



ah!60 TECHNICAL DOCUMENTATION



panoramah!®60 | Technical Documentation
Development: panoramah!® R&D and Marketing
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cei



European Athletics Association Headquarters | Lausanne, Switzerland
Jacques Perret & Alain Porta Architectes | 2017
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Villa K | Thuringia, Germany
Paul de Ruiter Architects | 2017
© Pieter Kers

1. INTRODUCTION



1. INTRODUCTION

ah!60 is a groundbreaking exterior opening system with unmatched thermal and acoustic performance (Minergie-P® certified), ideal for very cold climates. It also stands out as an intrusion prevention solution for high demanding security specification.

ah!60 offers great flexibility in the modular composition of openings, including opening corner solutions, pocket sliding configurations, curved layouts, tilted spans and retractable mosquito nets.

The alternatives come in a wide range of formats such as sliding, sash and skylight opening units.

It allows for the introduction of a wide range of accessories, including heated glass, and it can be completely automated.

ah!60 is a system that allows double glazed surface areas of up to 29m², or triple glazed of up to 15m². Both options use 20mm vertical profiles.

USE

external partitions
offers unmatched acoustic
and thermal performance
ideal for very cold climates
high demanding security specs

OPENING SOLUTIONS

sliding

MAXIMUM AREA PANEL

29m²

MAXIMUM NO. RAILS

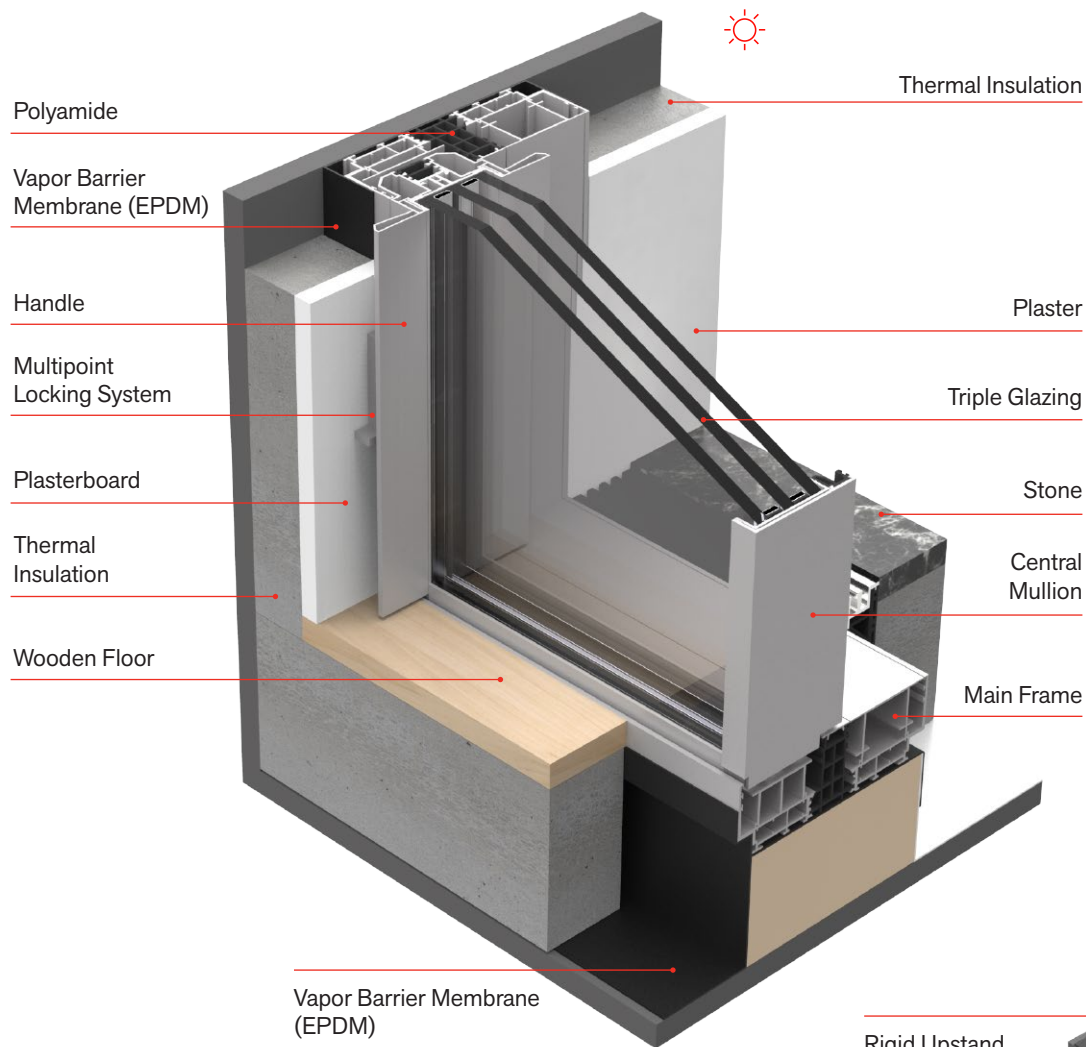
unlimited

SOUND INSULATION

44dB

LOCKS

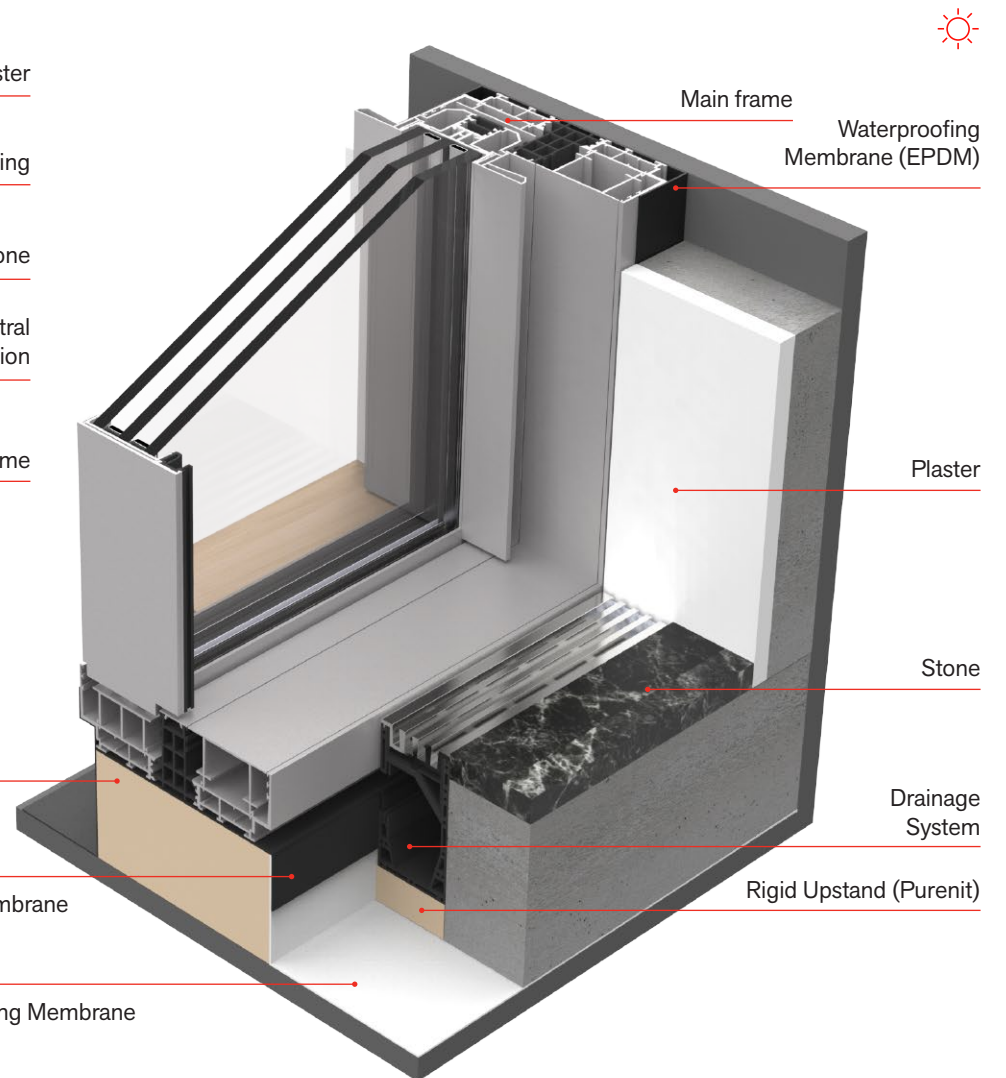
key lock
multi point locking system



Rigid Upstand (Purenit)

Waterproofing Membrane (EPDM)

Liquid Waterproofing Membrane





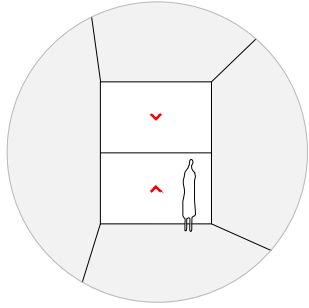
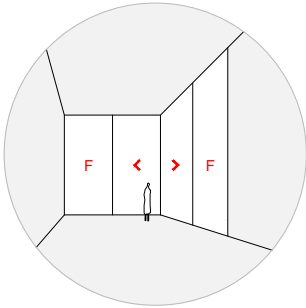
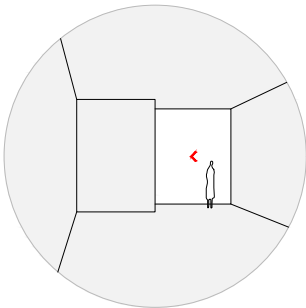
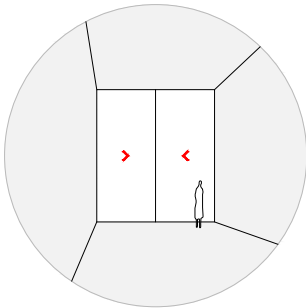
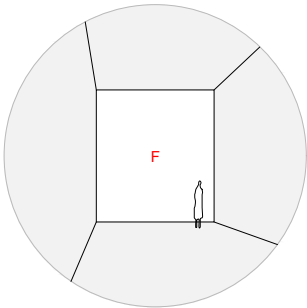
2. SLIDING SYSTEM



2.1 DATA SHEET

OPENING TYPOLOGIES

	HORIZONTAL				VERTICAL
	FIXED	SLIDING	POCKET	CORNER	
MONORAIL	•		•	•	•
BIRAIL	•	•	•	•	•
TRIRAIL	•	•	•	•	•



PANORAMAH!® 60

MAIN DIMENSIONS

VERTICAL PROFILE	20mm 3/4"	
MAX. LEAF HEIGHT	9000mm	
MAX. LEAF WIDTH	9000mm	
MAX. LEAF WEIGHT	2000kg	
MAX. GLAZED AREA	double glazing	29m ²
	triple glazing	18m ²
GLASS THICKNESS	60mm	

CONSTRUCTION

INSTALLATION FLUSH TO THE FLOOR	•
INSTALLATIONS FLUSH TO THE CEILING	•
MOTORIZATION (OPTIONAL)	•
FINISHES	All panoramah!® System series guarantee that the following finishes are carried out by duly certified entities, according to QUALICOAT and QUALANOD directives: Lacquered RAL, Lacquered PVDS, Anodized, Satin, Polished and Repellent.
EXTRAS	mosquito nets / guard-rails / shades / heated glazing / intrusion detectors

PERFORMANCES

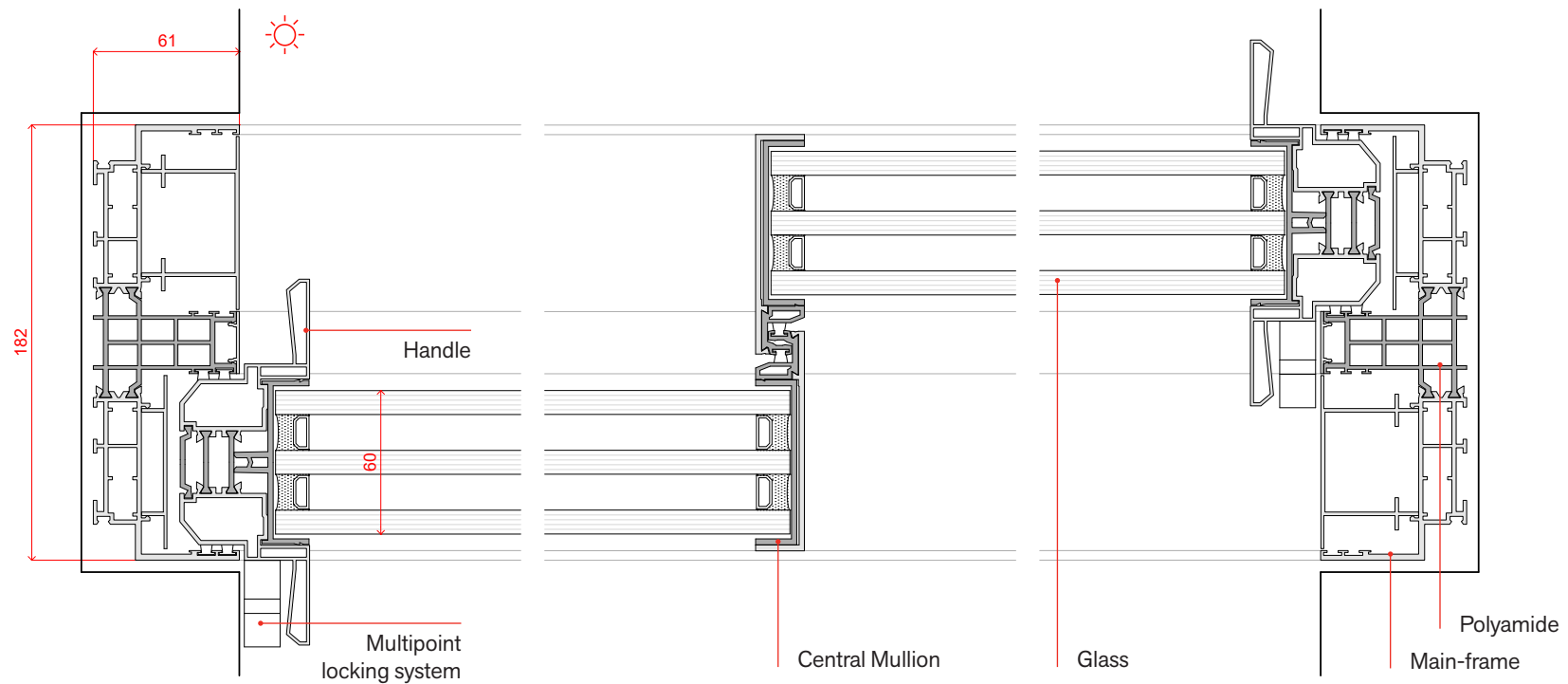
LIGHT TRANSMISSION	99%
THERMAL COEFFICIENT (EN 10077)	Uw = 0.8 W/m ² .K (Ug = 0.6 W/m ² .K) Uw = 1.41 BTU / (h.ft ² .K) (Ug = 0.11 BTU / (h.ft ² .K))
SECURITY (ENV 1627)	RC2 / WK2 RC4 / WK4
SOUND INSULATION (EN ISO 717-1)	44dB
WATER TIGHTNESS (EN 12208)	Class 9A
AIR TIGHTNESS (EN 12207)	Class 4
WIND TIGHTNESS (EN 12210)	Class C3

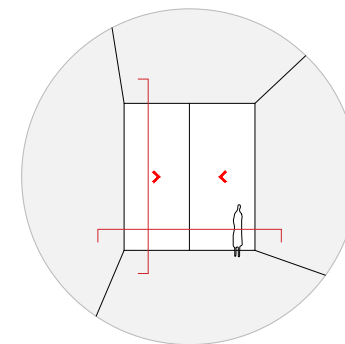
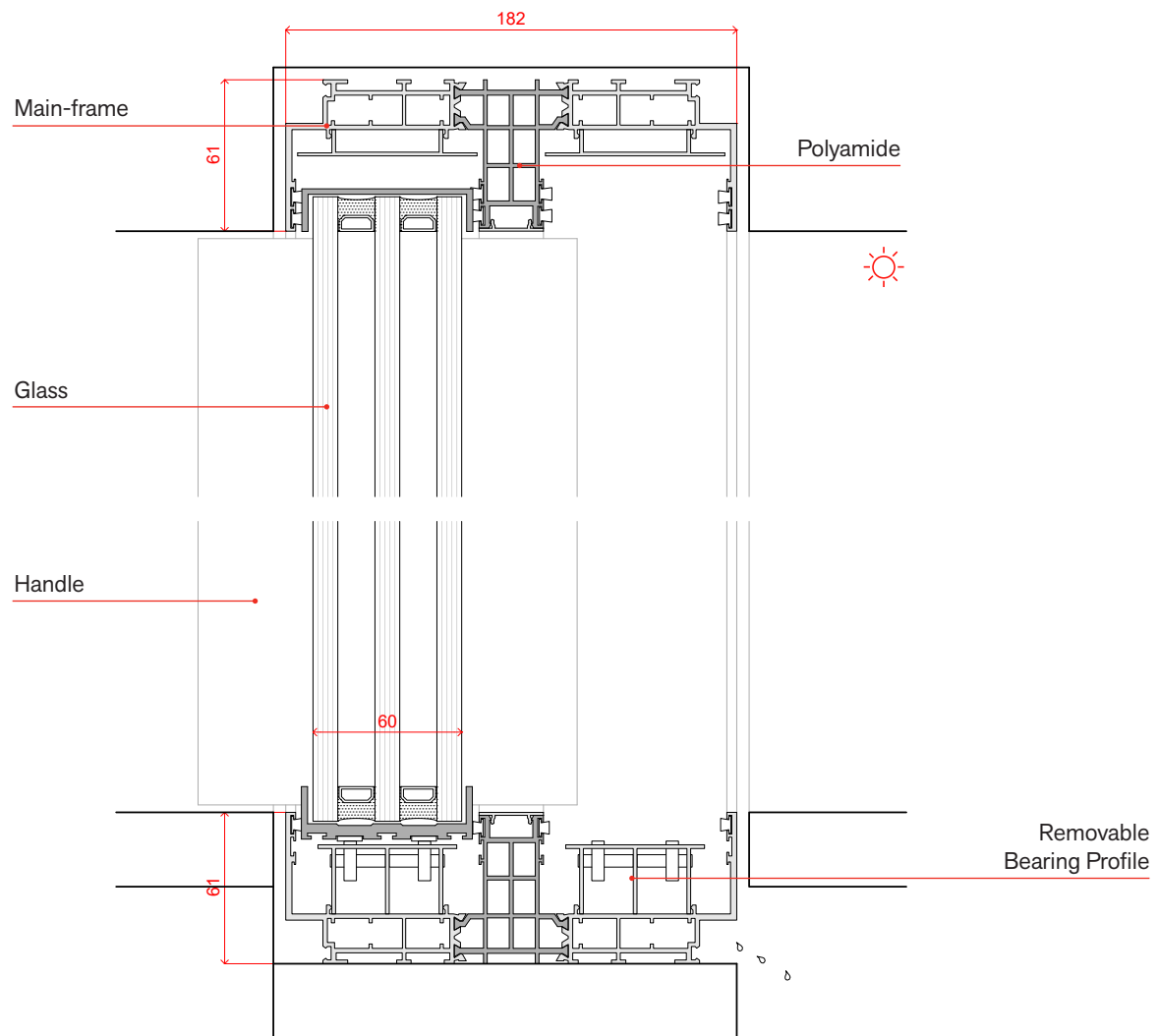
* Sample submitted to tests for a 4600mm (15ft) x 3600mm (11.8ft) dimension.

MINERGIE-P®

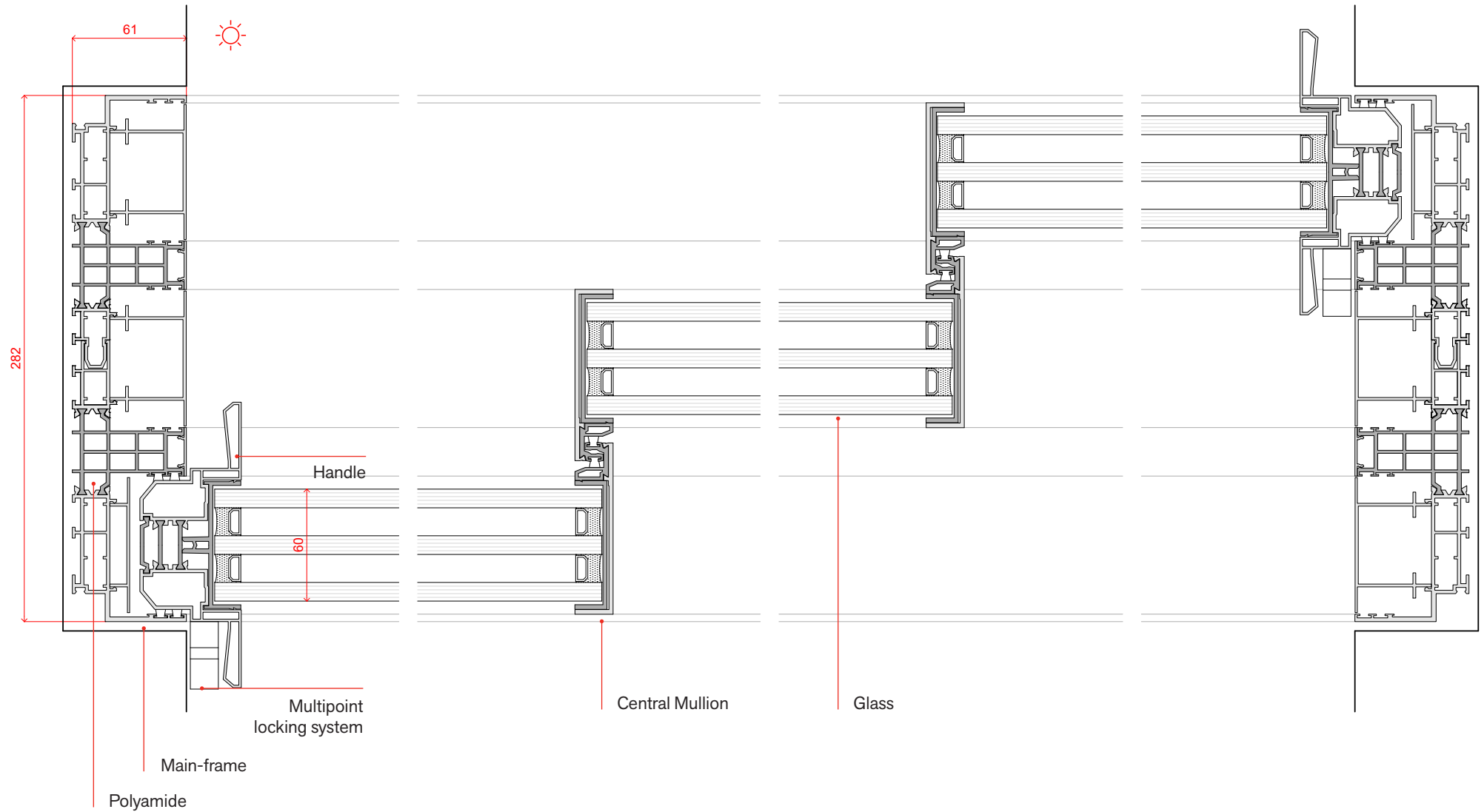
2.2 PRODUCT OVERVIEW

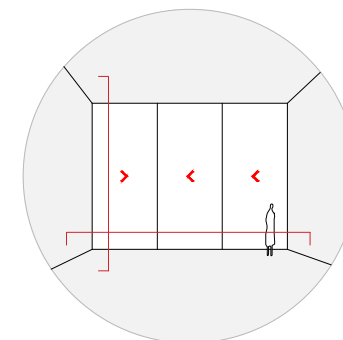
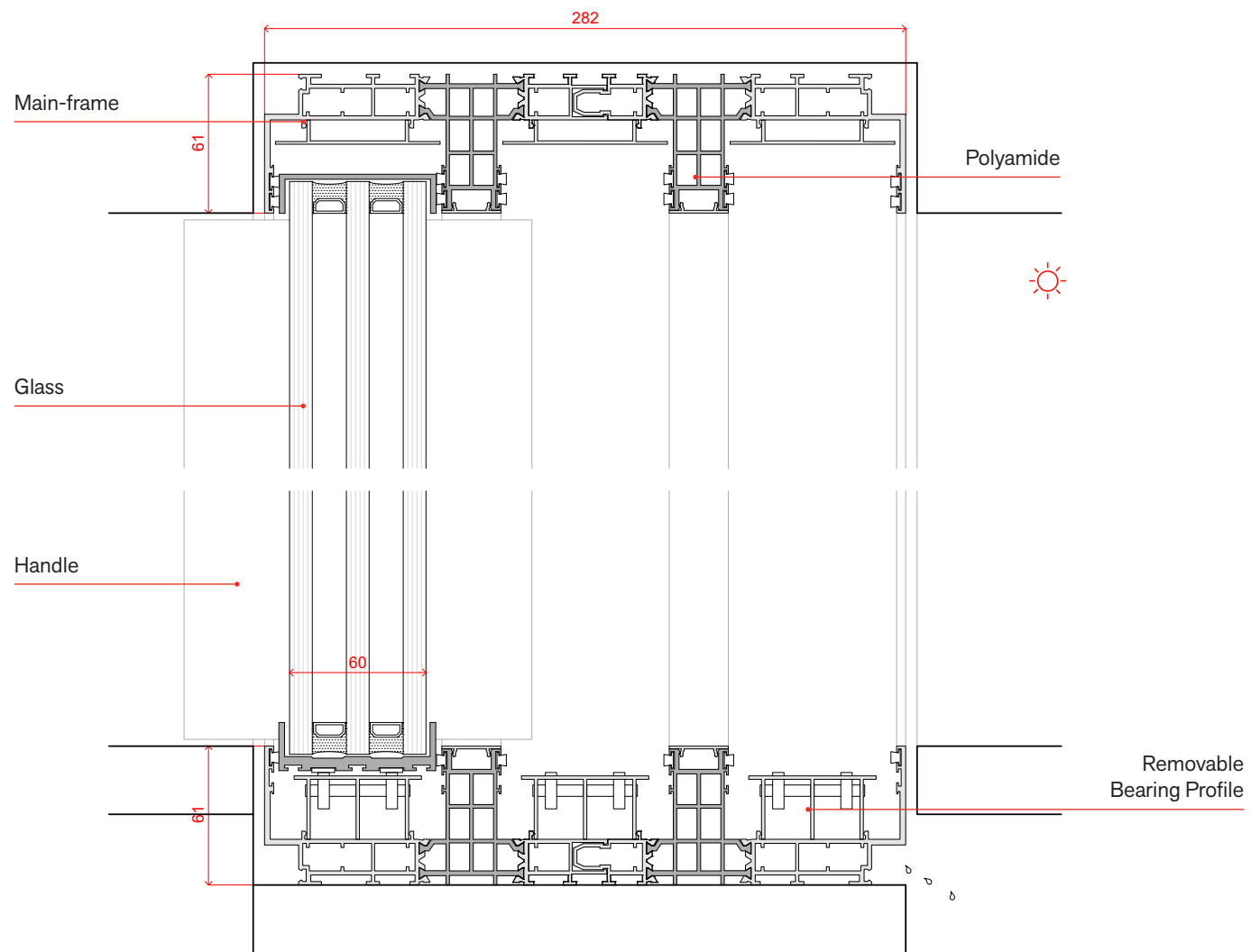
2.2.1 TYPICAL SECTIONS



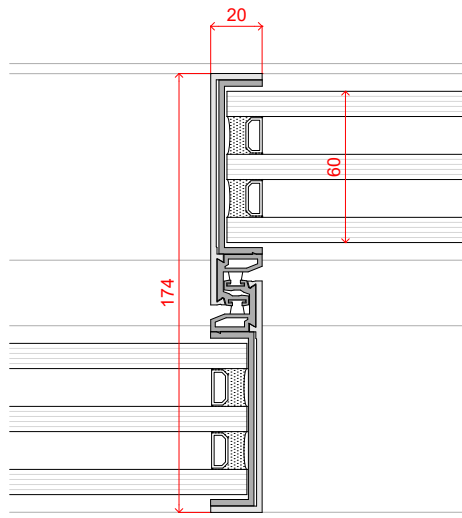


2.2.2 MULTIRAIL FRAMES

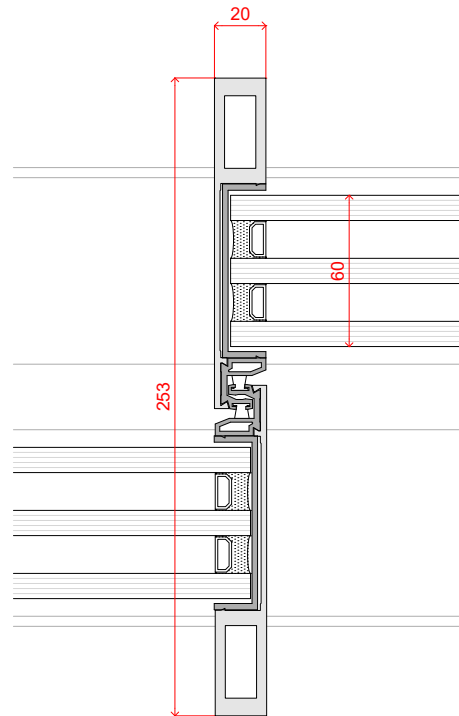




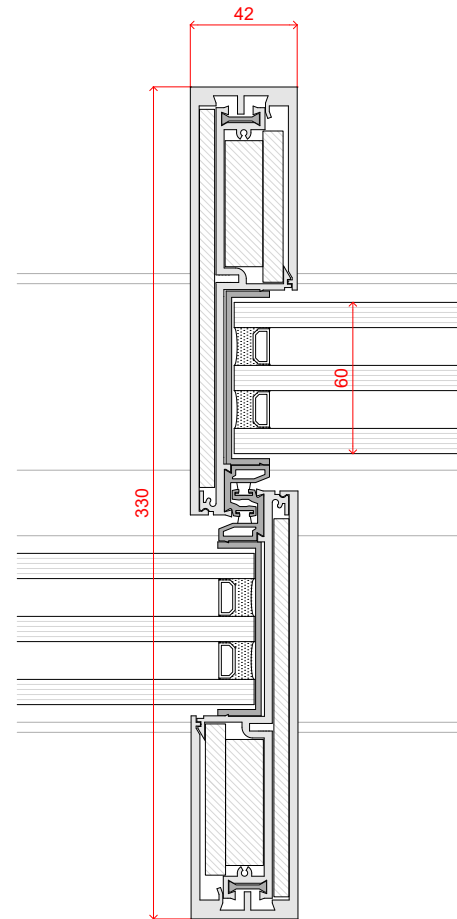
2.2.3 CENTRAL MULLION OPTIONS



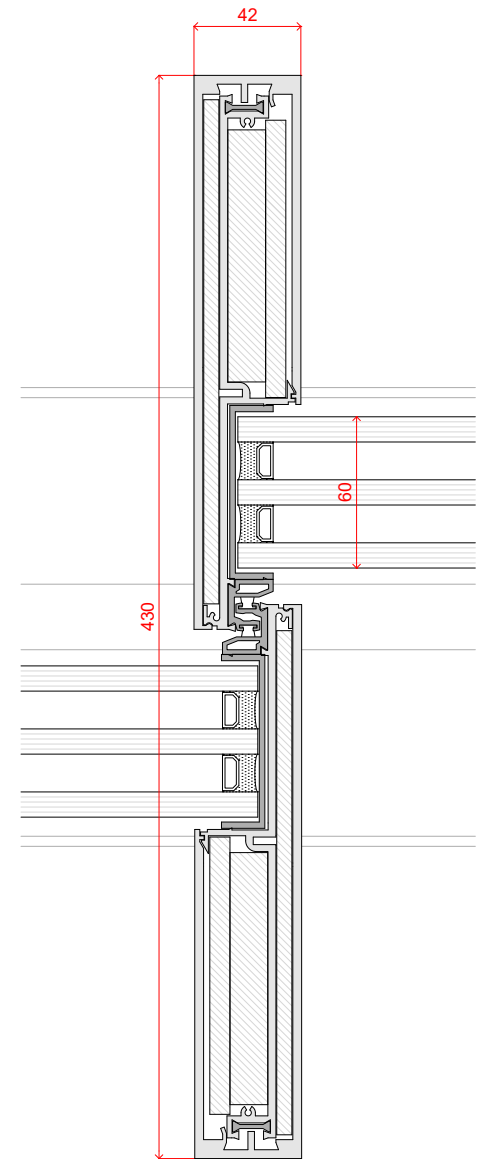
Standard
20 N



Reinforced
20 R

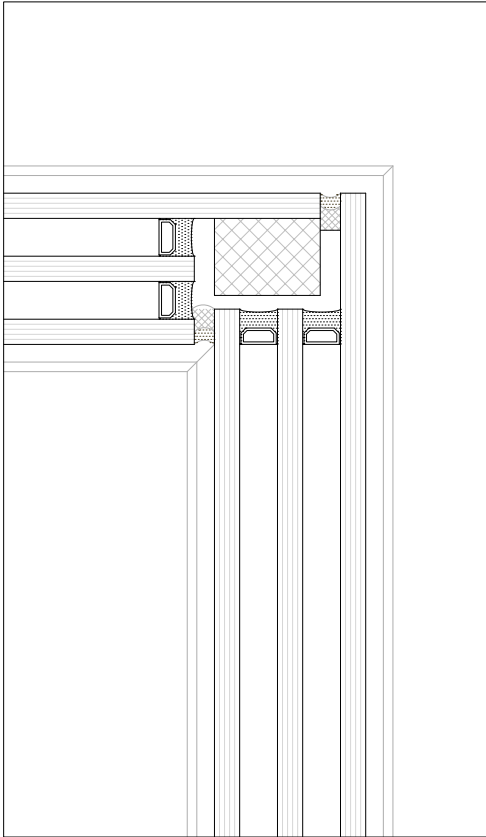


Reinforced
42 NR

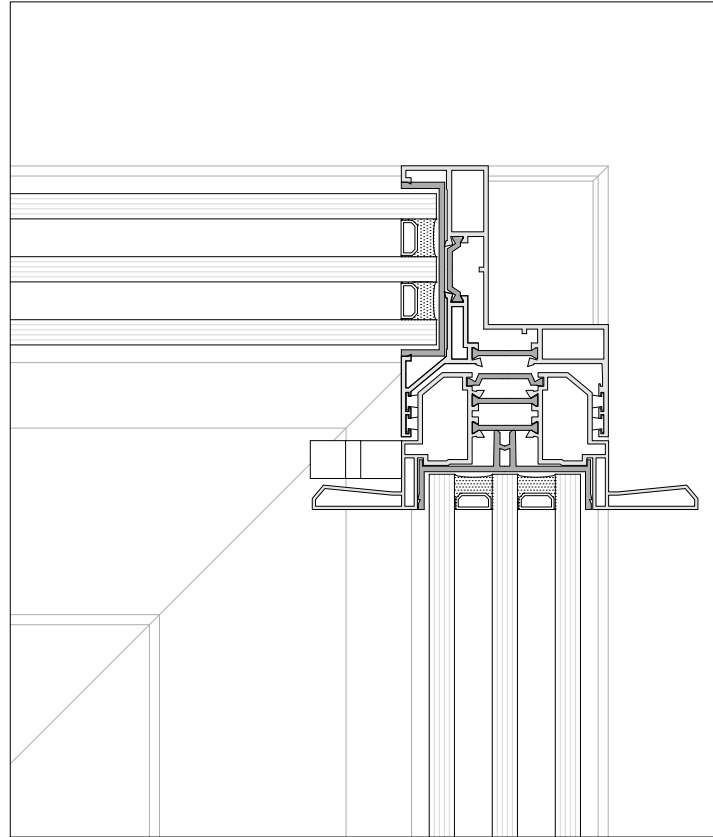


Reinforced
42 NRR

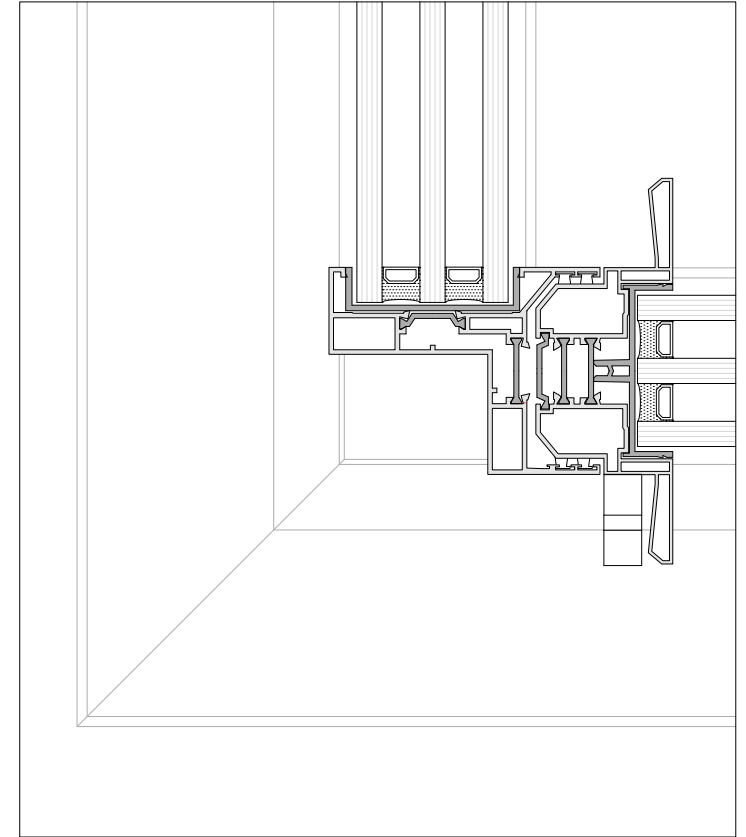
2.2.4 CORNER OPTIONS



[a] Fixed corner with glass bonding (90°)

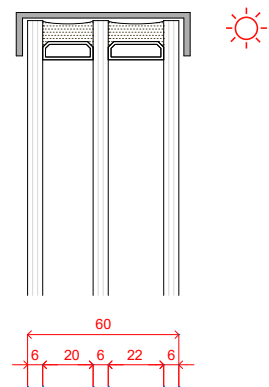


[b] Opening corner (90°)

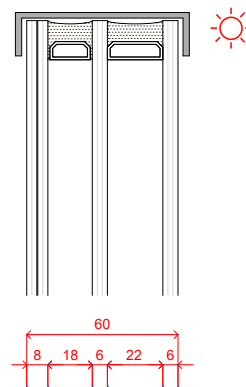


[c] Opening corner (270°)

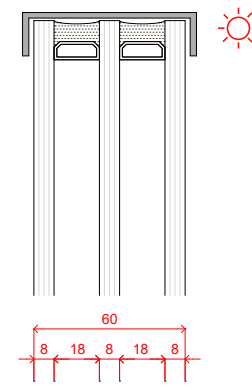
2.2.5 GLASS COMBINATIONS



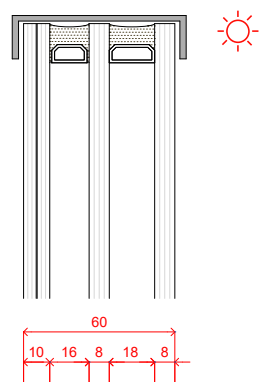
6 • 20 • 6 • 22 • 6



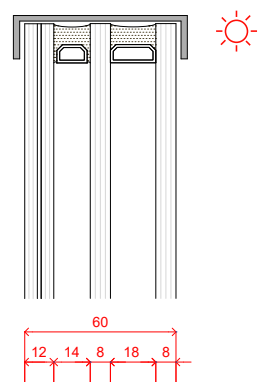
44.2 • 18 • 6 • 22 • 6



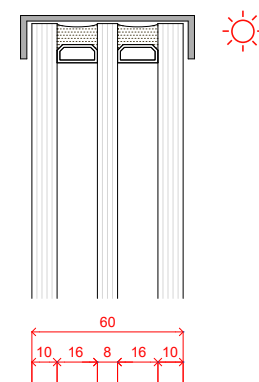
8 • 18 • 8 • 18 • 8



55.2 • 16 • 8 • 18 • 8

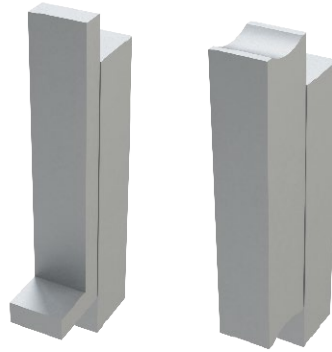


55.4 • 14 • 8 • 18 • 8

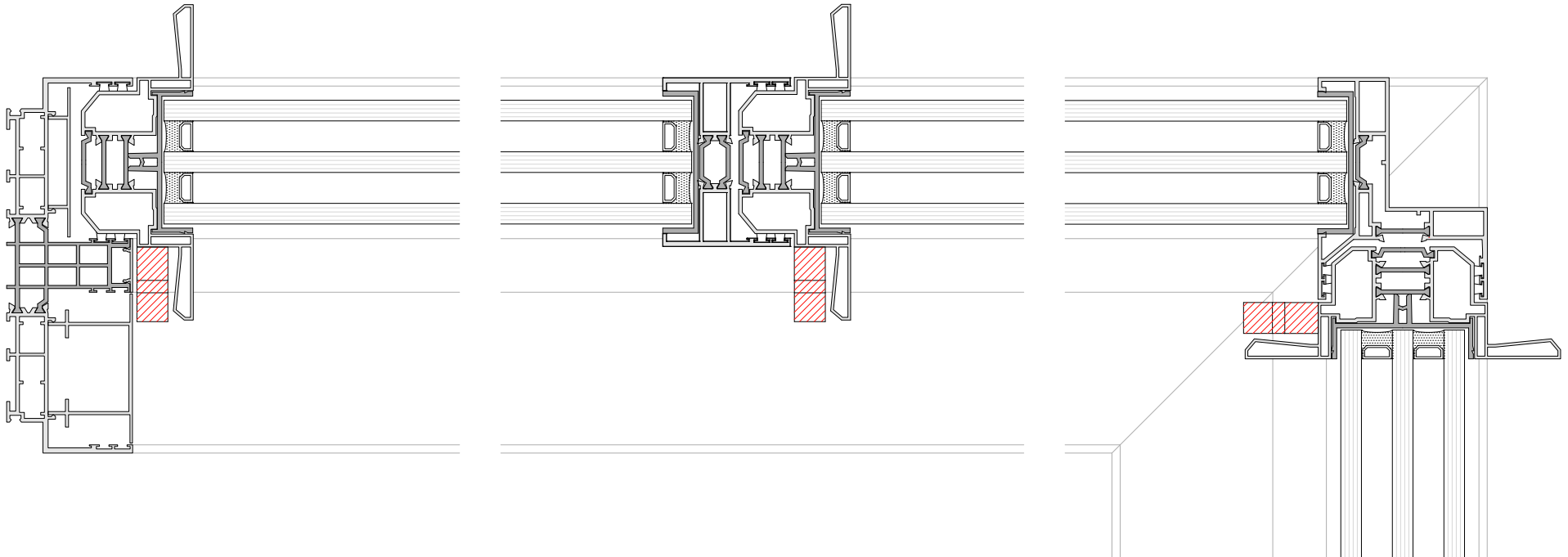


10 • 16 • 8 • 16 • 10

2.2.6 HANDLES AND LOCKING DEVICES

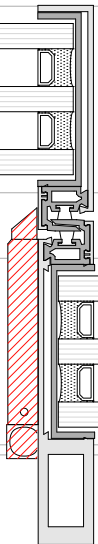


[a] Three point key lock

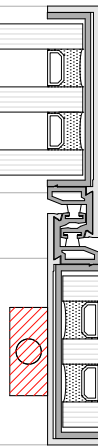




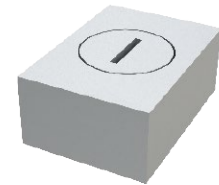
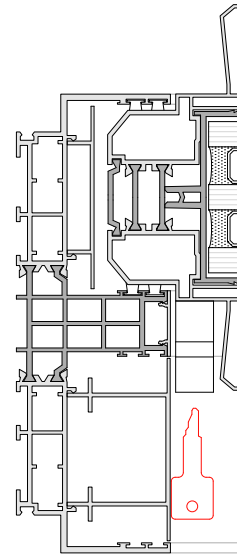
[b] Inverted central mullion



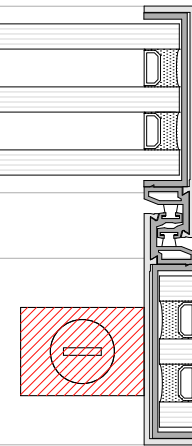
[c] Interlocker floor pin lock



[d] Three point key lock

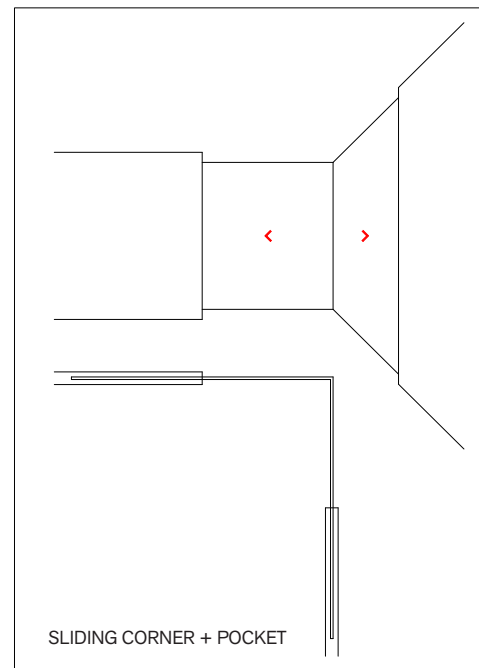
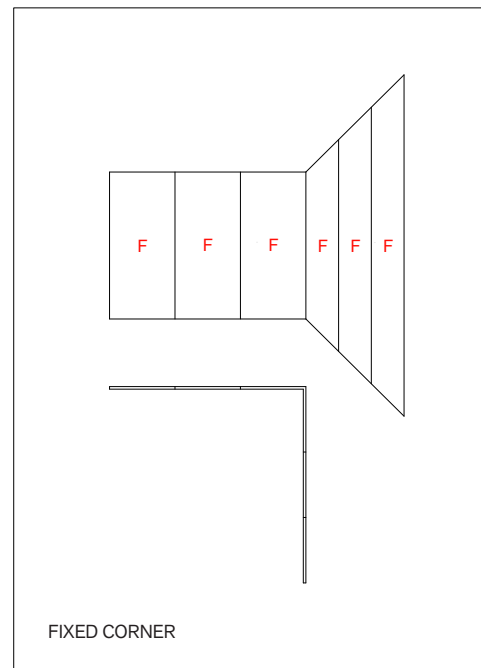
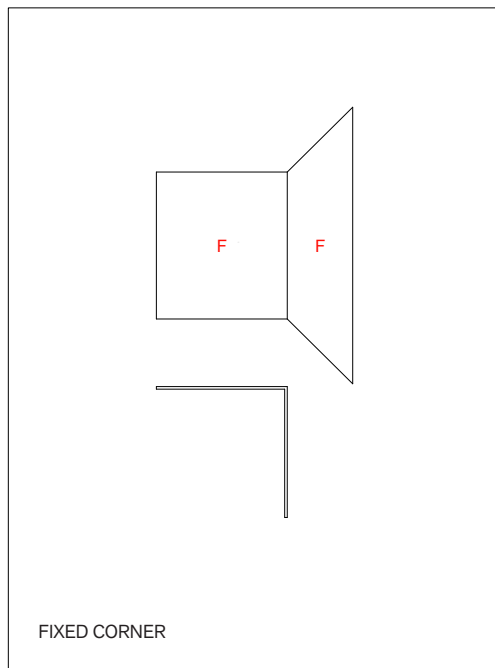
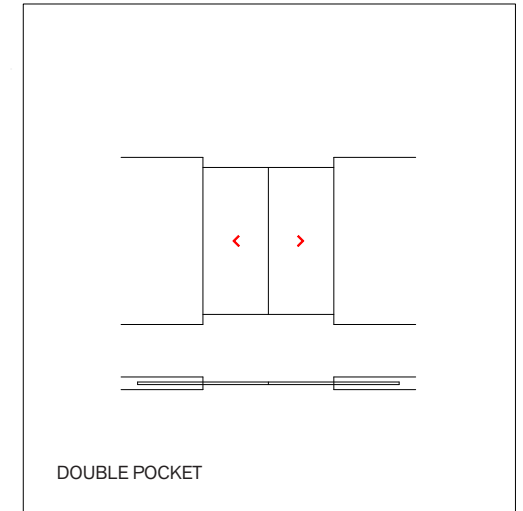
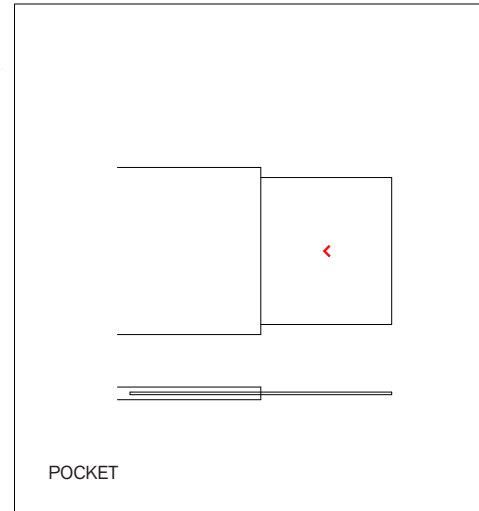
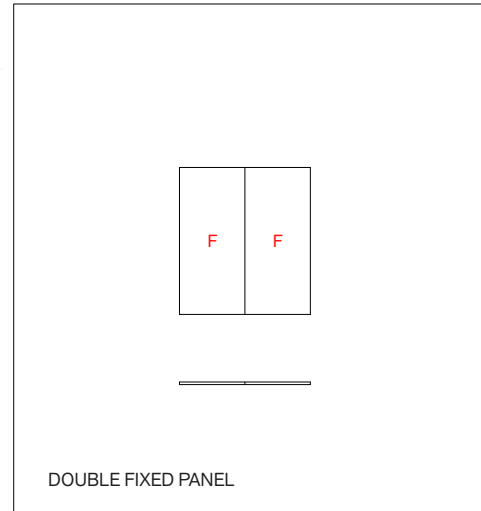
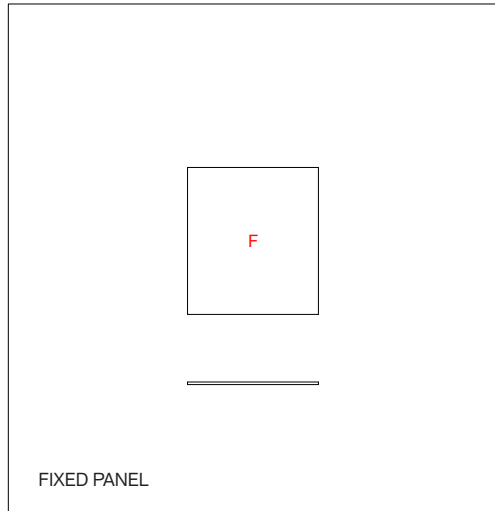


[e] Interlocker floor key lock

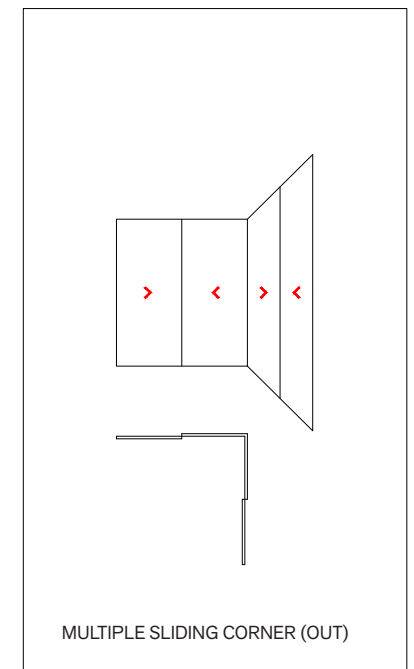
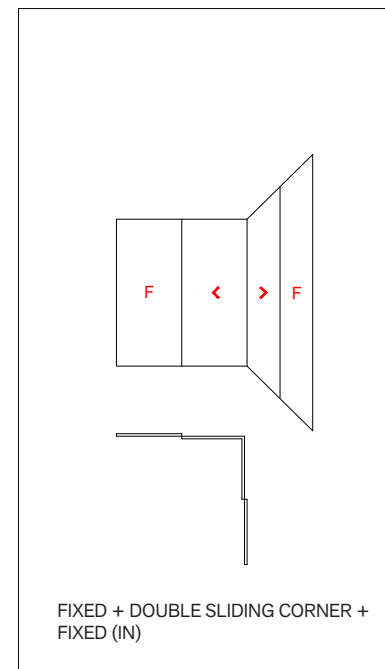
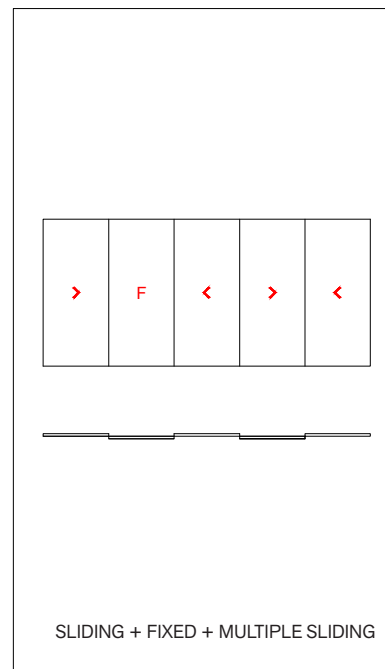
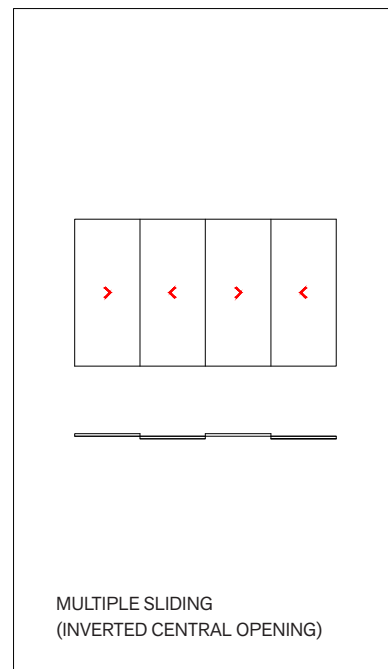
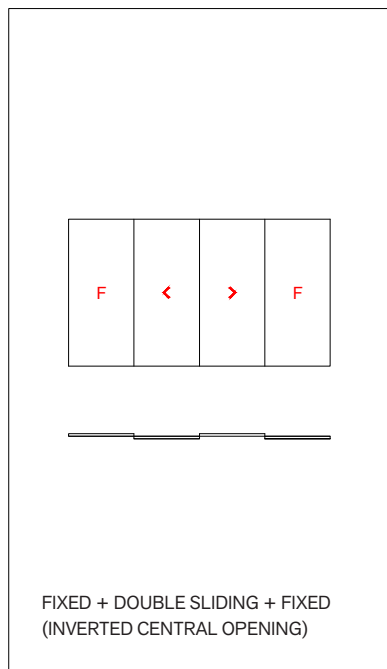
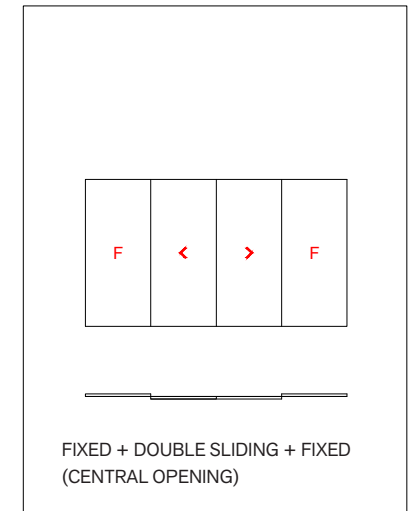
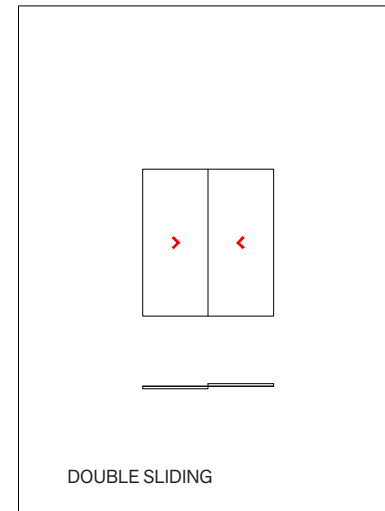
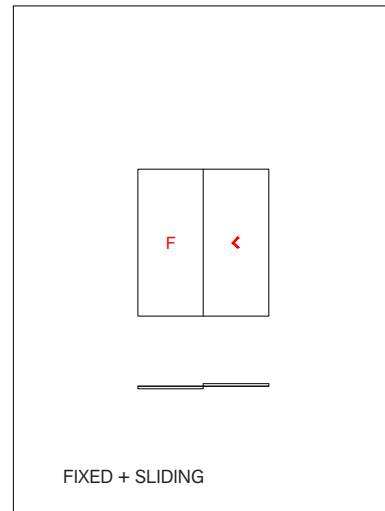
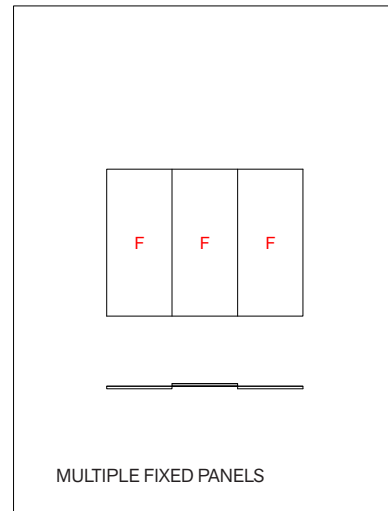


2.3 TYPOLOGIES

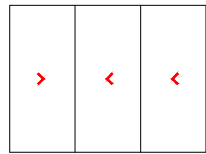
2.3.1 HORIZONTAL - MONORAIL



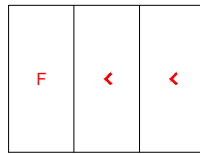
2.3.1 HORIZONTAL - BIRAIL



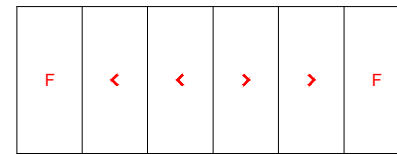
2.3.1 HORIZONTAL - TRIRAIL



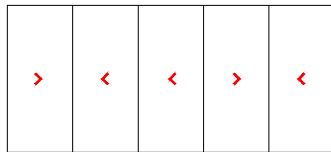
MULTIPLE SLIDING



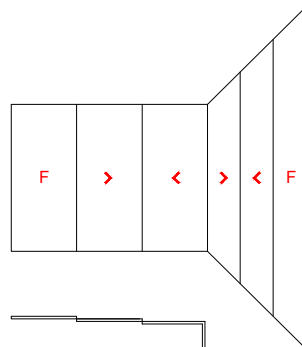
FIXED + DOUBLE SLIDING



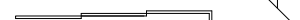
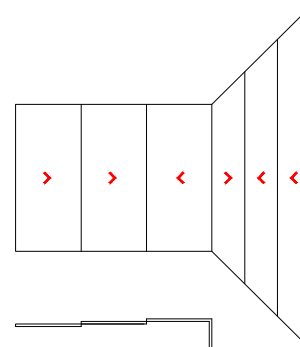
FIXED + MULTIPLE SLIDING + FIXED
(CENTRAL OPENING)



MULTIPLE SLIDING
(INVERTED CENTRAL OPENING)

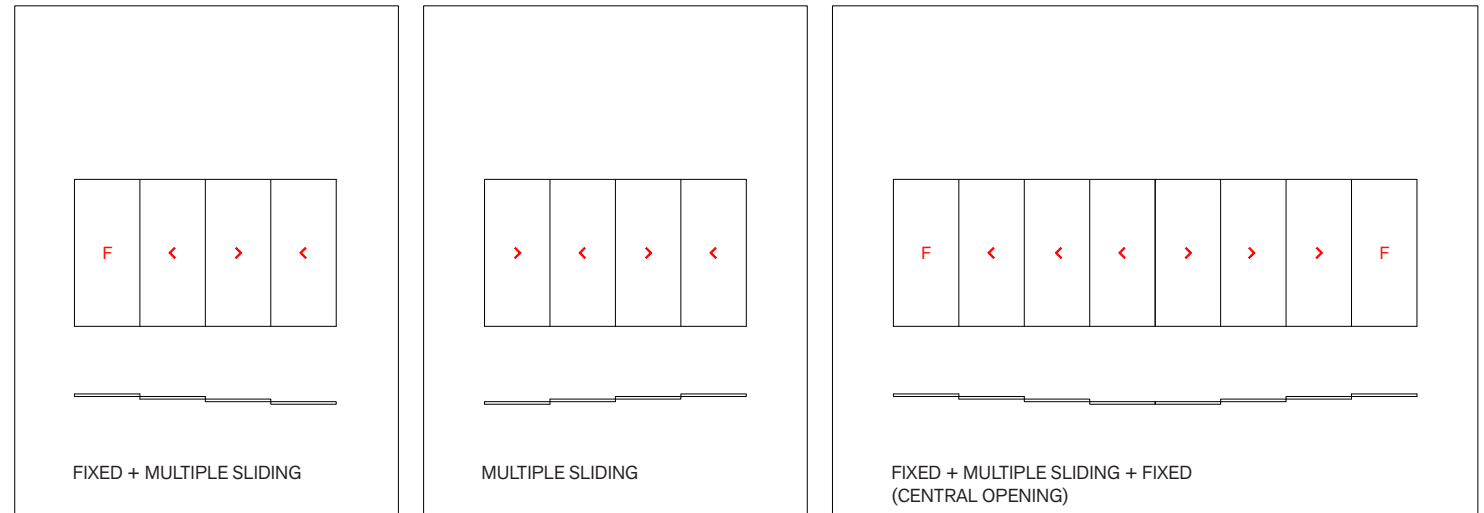


FIXED +
MULTIPLE SLIDING CORNER + FIXED (IN)

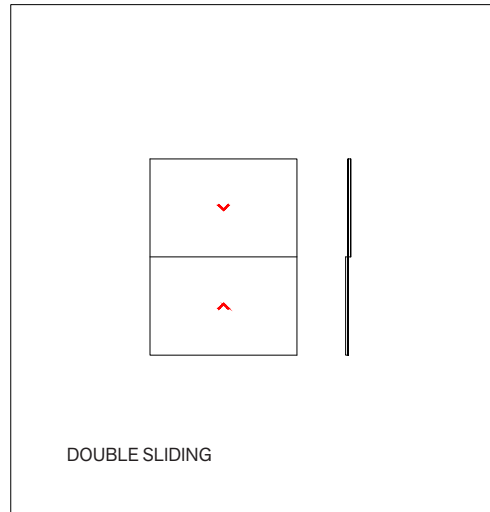
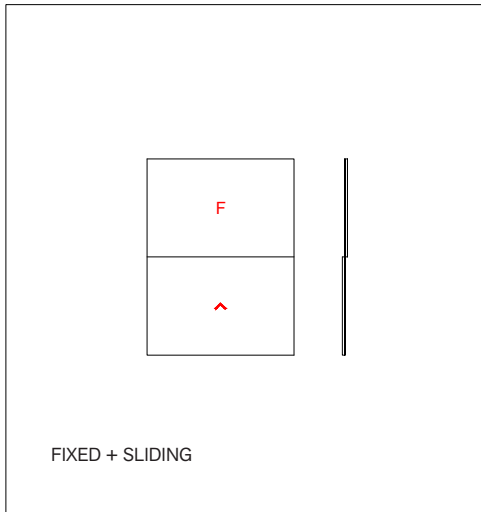


MULTIPLE SLIDING CORNER (OUT)

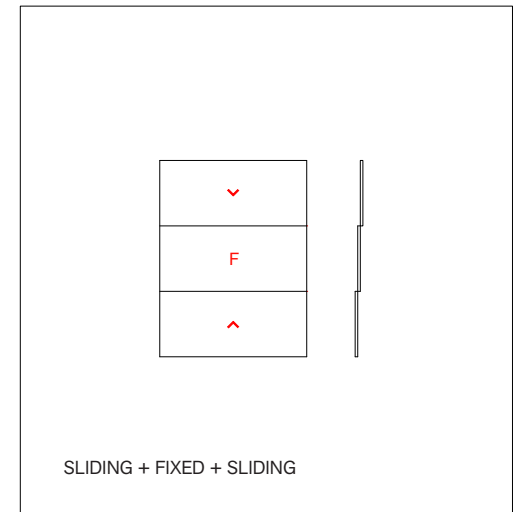
2.3.1 HORIZONTAL - MULTIRAIL



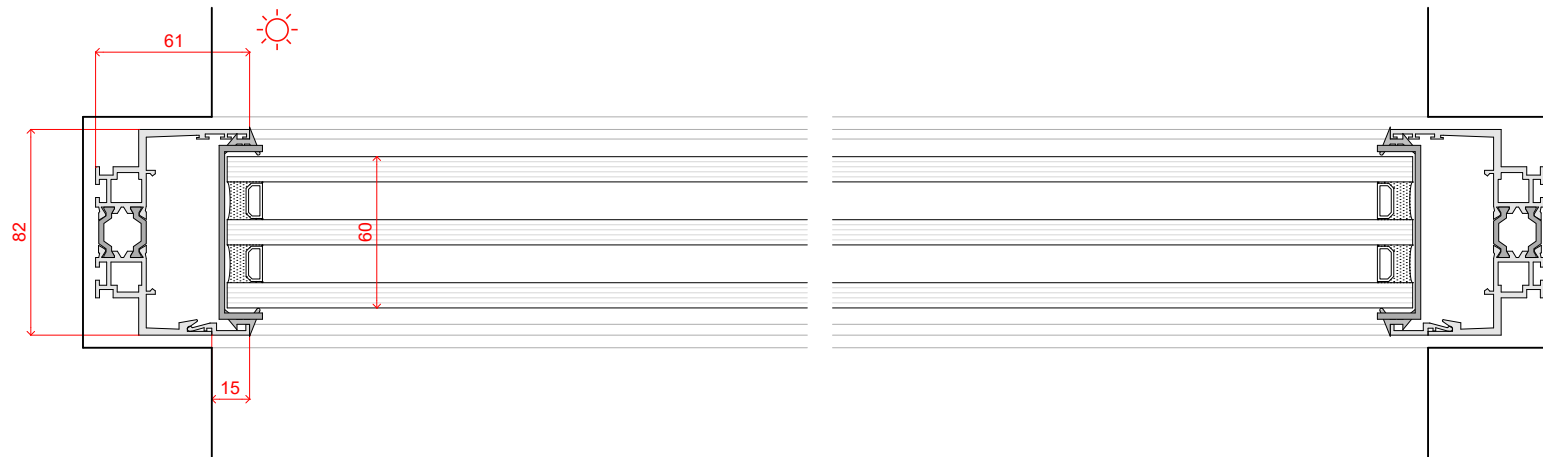
2.3.2 VERTICAL - BIRAIL

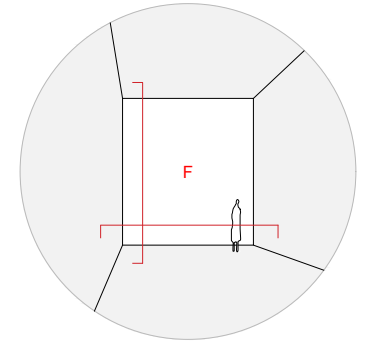
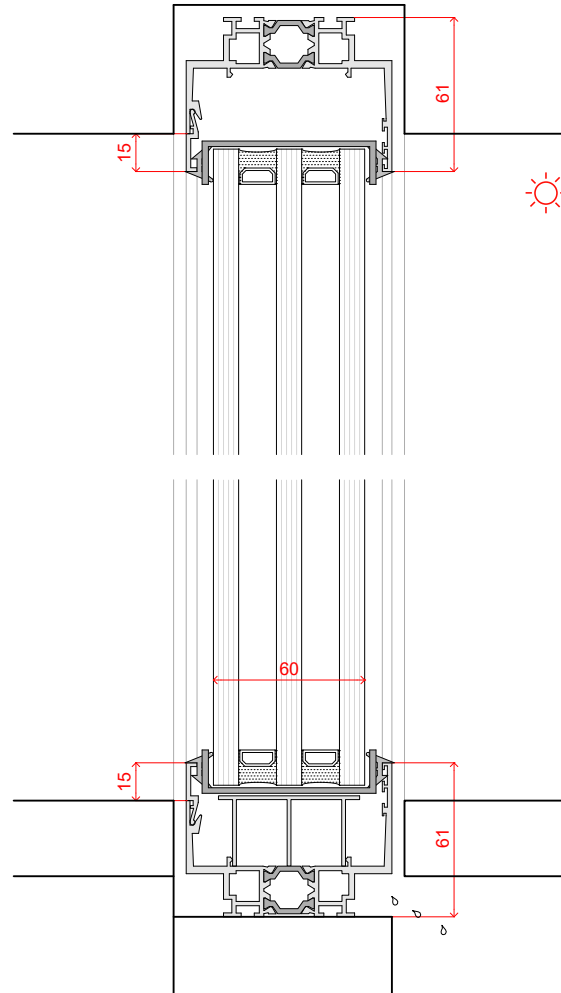


2.3.2 VERTICAL - TRIRAIL



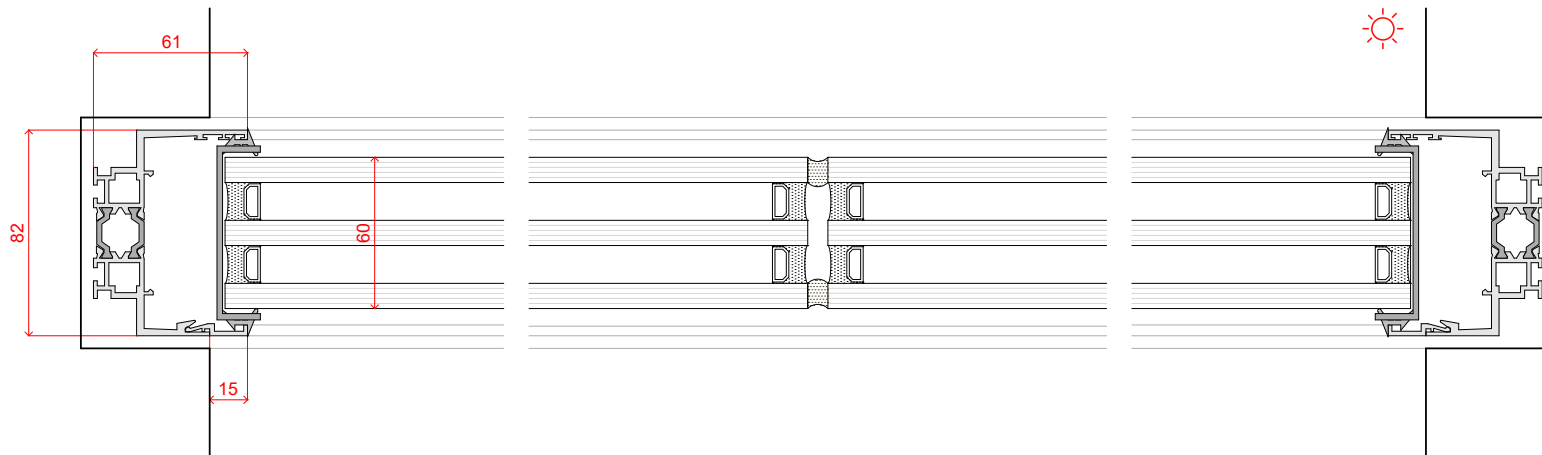
2.3.1 HORIZONTAL - MONORAIL

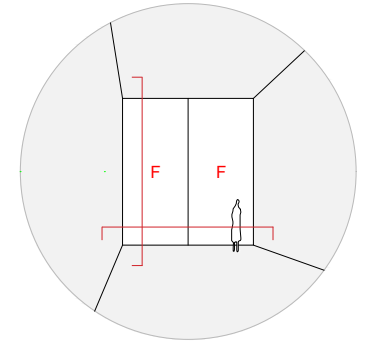
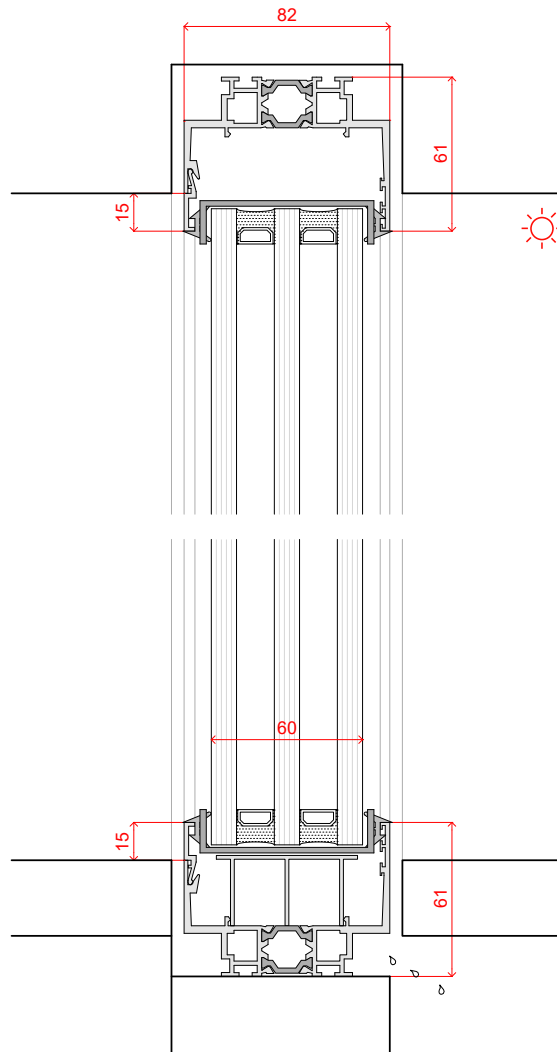




FIXED PANEL

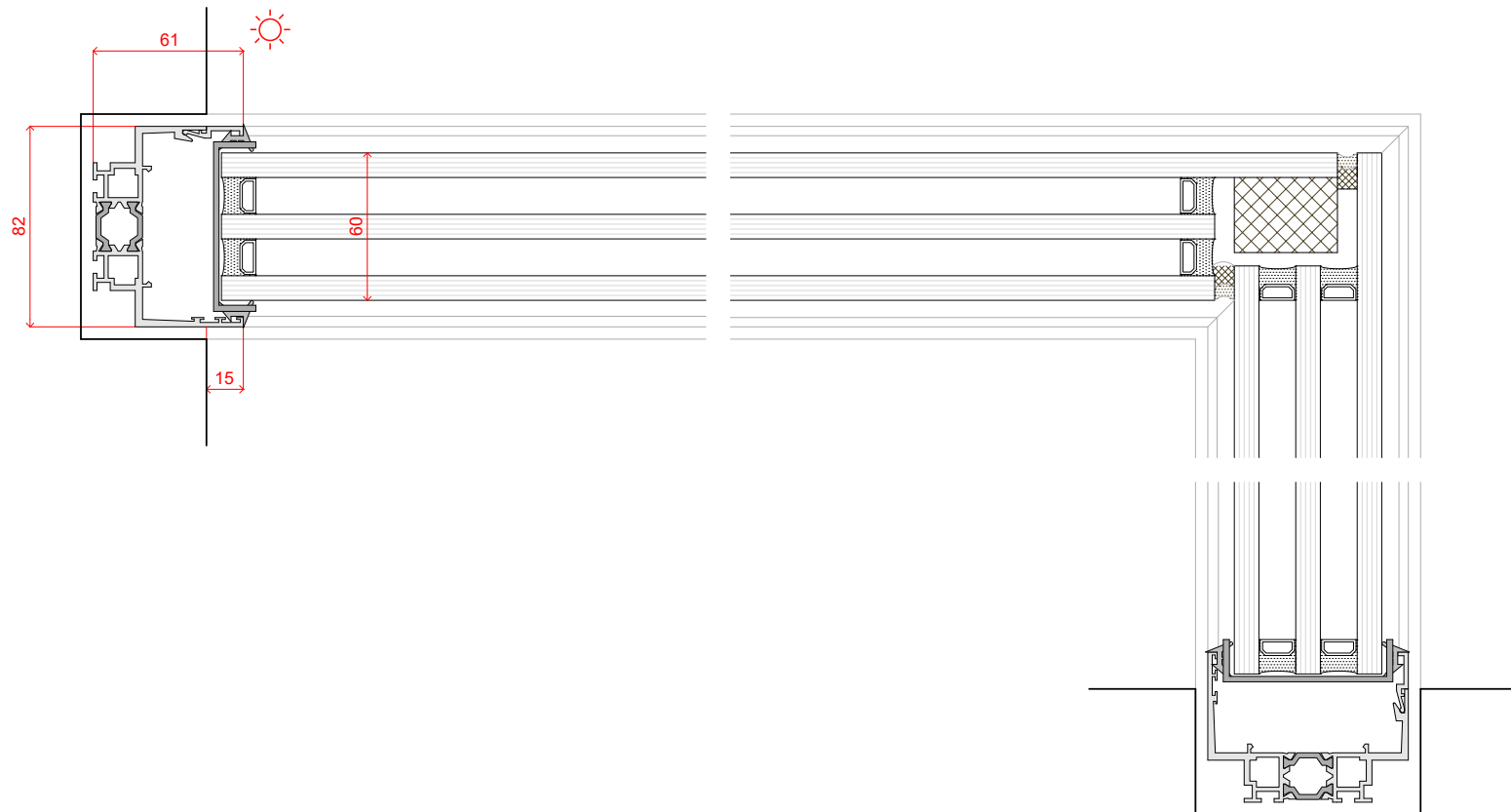
2.3.1 HORIZONTAL - MONORAIL

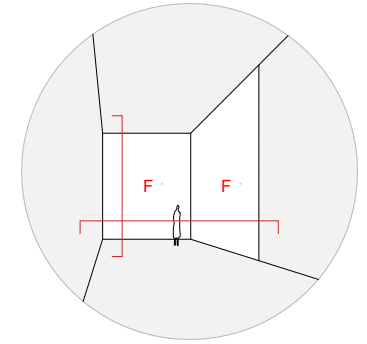
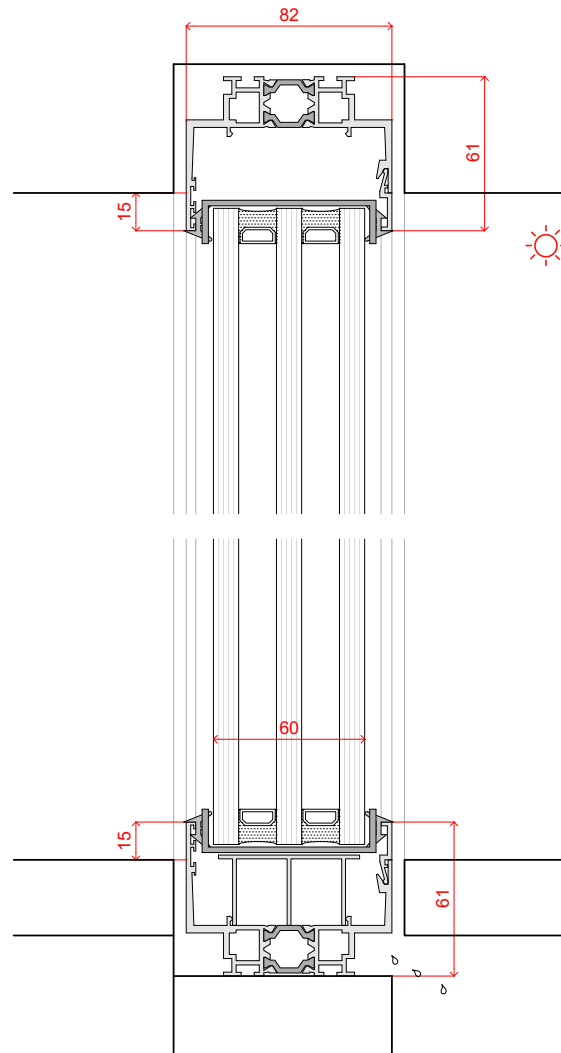




DOUBLE FIXED PANEL

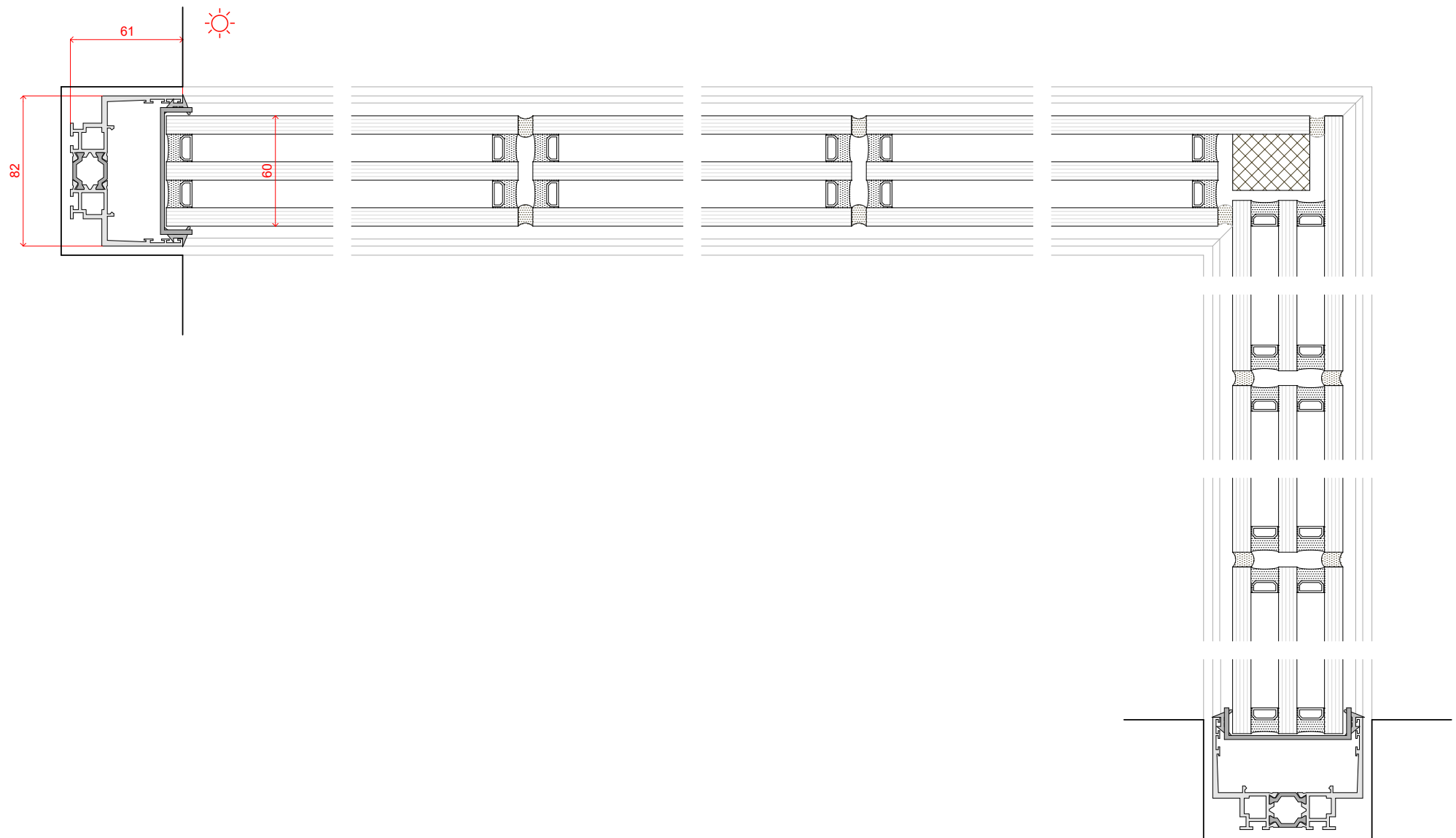
2.3.1 HORIZONTAL - MONORAIL

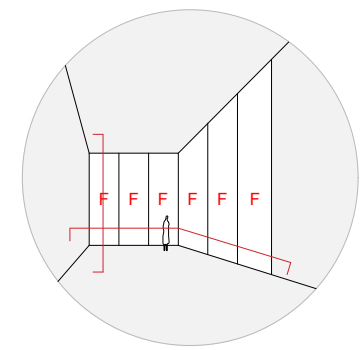
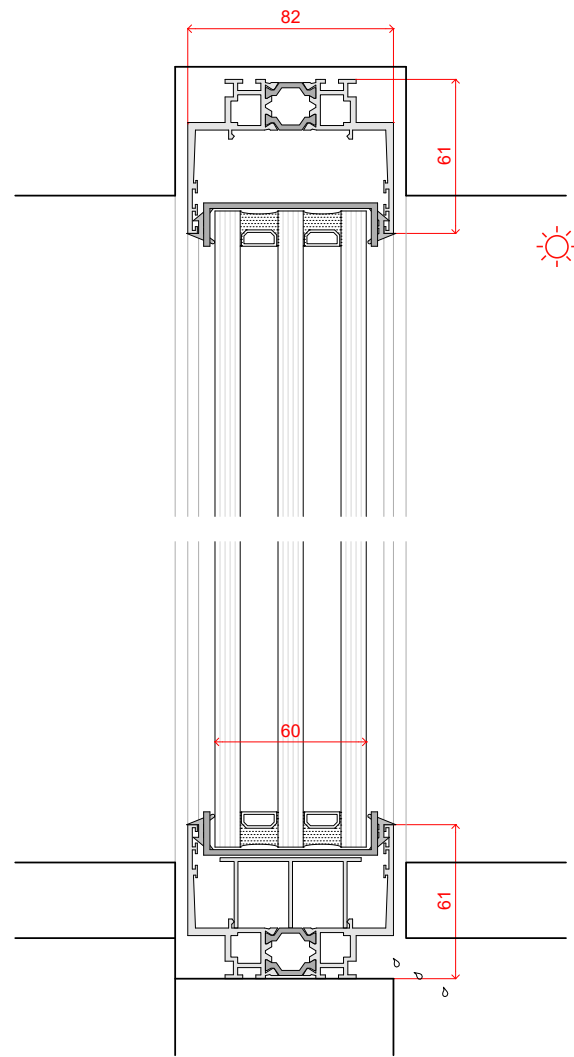




FIXED CORNER

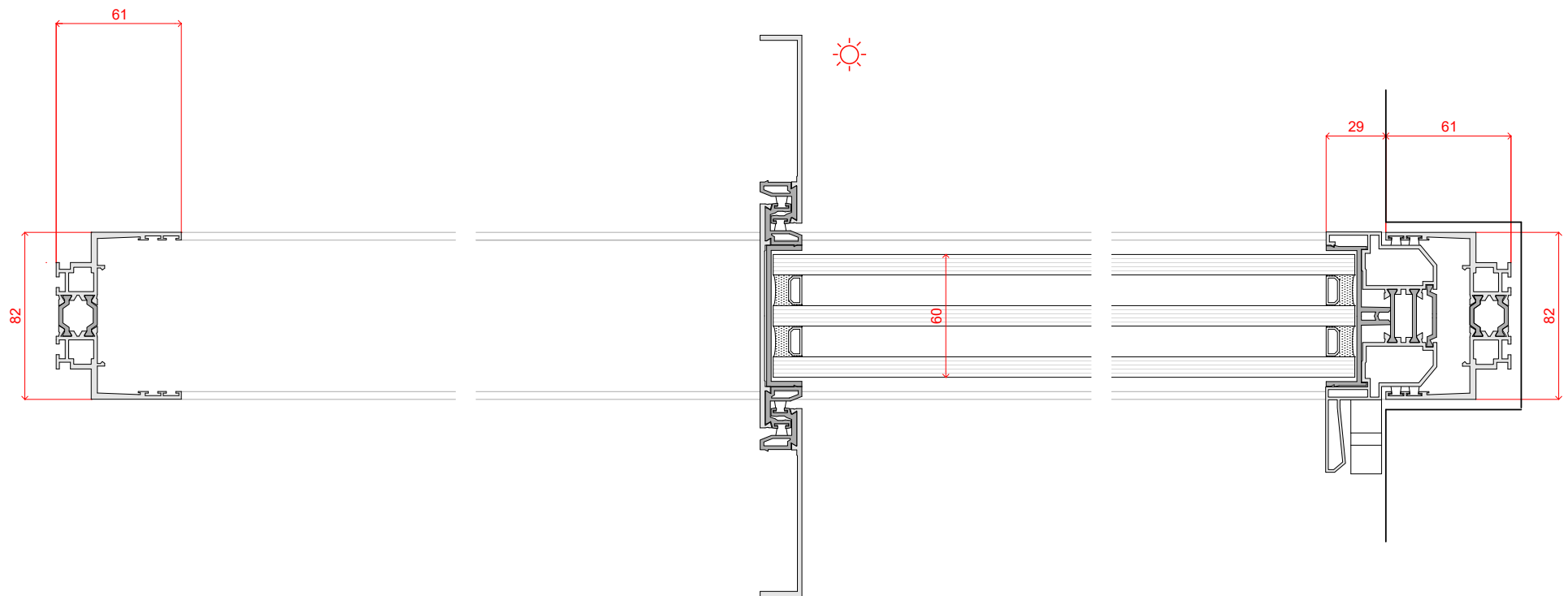
2.3.1 HORIZONTAL - MONORAIL

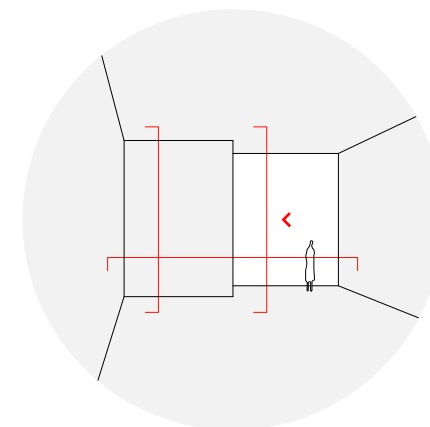
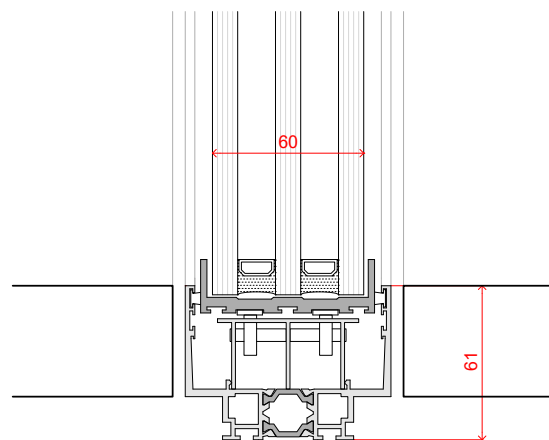
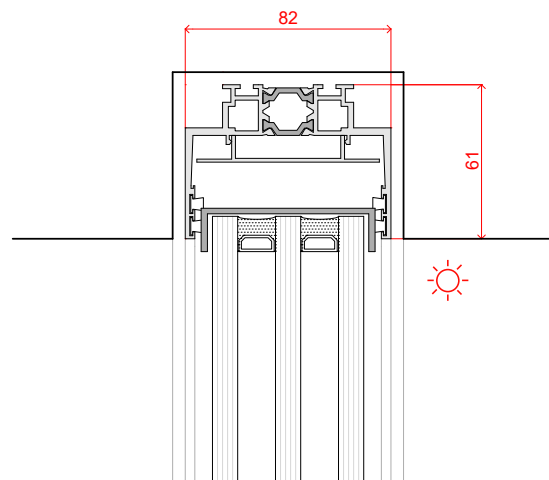
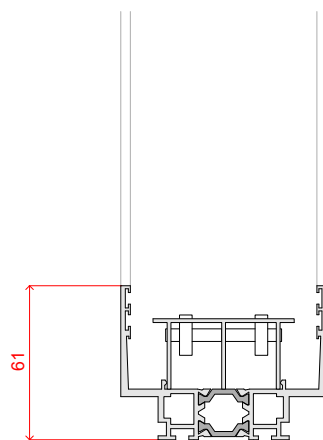
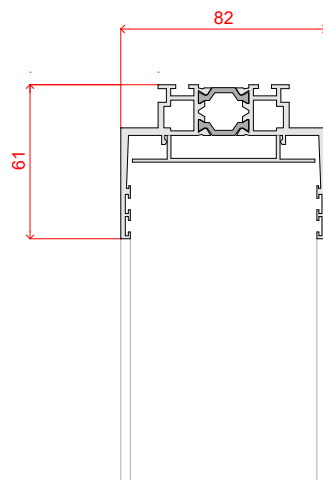




FIXED CORNER

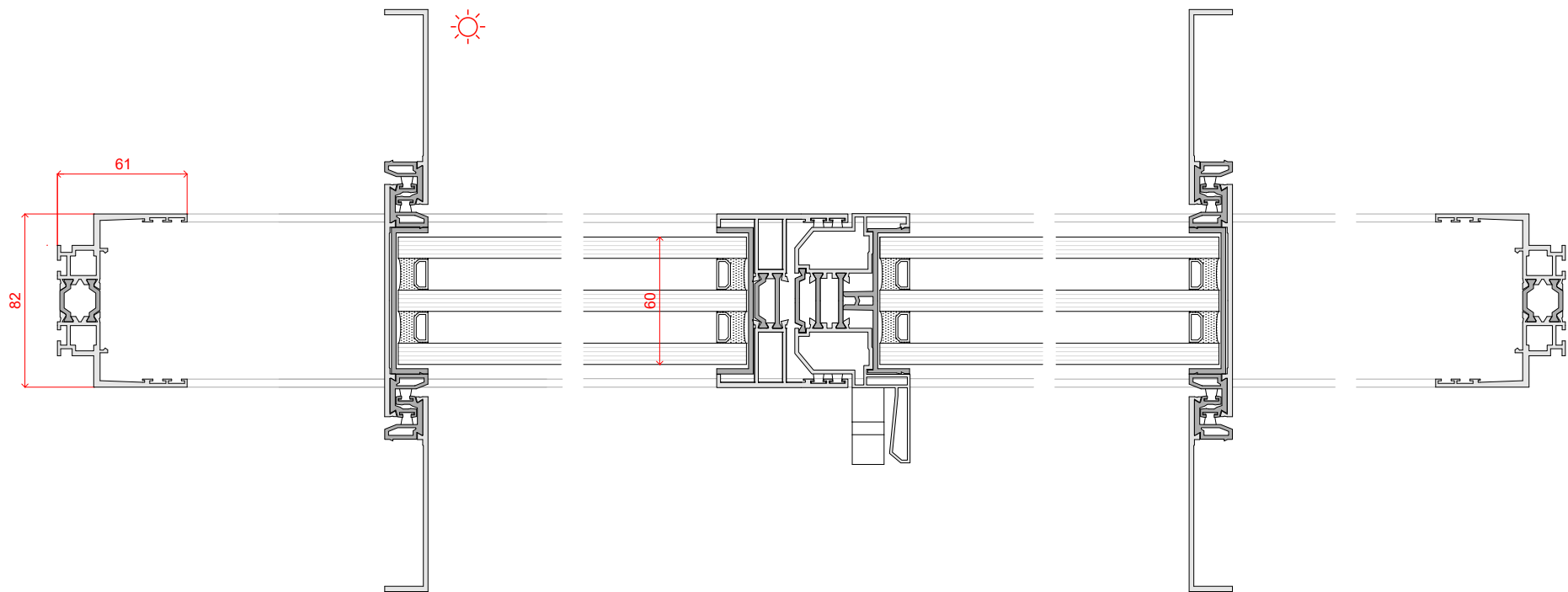
2.3.1 HORIZONTAL - MONORAIL

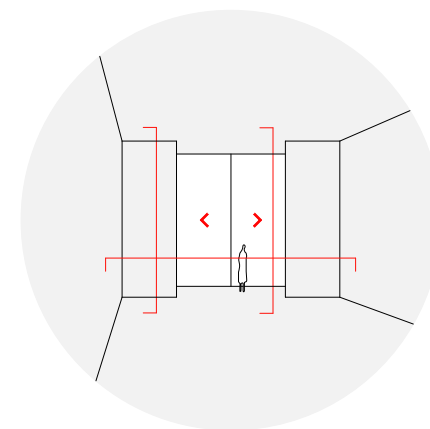
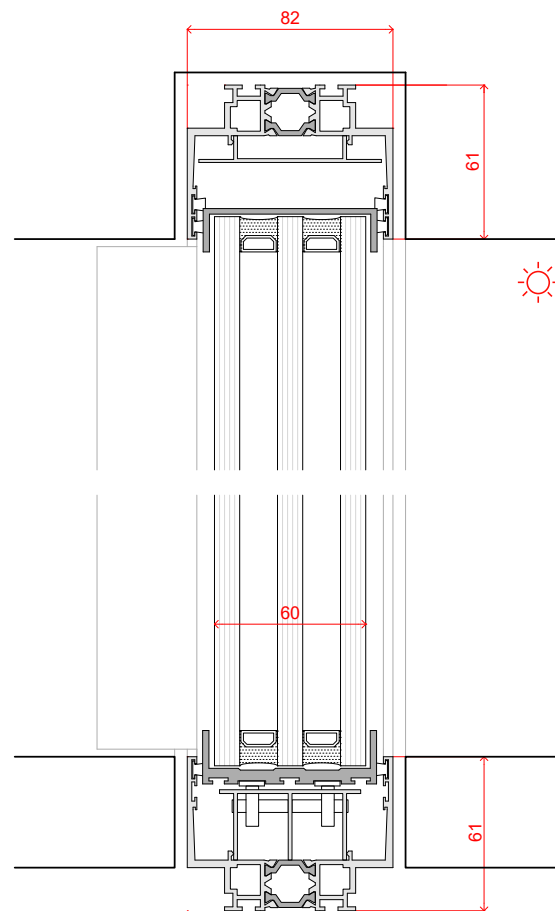
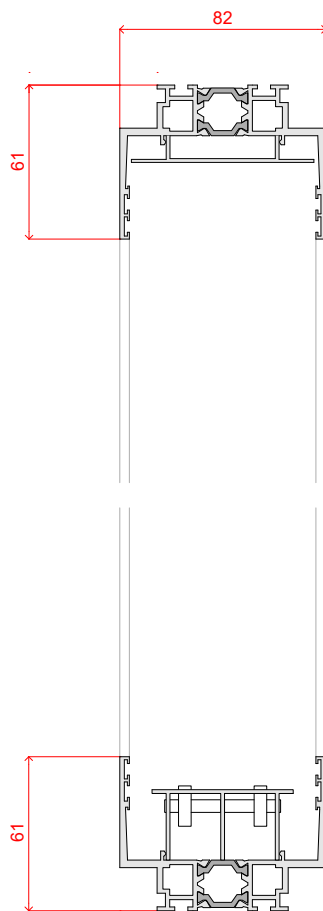




POCKET

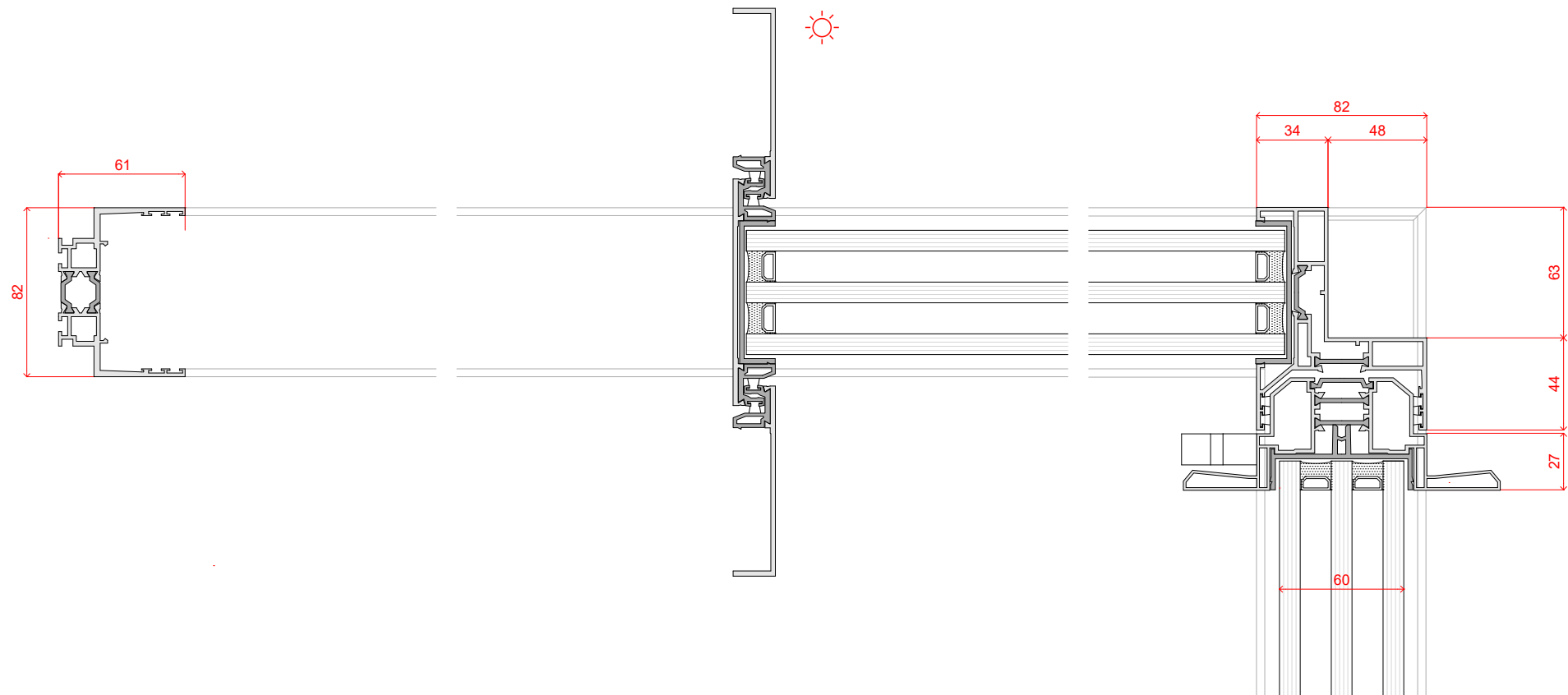
2.3.1 HORIZONTAL - MONORAIL

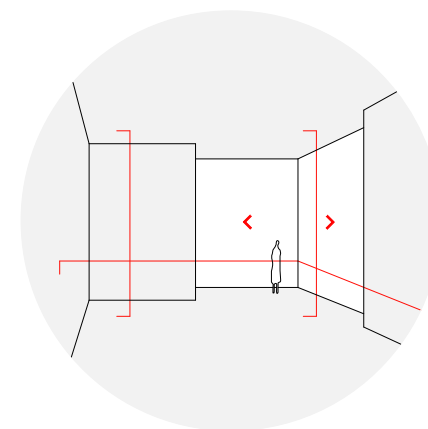
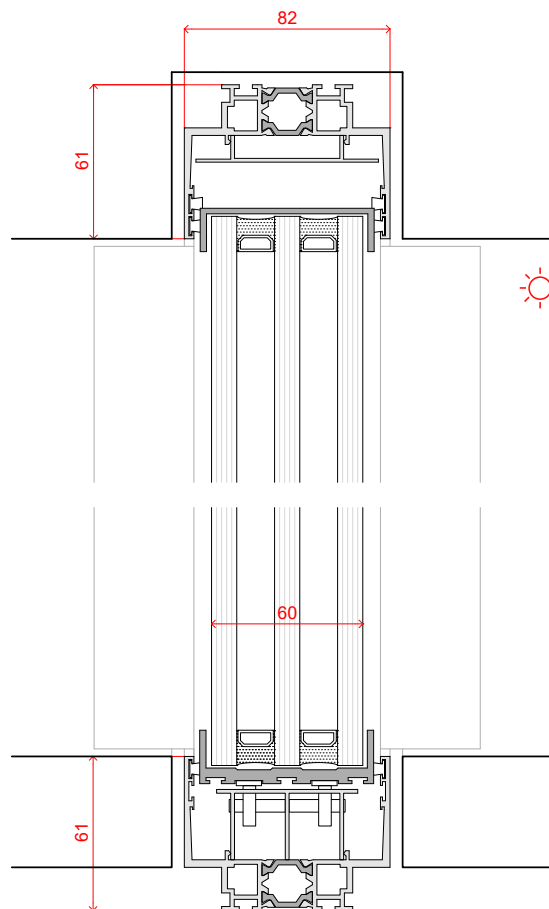
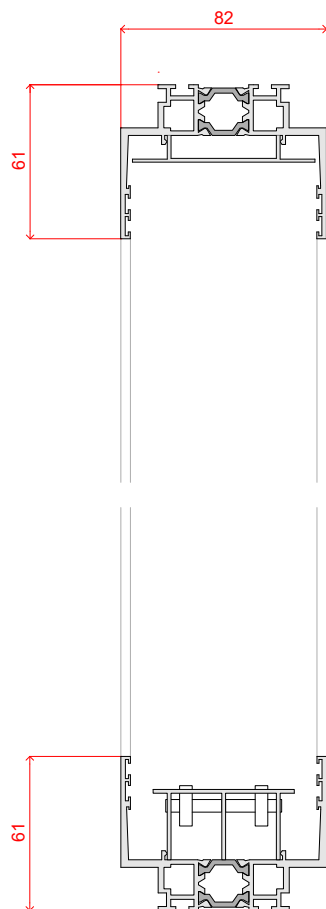




DOUBLE POCKET

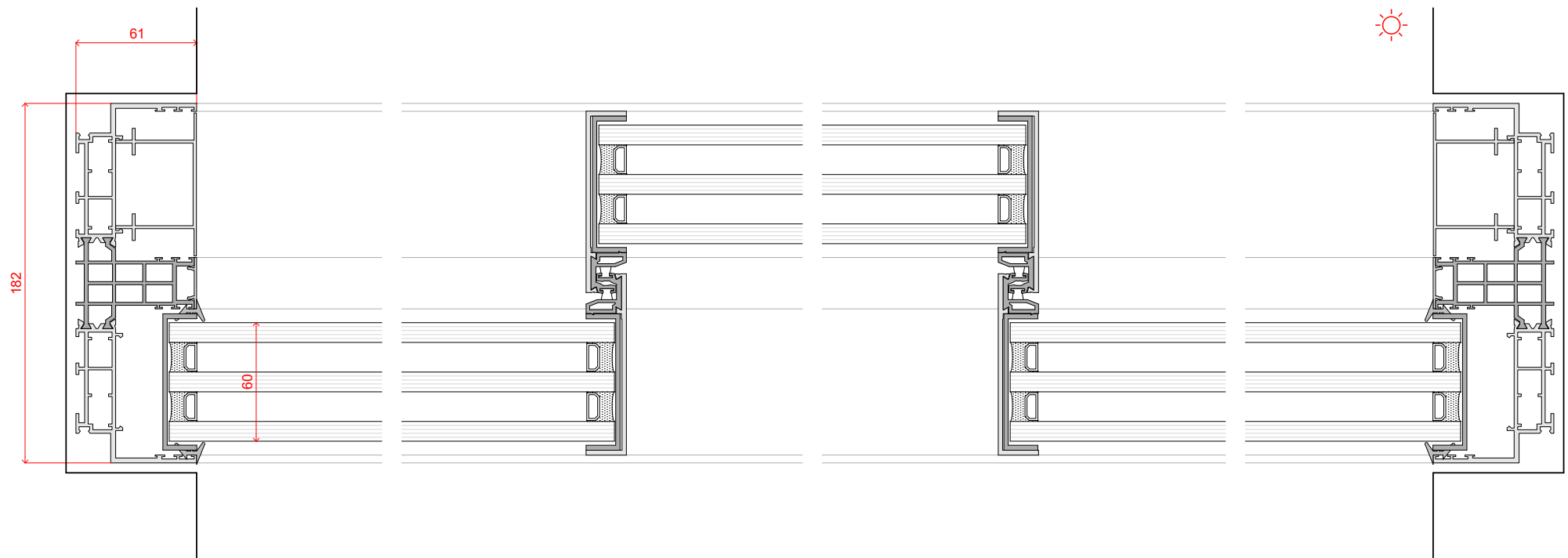
2.3.1 HORIZONTAL - MONORAIL

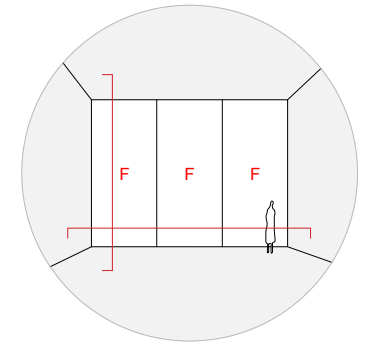
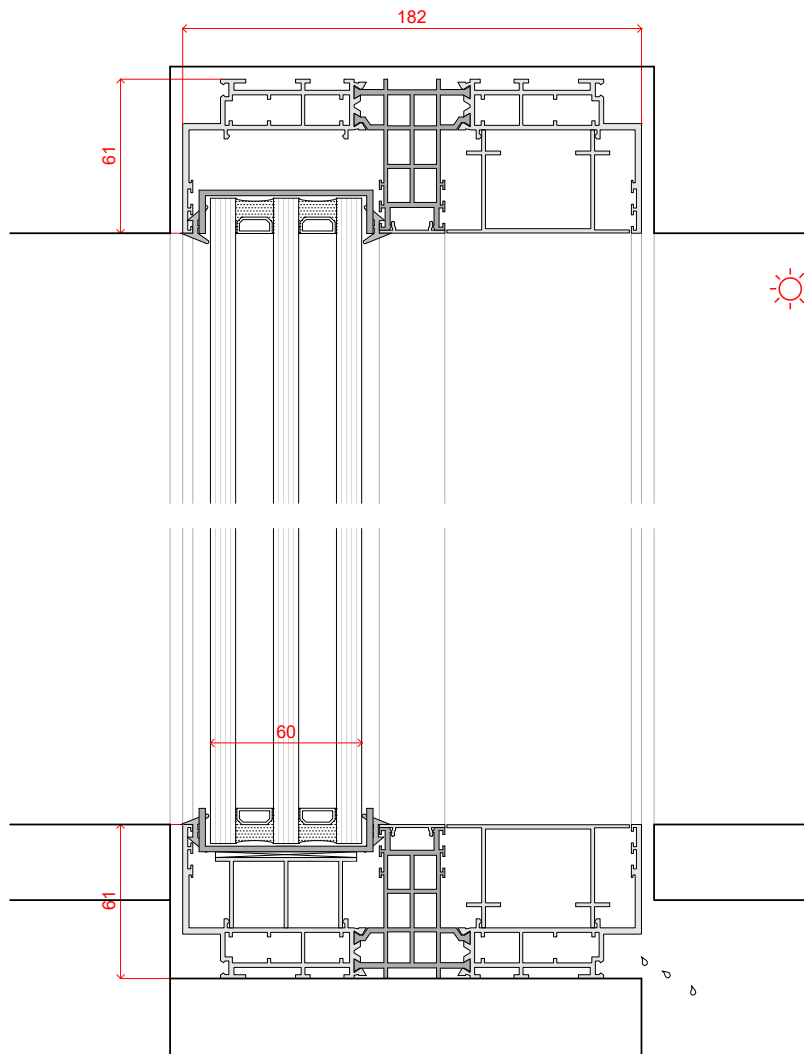




SLIDING CORNER + POCKET

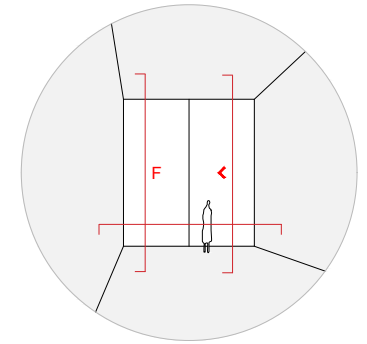
2.3.1 HORIZONTAL - BIRAIL



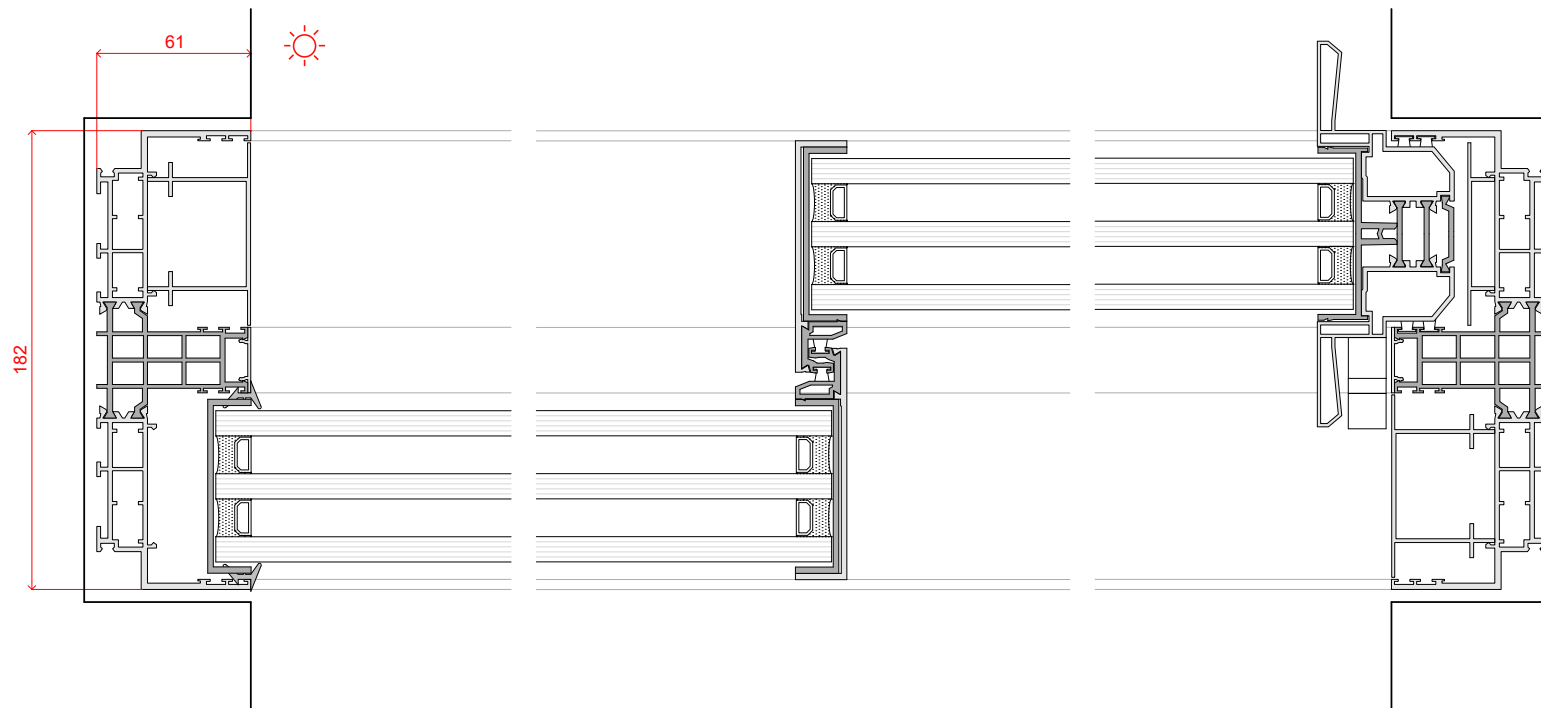


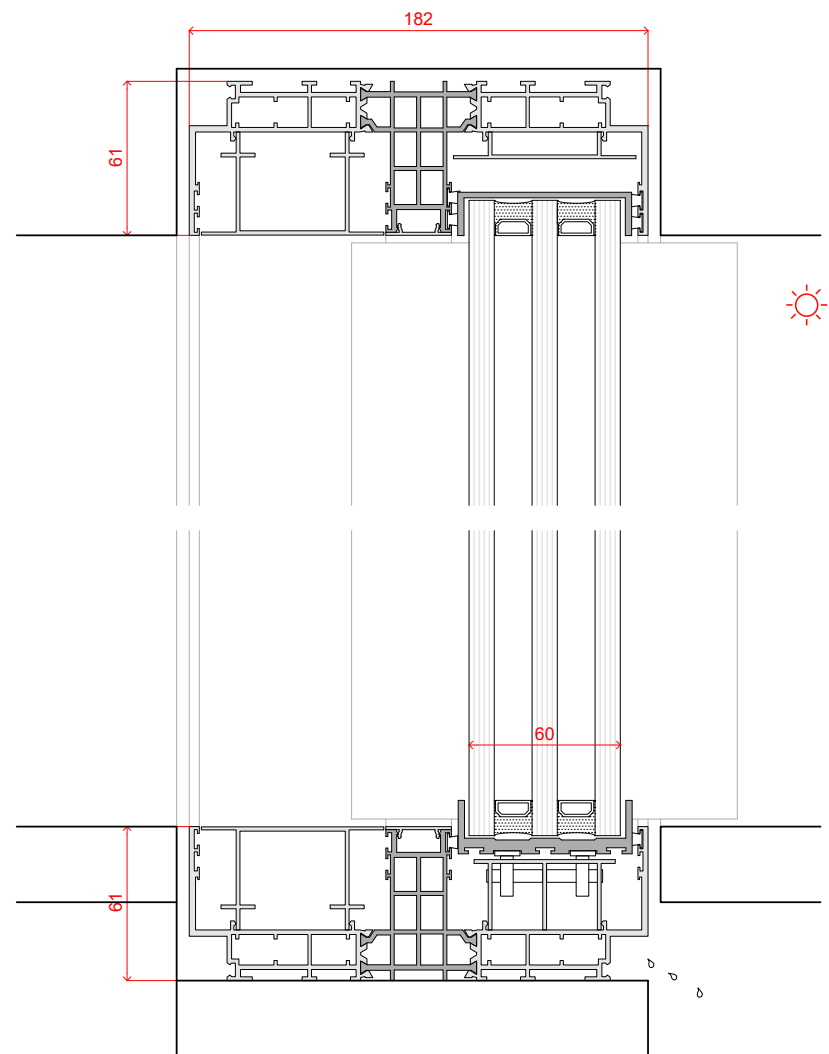
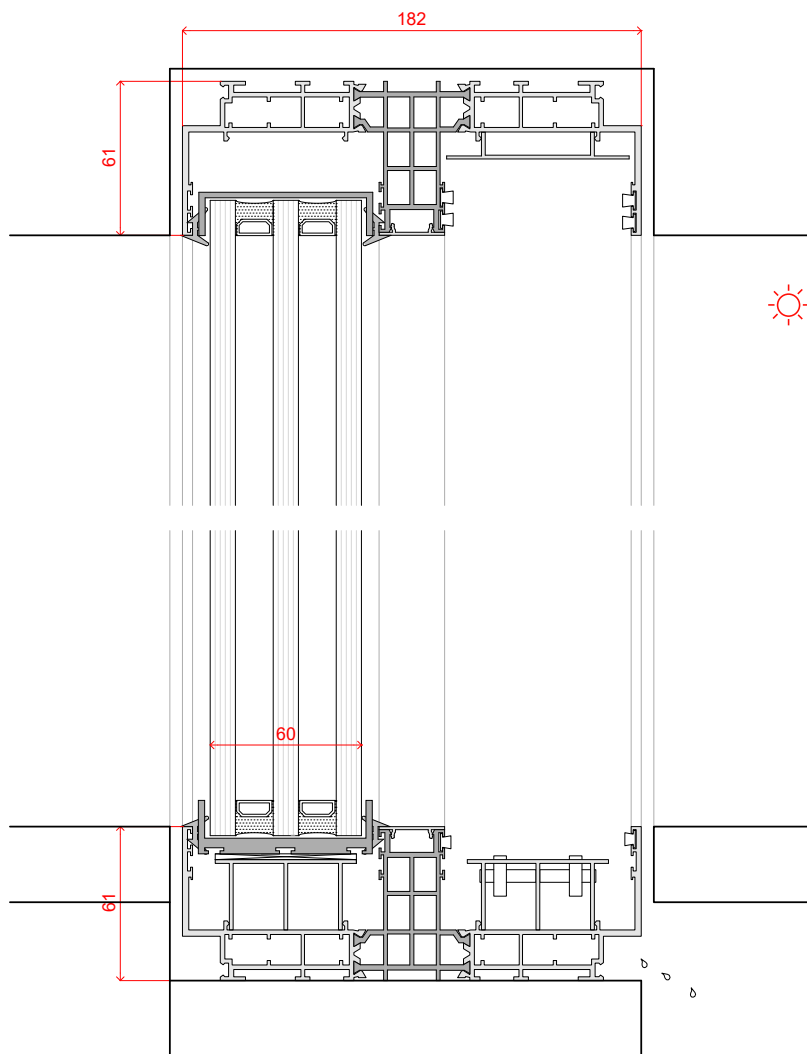
MULTIPLE FIXED PANELS

2.3.1 HORIZONTAL - BIRAIL

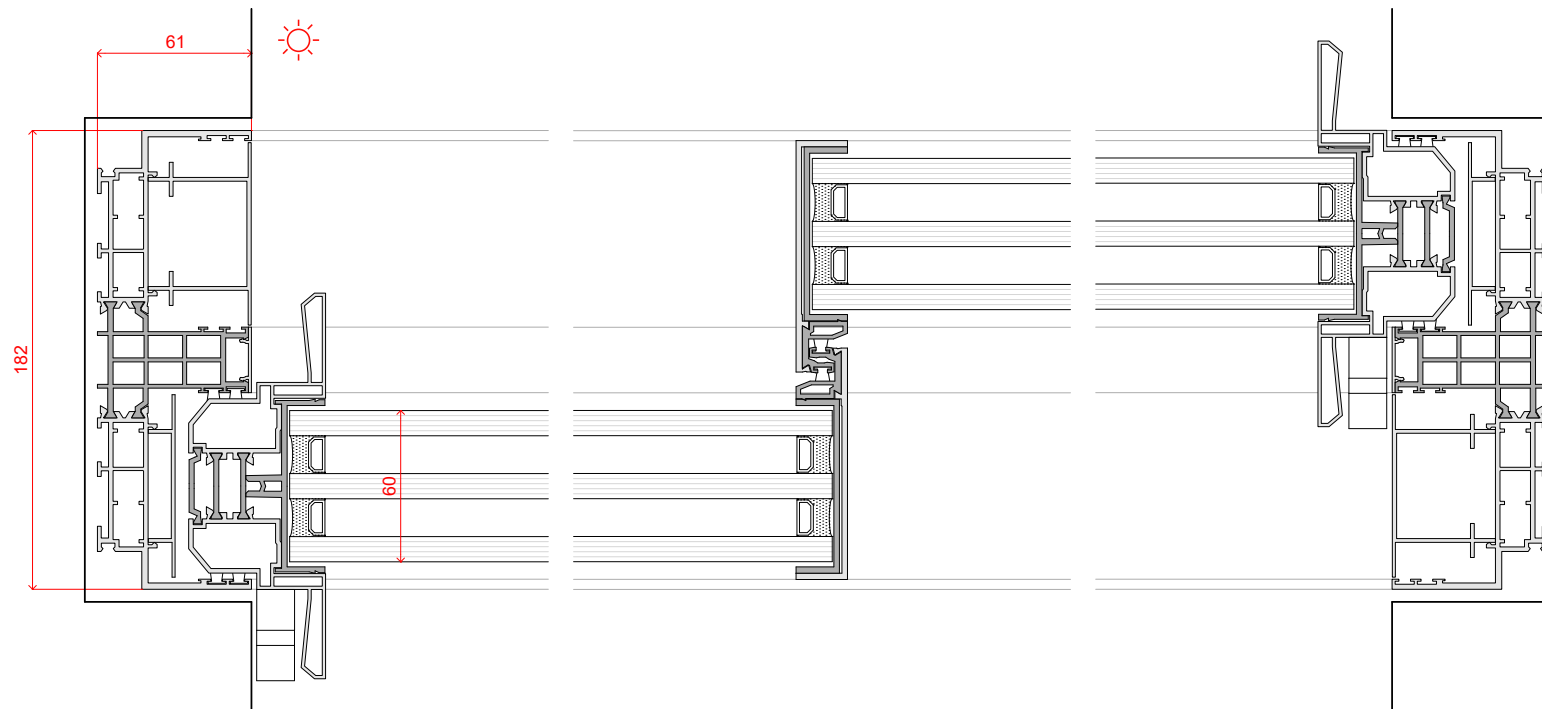


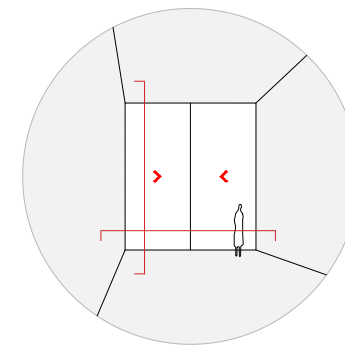
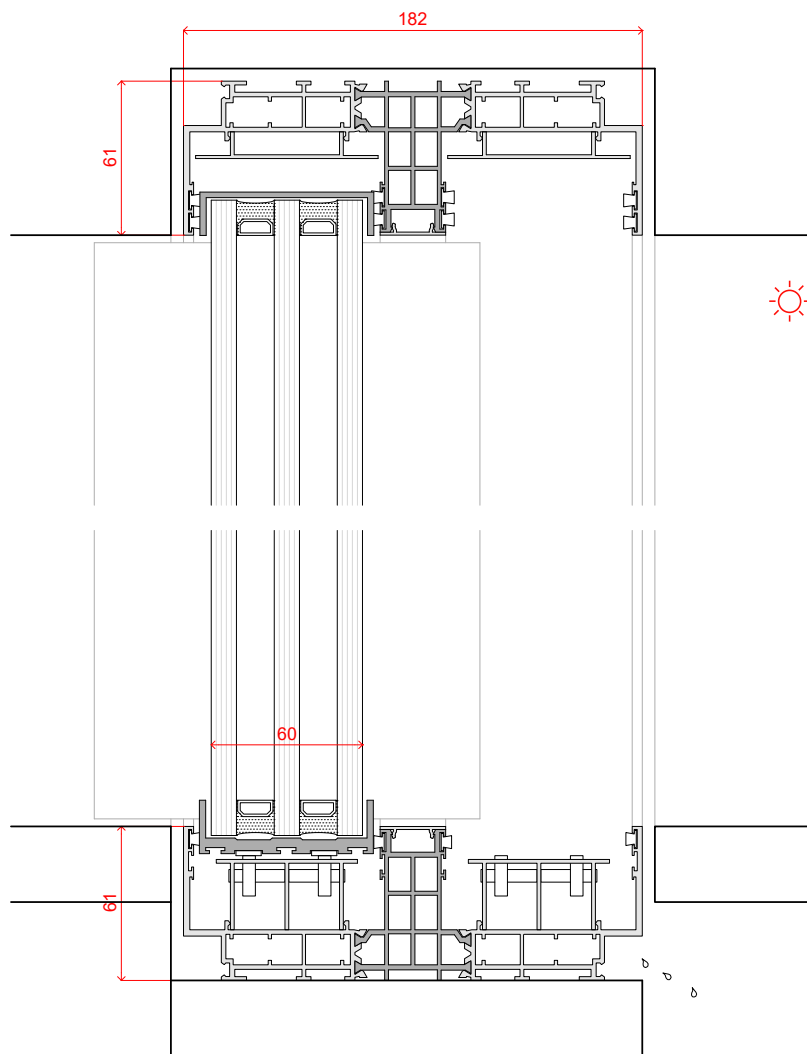
FIXED + SLIDING





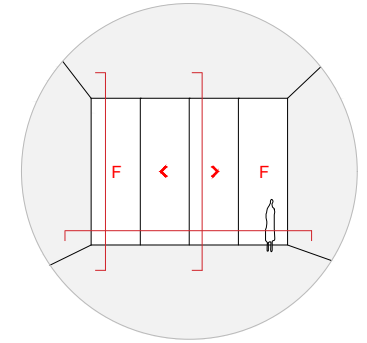
2.3.1 HORIZONTAL - BIRAIL



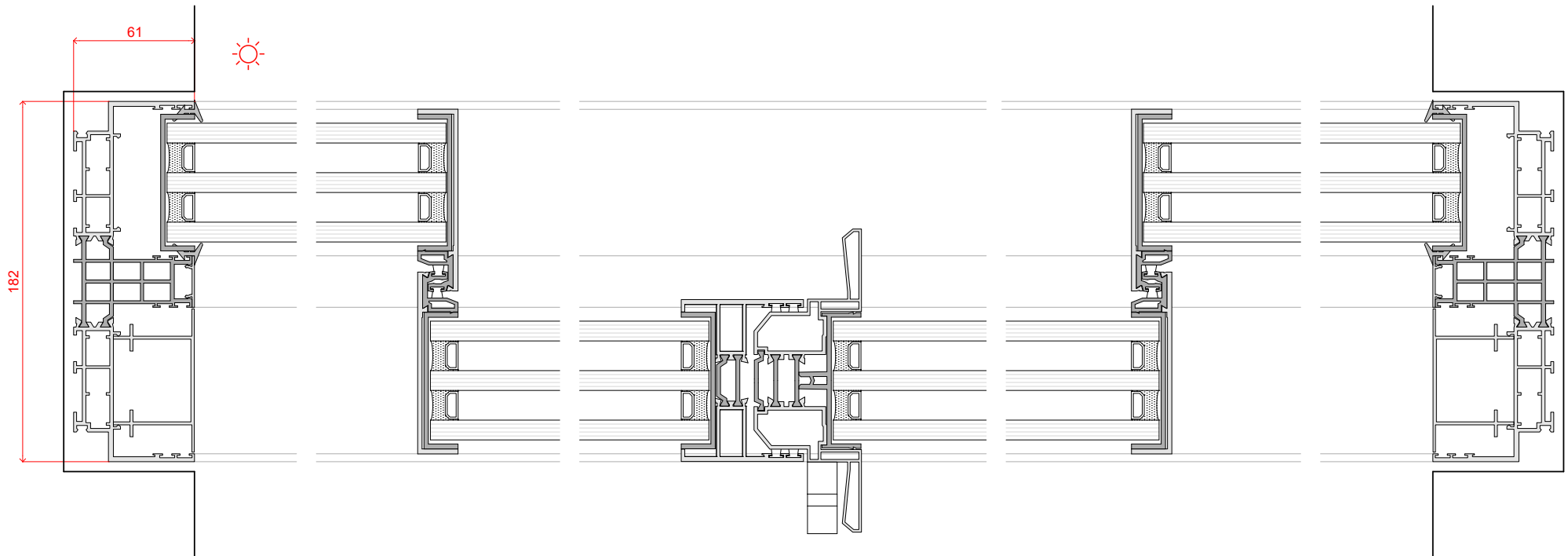


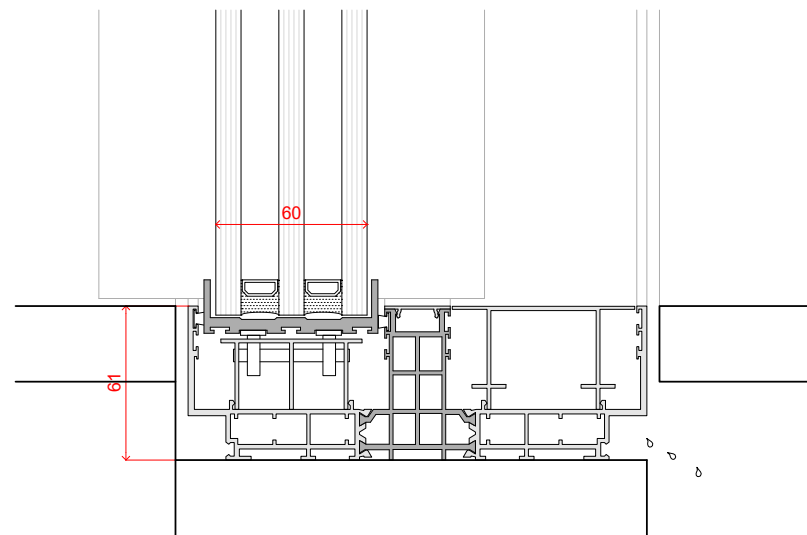
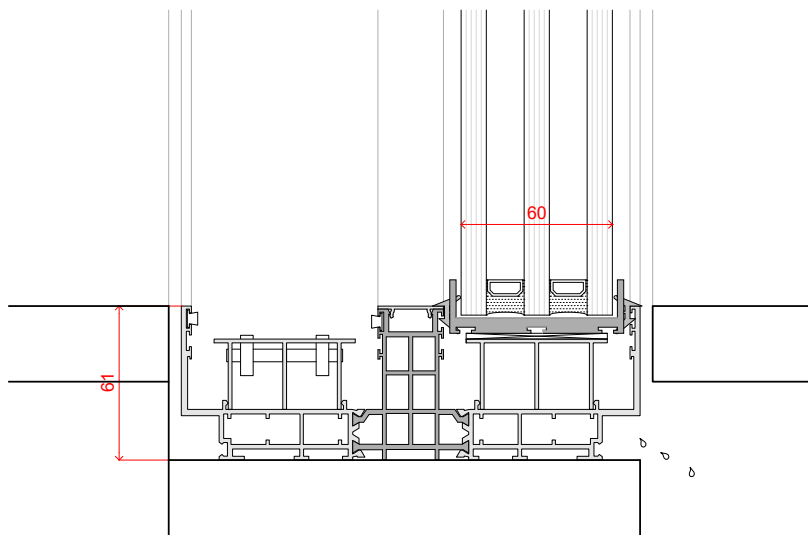
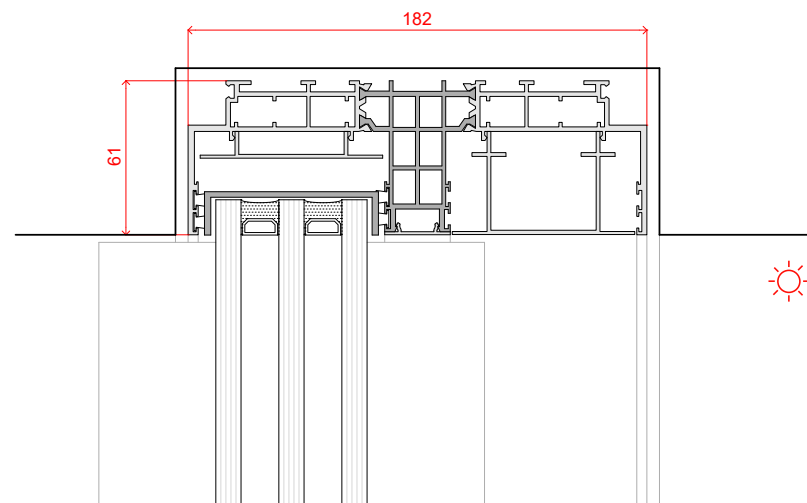
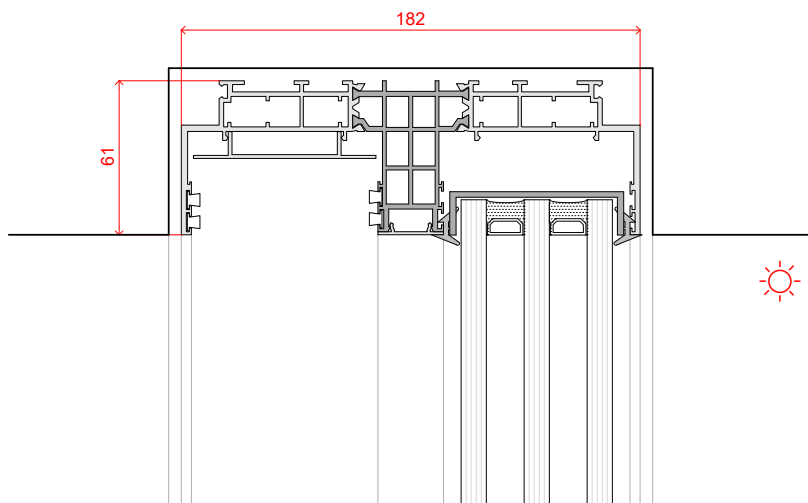
DOUBLE SLIDING

2.3.1 HORIZONTAL - BIRAIL

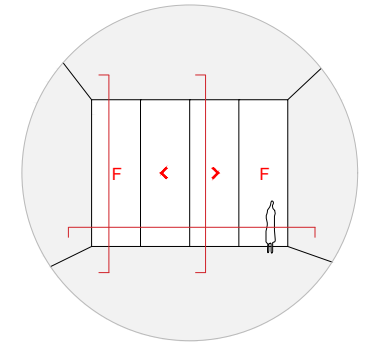


FIXED + DOUBLE SLIDING + FIXED
(CENTRAL OPENING)

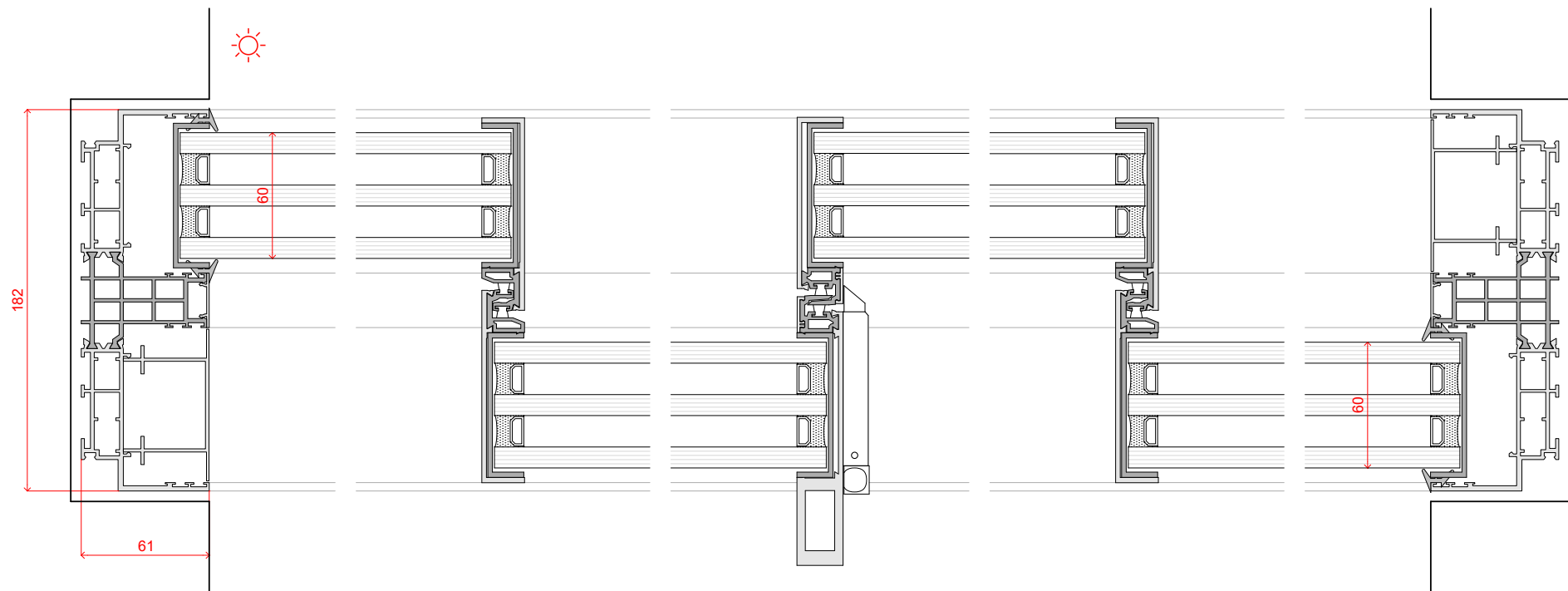


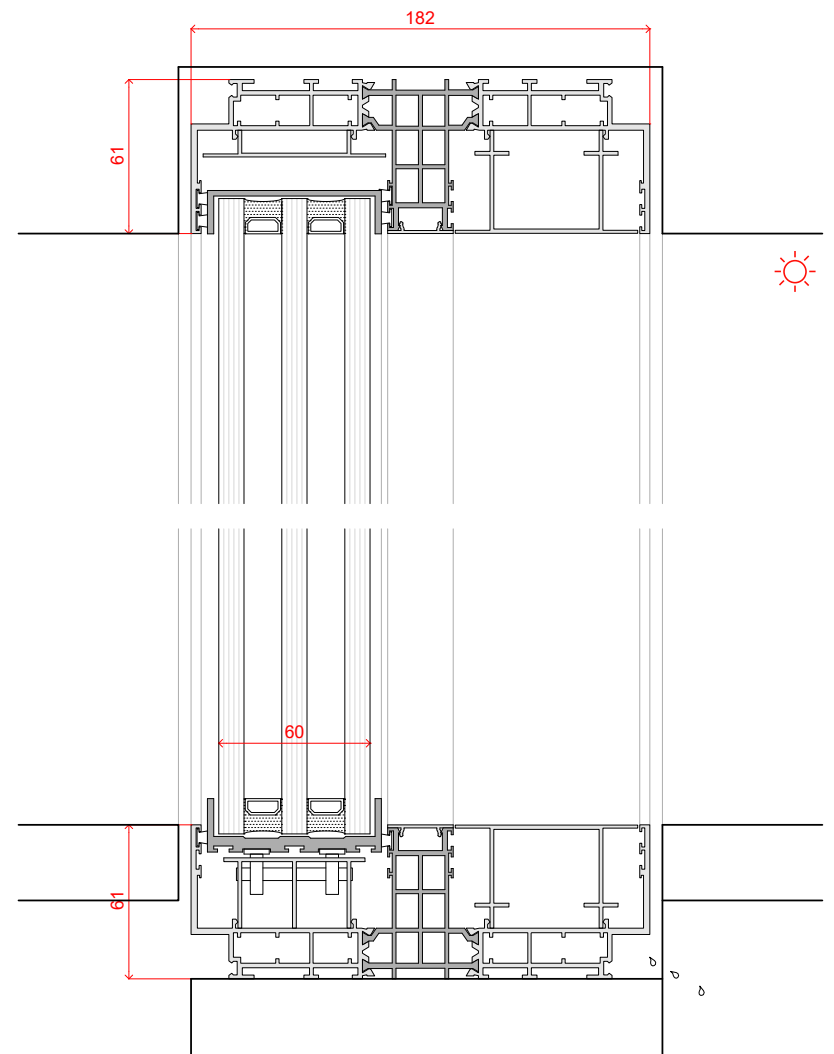
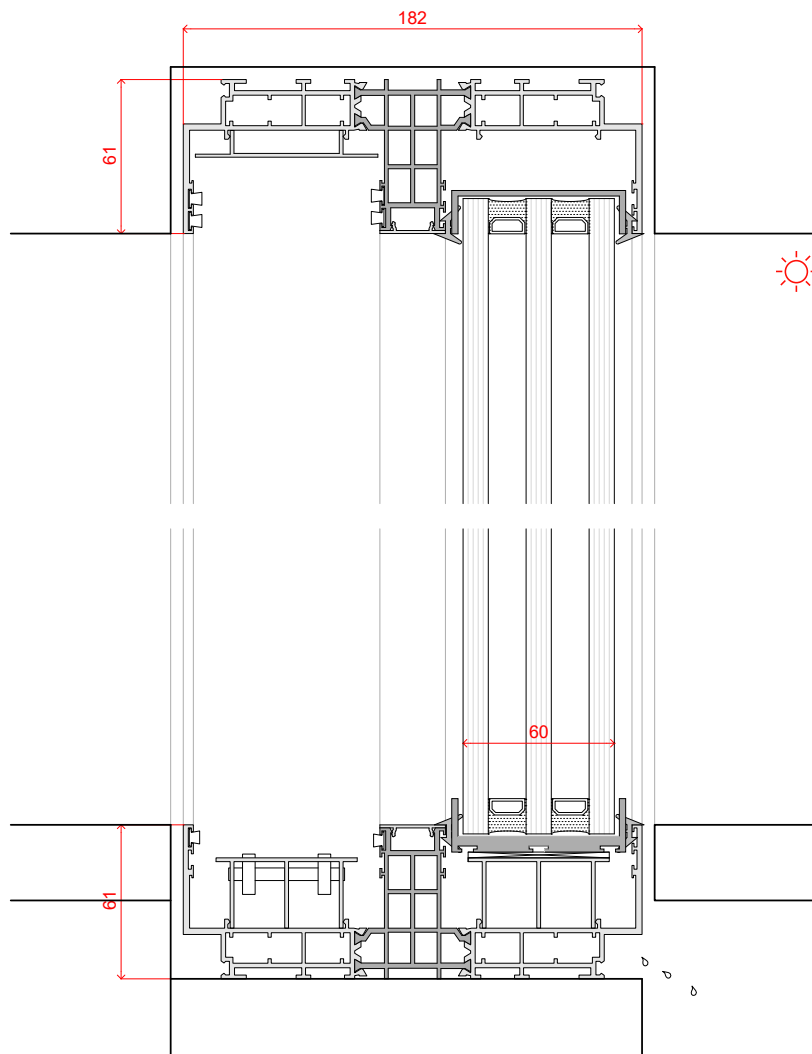


2.3.1 HORIZONTAL - BIRAIL

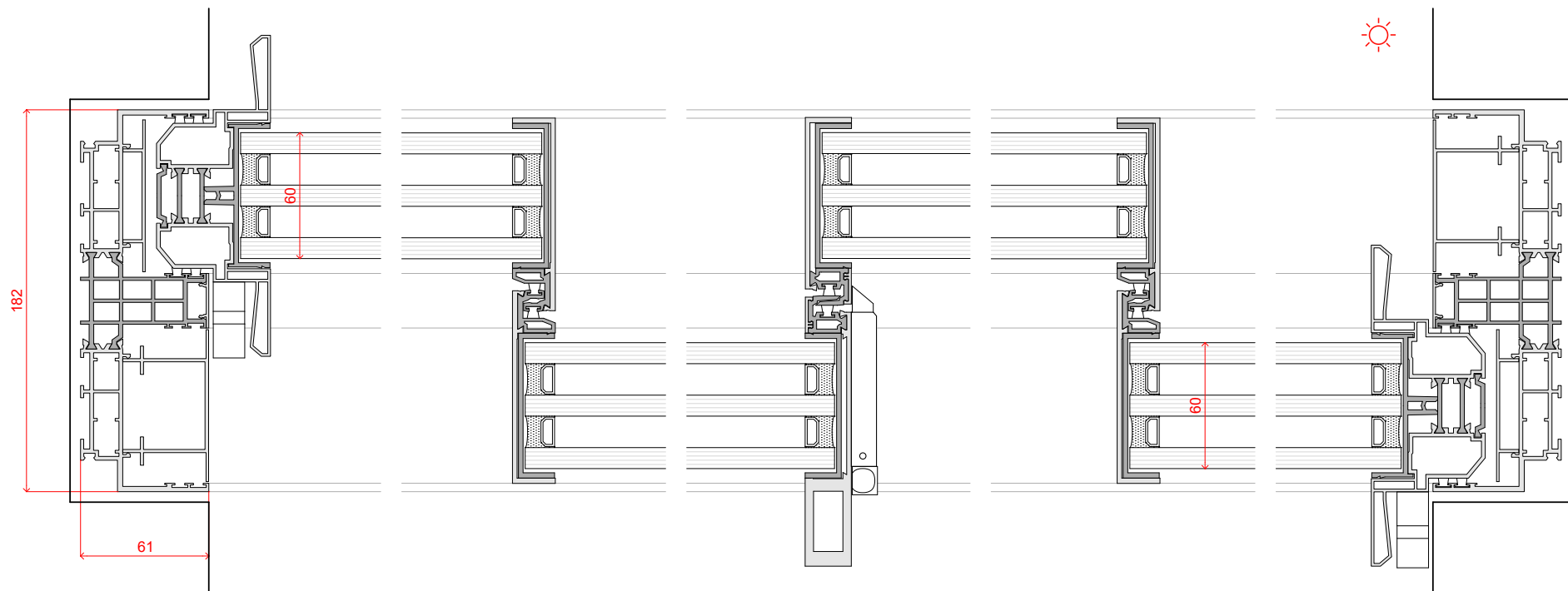


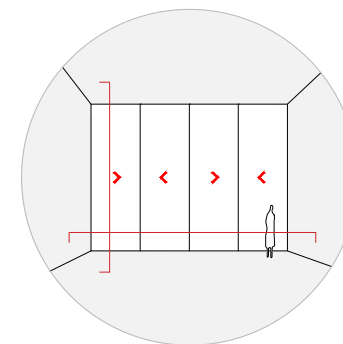
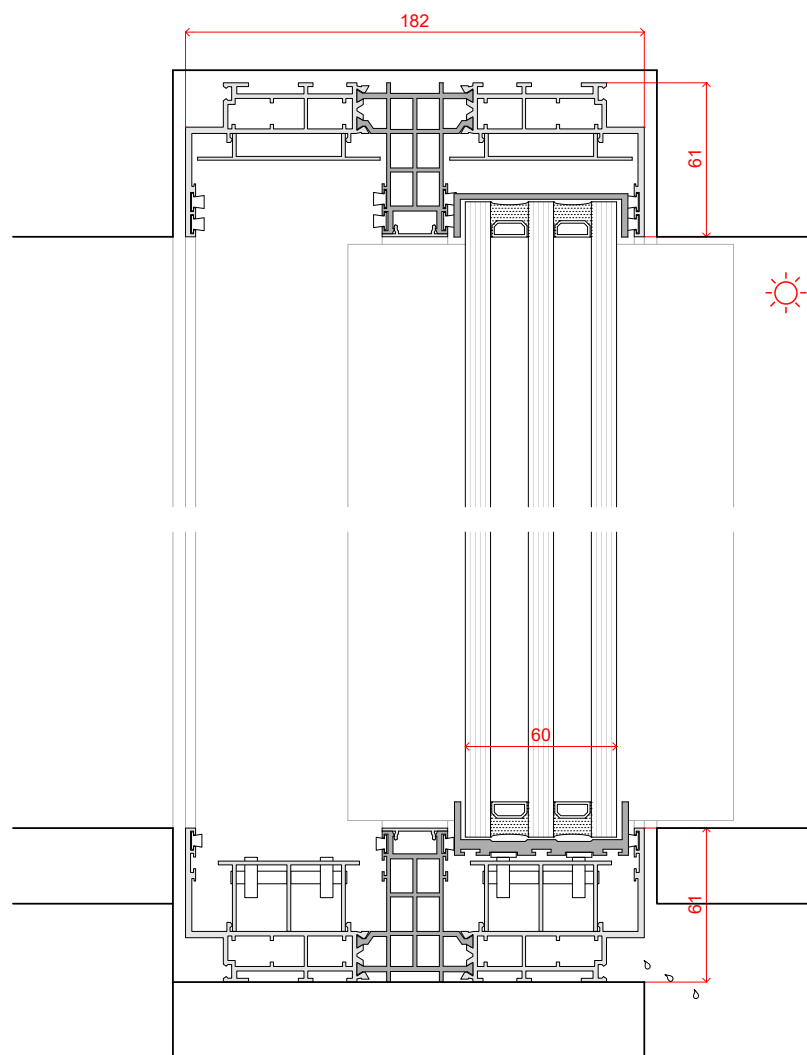
FIXED + DOUBLE SLIDING + FIXED
(INVERTED CENTRAL OPENING)





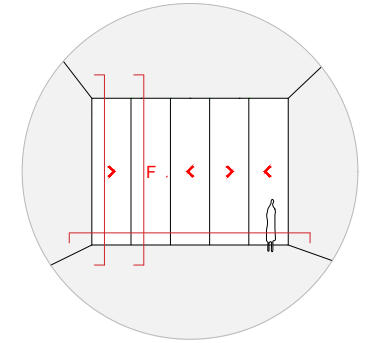
2.3.1 HORIZONTAL - BIRAIL



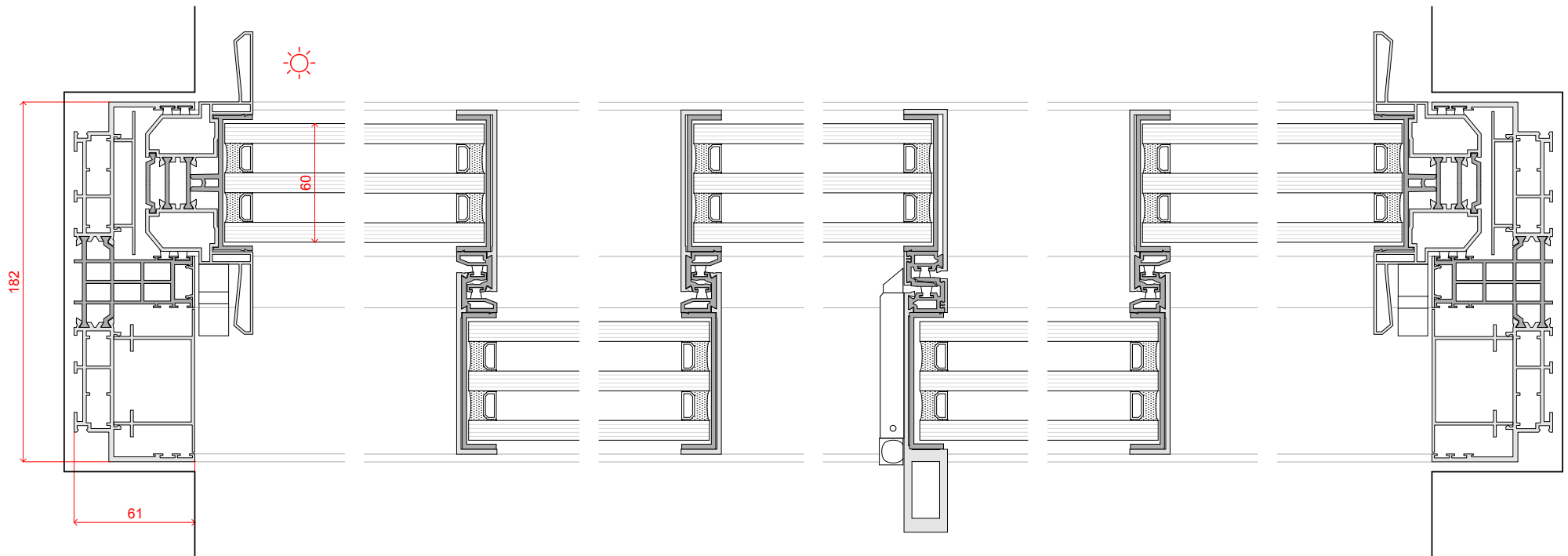


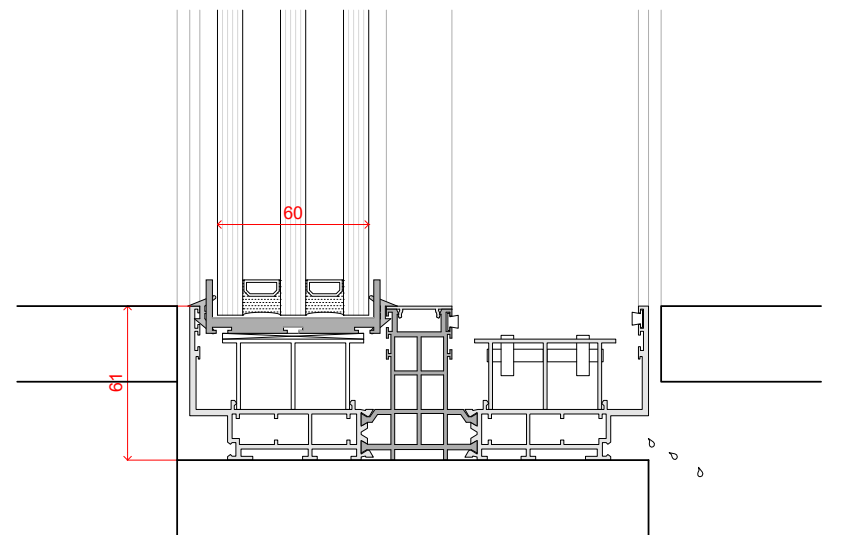
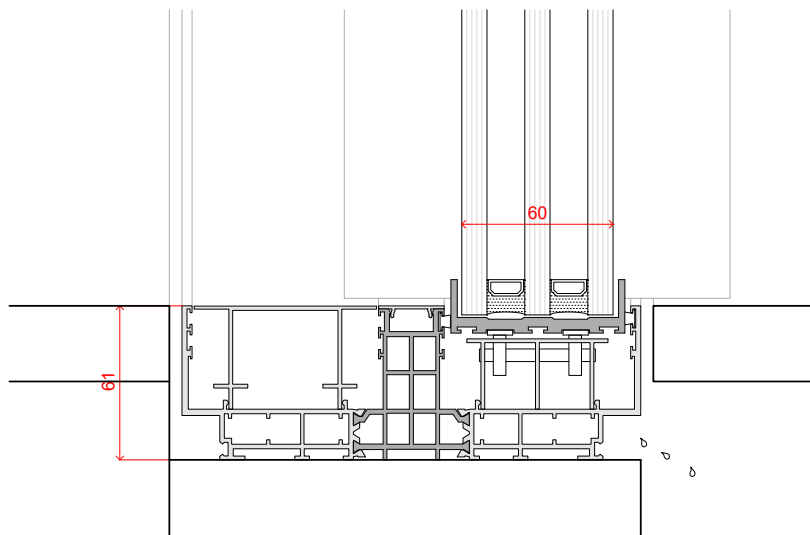
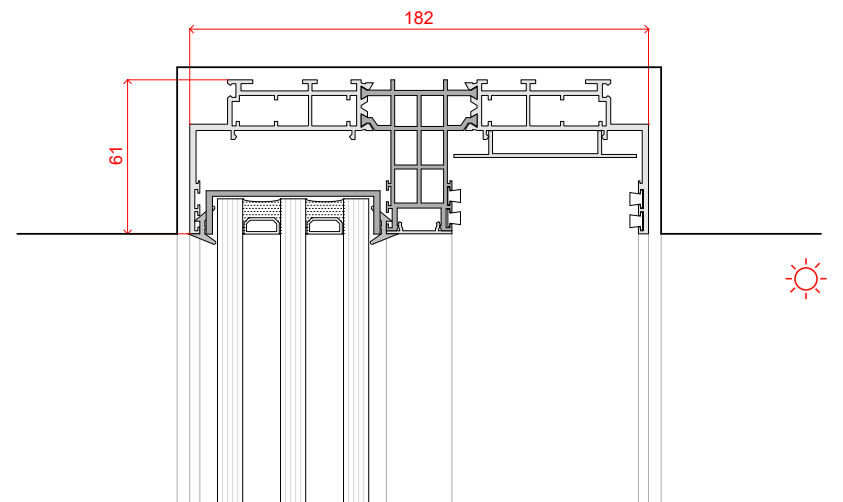
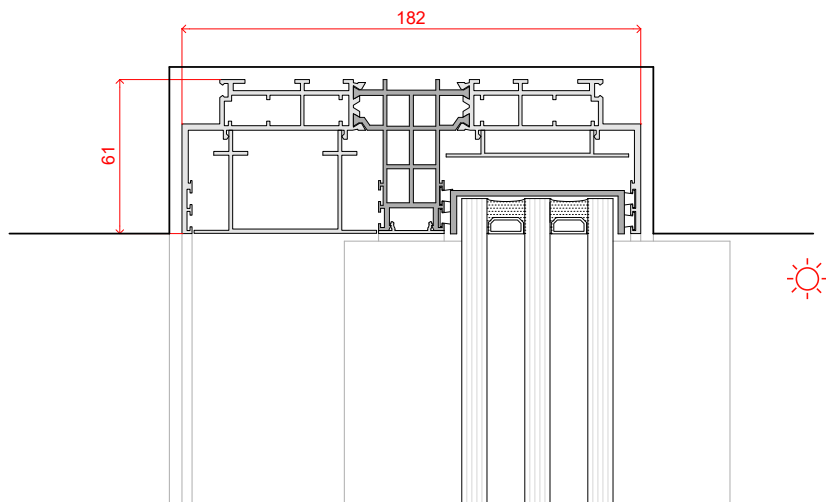
MULTIPLE SLIDING
(INVERTED CENTRAL OPENING)

2.3.1 HORIZONTAL - BIRAIL

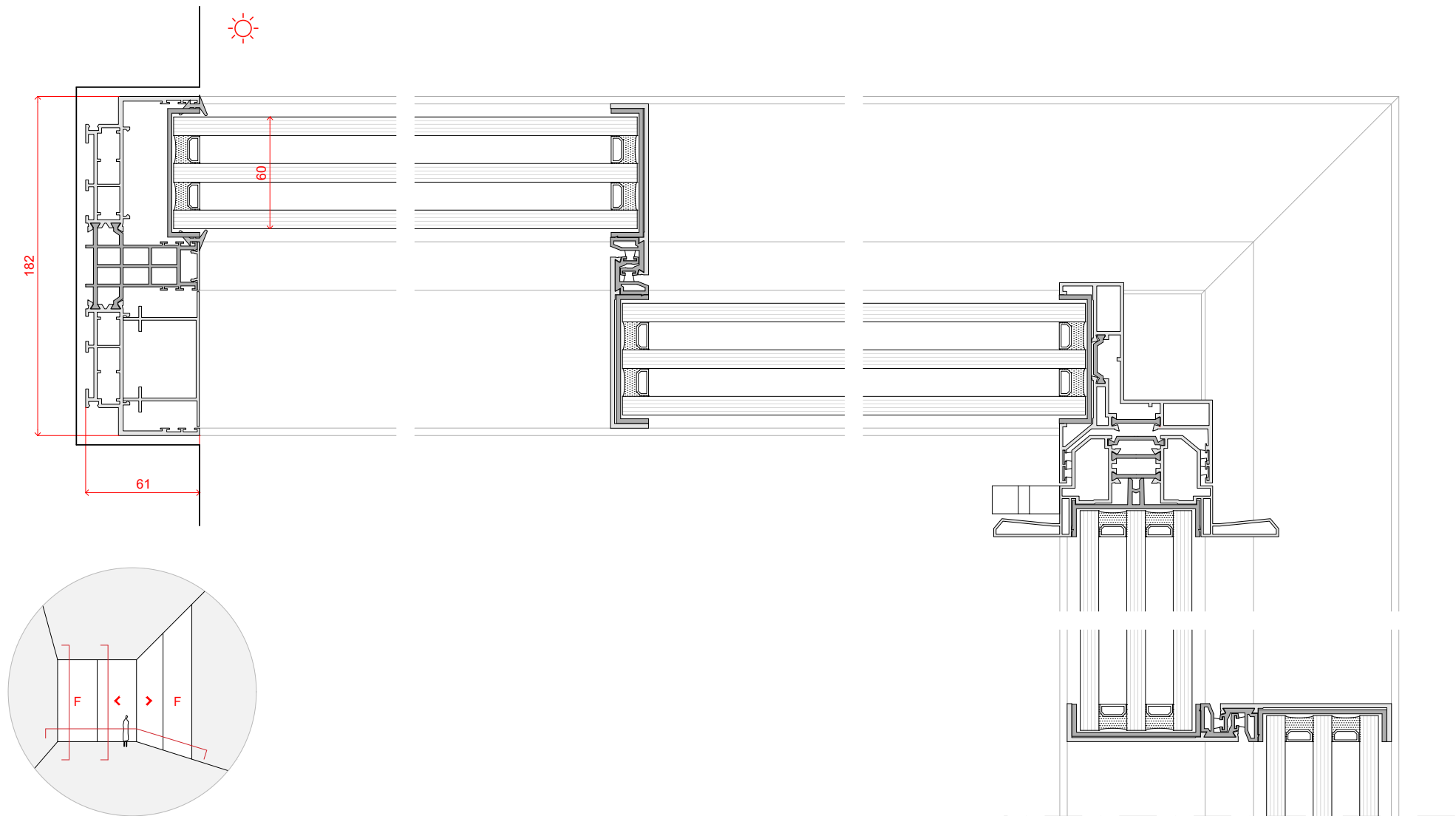


SLIDING + FIXED + MULTIPLE SLIDING

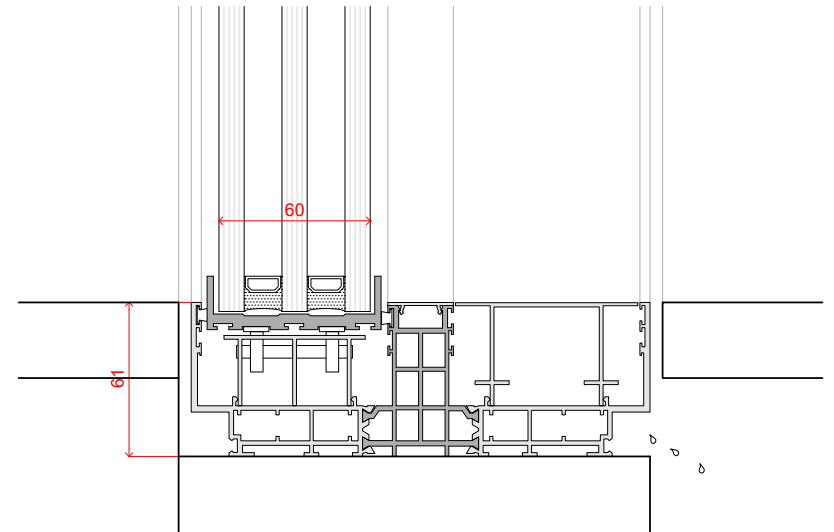
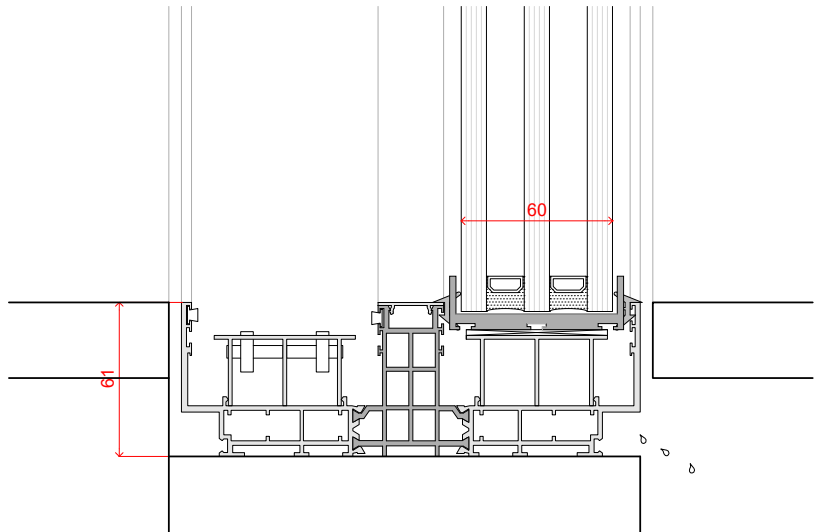
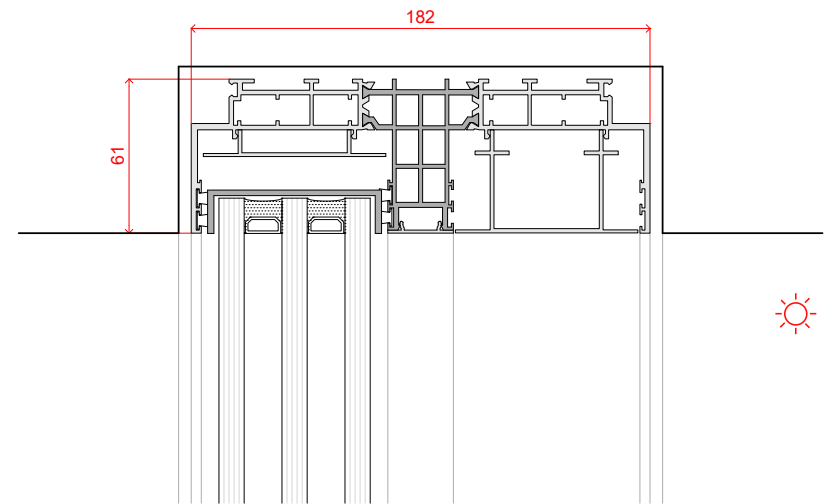
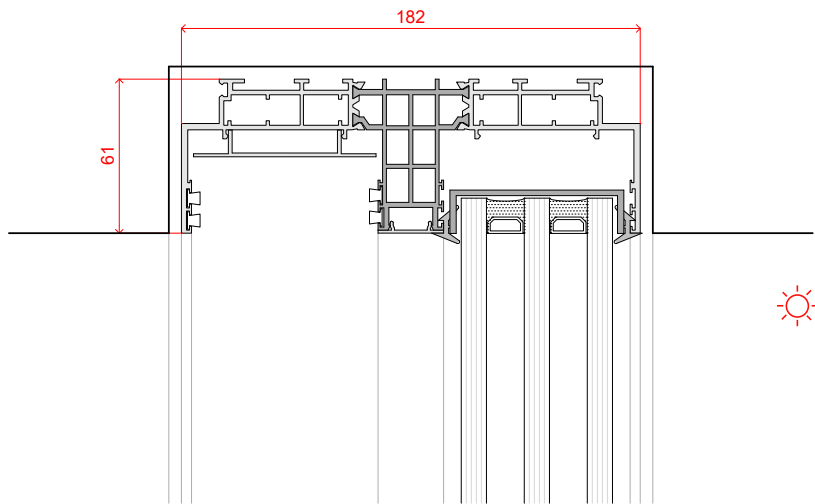




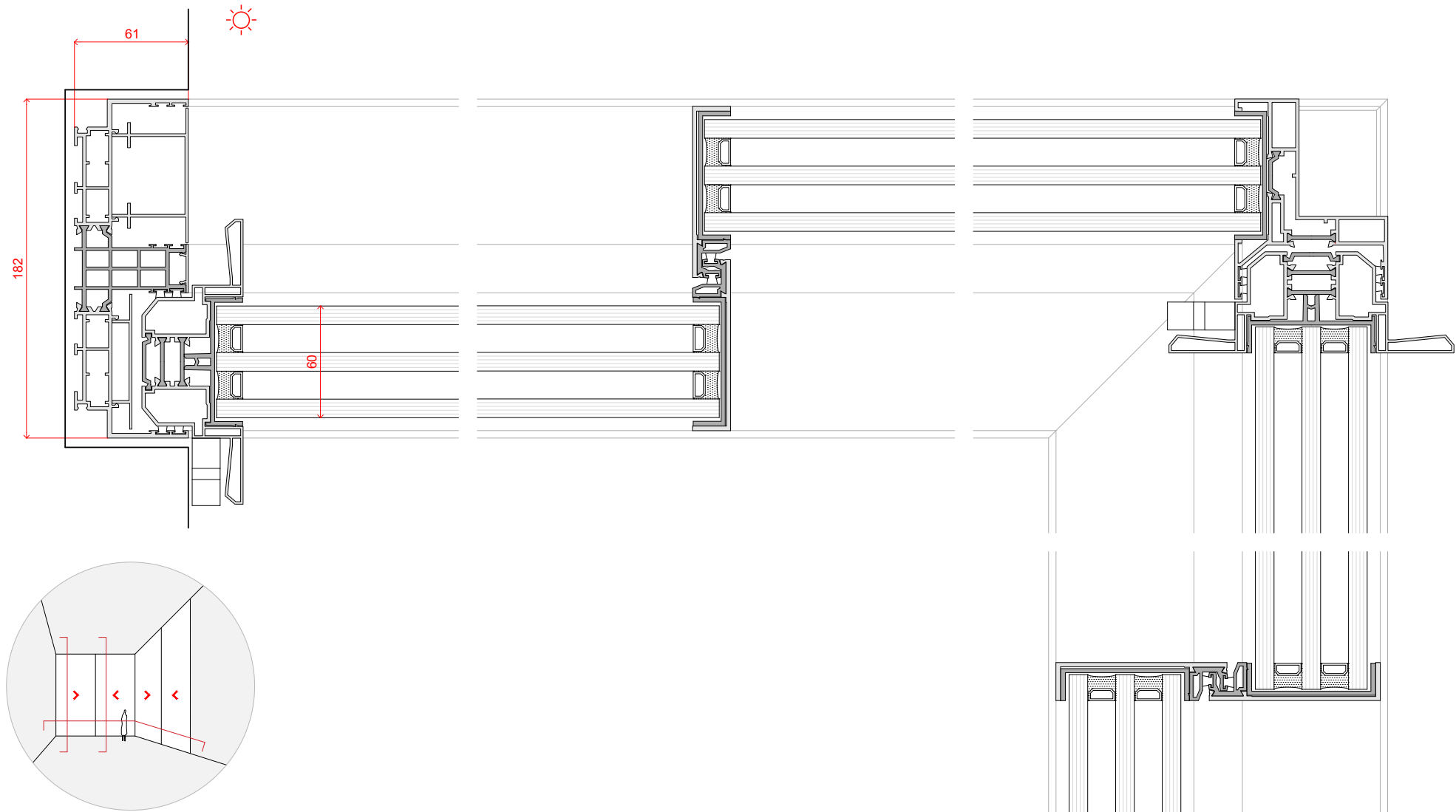
2.3.1 HORIZONTAL - BIRAIL



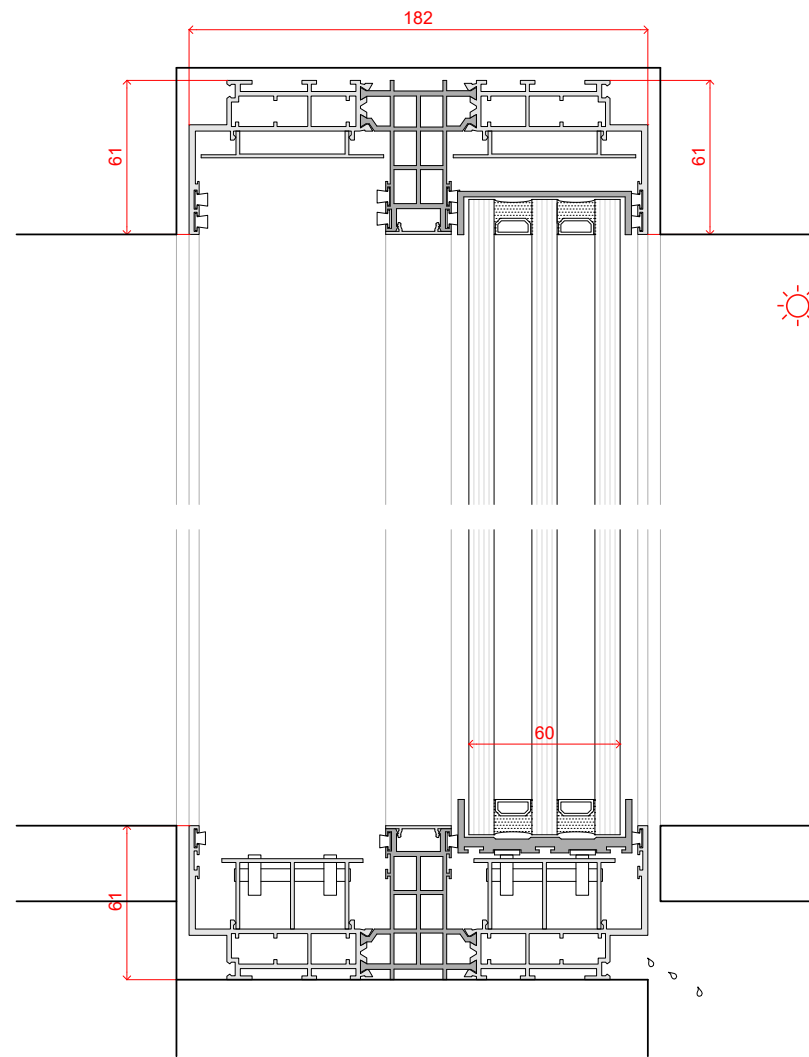
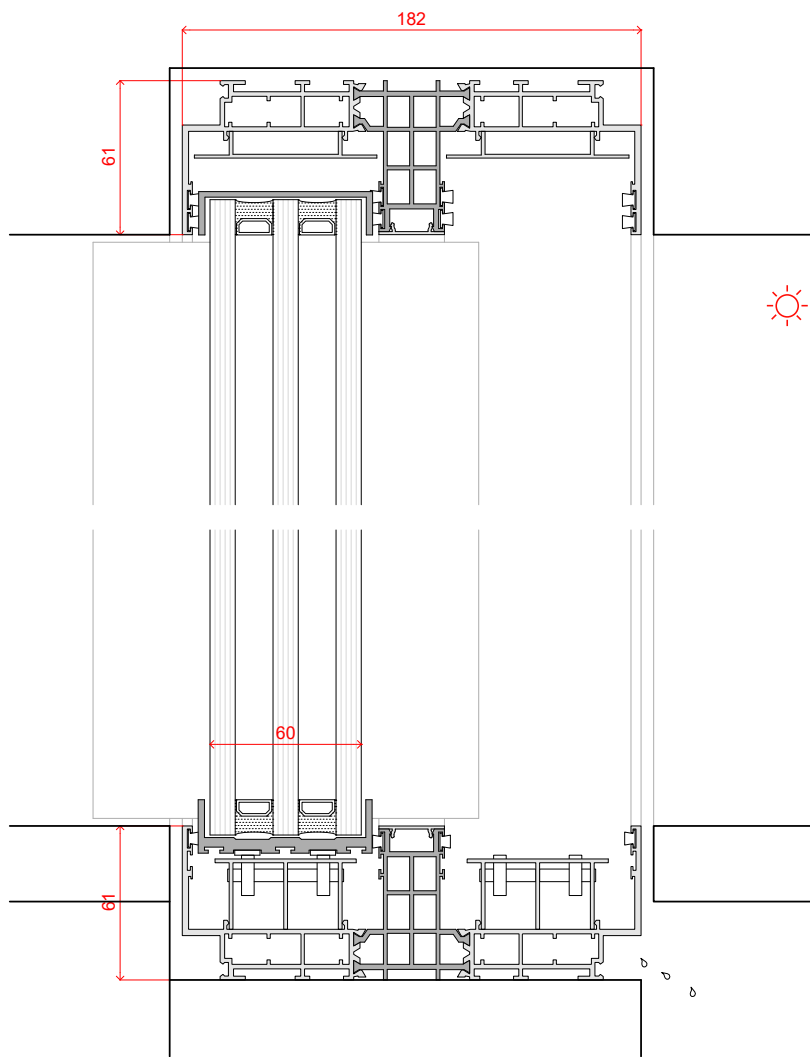
FIXED + DOUBLE SLIDING CORNER + FIXED (IN)



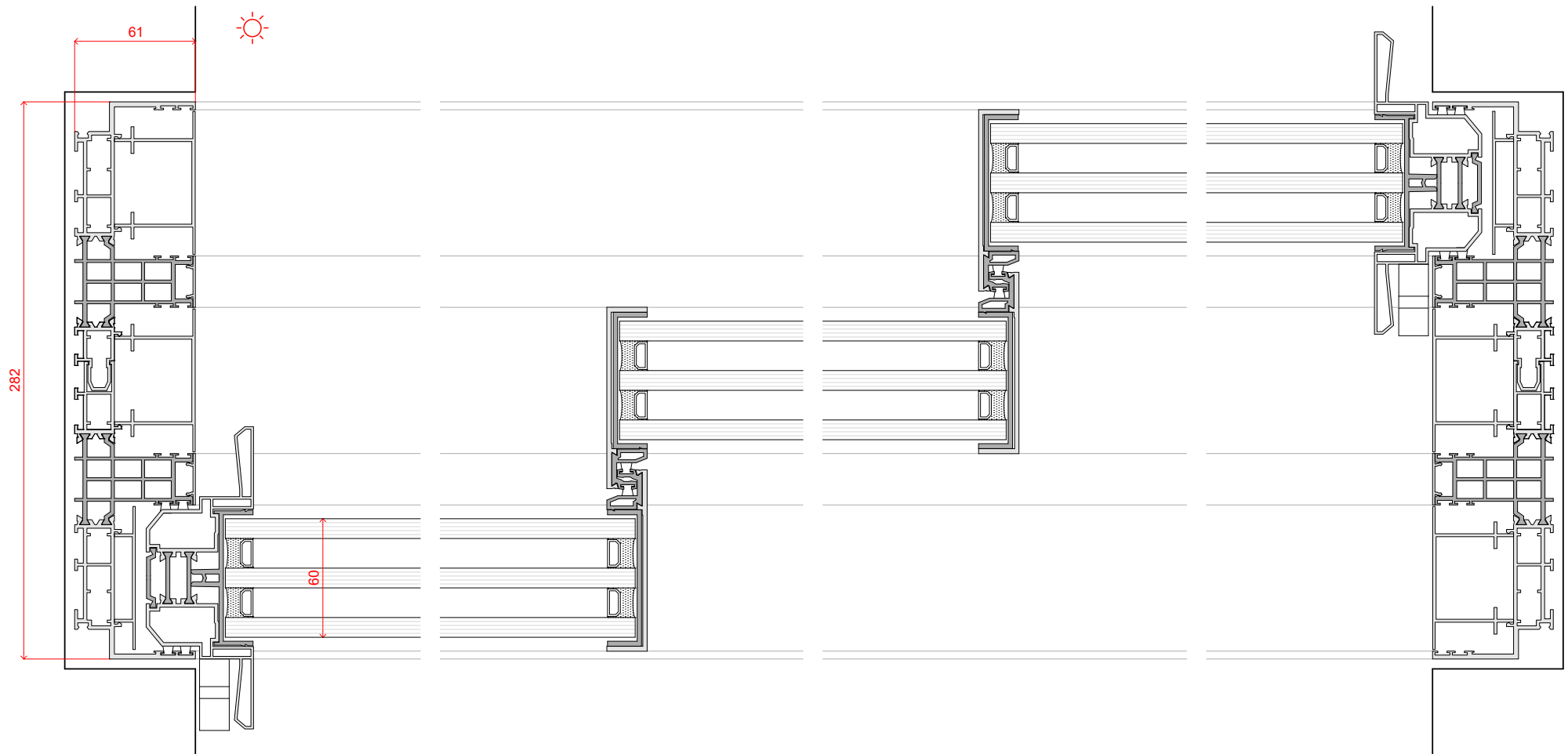
2.3.1 HORIZONTAL - BIRAIL

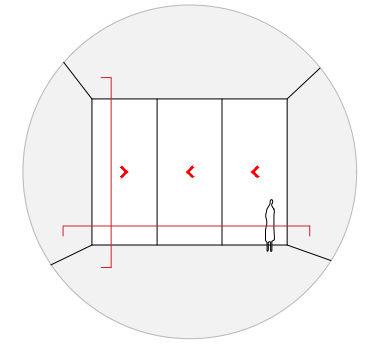
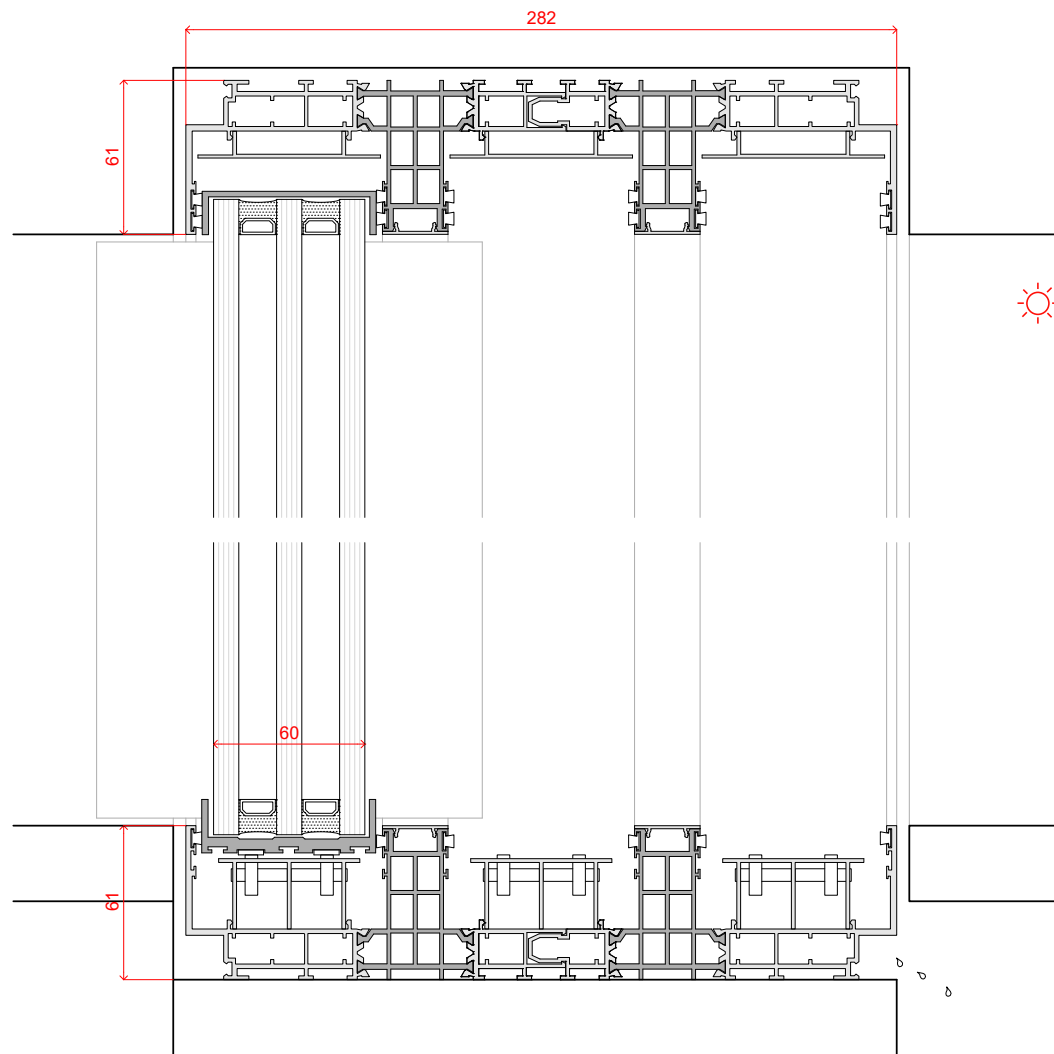


MULTIPLE SLIDING CORNER (OUT)



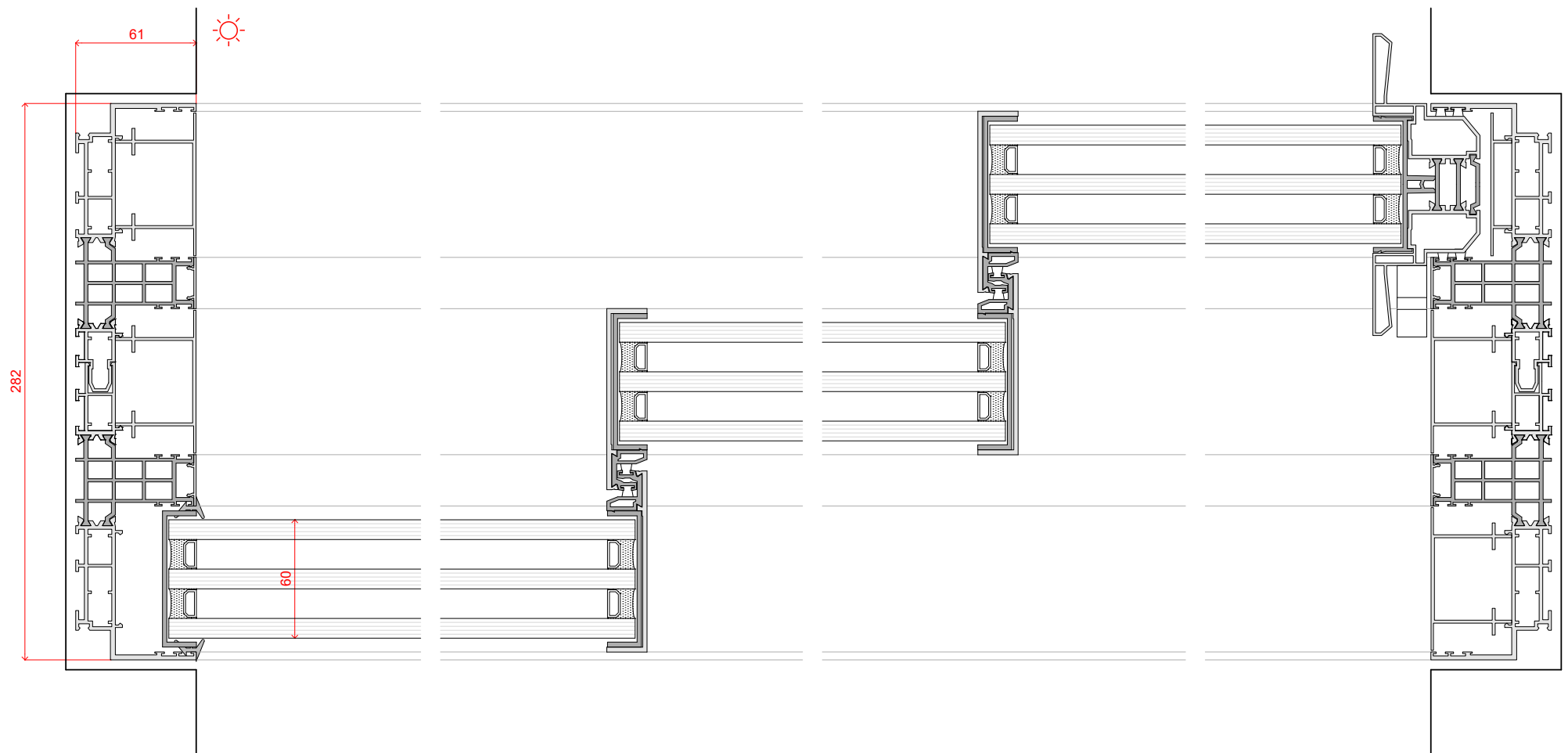
2.3.1 HORIZONTAL - TRIRAIL

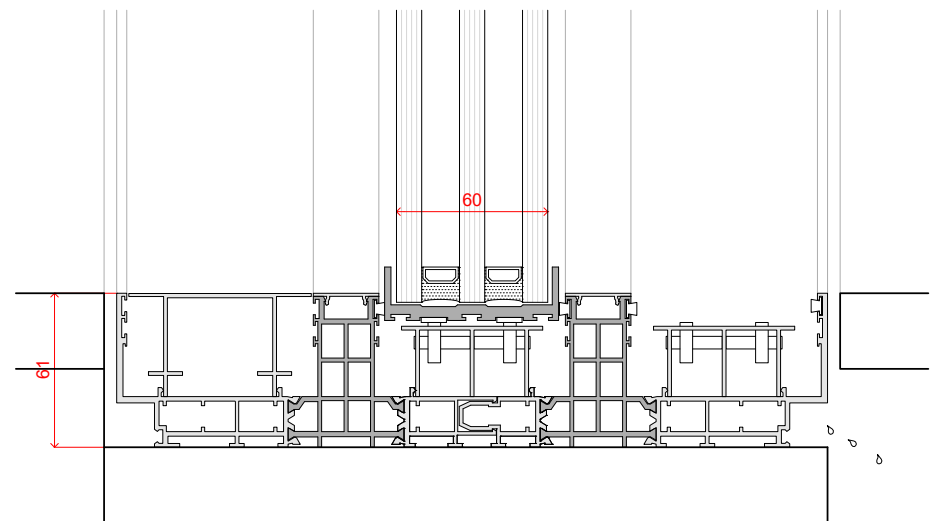
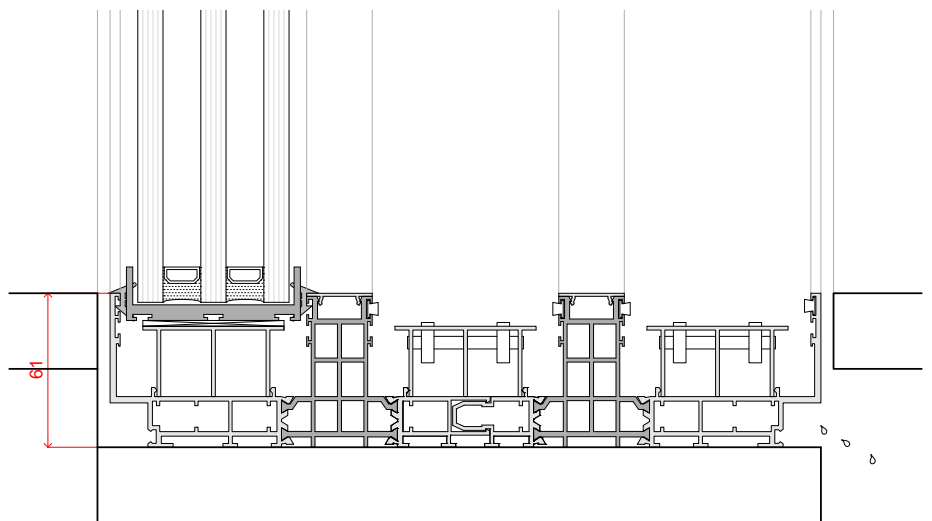
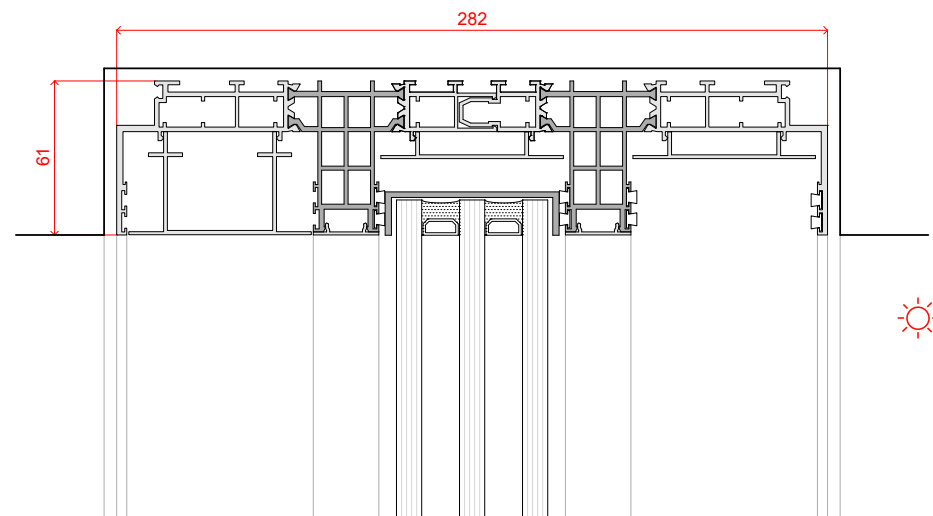
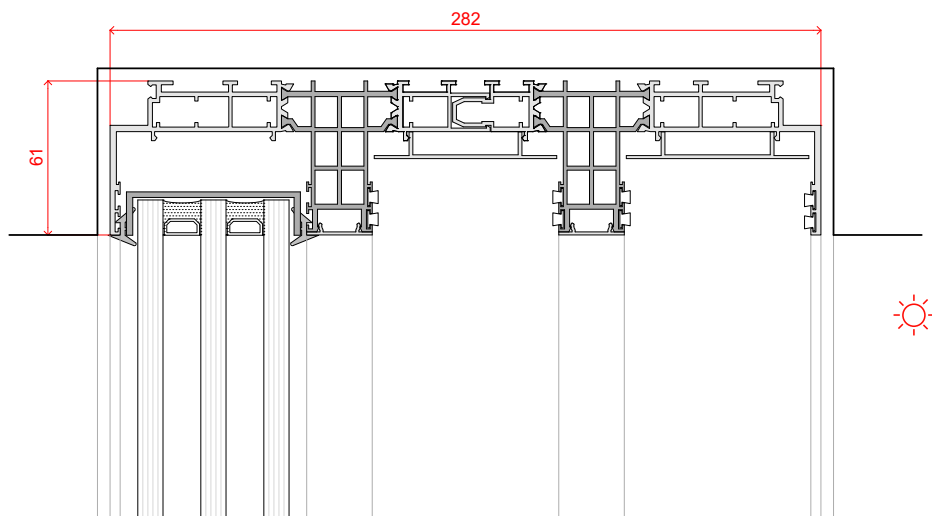




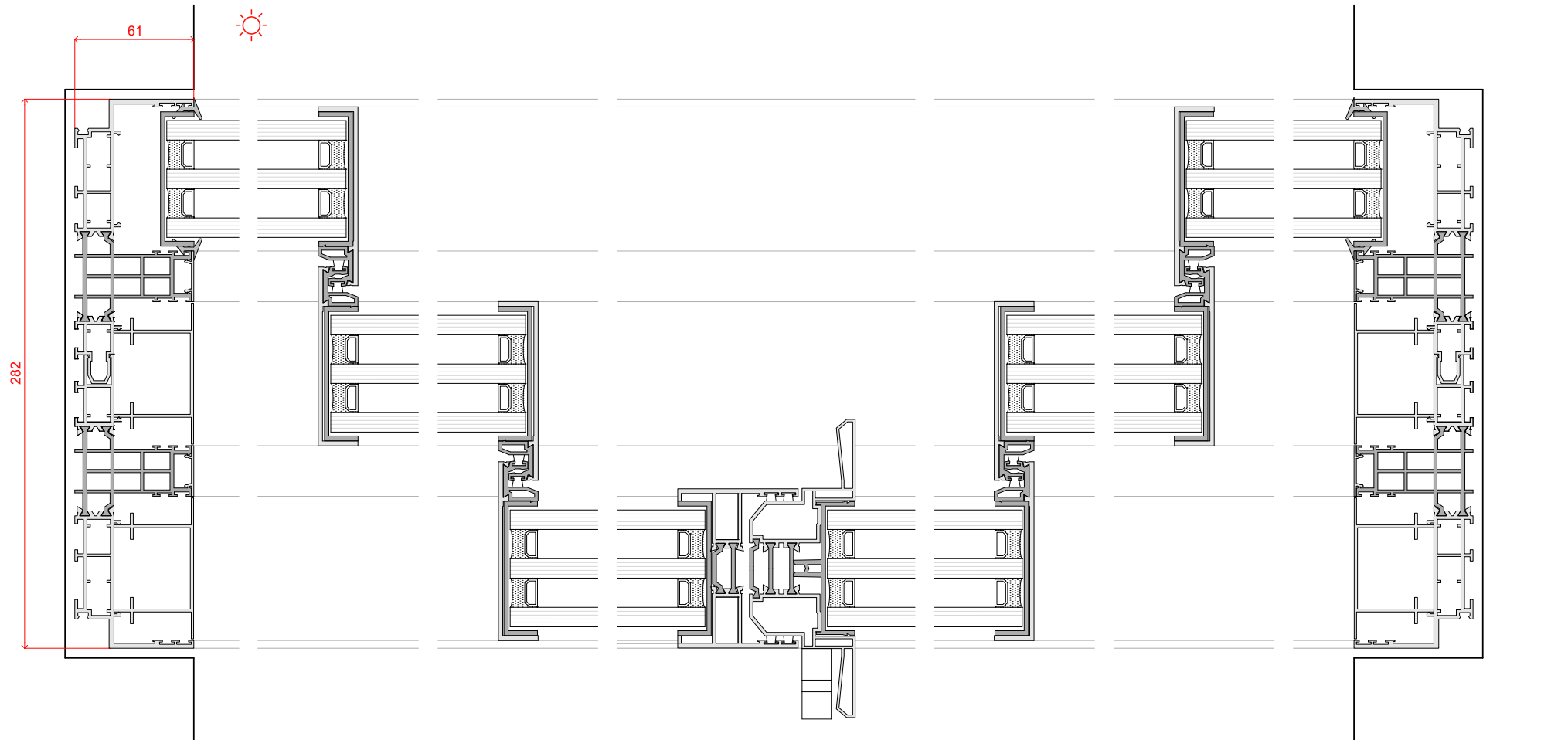
MULTIPLE SLIDING

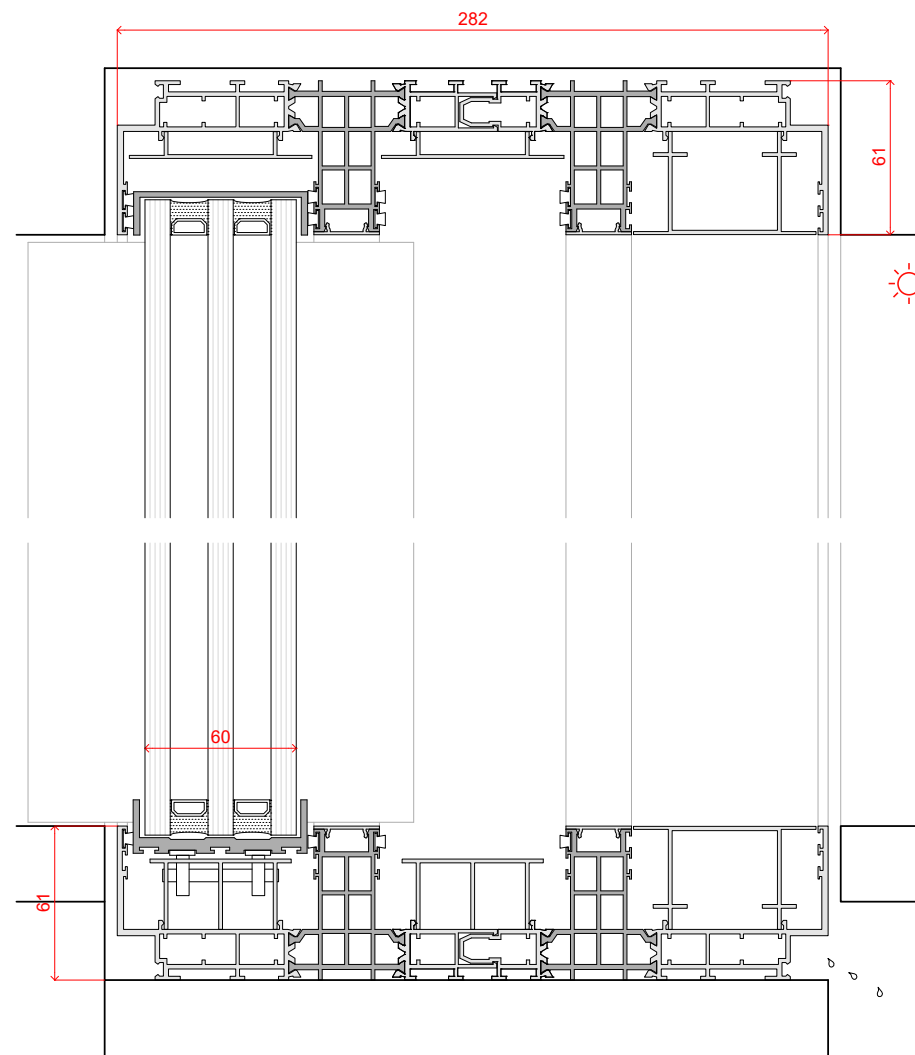
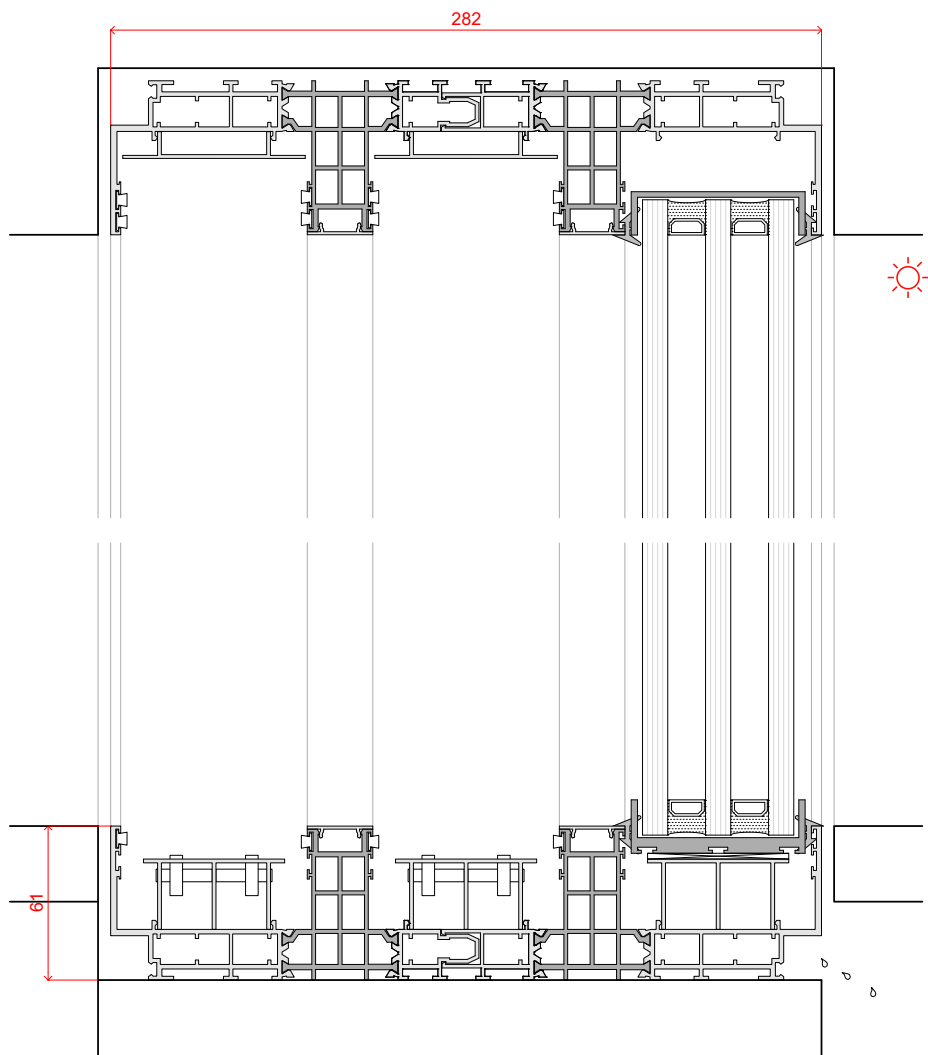
2.3.1 HORIZONTAL - TRIRAIL



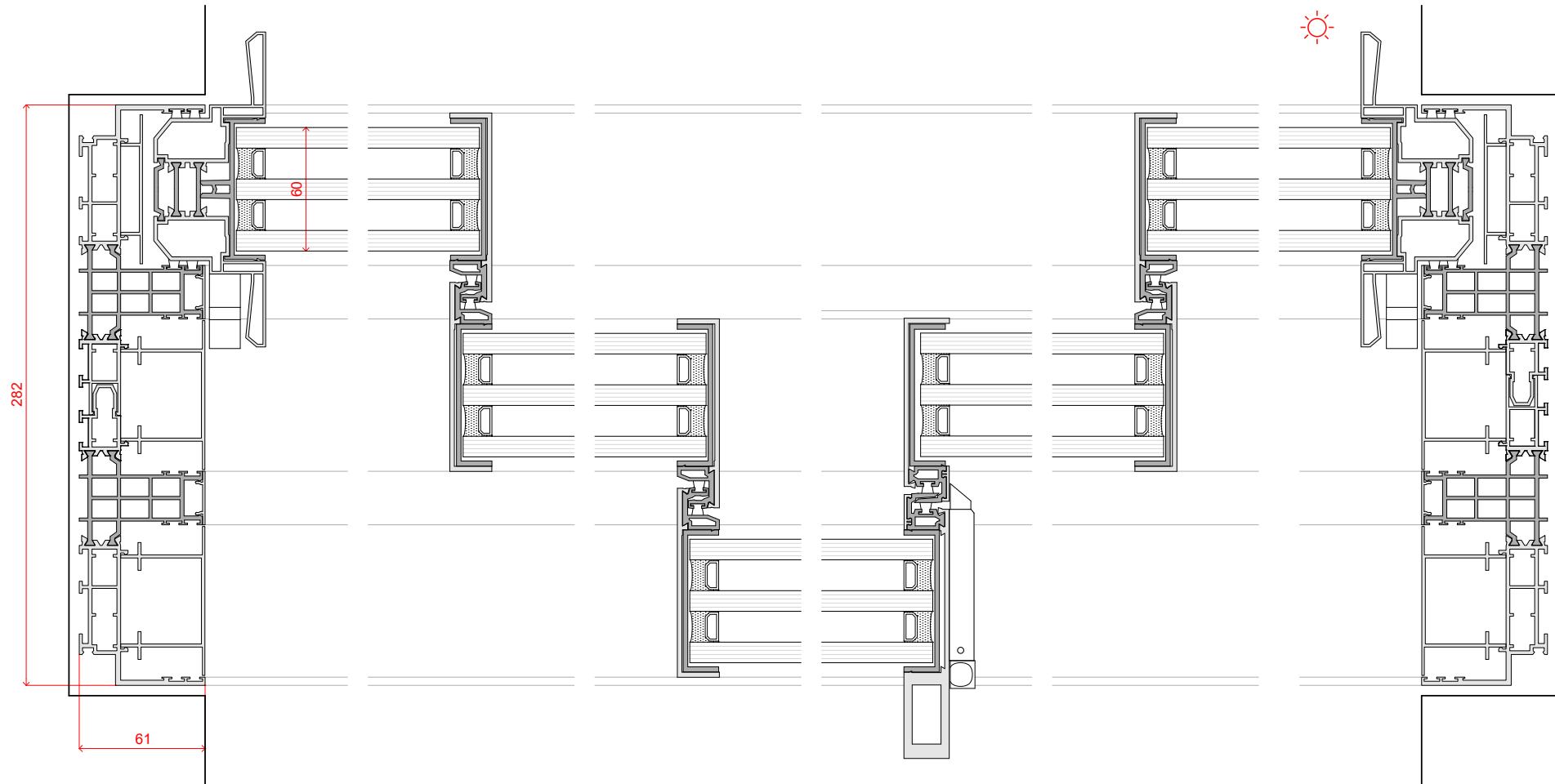


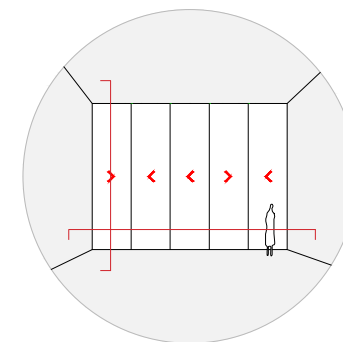
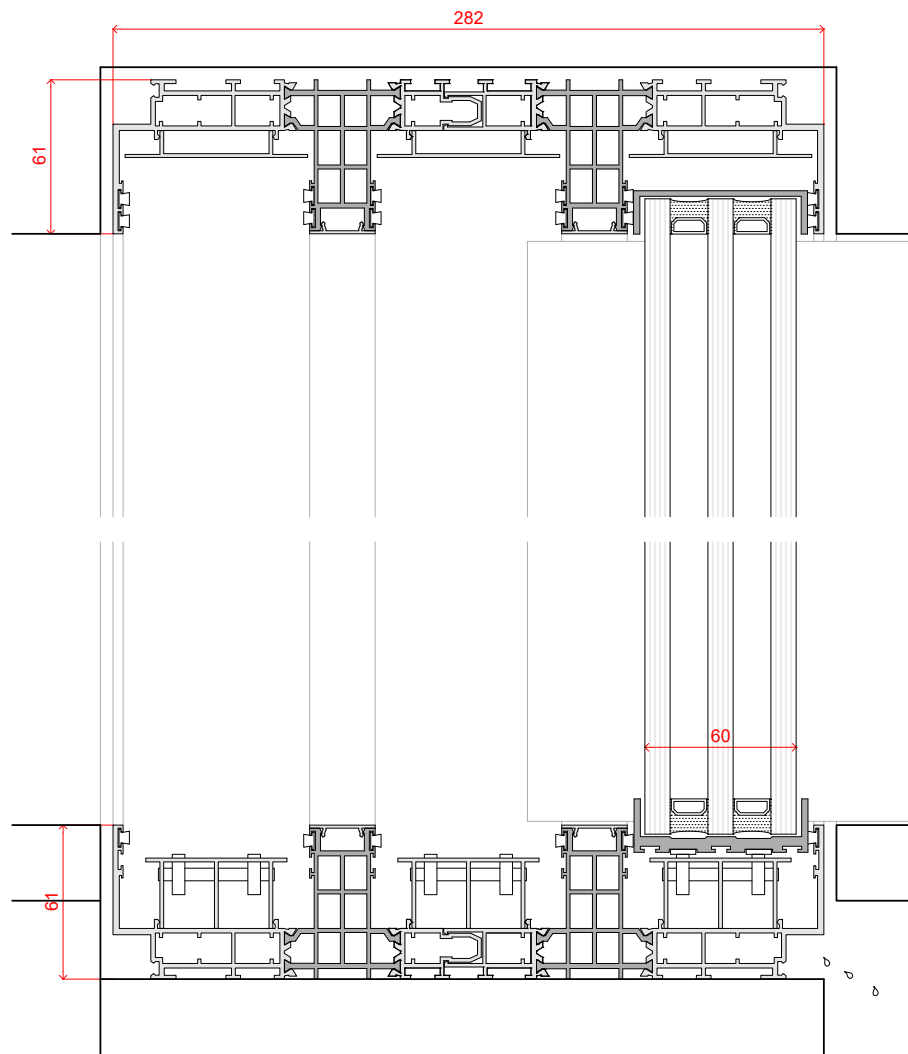
2.3.1 HORIZONTAL - TRIRAIL





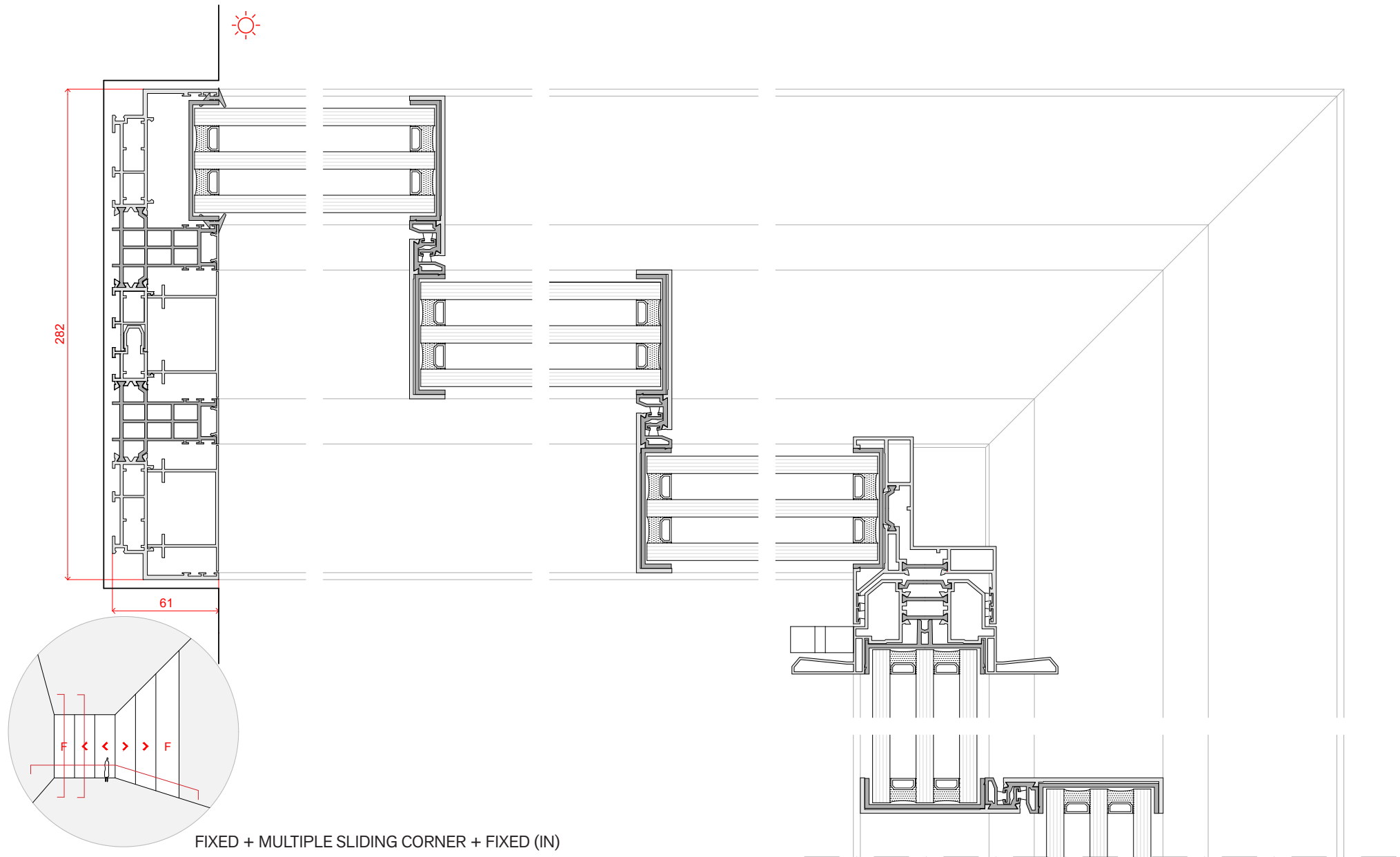
2.3.1 HORIZONTAL - TRIRAIL

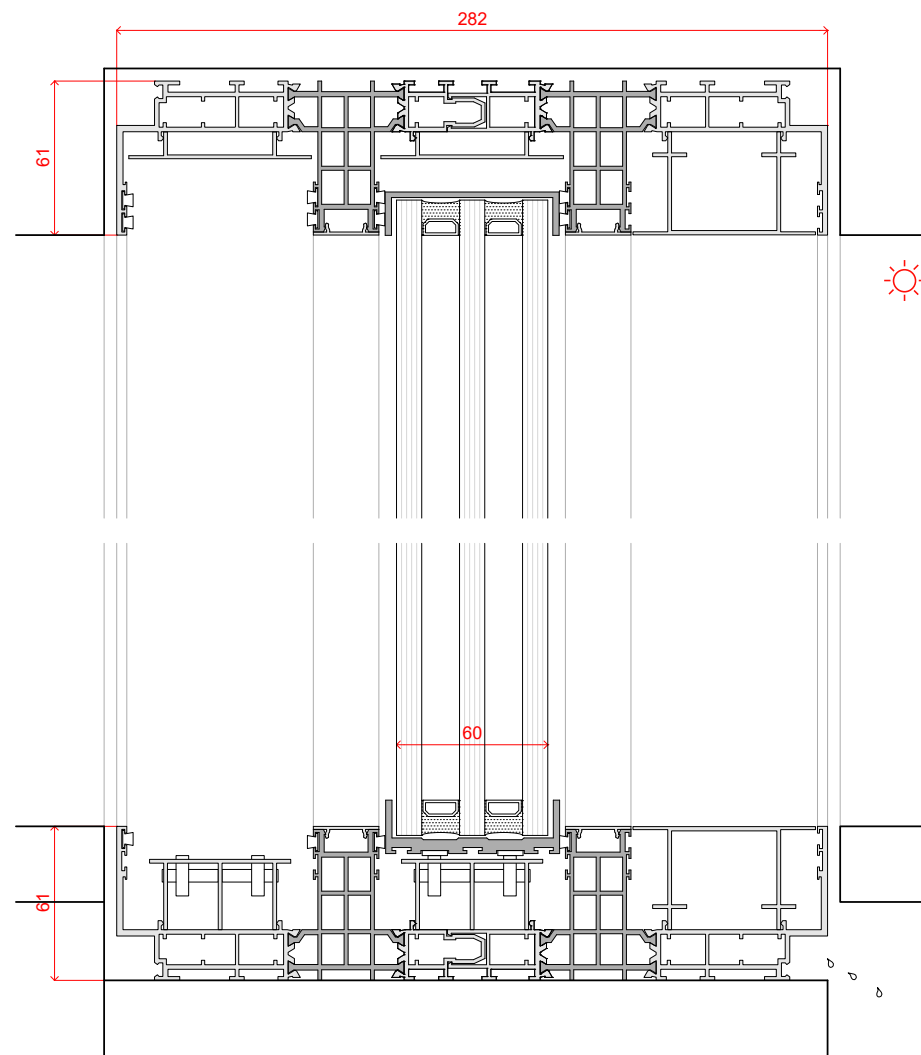
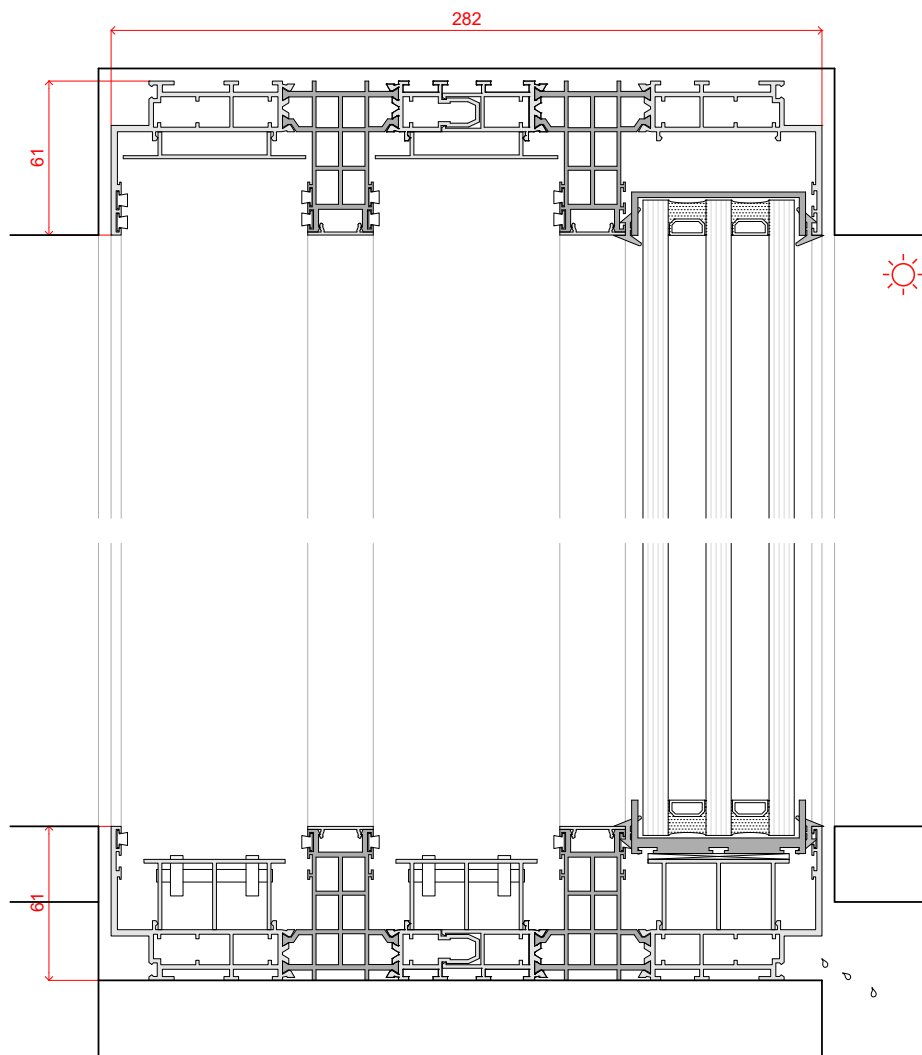




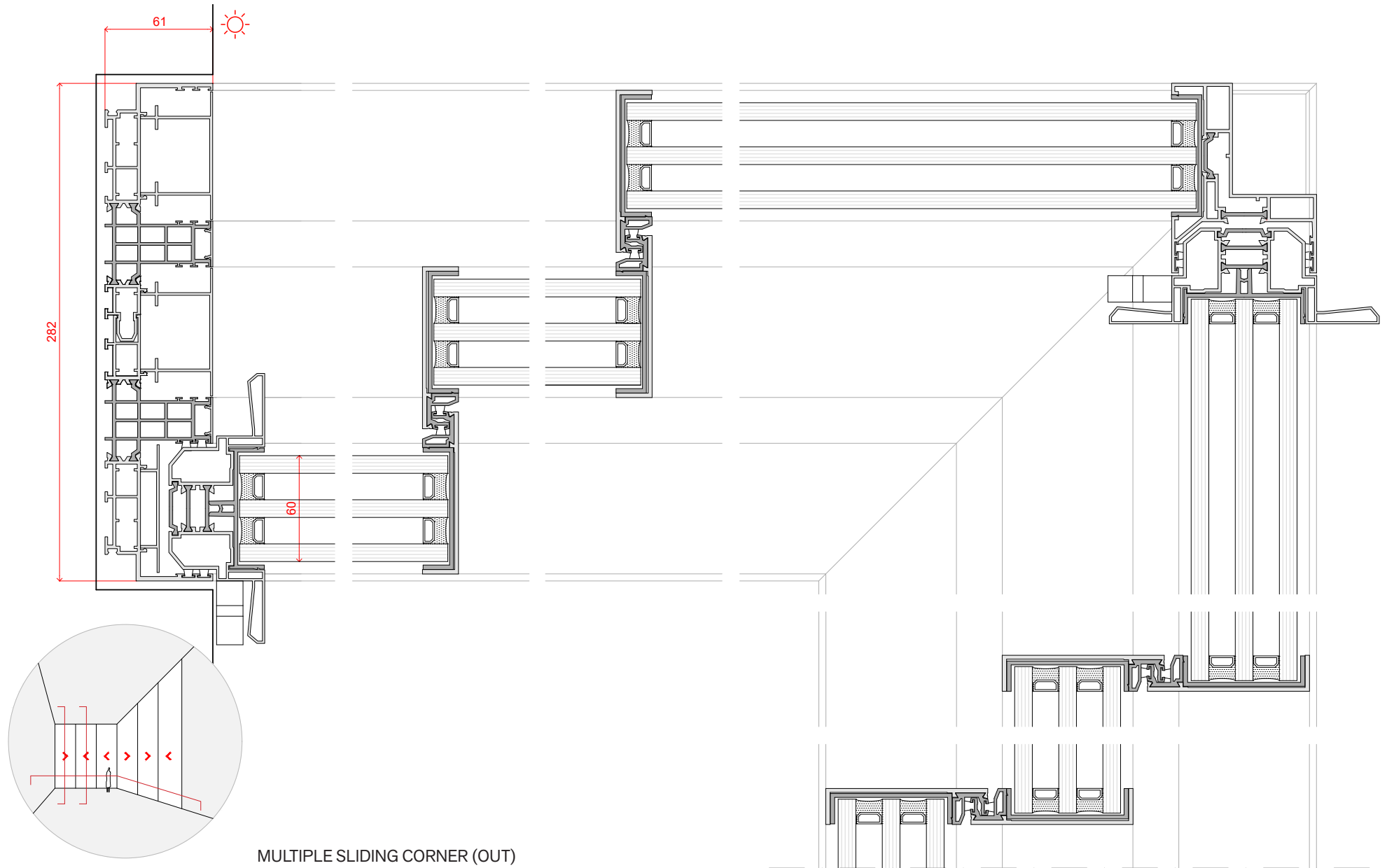
MULTIPLE SLIDING
(INVERTED CENTRAL OPENING)

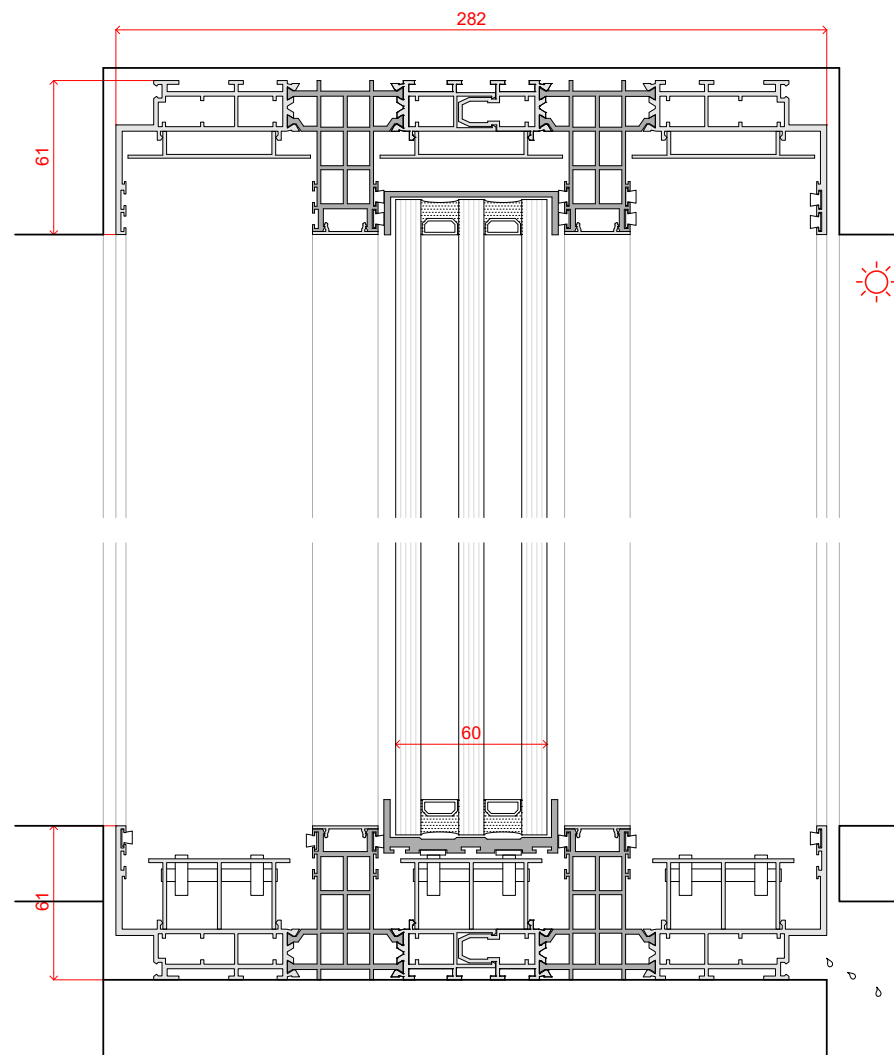
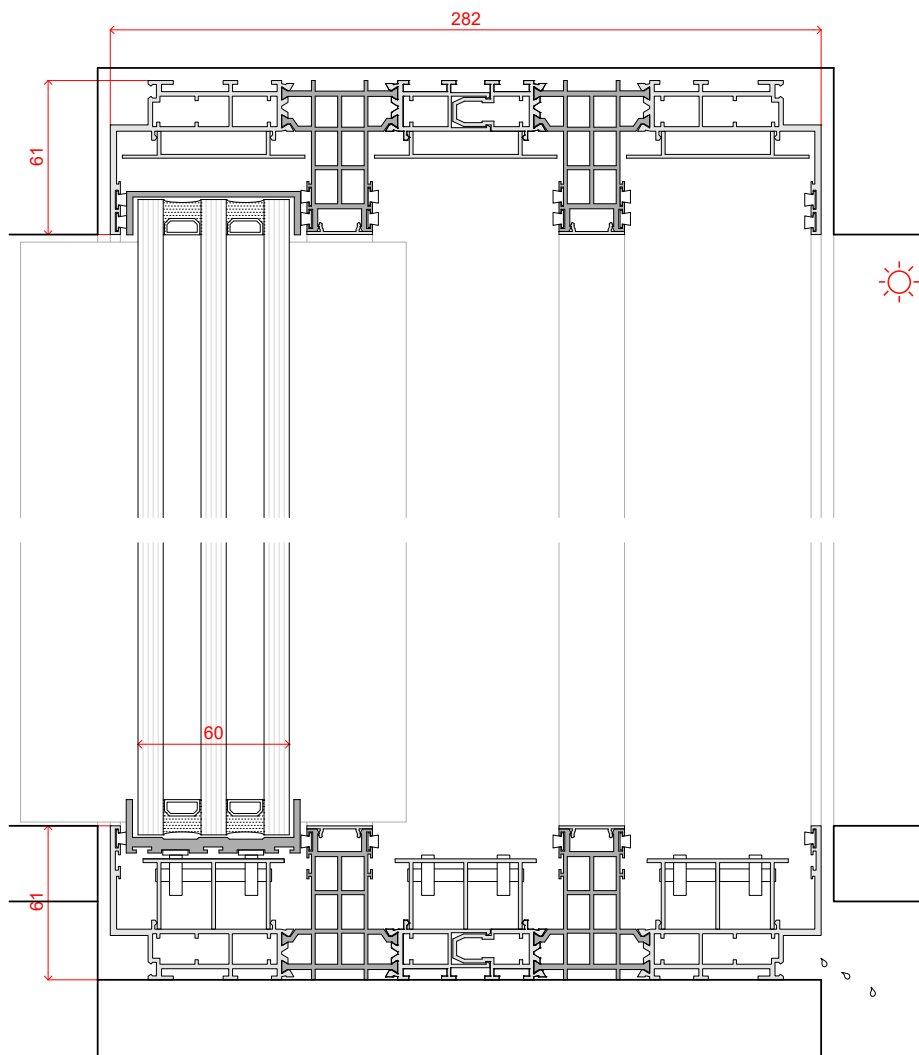
2.3.1 HORIZONTAL - TRIRAIL



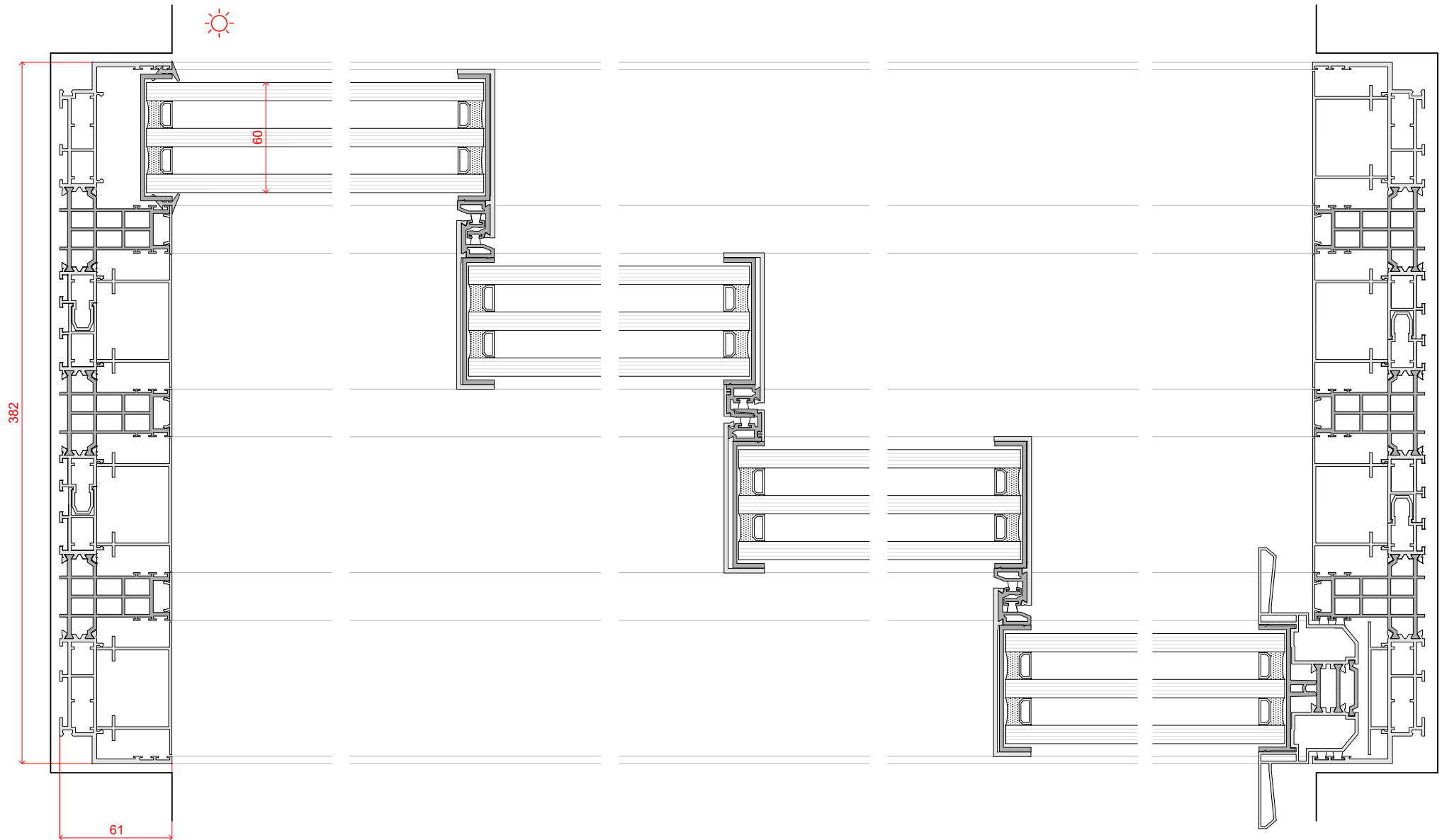


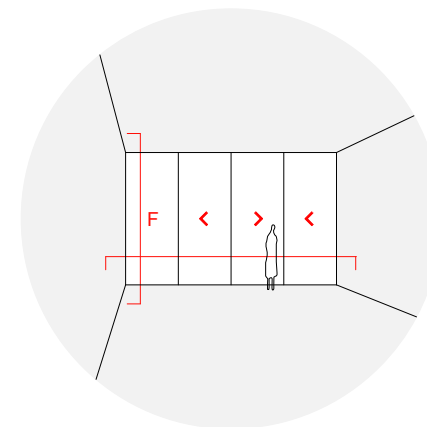
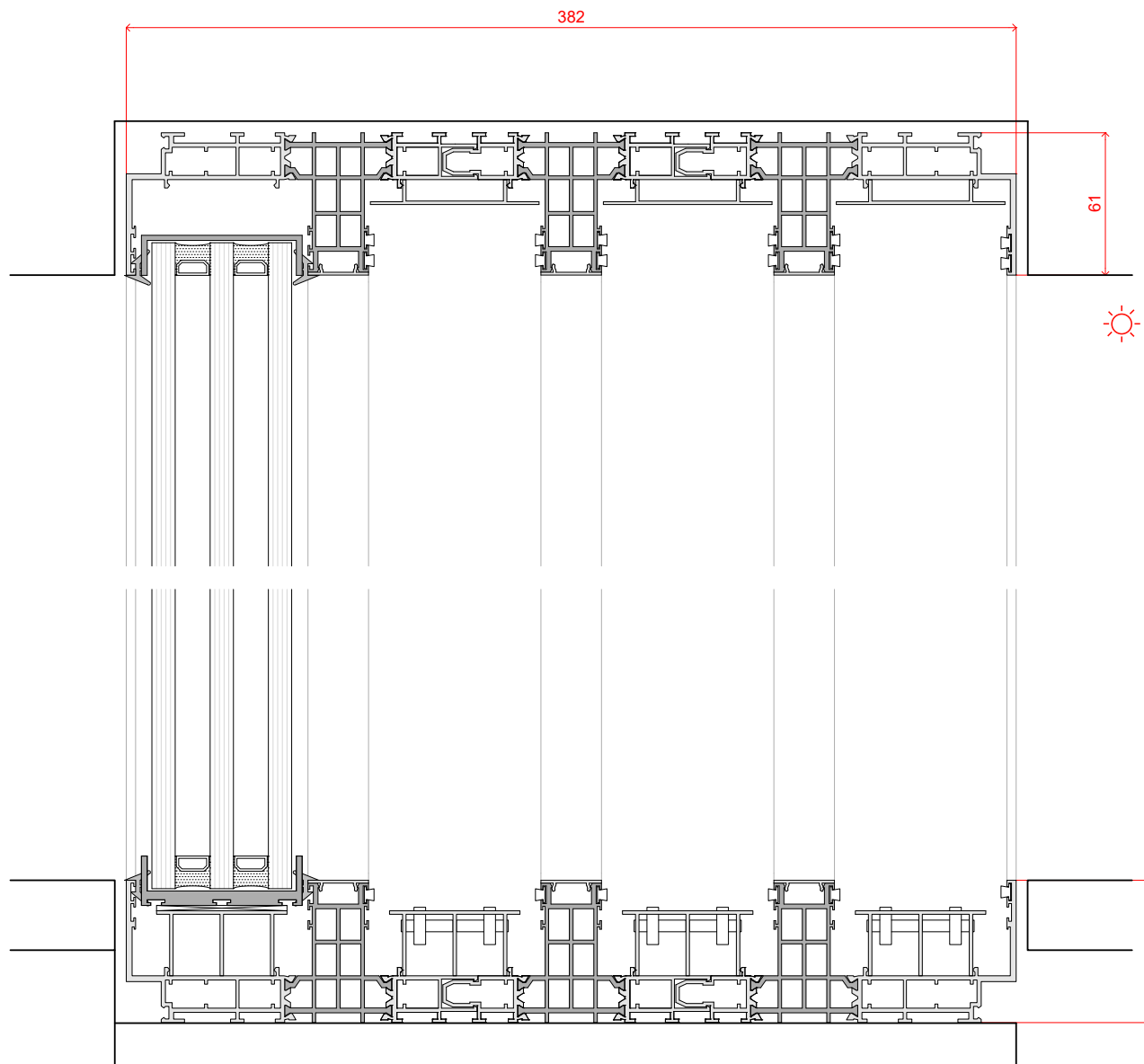
2.3.1 HORIZONTAL - TRIRAIL





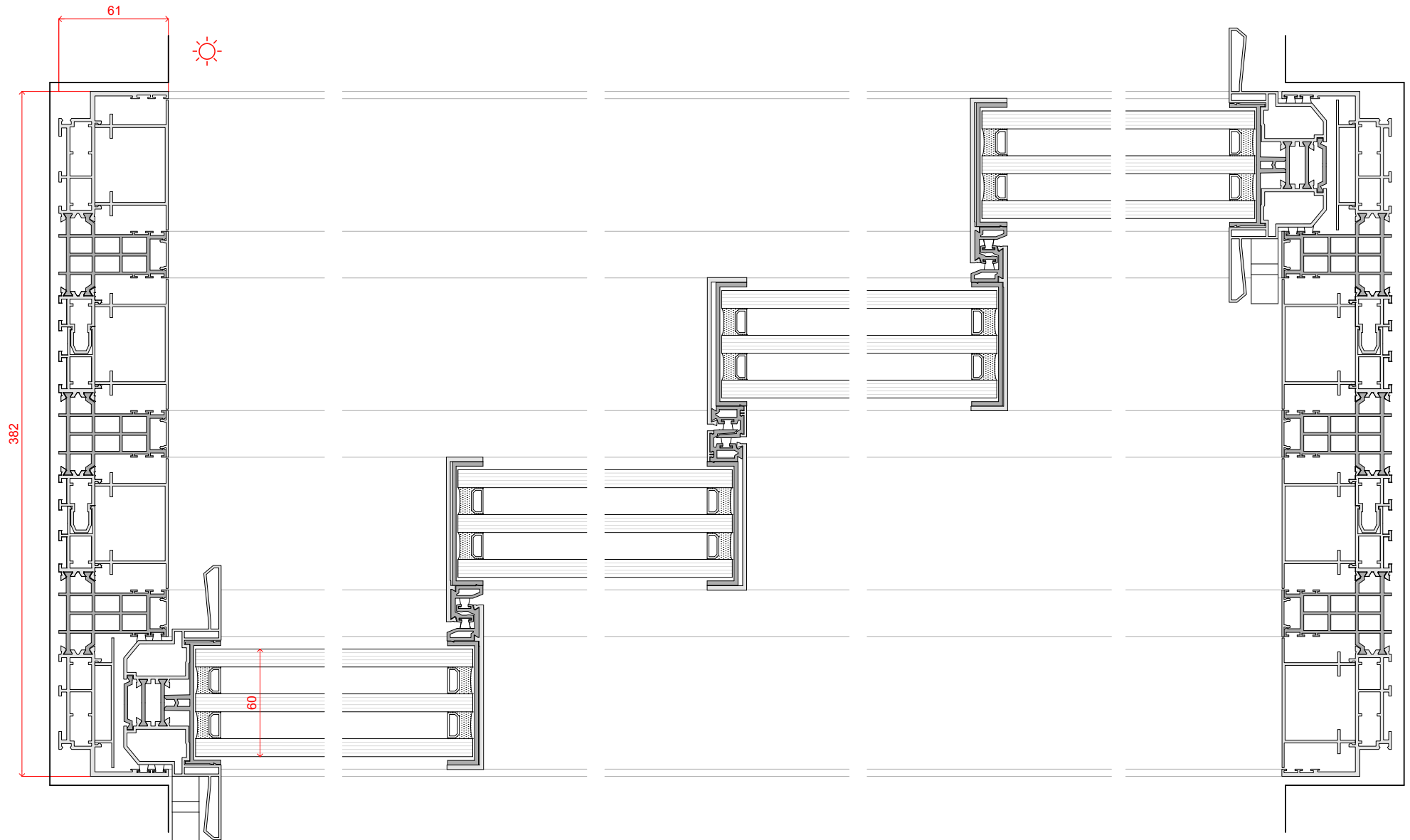
2.3.1 HORIZONTAL - MULTIRAIL

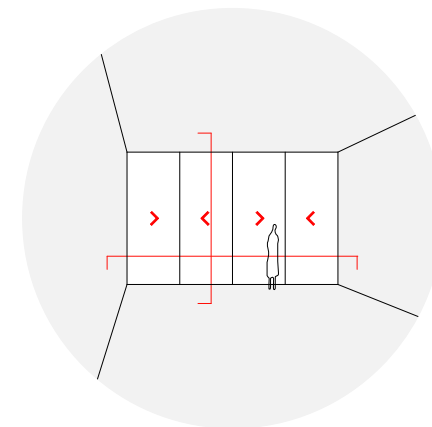
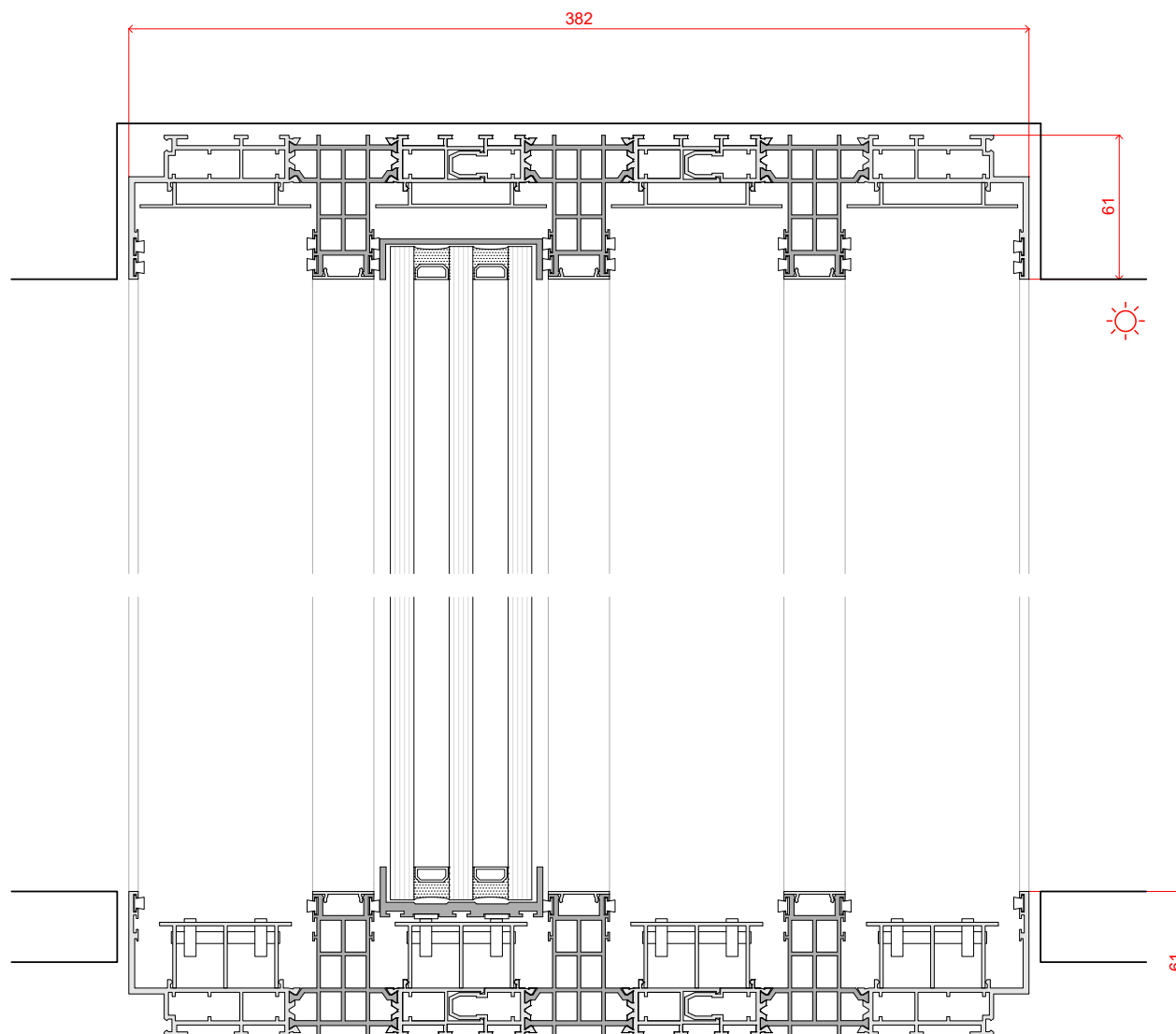




FIXED + MULTIPLE SLIDING

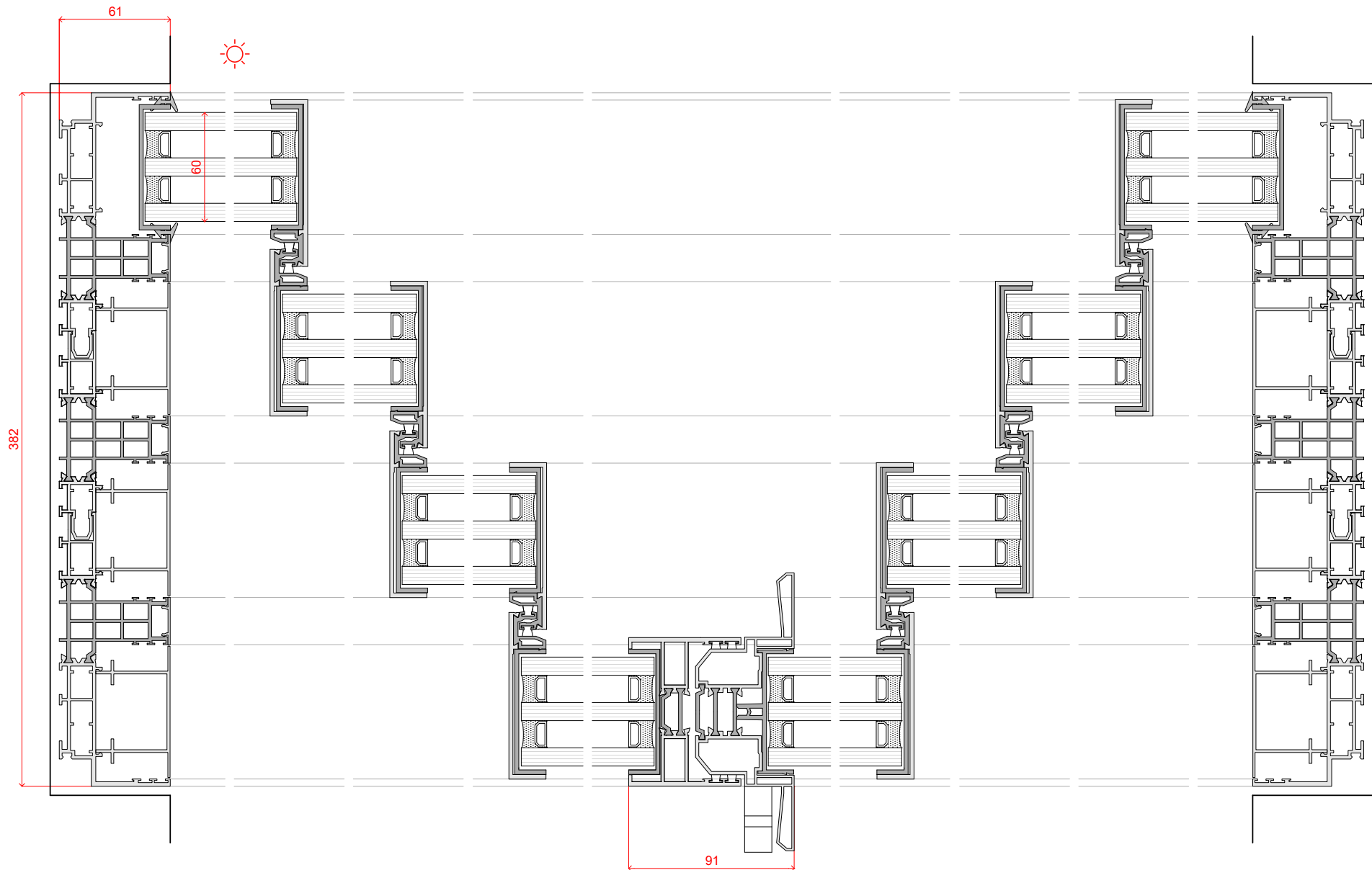
2.3.1 HORIZONTAL - MULTIRAIL

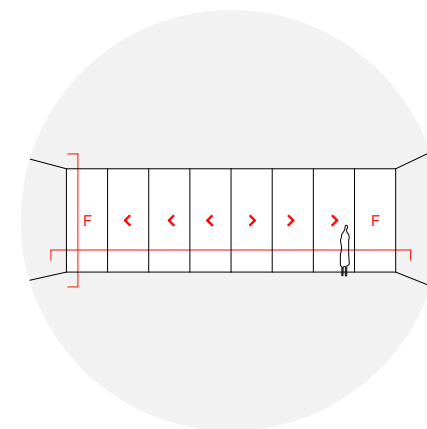
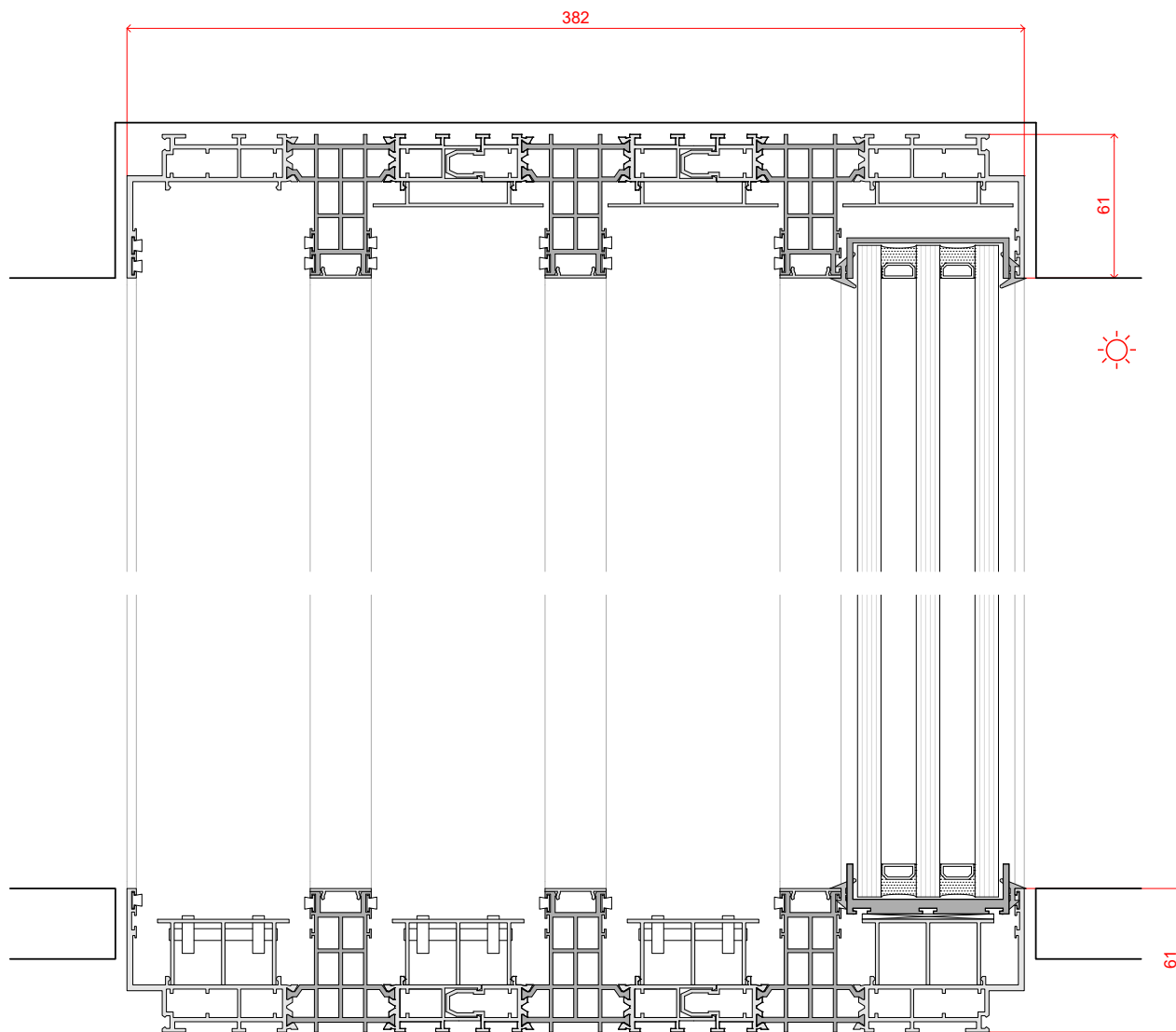




MULTIPLE SLIDING

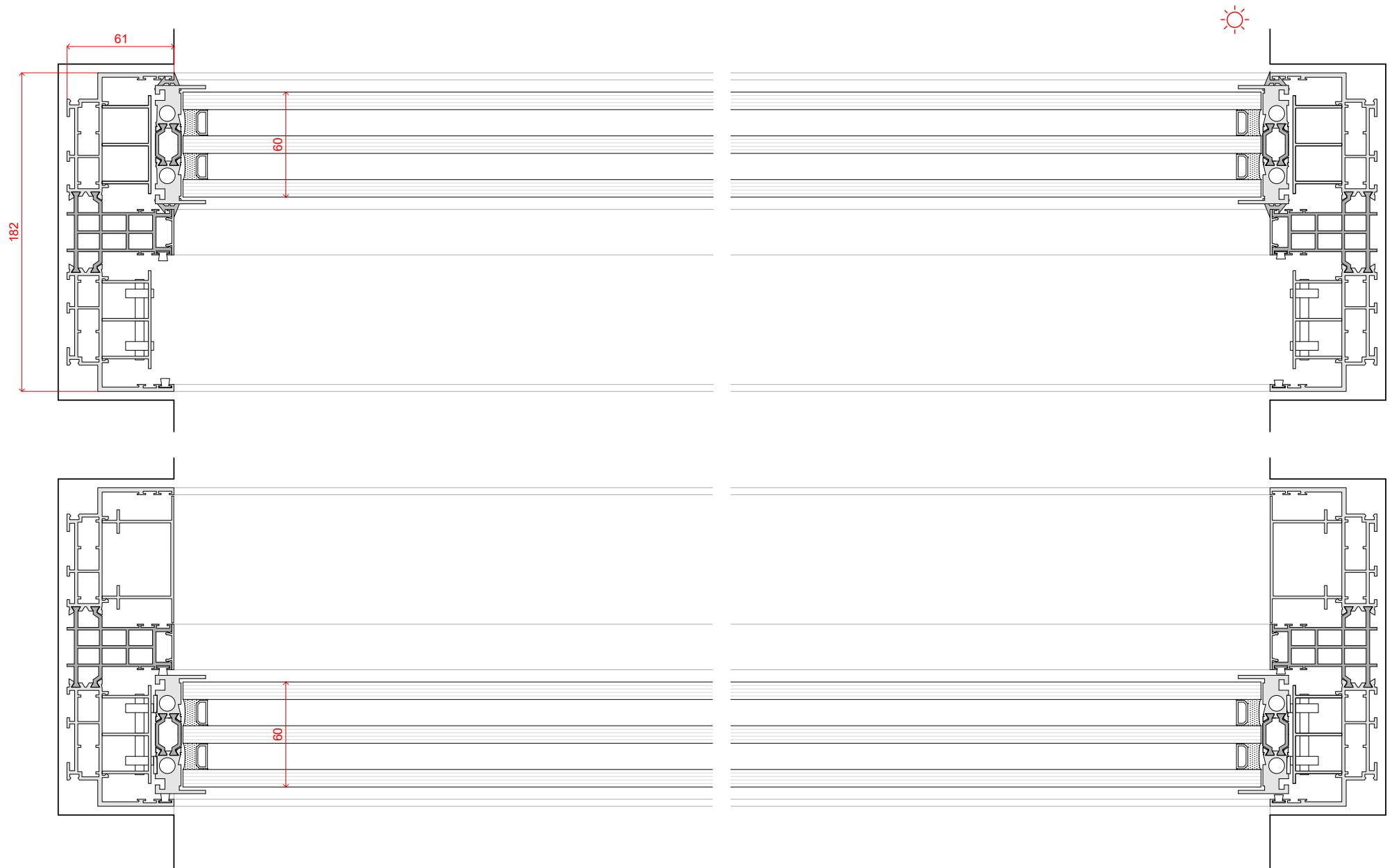
2.3.1 HORIZONTAL - MULTIRAIL

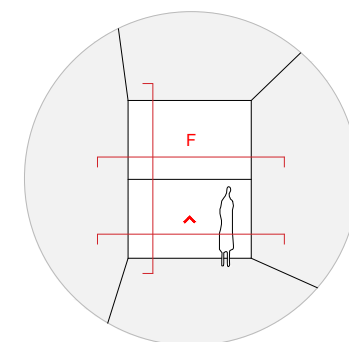
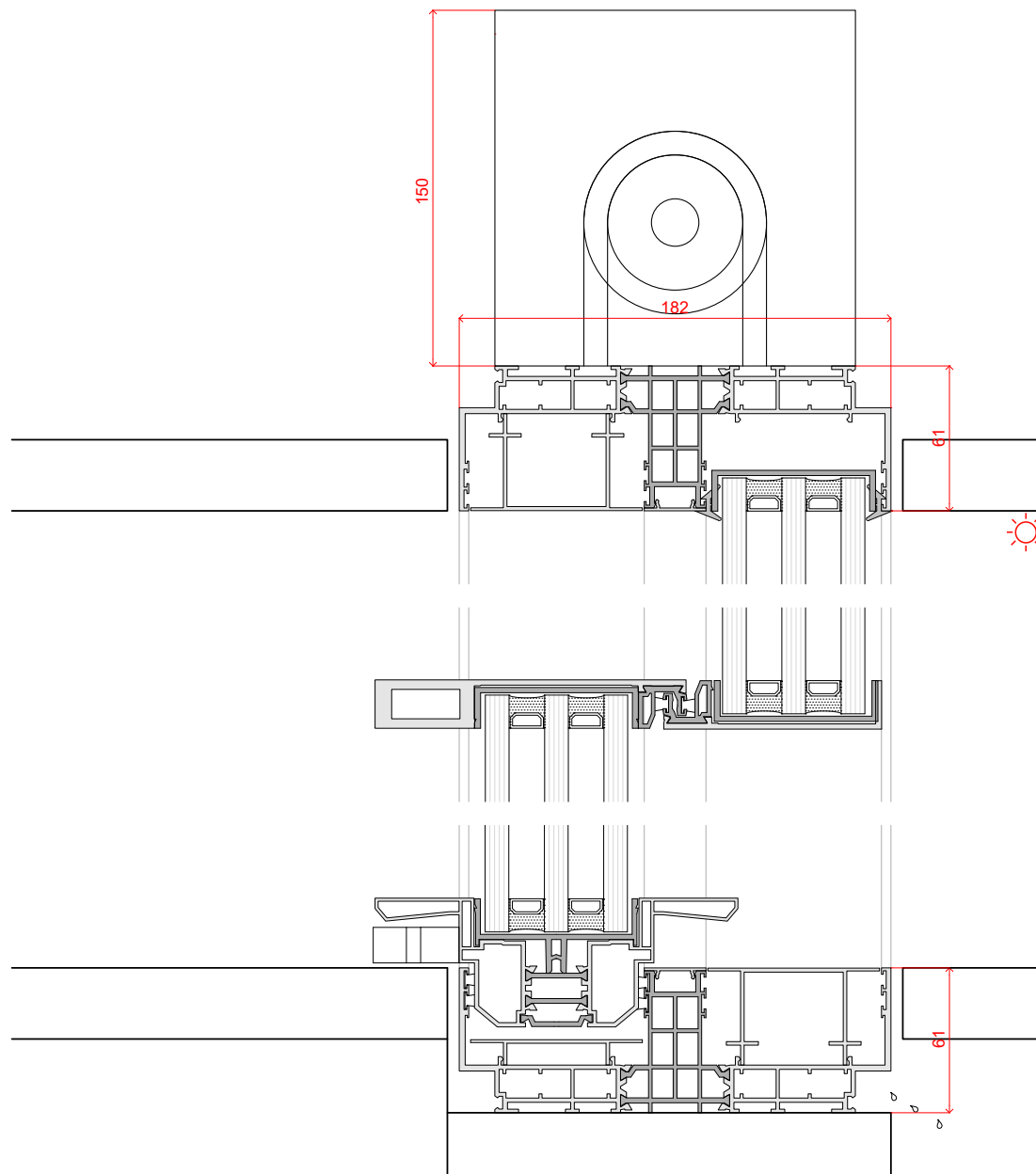




FIXED + MULTIPLE SLIDING + FIXED
(CENTRAL OPENING)

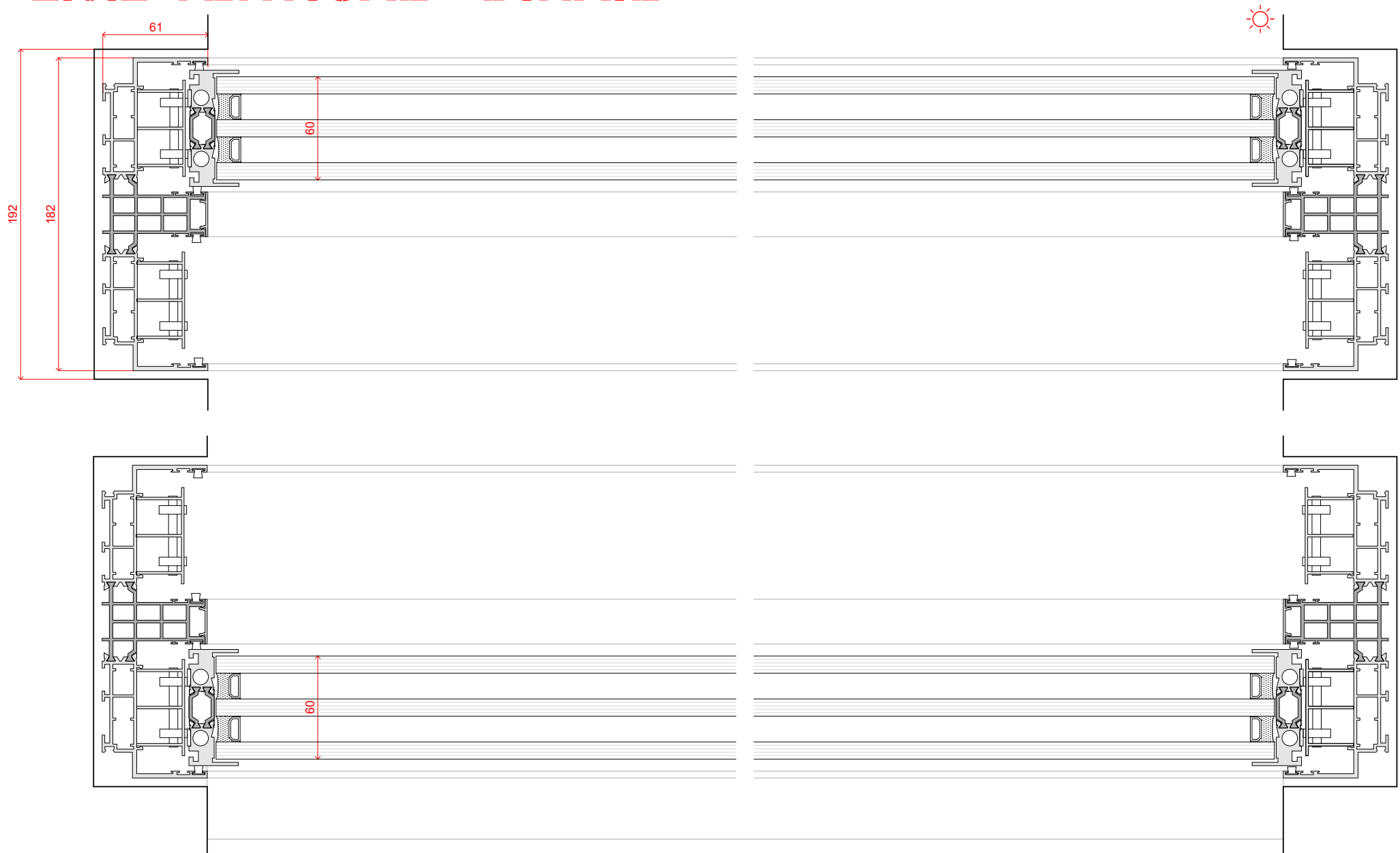
2.3.2 VERTICAL - BIRAIL

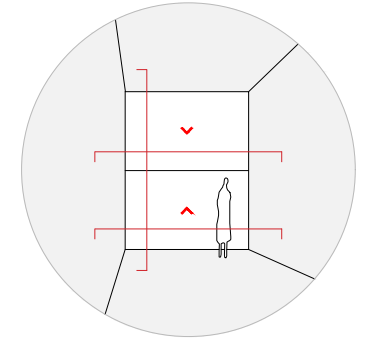
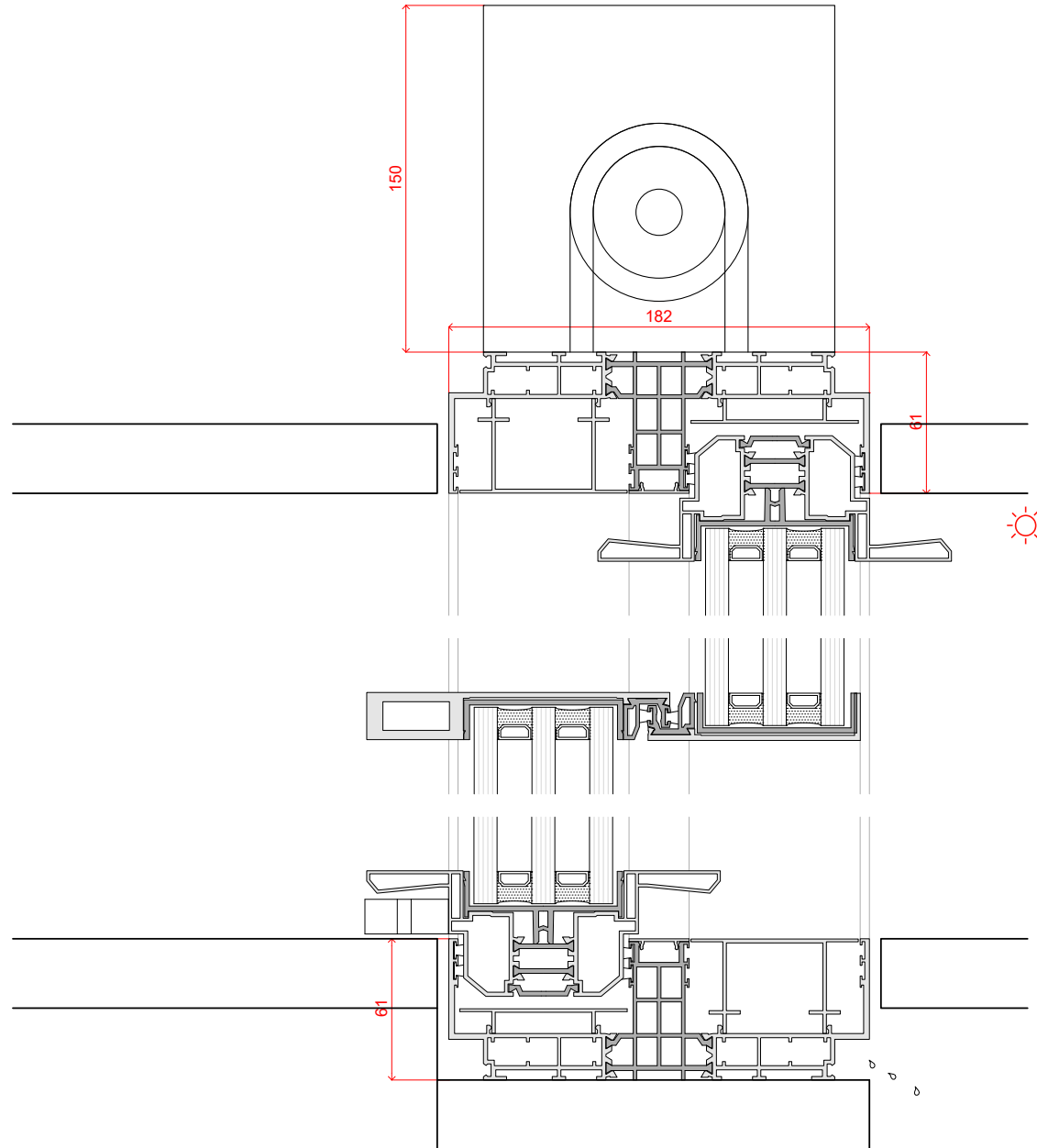




FIXED + SLIDING

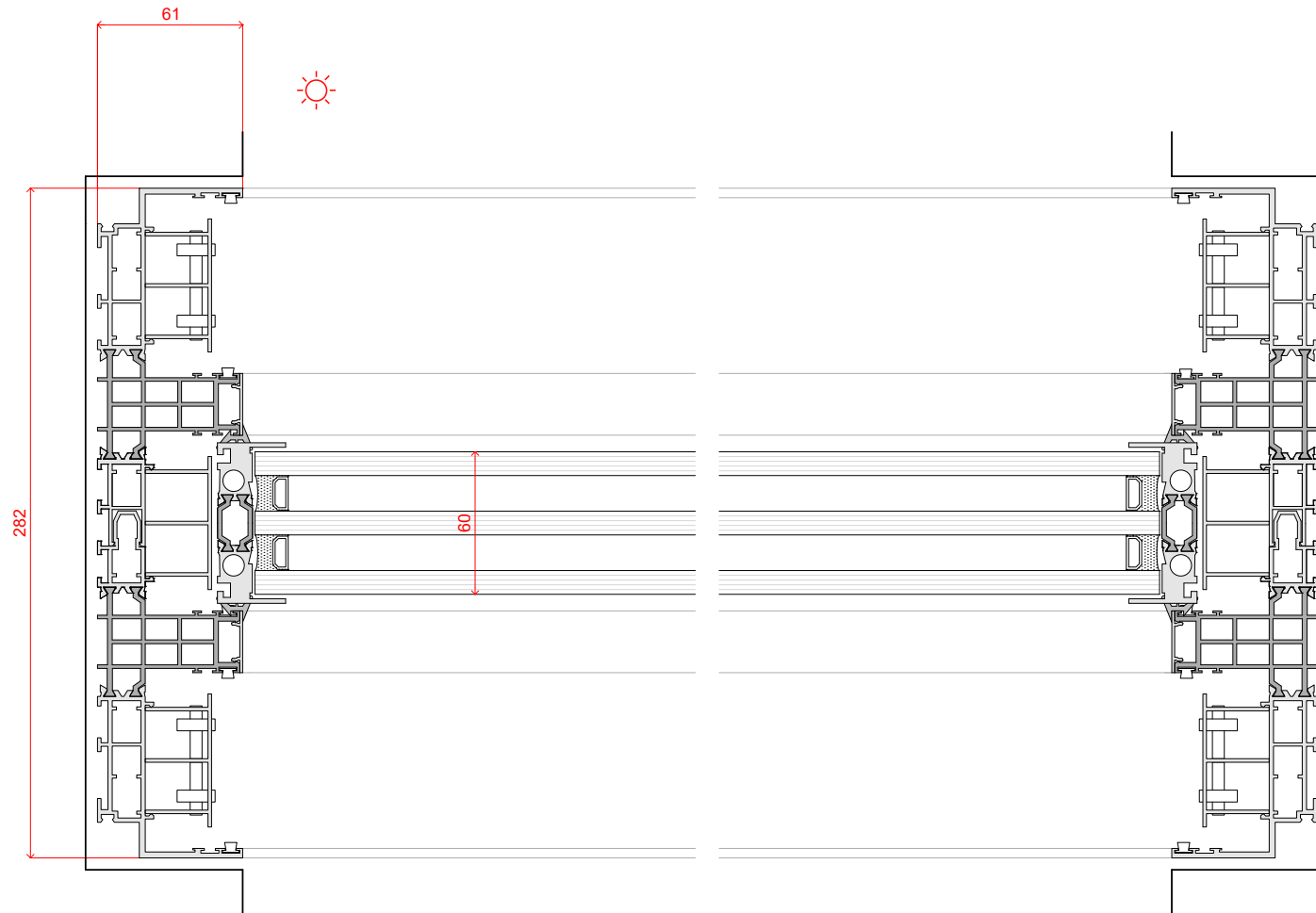
2.3.2 VERTICAL - BIRAIL

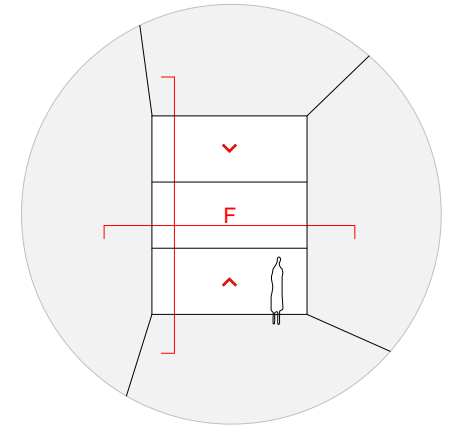
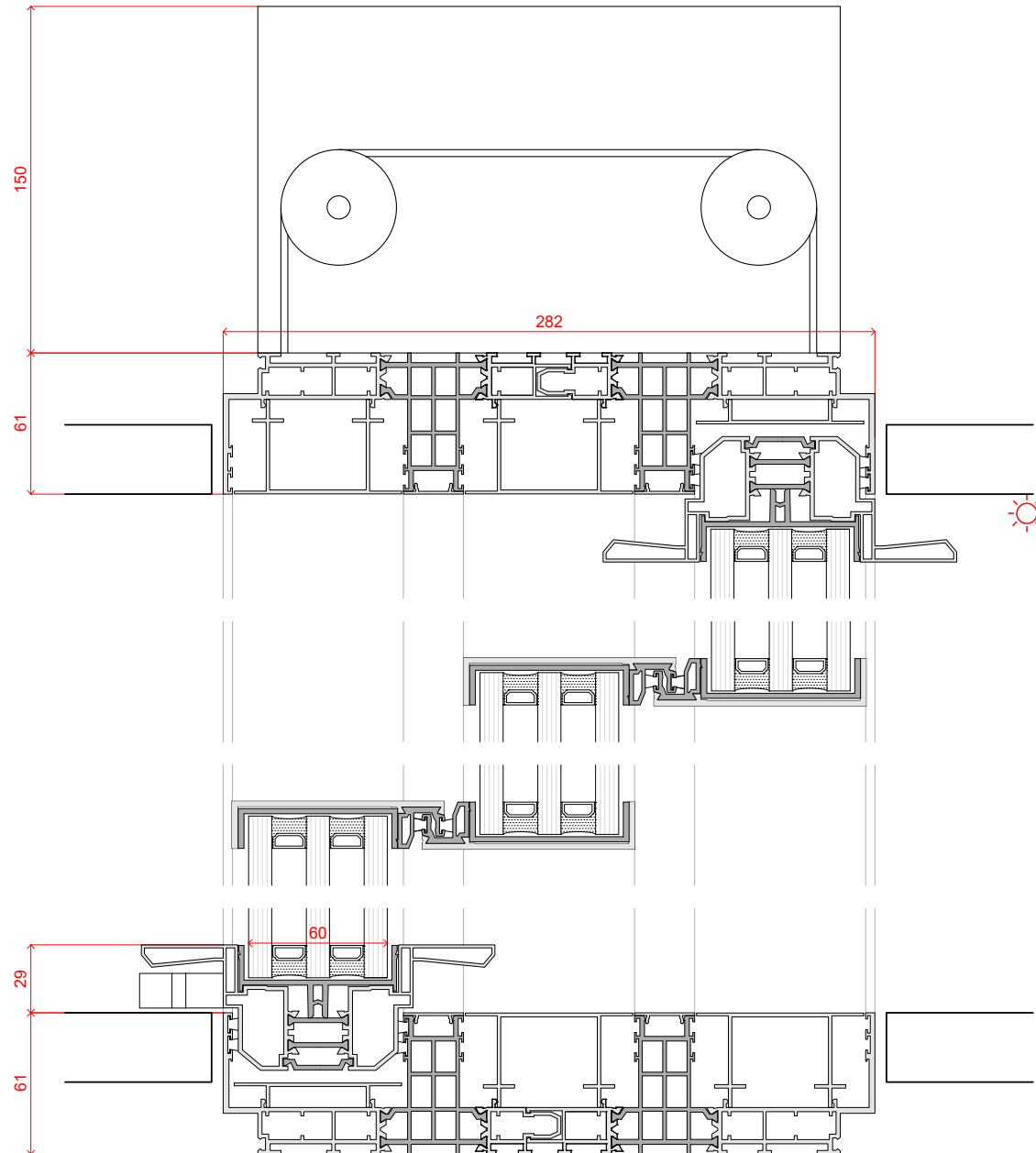




DOUBLE SLIDING

2.3.2 VERTICAL - TRIRAIL

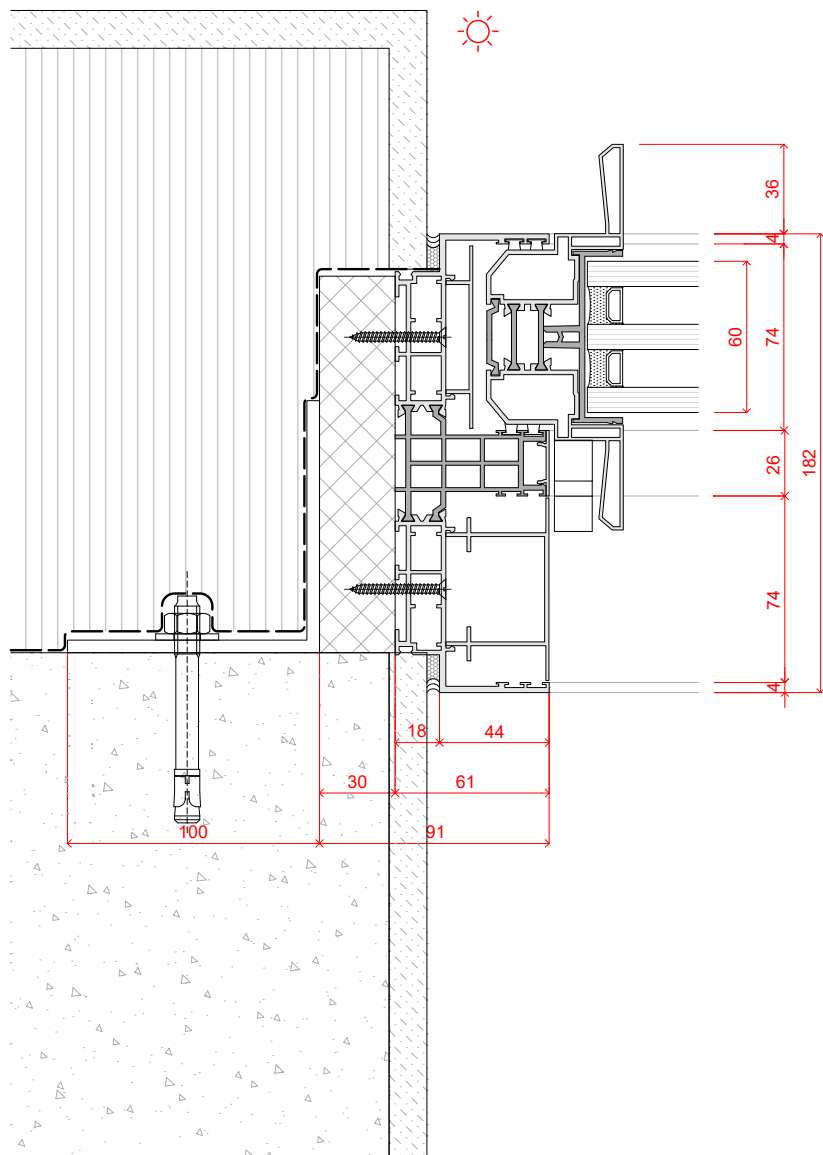


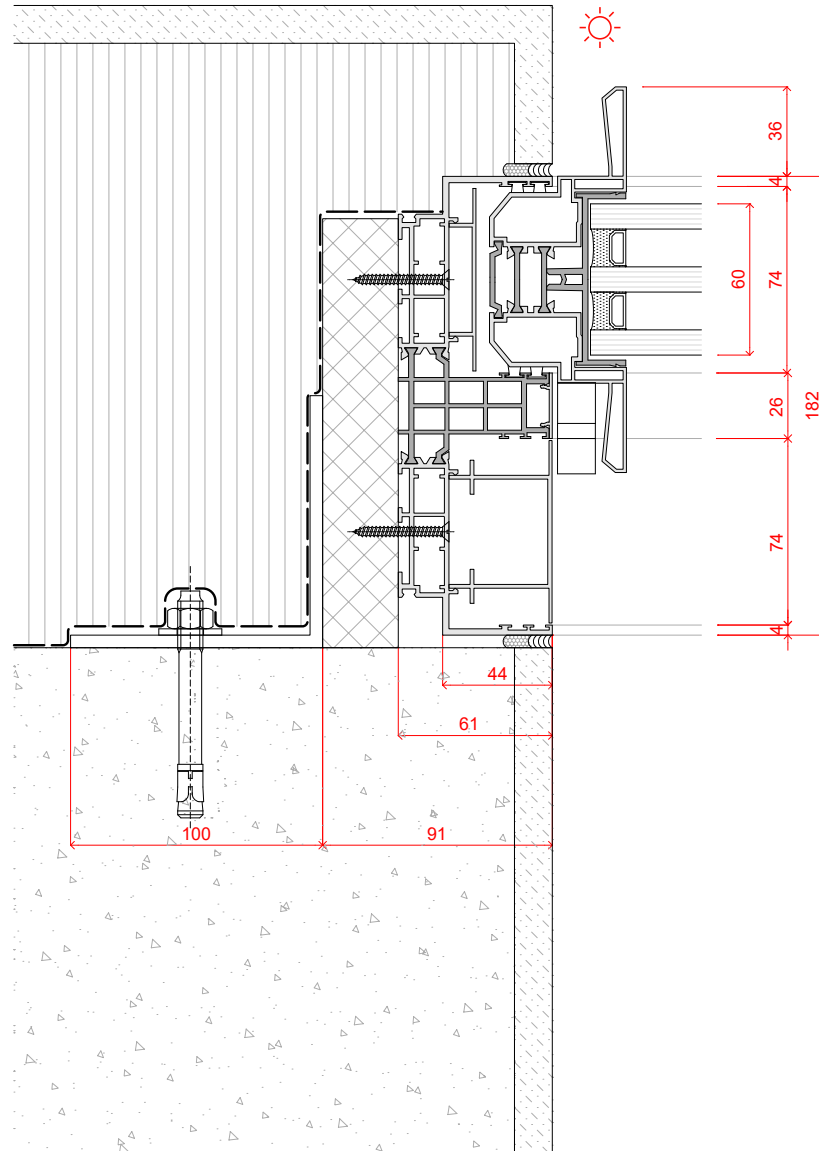


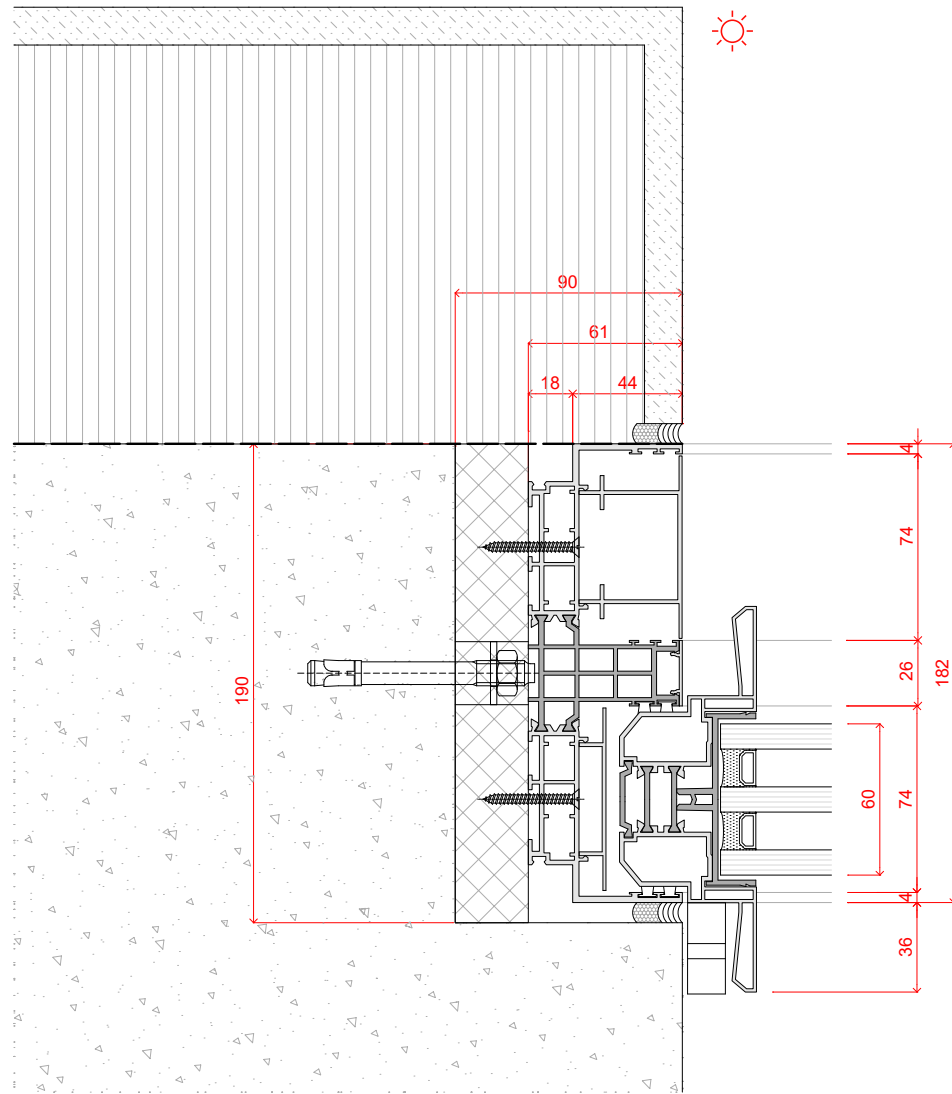
SLIDING + FIXED + SLIDING

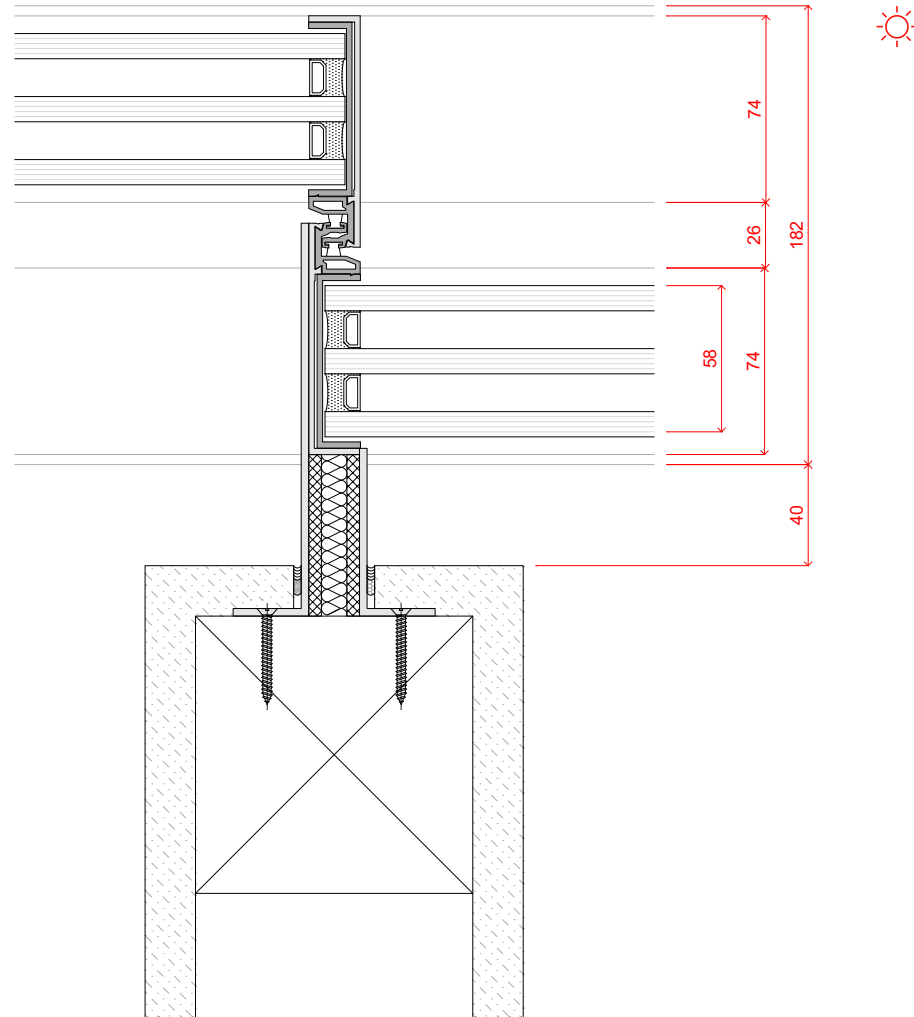
2.4 BUILDING CONNECTIONS

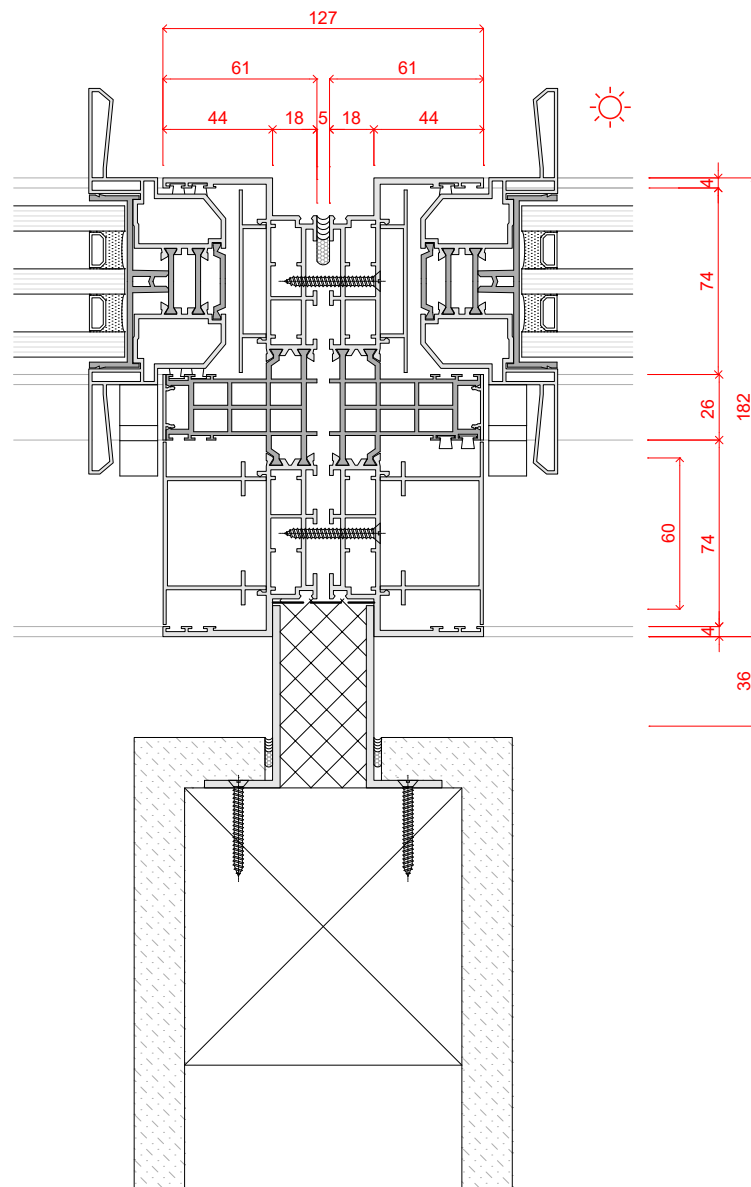
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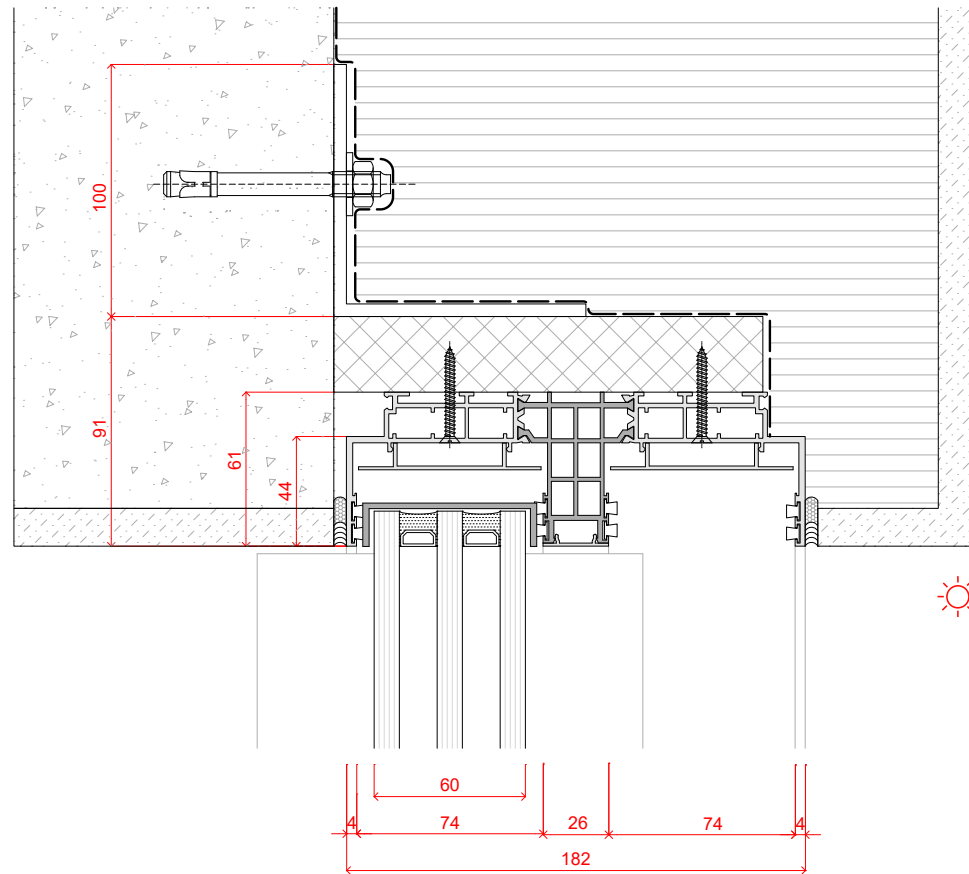


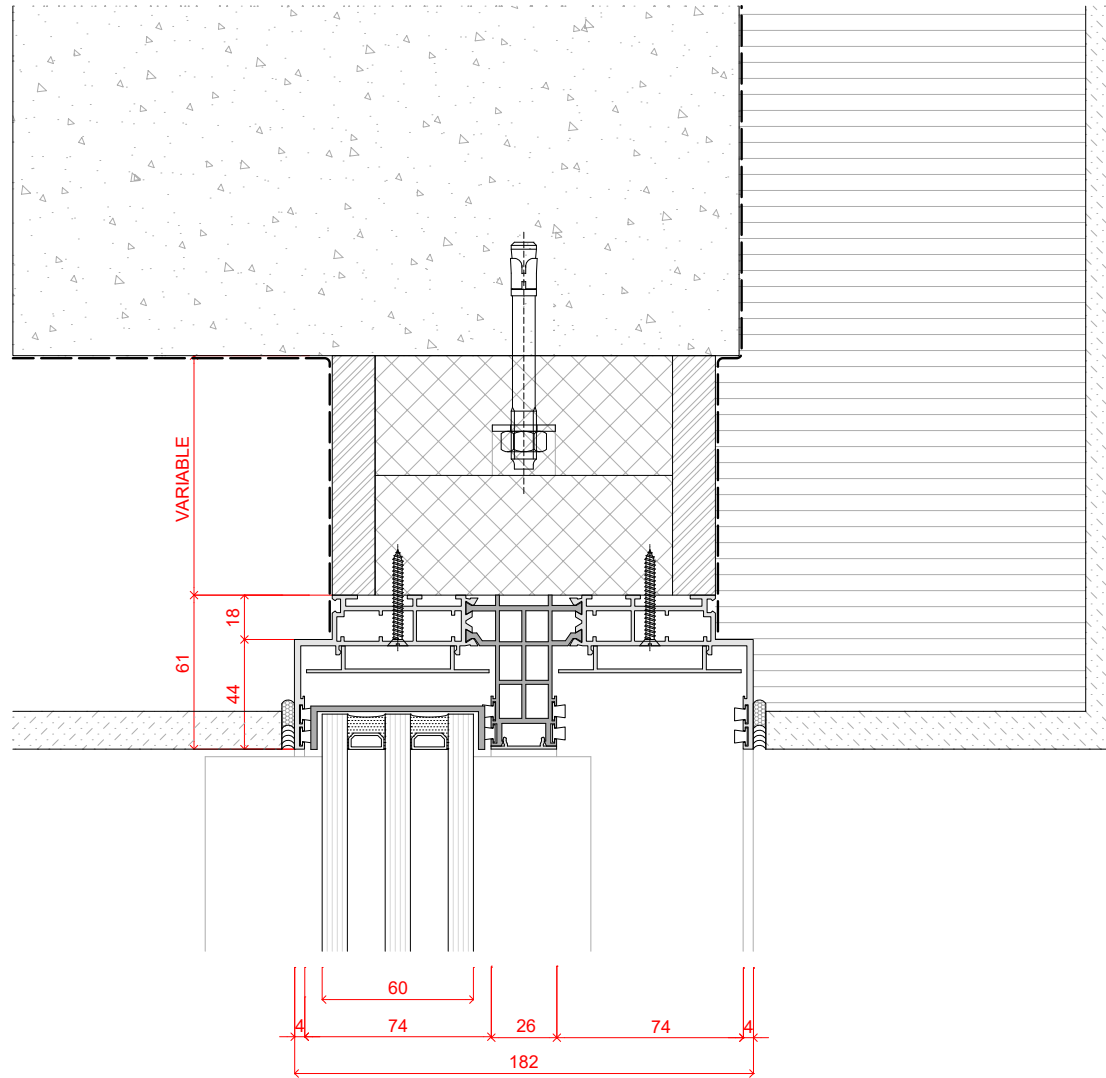


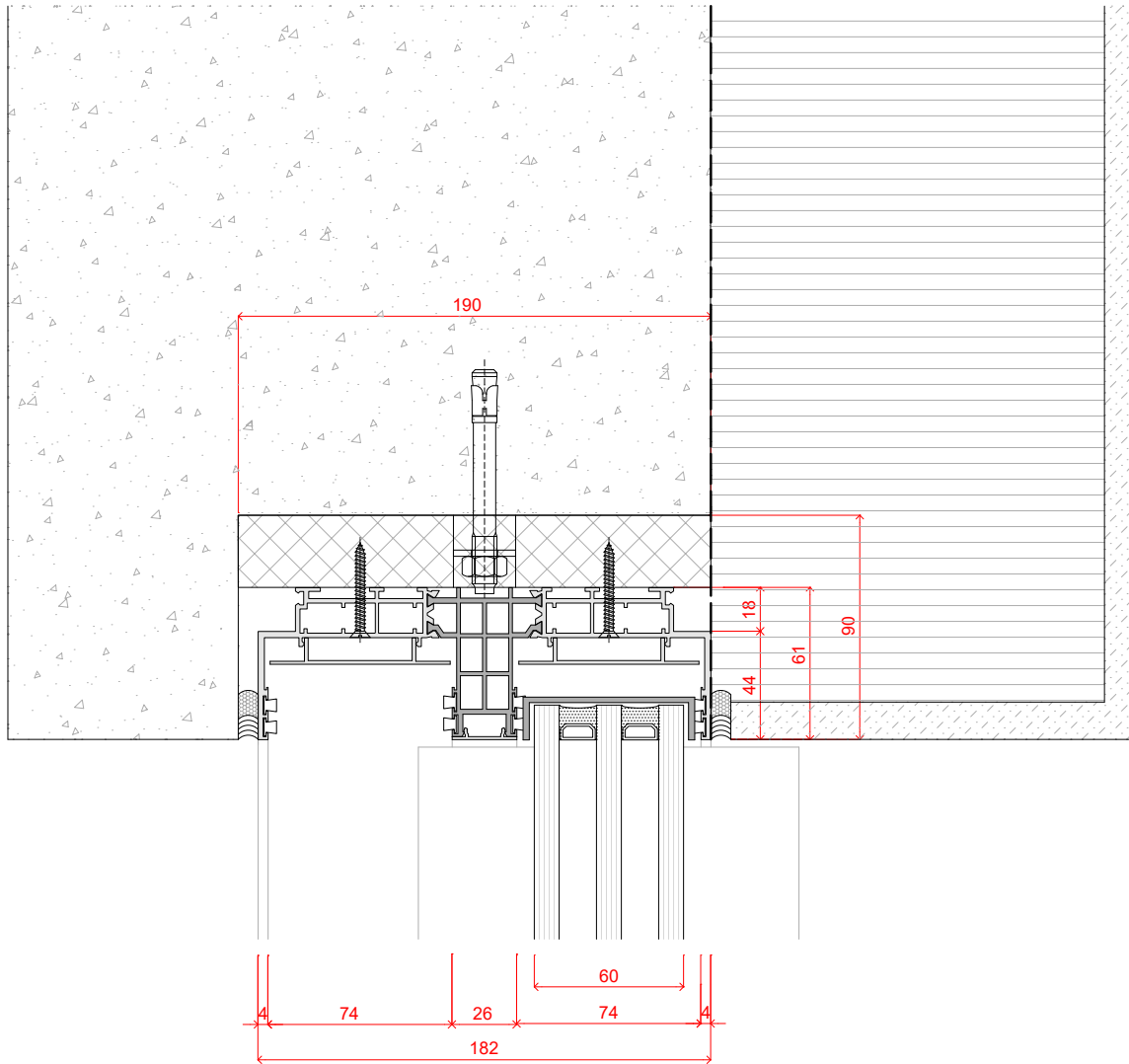


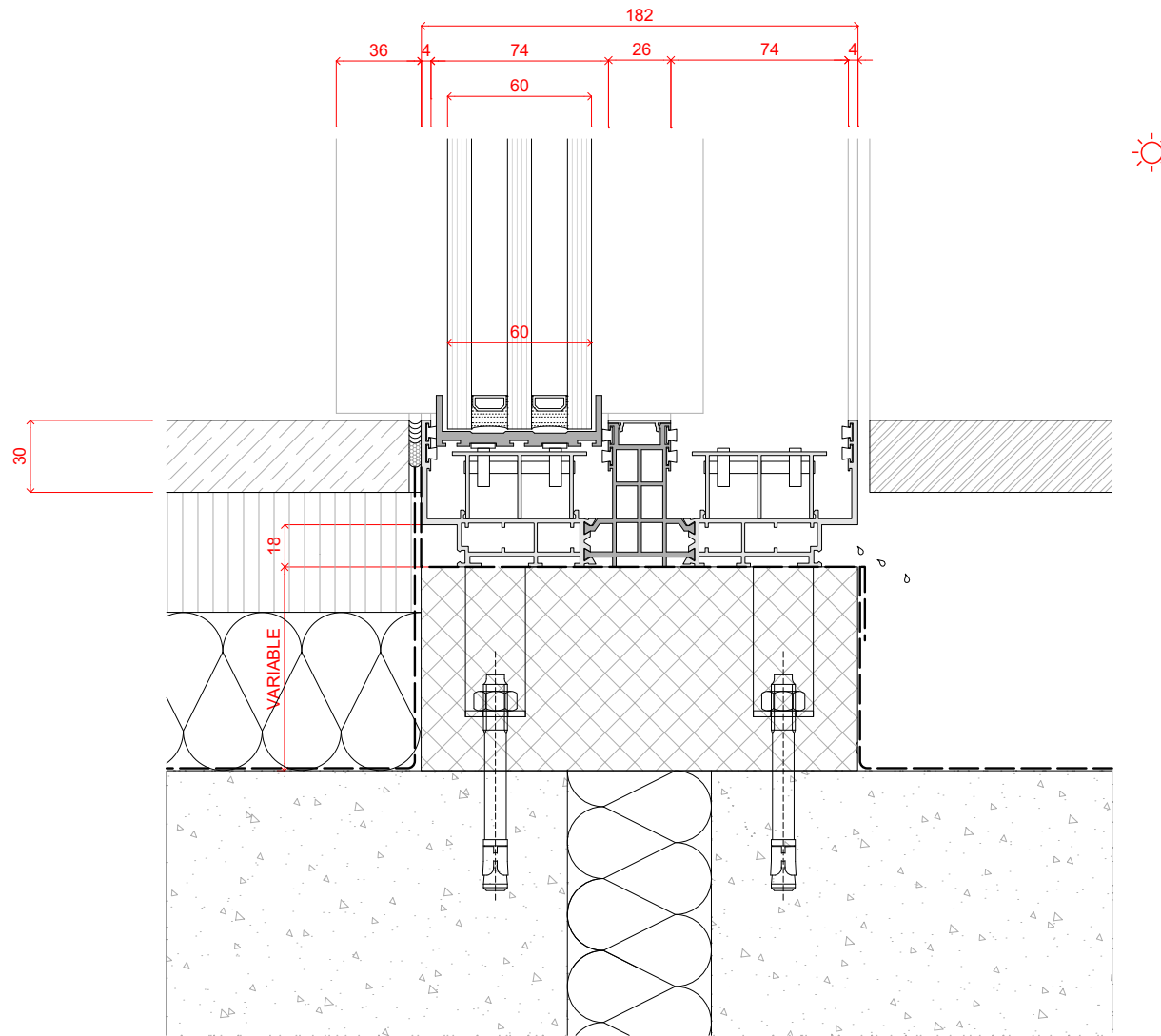


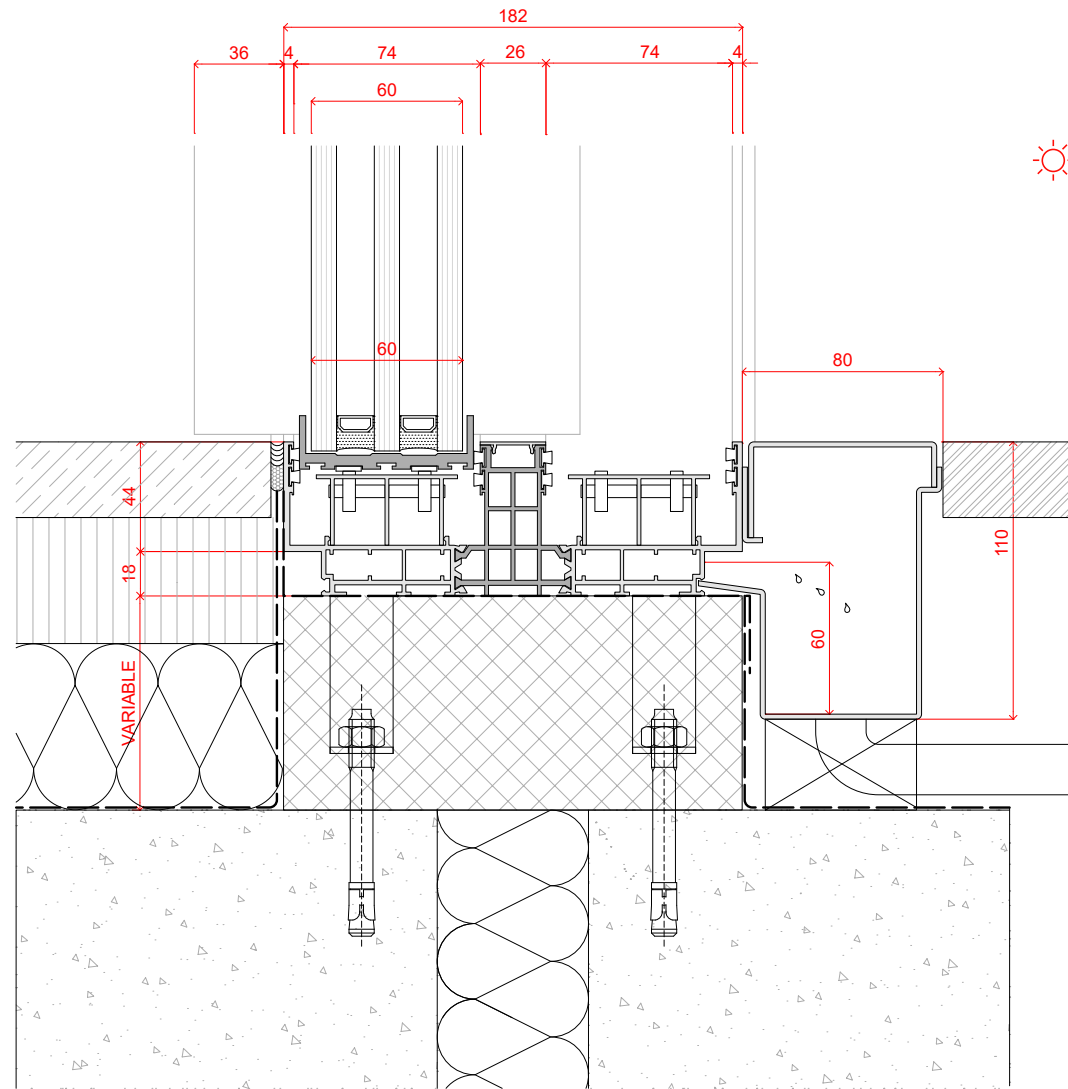


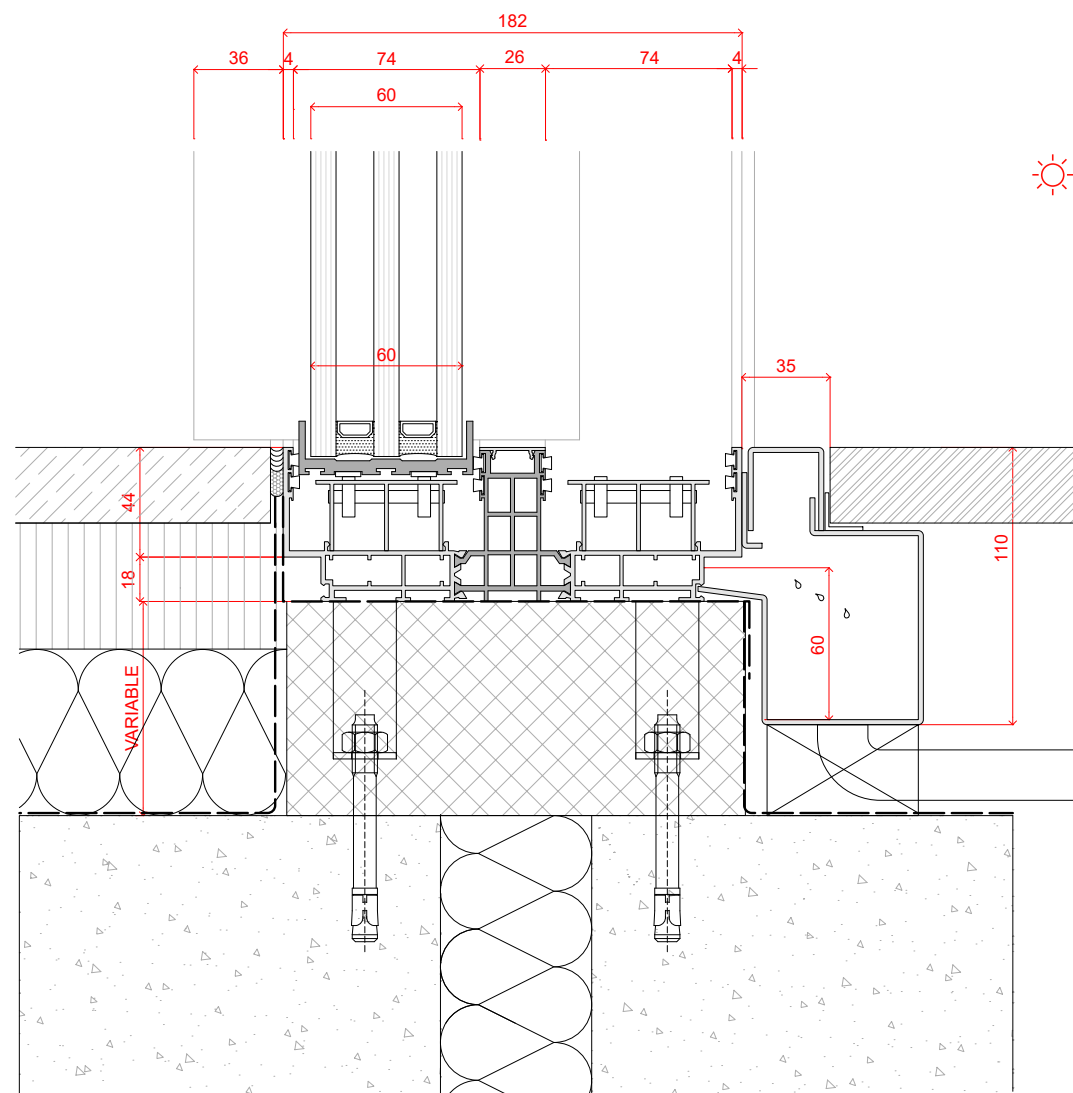






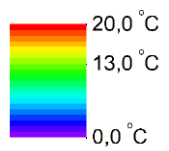
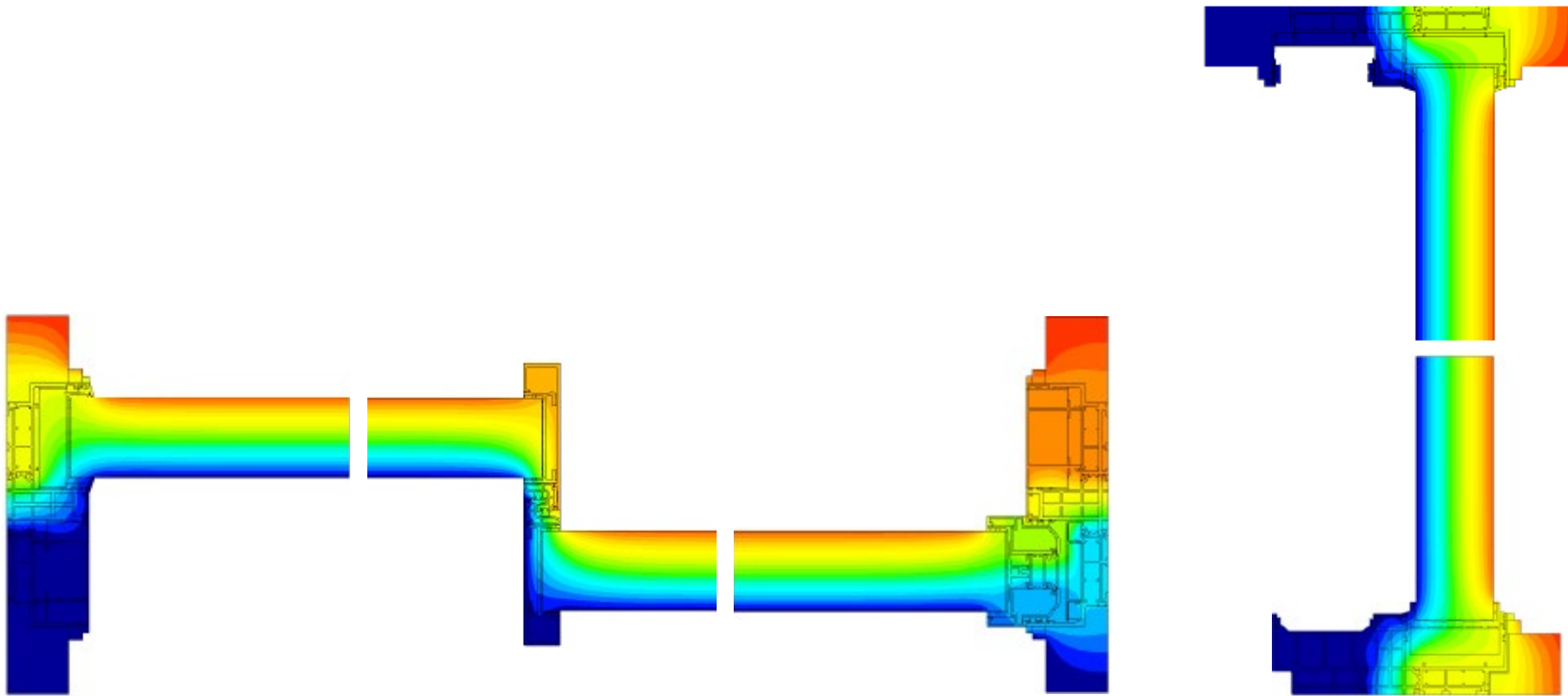






2.5 TECHNICAL SPECIFICATIONS

2.5.1 THERMAL PERFORMANCE



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