

EVALUATION REPORT



Report Number: 0268
Originally Issued: 09/2012
Valid Through: 09/2013

DIVISION: 08 00 00— OPENINGS
Section: 08 62 00 -- Unit Skylights

REPORT HOLDER:
FAKRO GROUP 144A WEGIERSKA STREET 33-300
NOWY SACZ POLAND
48-18-444-0444
www.fakro.info

EVALUATION SUBJECT:

FAKRO FX, FV FVE, FX-EL, FV-ELA, AND FVE-ELA SKYLIGHTS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2006 International Building Code; (IBC®)
- 2006 International Residential Code; (IRC®)
- 2006 International Energy Conservation Code; (IECC®)

Properties evaluated:

- Structural
- Air infiltration
- Water penetration resistance

1.1 EVALUATED IN ACCORDANCE WITH

ICC AC17 Approved June 2007

2.0 USES

The Fakro FX, FV and FVE glass-glazed, skylights described in this report comply with IBC Section 2405.5 and IRC Section R308.6.

3.0 DESCRIPTION

3.1 General: Factory-assembled skylights units consist of insulating glass glazing, brackets, fasteners, cladding, and gaskets. Wood frames secure the glazing to skylight. The skylight units are manufactured in accordance with quality assurance system (QAS) that conforms to IAPMO UES minimum qualification for QAS.

3.1.1 Tempered-Laminated Glazing: Factory sealed glazing unit having one sheet of 6.7 mm laminated glass (nominal 3 mm glass + 0.76 mm PVB interlayer + nominal 3 mm glass) on the interior, one sheet of 4 mm tempered glass on the exterior, and a 14.3 mm air space with and metal spacer. Nominal overall thickness was 25.4 mm.

3.1.2 Tempered-Tempered: Factory sealed glazing unit having two sheets of nominally thick 4 mm tempered glass separated by a 16.2 mm air space with and metal spacer. Nominal overall thickness was 24.1 mm.

3.2 FX and FX-EL Skylights: Wood frame members with corners fitted together and reinforced at corners. Roll formed angle-shaped aluminum perimeter capping is fitted over the head, jambs and sill. Oval head screws secure perimeter capping. Sets of holes punched in the three fins of the EPDM sill-glazing gasket drain the glazing cavity to the exterior. The holes in the top-most fin are located inboard of the jamb glazing gasket, while the holes in the middle and lowest fins were staggered outboard.

3.2.1 Air infiltration evaluation: The FX skylight meets the conditions of acceptance for Air Infiltration specified in ICC AC17. Maximum Air Infiltration Rate was less than 0.3 cfm/ft².

3.2.2 Water penetration test: The FX skylight met the conditions of acceptance for Water Penetration specified in ICC AC17. There was no water leakage on the interior side of the Tested skylights.

3.2.3 Uniform Load Structural and deflection Test: The FX skylight qualifies for a design load as shown in table 1. Net deflection values were within the maximum allowable values in accordance with ICC-ES AC17, "Acceptance Criteria for Glass Glazed Unit Skylights and Sloped Glass Glazing." There was no permanent damage, the specimen remained operable after tested, the deflection of the edge of the was less than the smaller of 1/175 of glass edge length or 3/4" while loaded.

3.3 FV and FV-ELA Skylights: Wood frame members with corners fitted together and reinforced at corners. Oval head screws attaches the aluminum head capping to the head riser on the exterior. The top ends of this capping wrapped around the upper end of each jamb member, the corners of the capping are folded and crimped.

EVALUATION REPORT



Report Number: 0268
Originally Issued: 09/2012
Valid Through: 09/2013

3.3.1 Operating Force for Operable Unit Skylights

The FV and FV-ELA skylight meets the conditions of acceptance for operating Force specified in ICC AC17. Maximum measured force to maintain motion remained less than 10 lbs.

3.3.2 Air infiltration evaluation: The FV and FV-ELA skylight meets the conditions of acceptance for Air Infiltration specified in ICC AC17. Maximum Air Infiltration Rate was less than 0.3 cfm/ft².

3.3.3 Water penetration test: The FV and FV-ELA skylight met the conditions of acceptance for Water Penetration specified in ICC AC17. There was no water leakage on the interior side of the Tested skylights.

3.3.4 Uniform Load Structural and deflection Test: The FV AND FV-ELA skylight qualifies for a design load as shown in table 1. Net deflection values were within the maximum allowable values in accordance with ICC-ES AC17, "Acceptance Criteria for Glass Glazed Unit Skylights and Sloped Glass Glazing." There was no permanent damage, the specimen remained operable after tested, the deflection of the edge of the was less than the smaller of 1/175 of glass edge length or 3/4" while loaded.

3.4 FVE and FVE-ELA Skylights: Wood frame members with corners fitted together and reinforced at corners. Oval head screws attaches the aluminum head capping to the head riser on the exterior. The top ends of this capping wrapped around the upper end of each jamb member, the corners of the capping are folded and crimped. An electric actuator with a double link articulated chain operates the sash. A remote switch controls the operation of the electric actuator. The chain engaged a sash bracket via a sash screw.

3.4.1 Air infiltration evaluation: The FVE and FVE-ELA skylight meets the conditions of acceptance for Air Infiltration specified in ICC AC17. Maximum Air Infiltration Rate was less than 0.3 cfm/ft².

3.4.2 Water penetration test: The FVE and FVE-ELA skylight met the conditions of acceptance for Water Penetration specified in ICC AC17. There was no water leakage on the interior side of the Tested skylights.

3.4.3 Uniform Load Structural and deflection Test:

The FVE and FVE-ELA skylight qualifies for a design load as shown in table 1. Net deflection values were within the maximum allowable values in accordance with ICC-ES AC17, "Acceptance Criteria for Glass Glazed Unit Skylights and Sloped Glass Glazing." There was no permanent damage, the specimen remained operable after tested, the deflection of the edge of the was less than the smaller of 1/175 of glass edge length or 3/4" while loaded.

4.0 DESIGN AND INSTALLATION Table one displays the allowable loads and performance grade rating value. Skylights performance grade rating value must equal or exceed the maximum loads as prescribed by the applicable codes.

5.0 LIMITATIONS

- 5.1** Skylights must be installed on roofs with 15 degrees minimum roof slopes.
- 5.2** Skylights must be installed on framing members with 0.42 minimum specific gravity. Supporting members shall be designed in accordance with applicable code requirements.
- 5.3** Highest point of glass shall be 12 ft or less above walking surface or other accessible area. Otherwise, screens shall be provided in accordance with Sections 2405.3 of IBC or R308.6.3 of IRC.
- 5.4** Repairs to the roof membrane are outside the scope of this report and shall be performed to the satisfaction of the code official.

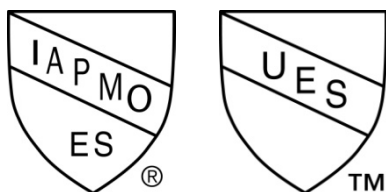
6.0 SUBSTANTIATING DATA: Data in accordance with ICC-ES AC17, "Acceptance Criteria for Glass Glazed Unit Skylights and Sloped Glass Glazing." Test results are from laboratories in compliance with ISO/IEC 17025.

EVALUATION REPORT



Report Number: 0268
Originally Issued: 09/2012
Valid Through: 09/2013

7.0 IDENTIFICATION The products described in this report are identified with a label indicating the name of the manufacturer (FAKRO GROUP), the model number, the number of the evaluation report, and IAPMO ES Shield show below:



IAPMO UES # 0268

A handwritten signature in black ink, appearing to read "Amir".

Amir Zamanian, PE
Technical Director of Evaluation Service

A handwritten signature in black ink, appearing to read "Russ Chaney".

GP Russ Chaney
CEO, The IAPMO Group

EVALUATION REPORT



Report Number: 0268
Originally Issued: 09/2012
Valid Through: 09/2013

Table 1 TABLE 1-SKYLIGHT MODELS, OPENING DIMENSIONS AND PERFORMANCE GRADES

PRODUCT	PRODUCT CODE	MODEL	FRAME, inches (WF x HF)	ROUGH OPENING, (WRO x HRO) 2 inches	PERFORMANCE GRADE, psf (PG Rating)	
					Positive	Negative
FX and FX-EL Skylights (tempered-tempered)	68703	FX 16/46	16-1/2 x 46-3/8	14-11/32 x 45-9/16	73	70
	68706	FX 24/27	24-1/2 x 27-1/2	22-3/8 x 26-11/16		
	68707	FX 24/38	24-1/2 x 38-1/2	22-3/8 x 37-11/16		
	68708	FX 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68008	FX-EL 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68709	FX24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68009	FX-EL 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68710	FX 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68010	FX-EL 24/70	24-1/2 x 7-3/4	22-3/8 x 69-29/32	70	50
	68725	FX 32/31	32-1/2 x 31	30-11/32 x 30-3/16		
	68712	FX 32/38	32-1/2 x 38-1/2	30-11/32 x 37-11/16		
	68713	FX 32/46	32-1/2 x 46-3/8	30-11/32 x 45-9/16		
	68714	FX 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68014	FX-EL 32/55	32-1/2 x 55	30-11/32 x 54-3/16	50	35
	68726	FX 47/46	47-3/8 x 46-3/8	45-1/4 x 45-9/16		
	68716	FX 48/27	48-1/2 x 27-1/2	46-11/32 x 26-11/16		
	68718	FX 48/46	48-1/2 x 46-3/8	46-11/32 x 45-9/16		
FX and FX-EL Skylights (tempered-laminated)	68753	FX 16/46	16-1/2 x 46-3/8	14-11/32 x 45-9/16	62	62
	68756	FX 24/27	24-1/2 x 27-1/2	22-3/8 x 26-11/16		
	68757	FX 24/38	24-1/2 x 38-1/2	22-3/8 x 37-11/16		
	68758	FX 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68058	FX-EL 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68759	FX 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68059	FX-EL 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68760	FX 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68060	FX-EL 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68775	FX 32/31	32-1/2 x 31	30-11/32 x 30-3/16		
	68762	FX 32/38	32-1/2 x 38-1/2	30-11/32 x 37-11/16		
	68763	FX 32/46	32-1/2 x 46-3/8	30-11/32 x 45-9/16		
	68764	FX 32/55	32-1/2 x 55	30-11/32 x 45-9/16		
	68064	FX-EL 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68776	FX 47/46	47-3/8 x 46-3/8	45-1/4 x 45-9/16		
	68766	FX 48/27	48-1/2 x 27-1/2	46-11/32 x 26-11/16		
	68768	FX48/46	48-1/2 x 46-3/8	46-11/32 x 45-9/16		

EVALUATION REPORT



Report Number: 0268
Originally Issued: 09/2012
Valid Through: 09/2013

PRODUCT	PRODUCT CODE	MODEL	FRAME, inches (WF x HF)	ROUGH OPENING, (WRO x HRO) 2 inches	PERFORMANCE GRADE, psf (PG Rating)	
					Positive	Negative
FV and FV-ELA Skylights (tempered-laminated)	68856	FV 24/27	24-1/2 x 27-1/2	22-3/8 x 26-11/16	52	52
	68857	FV 24/38	24-1/2 x 38-1/2	22-3/8 x 37-11/16		
	68858	FV 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68158	FV-ELA 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68859	FV 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68159	FV-ELA 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68860	FV 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68160	FV-ELA 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68875	FV 32/31	32-1/2 x 31	30-11/32 x 30-3/16		
	68864	FV 32/38	32-1/2 x 38-1/2	30-11/32 x 37-11/16		
	68863	FV 32/46	32-1/2 x 46-3/8	30-11/32 x 45-9/16		
	68864	FV 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68164	FV-ELA 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68876	FV 47/46	47-3/8 x 46-3/8	45-1/4 x 45-9/16		
	68866	FV 48/27	48-1/2 x 27-1/2	46-11/16 x 26-11/16		
	68868	FV 48/46	48-1/2 x 46-3/8	46-11/32 x 45-9/16		

FV and FV-ELA Skylights (tempered-tempered)	68806	FV 24/27	24-1/2 x 27-1/2	22-3/8 x 26-11/16	60	50
	68807	FV 24/38	24-1/2 x 38-1/2	22-3/8 x 37-11/16		
	68808	FV 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68108	FV-ELA 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68809	FV 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68109	FV-ELA 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68810	FV 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68110	FV-ELA 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68825	FV 32/31	32-1/2 x 31	30-11/32 x 30-3/16	73	40
	68812	FV 32/38	32-1/2 x 38-1/2	30-11/32 x 30-11/16		
	68813	FV 32/46	32-1/2 x 46-3/8	30-11/32 x 45-9/16		
	68814	FV 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68114	FV-ELA 32/55	32-1/2 x 55	30-11/32 x 54-3/16	62	62
	68826	FV 47/46	47-3/8 x 46-3/8	45-1/4 x 45-9/16		
	68816	FV 48/27	48-1/2 x 27-1/2	46-11/32 x 26-11/16		
	68818	FV 48/46	48-1/2 x 46-3/8	46-11/32 x 45-9/16		

EVALUATION REPORT



Report Number: 0268
Originally Issued: 09/2012
Valid Through: 09/2013

PRODUCT	PRODUCT CODE	MODEL	FRAME, inches (WF x HF)	ROUGH OPENING, (WRO x HRO) 2 inches	PERFORMANCE GRADE, psf (PG Rating)	
					Positive	Negative
FVE and FVE-ELA Skylights (tempered-laminated)	68956	FVE 24/27	24-1/2 x 27-1/2	22-3/8 x 26-11/16	50	25
	68957	FVE 24/38	24-1/2 x 38-1/2	22-3/8 x 37-11/16		
	68958	FVE 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68158	FVE-ELA 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68959	FVE 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68159	FVE-ELA 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68960	FVE 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68160	FVE-ELA 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68975	FVE 32/31	32-1/2 x 31	30-11/32 x 30-3/16	70	25
	68962	FVE 32/38	32-1/2 x 38-1/2	30-11/32 x 37-11/16		
	68963	FVE 32/46	32-1/2 x 46-3/8	30-11/32 x 45-9/16		
	68964	FVE 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68264	FVE-ELA 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68976	FVE 47/46	47-3/8 x 46-3/8	45-1/4 x 45-9/16	36	20
	66966	FVE 48/27	48-1/2 x 27-1/2	46-11/32 x 26-11/16		
	68968	FVE 48/46	48-1/2 x 46-3/8	46-11/32 x 45-9/16		

FVE and FVE-ELA Skylights (tempered-tempered)	68906	FVE 24/27	24-1/2 x 27-1/2	22-3/8 x 26-11/16	73	25
	68907	FVE24/38	24-1/2 x 38-1/2	22-3/8 x 37-11/16		
	68908	FVE24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68108	FVE-ELA 24/46	24-1/2 x 46-3/8	22-3/8 x 45-9/16		
	68909	FVE 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68109	FVE-ELA 24/55	24-1/2 x 55	22-3/8 x 54-3/16		
	68910	FVE 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68110	FVE-ELA 24/70	24-1/2 x 70-3/4	22-3/8 x 69-29/32		
	68925	FVE 32/31	32-1/2 x 31	30-11/32 x 30-3/16	73	25
	68912	FVE 32/38	32-1/2 x 38-1/2	30-11/32 x 37-11/16		
	68913	FVE 32/46	32-1/2 x 46-3/8	30-11/32 x 45-9/16		
	68914	FVE 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68114	FVE-ELA 32/55	32-1/2 x 55	30-11/32 x 54-3/16		
	68926	FVE 47/46	47-3/8 x 46-3/8	45-1/4 x 45-9/16	73	11
	68916	FVE 48/27	48-1/2 x 27-1/2	46-11/32 x 26-11/16		
	68918	FVE 48/46	48-1/2 x 46-3/8	46-11/32 x 45-9/16		

For SI: 1 inch = 25.4 mm; 1 psf = 47.88 Pa.

¹WF x HF Width of Frame x Height of Frame (see Figure 2).

²WRO x HRO Width of Rough Opening x Height of Rough Opening (see Figure 2).