2412S276 <sup>(2)</sup>	Electronic	40	277	60	T12
	NFRN2C2408S126 <sup>(2)</sup>	Electronic	32	120	60	T8
	NFRN2C2408S276 <sup>(2)</sup>	Electronic	32	277	60	T8

NFD SERIES <sup>(1)</sup> – CLASS I, DIV. 2, GROUPS A, B, C, D						
	Catalog Number	Ballast	Wattage Lamp	Volts <sup>(2)</sup>	Frequency	Lamp Type
	NFDN2C2412S126 <sup>(2)</sup>	Electronic	40	120	60	T12
	NFDN2C2412S276 <sup>(2)</sup>	Electronic	40	277	60	T12
	NFDN2C2408S126 <sup>(2)</sup>	Electronic	32	120	60	T8
	NFDN2C2408S276 <sup>(2)</sup>	Electronic	32	277	60	T8

NFZ SERIES <sup>(1)</sup> – CLASS I ZONE 2; AEx nA IIC IP65						
	Catalog Number	Ballast	Wattage Lamp	Volts <sup>(2)</sup>	Frequency	Lamp Type
	NFZM2C2412C225	Cold Weather	40	220	50	T12
	NFZM2C2412C245	Cold Weather	40	240	50	T12

(1) 2 x 40 Watt feed through configuration

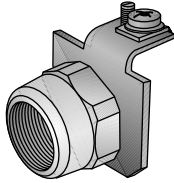
(2) Other voltage/frequency combinations and options available, see Catalog Logic Page.

Fixture supplied with ½" NPT water-tight hubs for suspended end-to-end installation, see Catalog Logic Page for other mounting options.

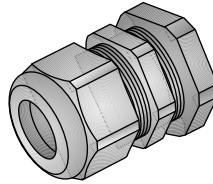
# NFR/NFD/NFZ Series

## Non-Metallic Fluorescent Lighting For Adverse and Hazardous Locations

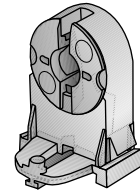
### Accessories and Replacement Parts:



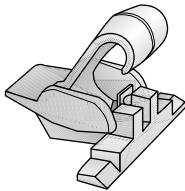
Catalog Number	Description
NFRHUB	1/2" NPT conduit hub



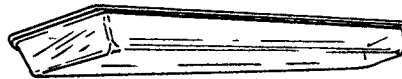
Catalog Number	Description
NFRGLAND	Cable gland



Catalog Number	Description
NFS0C40	P32W (T8) or 40W (T12) lampholders



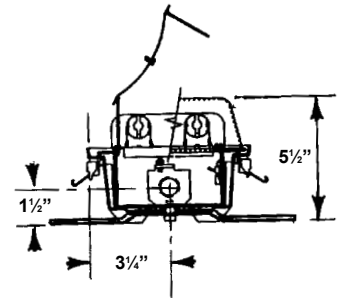
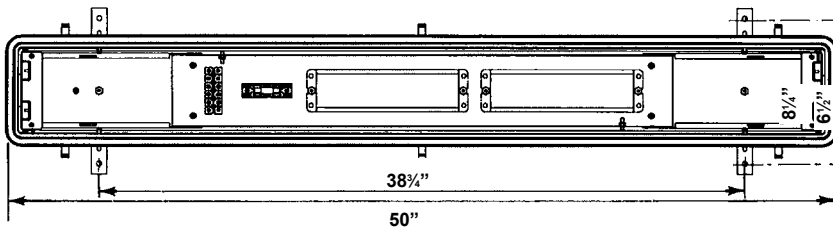
Catalog Number	Description
NFPCLIP	Standard plastic clips



Catalog Number	Description
NFLENS	Acrylic lens cover
NFPLENS	Polycarbonate* lens cover

\*Polycarbonate lens. When used with NFD Series fixture has an IP65 rating. Polycarbonate lens is standard on NFZ Series.

### Dimensional Data:



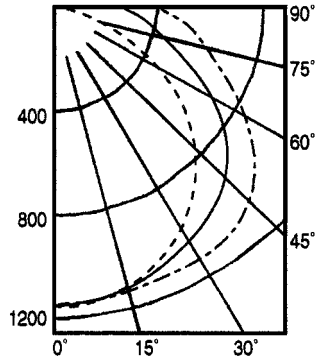
# NFR/NFD/NFZ Series

## Non-Metallic Fluorescent Lighting For Adverse and Hazardous Locations

### Photometric Data:

#### Fluorescent

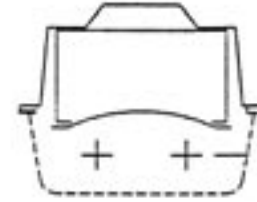
Two 32-watt, 4-foot



LEGEND  
 0 - deg: \_\_\_\_\_  
 45 - deg: \_\_\_\_\_  
 90 - deg: \_\_\_\_\_

Lamp: F32T8/TL735  
 Lumens 2850 per lamp  
 with acrylic lens

Efficiency: 84.6%  
 CIE Type - Semi Direct

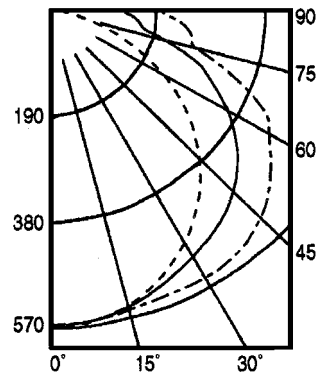


ZONAL CAVITY COEFFICIENTS OF UTILIZATION EFFECTIVE FLOOR CAVITY REFLECTANCE = 0.20

Ceiling RC	80				70				50			30			10			0		
	Wall	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	00
0	98	98	98	98	95	95	95	95	89	89	89	83	83	83	78	78	78	75		
1	88	83	78	74	84	80	76	72	75	71	68	70	67	65	65	63	61	58		
2	79	71	65	59	76	69	63	58	64	59	55	60	56	52	56	52	50	47		
3	71	62	54	48	68	60	53	47	56	50	45	52	47	43	49	45	41	39		
4	65	54	46	40	62	52	45	39	49	43	38	46	41	36	43	38	35	32		
5	60	48	40	34	57	47	39	33	44	37	32	41	35	31	38	34	30	28		
6	55	43	35	29	53	42	34	29	39	33	28	37	31	27	35	30	26	24		
7	51	39	31	26	49	38	30	25	36	29	24	33	28	24	32	27	23	21		
8	47	35	28	23	45	34	27	22	32	26	22	31	25	21	29	24	20	19		
9	44	32	25	20	42	31	25	20	30	24	19	28	23	19	27	22	18	17		
10	41	30	23	18	40	29	22	18	27	22	17	26	21	17	25	20	16	15		

#### Fluorescent

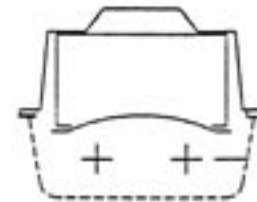
Two 32-watt, 4-foot



LEGEND  
 0 - deg: \_\_\_\_\_  
 45 - deg: \_\_\_\_\_  
 90 - deg: \_\_\_\_\_

Lamp: F32T8/TL735  
 Lumens 2850 per lamp  
 with polycarbonate lens

Efficiency: 83.6%  
 CIE Type - Semi Direct



ZONAL CAVITY COEFFICIENTS OF UTILIZATION EFFECTIVE FLOOR CAVITY REFLECTANCE = 0.20

Ceiling RC	80				70				50			30			10			0		
	Wall	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	00
0	97	97	97	97	94	94	94	94	88	88	88	82	82	82	77	77	77	75		
1	87	82	78	74	84	79	75	72	74	71	68	69	67	64	65	63	61	58		
2	78	70	64	58	75	68	62	57	63	59	54	59	55	52	55	52	49	47		
3	71	61	53	48	68	59	52	47	55	49	45	52	47	43	48	44	41	38		
4	64	54	46	40	62	52	44	39	48	42	37	45	40	36	43	38	34	32		
5	59	47	39	34	56	46	39	33	43	37	32	40	35	31	38	33	29	27		
6	54	42	35	29	52	41	34	28	39	32	27	36	31	27	34	29	26	24		
7	50	38	31	25	48	37	30	25	35	29	24	33	27	23	31	26	22	21		
8	46	35	27	22	45	34	27	22	32	26	21	30	25	21	28	24	20	18		
9	43	32	25	20	42	31	24	20	29	23	19	28	22	18	26	21	18	16		
10	41	29	22	18	39	28	22	18	27	21	17	26	20	17	24	20	16	15		

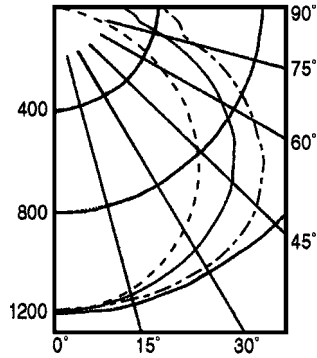
# NFR/NFD/NFZ Series

## Non-Metallic Fluorescent Lighting For Adverse and Hazardous Locations

### Photometric Data:

#### Fluorescent

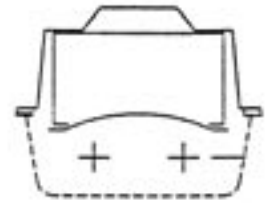
Two 40-watt, 4-foot



LEGEND  
 0 - deg: \_\_\_\_\_  
 45 - deg: \_\_\_\_\_  
 90 - deg: \_\_\_\_\_

Lamp: F40WW fluorescent  
 Lumens 3150 per lamp  
 with acrylic lens

Efficiency: 80.7%  
 CIE Type - Semi Direct

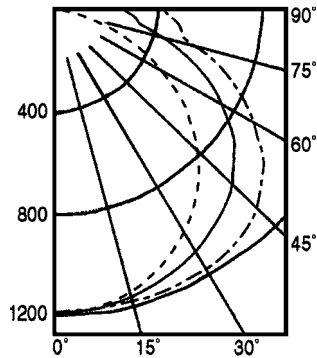


**ZONAL CAVITY COEFFICIENTS OF UTILIZATION EFFECTIVE FLOOR CAVITY REFLECTANCE = 0.20**

Ceiling RC	80				70				50			30			10			0		
	Wall	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	00
0	94	94	94	94	91	91	91	91	85	85	85	79	79	79	74	74	74	72		
1	84	79	75	71	81	76	73	69	71	68	65	67	64	62	62	60	58	56		
2	76	68	62	57	72	66	60	55	61	57	53	57	53	50	54	50	48	45		
3	68	59	52	46	66	57	51	45	53	48	43	50	45	41	47	43	40	37		
4	62	52	44	39	60	50	43	38	47	41	36	44	39	35	41	37	33	31		
5	57	46	39	33	55	45	38	32	42	36	31	39	34	30	37	32	29	27		
6	53	41	34	28	50	40	33	28	38	32	27	35	30	26	33	29	25	23		
7	49	37	30	25	47	36	29	24	34	28	24	32	27	23	30	26	22	20		
8	45	34	27	22	43	33	26	22	31	25	21	29	24	20	28	23	20	18		
9	42	31	24	20	40	30	24	19	29	23	19	27	22	18	26	21	18	16		
10	39	28	22	18	38	28	22	17	26	21	17	25	20	16	24	19	16	14		

#### Fluorescent

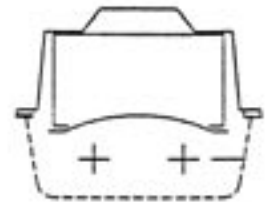
Two 40-watt, 4-foot



LEGEND  
 0 - deg: \_\_\_\_\_  
 45 - deg: \_\_\_\_\_  
 90 - deg: \_\_\_\_\_

Lamp: F40WW fluorescent  
 Lumens 3150 per lamp  
 with polycarbonate lens

Efficiency: 78.9%  
 CIE Type - Semi Direct



**ZONAL CAVITY COEFFICIENTS OF UTILIZATION EFFECTIVE FLOOR CAVITY REFLECTANCE = 0.20**

Ceiling RC	80				70				50			30			10			0		
	Wall	RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	00
0	92	92	92	92	89	89	89	89	83	83	83	78	78	78	73	73	73	70		
1	82	78	74	70	79	75	71	68	70	67	64	65	63	61	61	59	57	55		
2	74	67	61	55	71	64	59	54	60	55	52	56	52	49	53	49	41	44		
3	67	58	51	45	64	56	49	44	52	47	42	49	44	41	46	42	39	37		
4	61	51	43	38	58	49	42	37	46	40	35	43	38	34	40	36	33	31		
5	56	45	38	32	53	44	37	31	41	35	30	38	33	29	36	32	28	26		
6	51	40	33	26	49	39	32	27	37	31	26	35	29	25	33	28	24	23		
7	47	36	29	24	46	35	29	24	33	27	23	31	26	22	30	25	21	20		
8	44	33	26	21	42	32	26	21	30	25	20	29	23	20	27	23	19	17		
9	41	30	24	19	39	29	23	19	28	22	18	26	21	18	25	20	17	16		
10	38	28	21	17	37	27	21	17	26	20	16	24	19	16	23	19	15	14		