

# TWINEARTH

## CREATING BEAUTIFULLY ENGINEERED SUSTAINABLE SOLUTIONS

An independent engineering  
consultancy

**t:** + 44 (0)203 713 9538  
**e:** [info@twinearth.co.uk](mailto:info@twinearth.co.uk)  
**w:** [twinearth.co.uk](http://twinearth.co.uk)



## OUR SERVICES



### PRE-PLANNING

Energy and sustainability strategies for buildings that lay firm foundations for planning applications.



### LOW CARBON DESIGN

Collaboration with architects and engineers to create low carbon buildings through passive design and smart technology.



### BUILDING PHYSICS

Use of state-of-the-art software, data and high-tech tools to create simple, sustainable building solutions.



### HEALTHY BUILDINGS

Creation of spaces that improve the physical, psychological and social health and well-being of their occupants.

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### ENVIRONMENTAL CERTIFICATION

Third-party assessment and certification of a building's environmental performance.



### CIRCULAR ECONOMY

Analysis of the embodied energy and carbon impact of a building from design and construction to operation and end of life.



### HANDOVER AND AFTERCARE

Post-occupancy services and advice to ensure our clients get the most out of their new space.

## ABOUT US

Twin & Earth provides independent engineering solutions with sustainability at its core.

## TWIN & EARTH IS AN INDEPENDENT ENGINEERING CONSULTANCY, OFFERING SUSTAINABLE STRATEGIES AND RESPONSIBLE DESIGN.

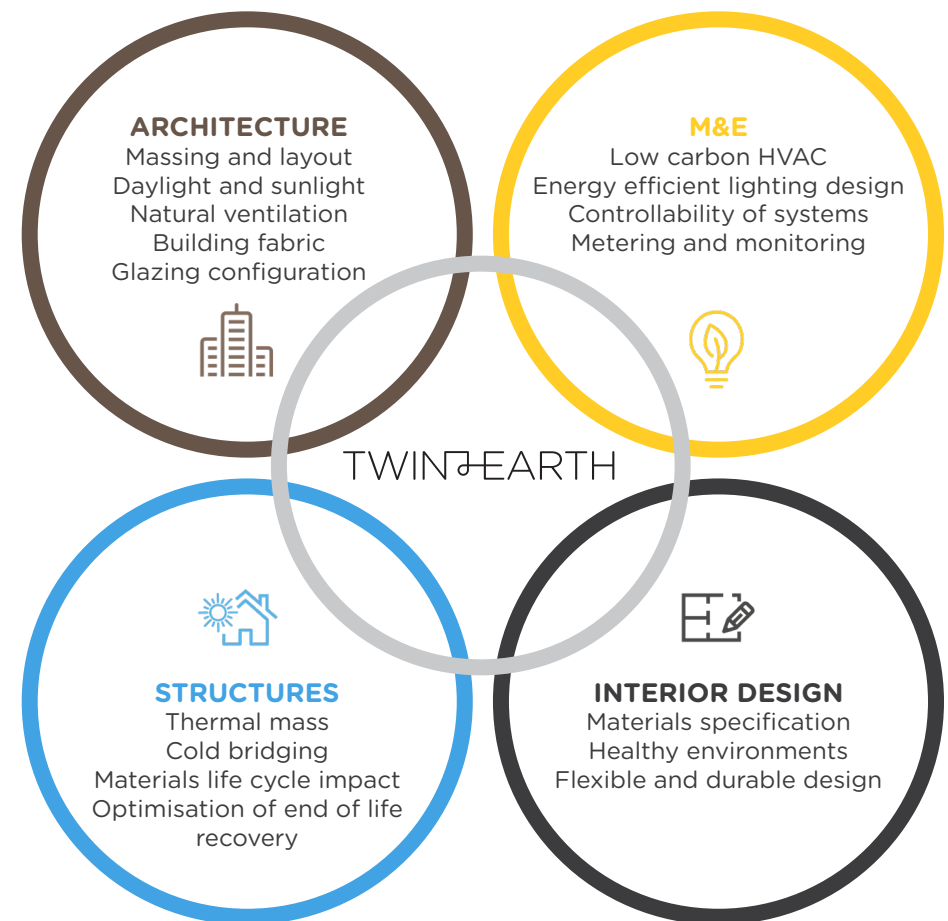
We collaborate with architects, developers, contractors, engineers, end-users, building operators and product manufacturers to:

- Provide concept and detailed engineering, and sustainable design solutions for new and existing buildings;
- Support businesses in the development of more sustainable products; and
- Help public and private sector organisations to develop and adopt more sustainable operations.

Our vision is to seamlessly integrate sustainability into the entire construction process, without it being seen as an afterthought or inconvenience. From the initial concept, through planning, construction and operation, we will ensure sustainability is woven into the process and a priority for all stakeholders.

We listen and respond to our customers. We are open and flexible to their needs and concerns, breaking down complex concepts into simple solutions that work both on paper and in practice. Our consultants take a holistic view of each proposal, focusing on responsible and technical strategies that are pragmatic and inspiring.

**Twin & Earth integrates sustainability into the entire design and construction process.**





## OUR SERVICES

We provide independent, sustainable engineering solutions.



Our goal is to create buildings that tread lightly on the planet through our robust and informed services.

Our experienced team creates forward-thinking and practical building solutions which have been detailed overleaf.



# PRE-PLANNING

**Energy and sustainability strategies for buildings that lay firm foundations for planning applications.**



Every journey begins with creative planning, translating ideas into visionary developments which are sustainable, practical and aesthetically pleasing.

Against a constantly shifting regulatory landscape, the challenges are now greater than ever before. Failure to integrate policy changes into your planning applications can lead to a wide range of implications for the project, including substantial financial costs and programme delays.

We are enthusiastic about exploring new solutions for energy and sustainability, enabling us to create strategies which are fully embedded into the design, not an afterthought.

We offer a wide range of services to de-risk your planning application and support you throughout the process, including:

- Energy statement;
- Sustainability statement;
- Sustainable master planning and microclimate;
- Support for discharging energy and sustainability planning conditions;
- Analysis of CIBSE TM52 and TM59 (overheating risk);
- Daylight and sunlight analysis;
- Light spillage assessment; and
- Green performance plans.

Our knowledge of regulatory and policy requirements is complex and in-depth, providing an instant asset to any project.



# LOW CARBON DESIGN

**Collaboration with architects and engineers to create low carbon buildings through passive design and smart technology.**



Delivering a low carbon design comprehensively requires reverse engineering; reducing the overall energy demand before integrating efficient and low carbon systems.

Around 40% of the total carbon footprint in the UK is contributed by the built environment<sup>1</sup>. The battle against climate change begins in communities and must encompass both new and existing buildings.

Achieving a truly low carbon design requires an in-depth understanding of the interplay between passive, low energy design, the servicing of the building and the wider energy infrastructure. We work closely with the architect to create a low carbon solution that honours the design intent and minimises the aesthetic impact.

Low carbon technology is an area which is constantly evolving. As a team of expert engineers, we are able to communicate the technical needs of a project while ensuring the whole life cycle strategy is integrated.

Some of our low carbon design services include:

- Passive design analysis;
- Low and zero-carbon technology;
- Feasibility studies;
- Energy strategies;
- Facade optimisation studies;
- Natural ventilation strategies; and
- Support for specification and procurement of renewable technologies.



The UK Government has set a legally binding target of net zero carbon by 2050. With the built environment representing around 40% of current UK emissions, low carbon design will play a key role in meeting this target.

<sup>1</sup> UK Green Building Council, [www.ukgbc.org](http://www.ukgbc.org)



# BUILDING PHYSICS

Use of state-of-the-art software, data and high-tech tools to create simple, sustainable building solutions.



Building physics is the very heartbeat of intelligent engineering, allowing us to draw upon sophisticated tools to create comfortable, energy-efficient solutions.

The co-dependencies of heat, light and air are all critical to the physics of a building, entwining effortlessly to create a design that works. Available technologies are rapidly becoming more complex, and our expertise and access to critical tools allow us to demonstrate the competence of the design, reassuring project teams that the design of the building will meet its environmental targets.

Our suite of technology enhances the available solutions and allows us to test each idea, risk free. As well as generating a sustainable environment, we engineer buildings that you'll love to be in.

Our building physics services include:

- EPC, Part L, SBEM, SAP;
- Design for performance (DfP) modelling;
- Daylight and sunlight modelling;
- Overheating and thermal comfort assessment;
- Natural ventilation strategies;
- LEED ASHRAE energy modelling;
- Condensation risk analysis;
- HVAC load calculations;
- Computational fluid dynamics (CFD);
- CIBSE TM52 and TM59 overheating modelling; and
- CIBSE TM54 operational energy modelling.

Design measures informed by early thermal modelling can result in a significant reduction in operational energy consumption and overheating risk.

# HEALTHY BUILDINGS

Creation of spaces that improve the physical, psychological and social health and well-being of their occupants.



It is not uncommon for adults to spend the vast majority of their time indoors, so the buildings they occupy can significantly contribute to their health and well-being.

We create nurturing spaces, which boost physical and emotional well-being, giving consideration to the design and ongoing management of the building and its effect on its occupants.

Whether it's for work or home, we can help to design environments which encourage a harmonious lifestyle, including healthy eating, hydration, exercise and mindfulness. Getting the right balance can make a huge difference, and the environment is critical to this.

As well as the design and structure, we can provide additional support with initiatives and policies that can help workplaces become more of a positive influence on their staff.

2. World Green Building Council, *The Business Case for Green Building*, [https://www.worldgbc.org/sites/default/files/Business\\_Case\\_For\\_Green\\_Building\\_Report\\_WEB\\_2013-04-11-2.pdf](https://www.worldgbc.org/sites/default/files/Business_Case_For_Green_Building_Report_WEB_2013-04-11-2.pdf)



Our services include:

- WELL building standard accredited professional;
- Fitwel ambassador;
- Bespoke health and well-being programmes;
- Thermal and daylight modelling of internal environmental; and
- Indoor air quality management plans.

Buildings that support healthy working practices, and design features which promote well-being, can improve worker productivity and occupant health and well-being, resulting in bottom-line benefits for businesses<sup>2</sup>.



# ENVIRONMENTAL CERTIFICATION

**Third-party assessment and certification of a building's environmental performance.**



Certification provides independent verification of a building's environmental performance. It is commonly required to achieve planning permission and is valued by tenants and occupiers.

Our expertise in sustainable buildings stretches from design through to construction and operation. We are qualified third-party assessors, enabling us to support the design team in meeting performance targets, leading ultimately to environmental certification of the project.

We can help to embed environmental design from the very start to ensure that the end users' certification aspirations are fulfilled or provide an independent post-construction assessment. Our tailored and collaborative approach allows us to develop strategies which are best aligned with each individual client's needs.

3. World Green Building Trends 2018: Europe, Smart Market Report, [http://images.marketing.construction.com/Web/DDA/%7B3d2843de-e09e-4e67-b30f-7d8f463487f7%7D\\_SMRO918\\_Europe\\_25Nov18.pdf](http://images.marketing.construction.com/Web/DDA/%7B3d2843de-e09e-4e67-b30f-7d8f463487f7%7D_SMRO918_Europe_25Nov18.pdf)

Our environmental certification services include:

- Bespoke sustainability implementation plans;
- BREEAM certification and BREEAM-accredited professionals;
- Home Quality Mark certification (HQM);
- SKA rating certification;
- LEED certification; and
- Sustainability champion role.

Green building investments can result in increased asset values of up to 7% in new developments and 5% in retrofitted projects<sup>3</sup>.



# CIRCULAR ECONOMY

Analysis of the embodied energy and carbon impact of a building from design and construction to operation and end of life.



Being truly low impact means considering every step of the building's journey, from design through to the end of life.

With over 400 million tonnes of material consumed in the UK every year<sup>4</sup>, there's an enhanced need for sympathetic design and implementation. The UK construction industry alone accounts for 21 million tonnes of carbon dioxide (CO<sub>2</sub>) emissions per year<sup>5</sup>, largely as a result of material production. We're aiming to change this by providing technical ideas on low impact materials and forward-thinking design strategies.

We're able to signpost low-impact materials at an early stage and draw on advanced modelling to inform the specification. By collaborating closely with design teams from the start, we can explore flexible alternatives which optimise end of life value.

Our services include:

- Life cycle assessments;
- Sustainable materials selection; and
- Circular economy strategies.

4. *Designing Out Waste: a Design Team Guide for Buildings*. Davis Langdon LLP, 2009

5. *Committee on Climate Change*, <https://www.theccc.org.uk/>, ONS, 2016



Cement has a significant influence on climate change, representing approximately 8% of the world's CO<sub>2</sub> emissions. This equates to around four billion tonnes of cement every year<sup>6</sup>.

6. *Making Concrete Change: Innovation in Low-carbon Cement and Concrete*, Chatham House Report, 2018

# HANDOVER AND AFTERCARE

Post-occupancy services and advice to ensure our clients get the most out of their new space.



At Twin & Earth, we do not walk away when the project is operational; we believe that helping you to optimise your building is just as important as the design.

There's a real appetite for a better understanding of energy consumption by property occupiers, no longer content to just accept the building is efficient and sustainable. The drive for improved information and better performance can lead to frustrations if there is no satisfactory aftercare.

We continue to work with our clients post-handover to make sure they're able to get maximum functionality out of every design. We can offer a seamless and comprehensive service, from initial project briefing through to extended aftercare.

Whether it's a new build or a refurbishment, we are committed to remaining involved once operational, benchmarking and measuring each building to identify further opportunities for energy efficiency.

7. Energy Savings Opportunity Scheme, Carbon Trust 2014.

The services we offer include:

- Soft landings framework;
- Post-occupancy evaluation;
- Building user guides;
- Energy audits;
- In-use environmental certification; and
- ESOS audits.

Annual energy costs can be reduced by up to 20% through energy efficiency and improved energy management of buildings<sup>7</sup>.





# OUR EXPERIENCE

Twin & Earth has worked on a diverse range of projects, delivering engineering and architectural excellence for the future. Here are just some of the clients we have collaborated with.



- ABRSM
- Affordable Housing & Healthcare Group
- Anadarko Petroleum
- Anglo American Services
- Apple
- ARGO Group
- Aviva Life & Pensions UK
- BHP Billiton International Services
- Birkbeck, University of London
- Black Mountain Partners
- Blue Forest (UK)
- BMO Global Asset Management
- Capital One
- CLS Holdings
- De Beers UK
- Deerbrook
- Egon Zehnder
- Future Cities Catapult
- GIC (London)
- Gilead Sciences International
- Grosvenor Estates
- Hanover Investors Management
- Henley Space Limited
- Hermes
- Inland Homes
- Investec Asset Management
- JAC Design & Project Management
- JLL
- Kingsley Napley
- Knight Frank
- London and Continental Railways
- London School of Economics
- Mettler Toledo
- Microsoft
- Network Rail
- NTT Data
- Oxford Health NHS Foundation Trust
- PPR Estates
- Qatari Diar
- Quantum Group
- Quartz Project Services
- Shaftesbury Chinatown
- Sir Richard Sutton
- Smart Energy GB
- Splendid Hospitality Group
- Stella McCartney
- Store Property Investments
- Storm Technologies
- The Honourable Society of the Middle Temple
- The Old Vic Theatre Trust
- Tishman Speyer
- Tristan Capital Partners
- University College London
- Waltham Forest Council
- Westminster City Council

# OUR APPROACH

At Twin&Earth, the team approaches each project using a three-step methodology to deliver bespoke, boutique solutions while maintaining a consistent level of service.



## WE CREATE

- Ask the right questions;
- Generate and fuse ideas; and
- Promote innovation.



## WE COLLABORATE

- Integrate targets and solutions into designs;
- Coordinate and engage with all parties to ensure cross-discipline input; and
- Bring teams together to meet common sustainability visions.



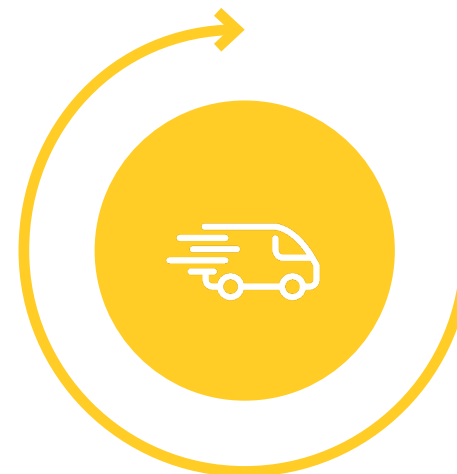
## WE DELIVER

- Create buildings that are fit for the future;
- Use complex tools to test ideas; and
- Translate complex ideas into tangible solutions.



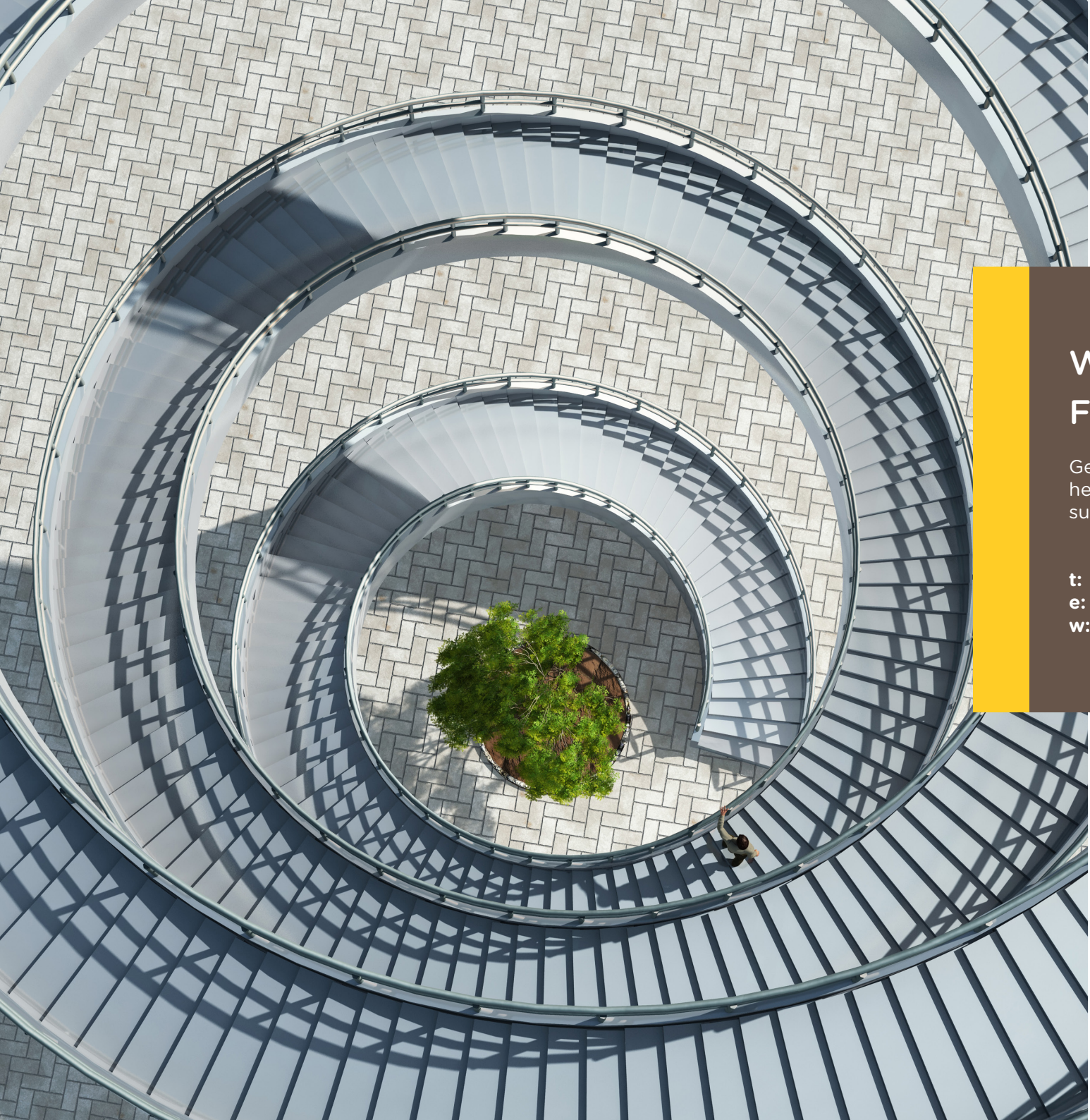
01 / CREATE

02 / COLLABORATE



03 / DELIVER






## WE'D LOVE TO HEAR FROM YOU

Get in touch to discuss how Twin & Earth can help you achieve your environmental and sustainability goals for your next project.

**t:** + 44 (0)203 713 9538  
**e:** [info@twinearth.co.uk](mailto:info@twinearth.co.uk)  
**w:** [twinearth.co.uk](http://twinearth.co.uk)





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