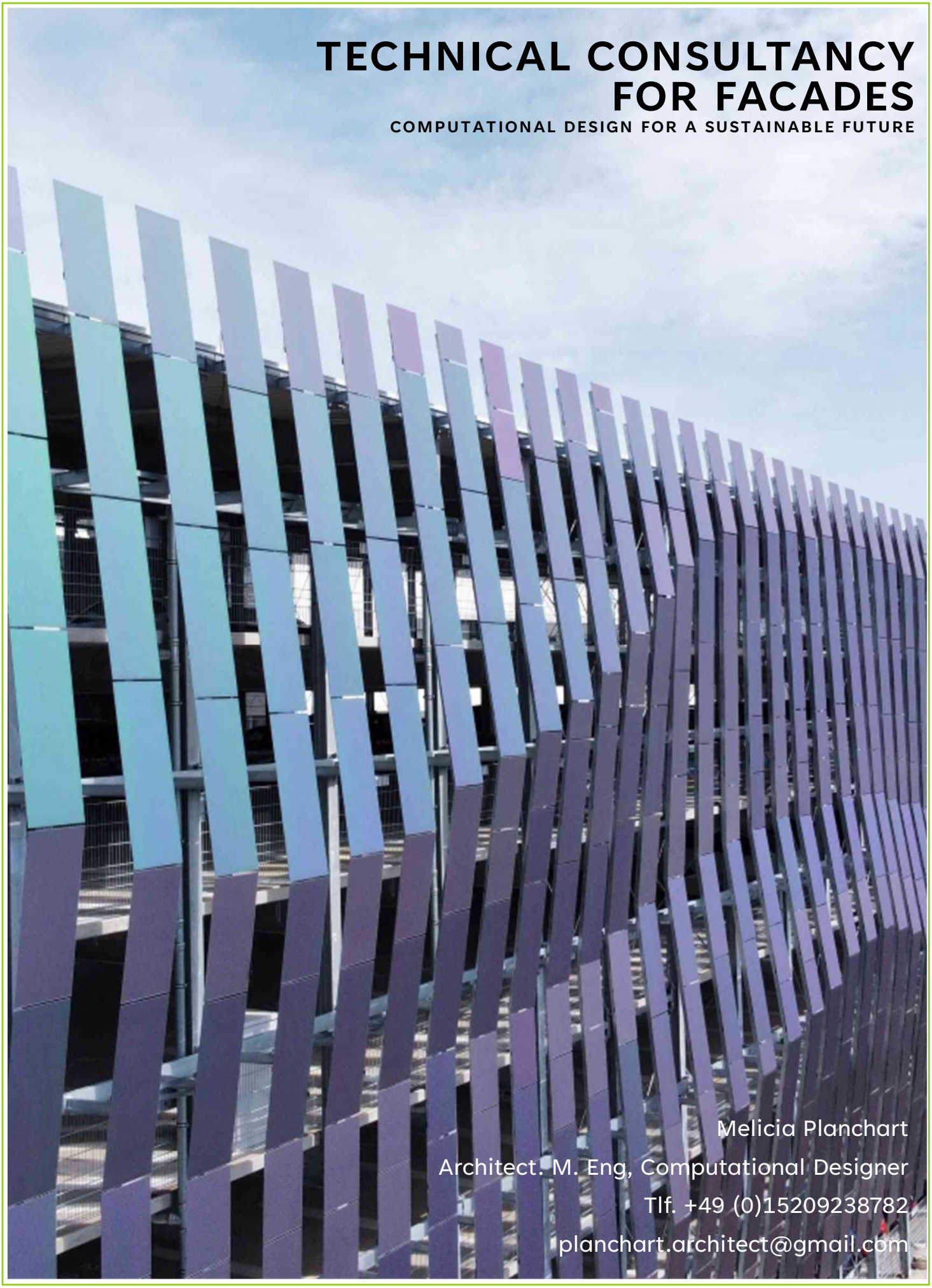
TECHNICAL CONSULTANCY FOR FACADES

COMPUTATIONAL DESIGN FOR A SUSTAINABLE FUTURE



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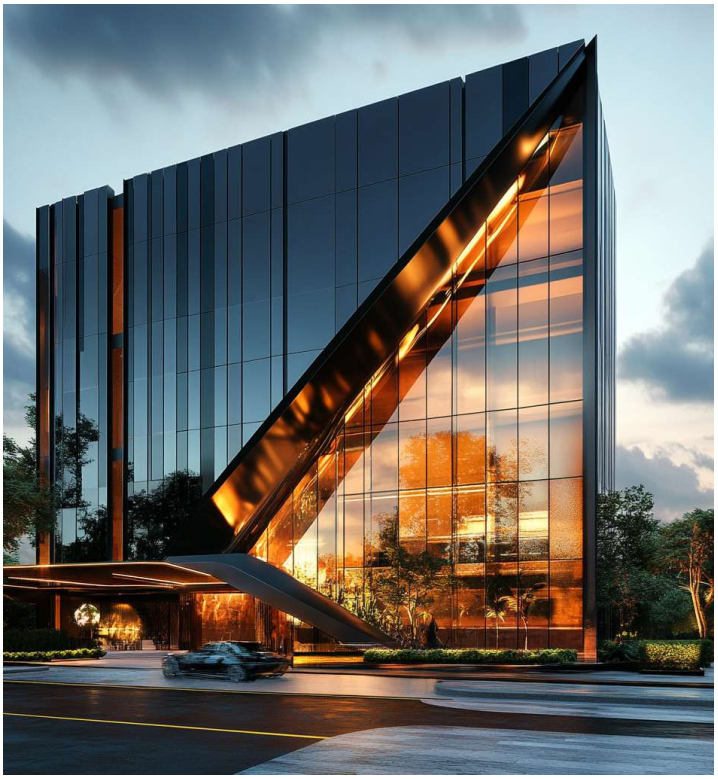
About



We provide Technical Consultancy for Facades, combining Computational Design with innovative strategies to create smart, sustainable building envelopes for the future.

We love architecture — but we also know it’s one of the biggest contributors to climate change.

With solar facades, we turn that around. By using smart solar façades, buildings can **generate power, reduce carbon, and be beautiful**.

We support architects and designers with smart, integrated strategies to reduce carbon, meet climate goals, and make buildings part of the solution.

We help turn facades into solar power plants — beautiful, efficient, and sustainable.

Because buildings shouldn’t just consume energy — they should **create** it.

Advantages

- **Integrated Sustainability***:* We help reduce energy demand and increase solar gains through smart façade design.
- *Computational Precision:* Algorithmic design enables performance-driven geometry, layout optimization, and modular solutions.
- **Tailored Solutions**: Every façade is treated as unique, with design rules that reflect project-specific goals.
- **Cross-disciplinary Support***:* Bridging design, engineering, and fabrication through digital workflows
- **Faster Decision-Making**: Early-stage simulations and visualizations accelerate design feedback loops.

2 820 m² Facade area
809 MWh/year
305,5 tn. Co2 saved/year based on country-specific emission factors, determined in 2024
Location: Schkeuditz. **Leipzig**
Project Completion: **2023**

Campus LEJ – DHL Parkhouse
Architect: Von Domaros
Solar facade Consultancy AVANCIS GmbH

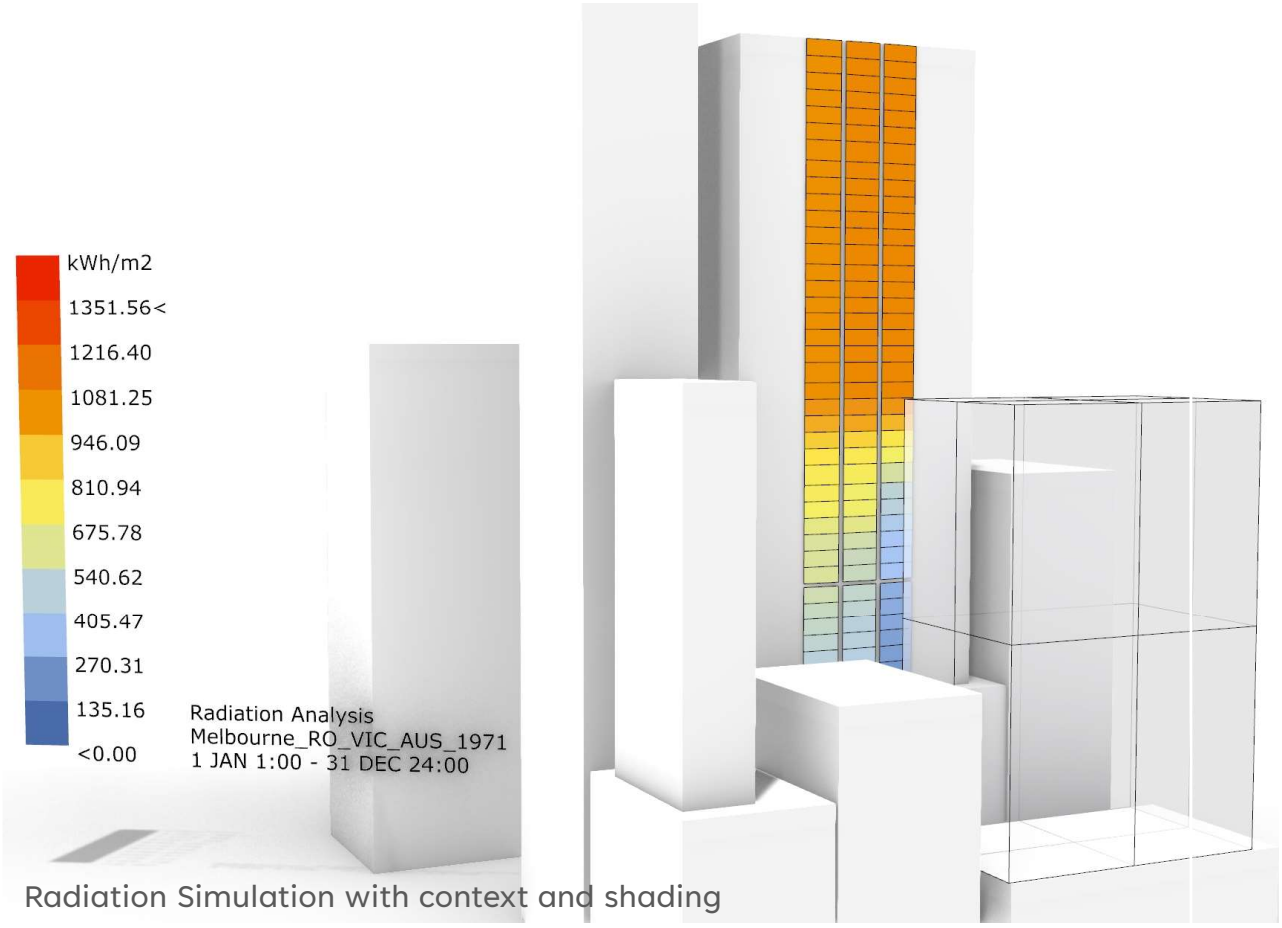
Product Overview

Our service packages provide a clear overview of the support levels available. Pricing is adjusted based on project size and complexity.

For most facade projects, we offer three tiers of support:

- **Basic**
- **Standard**
- **Premium**

For larger or unconventional projects, we also offer **tailored consultancy** to meet specific needs and challenges.



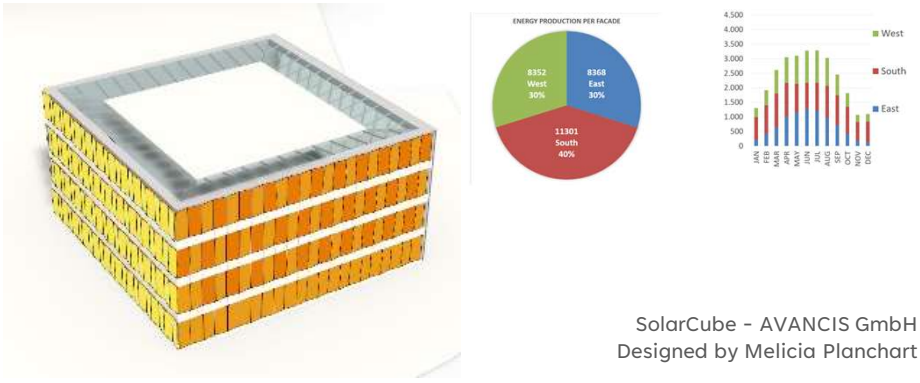
Radiation Simulation with context and shading

RADIATION SIMULATIONS & ENERGY CALCULATIONS

Detailed solar radiation analysis and energy yield simulations to evaluate the performance of BIPV systems. This computational approach includes:

- Annual and seasonal irradiation mapping (kWh/m²)
- Shading analysis from context
- PV System energy output estimation (MWh/year)
- Design Variation Comparisons

Energy Yield Comparison through 2 design Variations



SolarCube - AVANCIS GmbH
Designed by Melicia Planchart

ENERGY CALCULATION REPORT

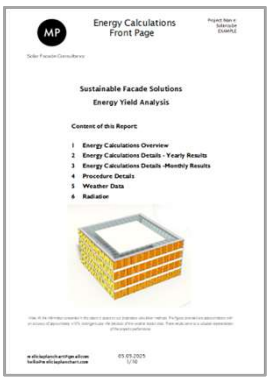
Estimation of the annual energy yield of the building's photovoltaic façade using radiation simulation and system efficiency parameters.

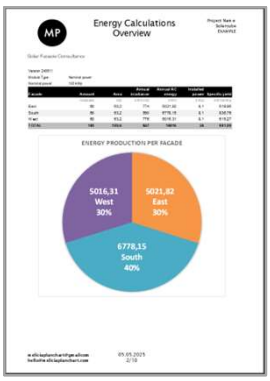
Input Data:

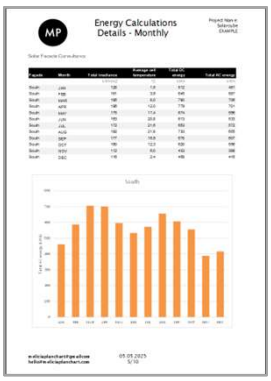
- Building geometry and orientation
- Local weather file (EPW)
- Material and module properties (e.g. efficiency, nominal power, color)

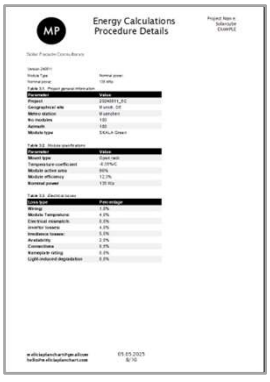
Results:

- Total Annual Irradiation (on façade)
- Effective PV Area
- Expected Annual Energy Yield
- CO_2 Savings Estimate









Panel Distributions

Optimized panel layouts based on architectural intent, structural constraints, solar exposure, and electrical efficiency. Our computational workflows allow for:

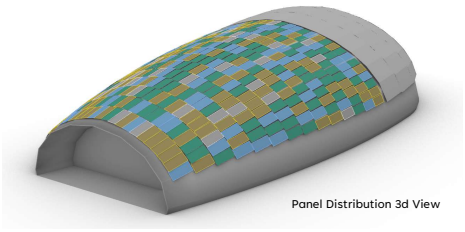
- **Customized module sizing and arrangement**
- **Maximized active surface for energy yield**
- **Minimized cutting, waste, and shading losses**
- **Balanced aesthetic integration with functional performance**

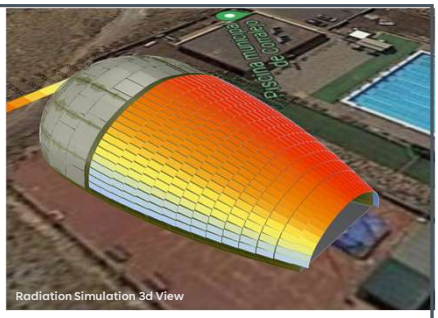
Using parametric tools, we generate distribution strategies that align photovoltaic panels seamlessly with design geometry, opening opportunities for cost-effective, high-performance solar façade

Facade Visualizations – Panel Distribution

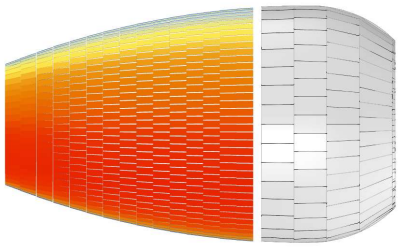
Shape Rationalization

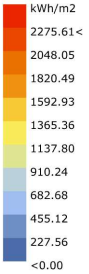
- **3D Panel Distribution**
- **Radiation Simulation**
- **Energy Analysis**


Panel Distribution 3d View

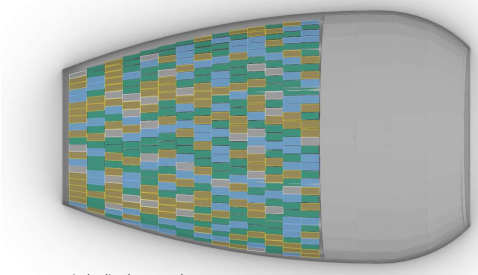

Radiation Simulation 3d View

Sporthall Solar Shell





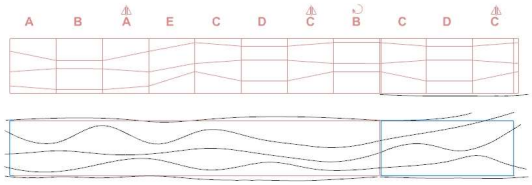
Radiation Analysis
Izana_Canary_Islands_CN_ESP_1987
1 JAN 1:00 - 31 DEC 24:00

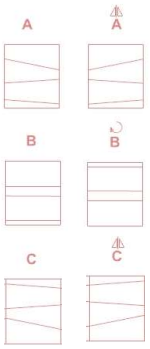

Panel Distribution Top View

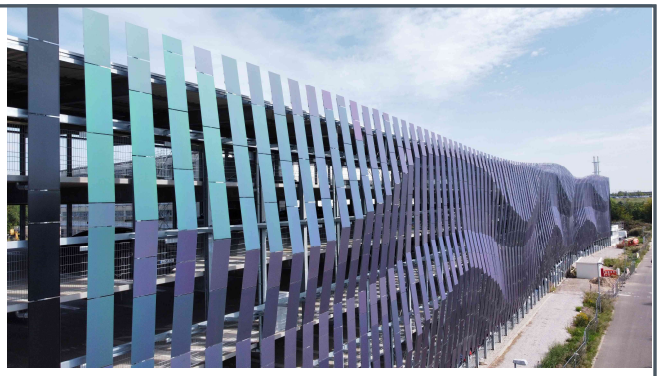
82,8 kWh Energy yield per year
51,6 Kwp Instaled Capacity

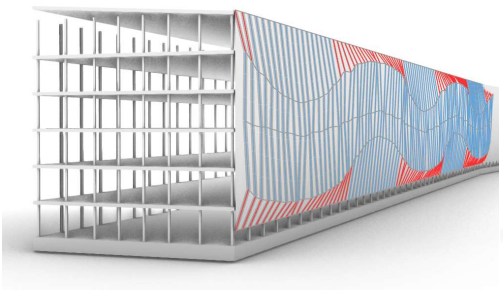
384 Modules
Location: Canary Islands
Project Type: Initial Consultation

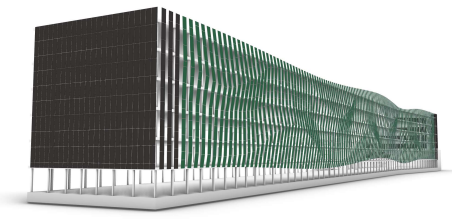
Shape rationalizations - Geometry optimization

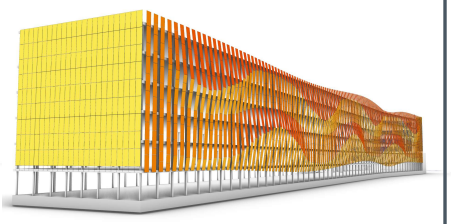












Shape rationalizations - Geometry optimization

Campus LEJ – DHL Parkhouse
Project Type: Solar facade Consultancy

Key features

The Technical Consultancy for Facades has a strong focus on **Computational Design**. Specially for custom geometry development for – but not limited to – solar facades.

Our services support architects, engineers, and developers throughout the design and planning phases—using parametric tools, data-driven analysis, simulation-based workflows to optimize facade solutions for performance, sustainability, and aesthetics.

- **Design-to-Performance Workflow** – integrating architectural design with technical performance early stages.
- **Support for BIPV Implementation** – from concept through to planning and realization.
- **Form Finding and Shape rationalization** – algorithmic workflows to support and optimize unconventional facade designs.

Smart and sustainable, ecologically responsible design is our passion.

- **Aesthetical integration** of energy-generating facades into the design
- **Optimized use of PV material**
- **Reduction of negative** environmental impacts
- **Information-rich design** for better decision-making

58,300 kg CO2 savings / year
based on country-specific emission factors, determined in 2024
75.73 MWh /year
146 kWp Installed Capacity
1,203 m² Facade area
Location: **Melbourne.**
Project realization: **2023**

Project partners: Fethers architectural pty ltd , AVANCIS GmbH
Project by Kennon, Crema Constructions.
Picture Credits: Fethers architectural pty ltd, link: George Fethers & Co.

Solutions

We provide technical consultancy through computational design methods to optimize energy-generating façades. Our services include:

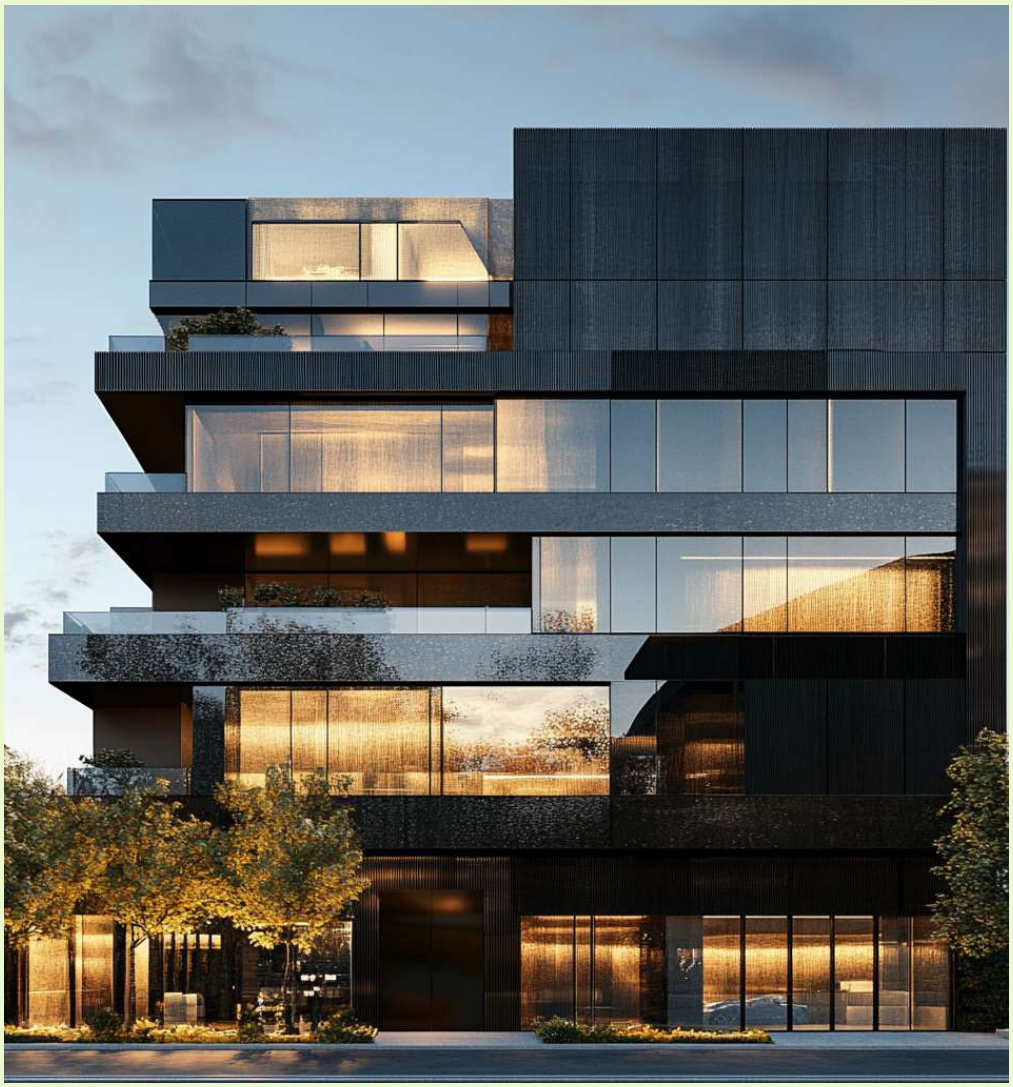
- **Customized Panel Distribution** – esthetic integration with maximum solar efficiency.
- **Solar Radiation Simulations** Identification of ideal panel orientation and placement.
- **Energy Yield Calculations** – accurate estimates of photovoltaic output based on location and geometry.
- **Shading Analysis** – Simulation of context influence on solar surface performance.
- **Optimization** –Analysis of material lengths, quantities, and sun orientation to enhance performance.
- **Form Finding & Rationalization** – Parametric design enables efficient shaping and simplification of complex forms for easier fabrication and on-site assembly.
- **Visualizations** – rom conceptual drafts to photorealistic images that support confident design decisions.

Facade Visualization

Package overview

	Basic	Standard	Premium
	1 design variation	1 - 2 design variation s	1 -2 design variations
Services	*	*	*
Panel Distribution - Facade Layouts	*	*	*
Expected Installed power	*	*	*
Radiation Simulation	*	*	*
Shading Simulation with context			*
Energy calculation report		*	*
CO2 Savings		*	*
Visualizations - Basic 3d views			*
Presentations Slides		*	*

Additional services
Visualization Rendering -3d views (3D modeling not included)
Creation of 3D model
Facade planning consulting
String Planning
Presentations Slides
Shape rationalization
Geometry optimization



Thank you

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