



OUR MISSION

Sky-Walls Ltd. develops cutting-edge adaptive facade technologies designed to elevate building sustainability and occupant well-being. Our Autonomous Facade Module (AFM) acts as an intelligent, climate-adaptive "skin," enhancing energy efficiency while supporting comfortable indoor climates.

THE PROBLEM

The global building industry is responsible for nearly 45% of energy consumption and carbon emissions. Governments are increasingly focused on reducing emissions, with the building sector—especially high-rise glass structures—among the top targets. Traditional glass curtain walls are typically passive, double- or triple-glazed designs, trapping heat inside and necessitating high energy use for cooling. This "greenhouse effect" not only strains cooling systems but limits adaptability to changing environmental conditions.

OUR SOLUTION

Sky-Walls' AFM transforms curtain walls from passive to dynamic systems, automatically adjusting the Solar Heat Gain Coefficient (SHGC) and U-value to match current internal and external conditions. By managing heat transfer, it minimizes the greenhouse effect and increases interior comfort while potentially cutting energy bills by up to 30%.

HOW SKY-WALLS SYSTEM WORKS

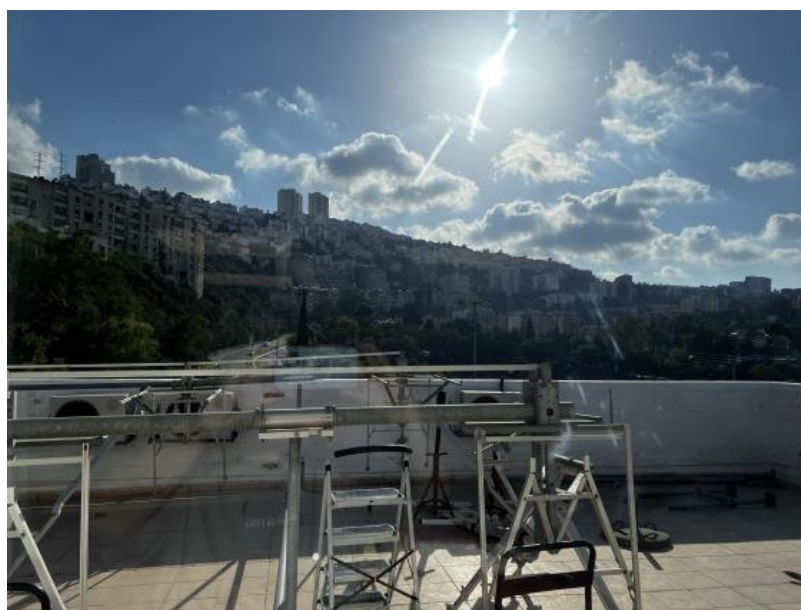
Our Autonomous Facade Module (AFM) is an innovative module mounted directly onto the glass panels of a building's curtain wall, enabling dynamic control over the wall's thermal resistance (U-value) and solar radiation transmission (SHGC). Powered by AI and integrated photovoltaics, the AFM adjusts these values autonomously in response to environmental conditions, helping to retain or expel heat as needed. This intelligent modulation optimizes energy efficiency and maintains comfortable indoor climates without relying on an external power source.

FUNDING STAGE OVERVIEW

Sky-Walls Ltd. has garnered strategic support and investment to drive its adaptive facade technology forward. In 2021, the company received initial funding from the Israeli Energy Department for its innovative approach to energy-efficient facades, allowing us to provide a Proof of Concept. This momentum continued in 2024, with a pre-SEED grant from the Israel Innovation Authority, which further enabled expansion and attracted additional investment from a construction firm. Sky-Walls has successfully raised a total of \$1M and is now well-positioned to enter its next funding round.



Mounted prototype



In-Out vision

AWARDS

December 15th, 2020

Awarded Governmental
Energy Department support for
Innovative Start-Ups Energy Efficient
Adaptive Facade



TRUSTED BY



MARKET OPPORTUNITY

The global market for curtain wall systems is expected to grow to \$100 billion by 2030, driven by rapid urbanization and sustainability efforts. Sky-Walls is positioned to address this demand, offering an adaptive facade solution for new buildings and a potential retrofit option for older glass buildings. As regulatory pushes for net-zero buildings continue, our module's low-cost, high-efficiency approach sets it apart. Initial sales models estimate a serviceable market between \$800 million and \$1.8 billion, targeting Europe and the Middle East.

COMPETITION OVERVIEW

Parameter	Dynamic facades	Internally Ventilated double skin	Externally Ventilated double skin	Triple glazing	SKY-WALLS facade
Climate adaptivity	LIMITED	NO	YES	NO	YES Full adaptivity – U-Value and SHGC
Independence from external energy resources	NO Complicated driving mechanics	NO Energy consumption and complicated ducting system	NO Energy consumption and complicated ducting system	YES	YES Self - sustained solar activates system
Independent control of each curtain wall panel	NO	NO Panels are connected in between with ducted air	NO Panels are connected in between with ducted air	NO	YES
Renovation applicability	NO	NO Requires significant ducting and motorization	NO Requires significant ducting and motorization	YES	YES Hermetically sealed panels suitable to be installed in existing skeleton
Pricing	Very Expensive	Expensive	Expensive	Dependent on U-Value Performance	Similar to triple glaze +30\$

SIMULATION RESULTS

To assess the potential savings of the Sky-Walls AFM, we conducted simulations using EnergyPlus, the leading software for energy calculations in the building industry. The following table outlines the capabilities of our technology in adjusting the U-value and Solar Heat Gain Coefficient (SHGC) dynamically:

	U-Value	SHGC
Glazing 1	1	0.3
Glazing 2	1	0.7
Glazing 3	5.88	0.3
Glazing 4	5.88	0.7

We then applied these values to three typical buildings located in Rome, Chicago, and Munich over the span of one year. The simulation results showed energy savings from adjusting both U-value and SHGC dynamically throughout the year. EnergyPlus, while rigid in its capabilities, allows for evaluation of energy consumption with fixed curtain wall characteristics, which we compared to the flexible adaptation of both U-value and SHGC over the course of each year.

The following table summarizes the energy savings for each building under two scenarios: one with constant curtain wall characteristics and another with optimal dynamic adjustments of the U-value and SHGC.

City	Annual SUM of Heating + Cooling with variable U-value and SHGC (kWh)	Annual SUM of Heating + Cooling with variable U-value only (kWh)
Munich	394459.5	516412.1
	40% savings	23% savings
Roma	456017.84	629811.09
	30% savings	3.53% savings
Chicago	562753.78	705313.8
	32.70% savings	15.60% savings

As shown in the results, adjusting both the U-value and SHGC leads to significant energy savings across all three locations, with Munich benefiting the most at 40% savings. This flexible adaptation of curtain wall characteristics demonstrates the potential of Sky-Walls' technology to reduce energy consumption and enhance building sustainability across different climates.

BUSINESS MODEL

Sky-Walls' primary revenue streams are product sales, at €20 per square meter, and a subscription service, at €1 per square meter per month. Our initial focus is on partnerships with curtain wall manufacturers and construction firms, positioning the AFM as a cost-effective, sustainable building upgrade that supports long-term energy savings.

NEXT THREE YEARS

Sky-Walls' R&D will advance the AFM from TRL5 to TRL7, with a focus on prototype enhancement, pilot installations, and market validation. Strategic partnerships with curtain wall manufacturers and construction firms will support these goals, enabling the expansion of distribution channels and increasing brand visibility in key markets.

FINANCIAL ANALYSIS

Assumptions:

- Total floor area: 100,000 m²
- Curtain wall area: 30,000 m² (30% of floor area)
- Module price: \$100
- Energy consumption: 225 kWh/m² annually
- Energy savings potential: 30%
- Electricity cost: \$0.20/kWh

Calculation:

With 30% energy reduction, expected savings are 67.5 kWh/m² per year, translating to \$1,350,000 annually across 30,000 m² of curtain wall area.

ROI: 0.8 (~80%)

Payback Period: ~1.4 years (factoring in a 2.5 safety factor)

In conclusion, with \$1M already raised and a promising ROI projected within 1.5 years, Sky-Walls is positioned for substantial growth and market impact. As the company prepares for its next funding round, the AFM stands ready to advance sustainable building solutions at scale, aiming to deliver significant energy savings and environmental benefits across global markets.

OUR TEAM



Oren Aharon | CEO

Oren is a passionate advocate for technology with a deep focus on lasers, optics, and green solar energy. As a seasoned inventor, he has established multiple companies and frequently collaborates with other organizations, licensing his inventions on a royalty basis. His expertise spans R&D and innovation in advanced optics and sustainable energy solutions, where he continually seeks to push the boundaries of what is possible, leveraging cutting-edge technologies to drive sustainable development.



Hilany Yelloz | Systems Engineering Manager

With an engineering diploma equivalent to a master's in Civil Engineering, Energy, Processes, and Environment, and a second master's in Energy and Processes, in which she graduated as top student, Hilany specializes in Energy, Civil Engineering, and Sustainability. She has demonstrated leadership and adaptability, bringing a strong foundation in computer science, mathematics, and theoretical physics to her diverse areas of expertise. Her Master's thesis at the Technion, conducted under Prof. Spatari, focused on modelling physical phenomena to facilitate the transition from prototype to partial implementation within building structures.



Roman Yukhananov | Mechanical Engineer and Algorithm Developer

A dedicated professional, Roman is an officer in the Israel Defense Forces and will soon begin his Master's degree at the Technion – Israel Institute of Technology. His background combines expertise in mechanical engineering with advanced skills in algorithm development, equipping him with the analytical and technical capabilities to tackle complex engineering challenges.



Jaime Charaf-Cohen | Mechatronics Engineer

Graduated from Tecnológico de Monterrey with a Minor in Systems and Technologies 4.0, Jaime brings industry experience in Cad and CAE within the automotive sector. Formerly, he served as director of the electronics division for a university racing team, where he honed his skills in engineering design.



Joseph Mechaly | Data Science and Decision Engineering Student

B.Sc. candidate in Data Science and Decision at Technion, specializing in Information Systems. He combines solid programming (Python, Java, SQL) and data analysis skills with a multicultural perspective on problem-solving.