



*LISI – THE HOUSE*  
*AUSTRIAS CONTRIBUTION TO THE SOLAR DECATHLON 2013*

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8CKEH



CONCEPT

LISI - LIVING INSPIRED BY SUSTAINABLE INNOVATION





*IT BEGAN WITH A TREE ...*

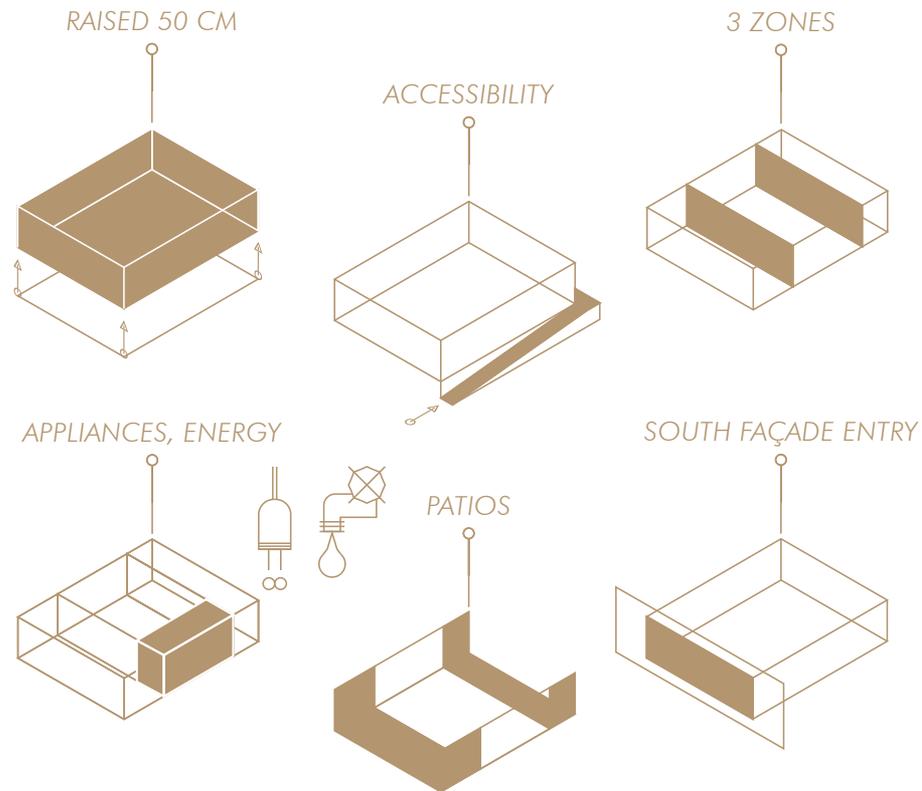
LISI – “Living Inspired by Sustainable Innovation” – is Austria’s contribution to the Solar Decathlon 2013 competition and a house for the future. LISI is not only firmly rooted in Austrian traditions and values, this 2-person home also conceptually draws on key elements of Alpine culture, in particular, the meaning of trees in this country.

About half of Austria’s surface area is heavily forested, which has for millennia provided environmental protection against severe climate conditions and natural disasters, indispensable energy sources and habitats for diverse wildlife, as well as an especially valued, lightweight, renewable resource for building construction. The use of wood as a primary construction material is furthermore CO<sub>2</sub>-neutral and beneficially impacts indoor climate. The tree is an inspiration for LISI at several levels: in its material and structural properties, situational adaptability, renewability and life-cycle efficiency. The clean, minimalistic design approach yields an architecture that highlights this cultural heritage.

### *TEAM AUSTRIA BUILDS LISI*

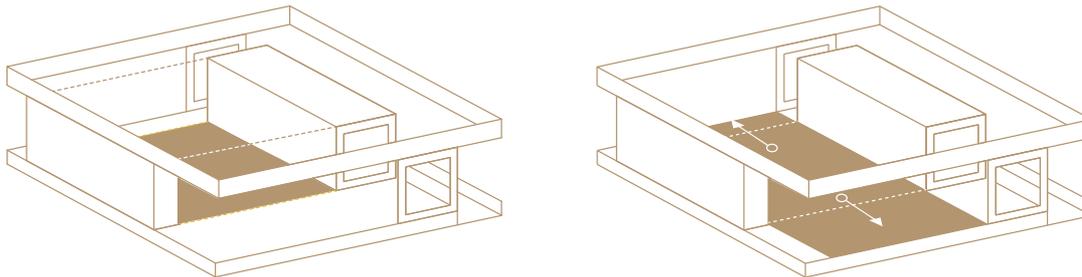
**LISI-house consists of three zones: service core, living area and bordering patios which can be closed up through a flexible outer façade. The synergy of modular timber construction and the use of renewable materials and energies creates a sustainable and affordable house for different users and sites.**

**LISI not only ensures a healthy, comfortable, and enjoyable environment for its residents, but also generates at least enough energy to fully power their daily lifestyle.**



## INTERIOR AND EXTERIOR CAN MERGE

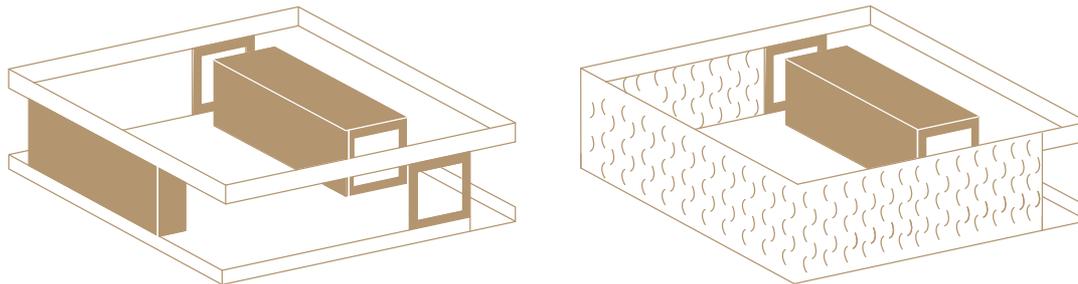
**A central living area which can be extended in its entirety to the adjoining patios in the north and south makes LISI unique. On a relatively small floor area the exterior patios double the living space. LISI offers private outdoor areas which allow the residents to experience nature within their own home.**





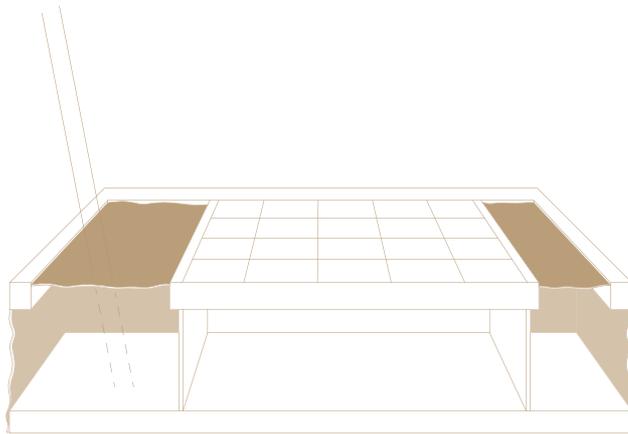
### VARIABLE PRIVACY

Various architectural layers enable the transparency of the house to be modified according to the desired level of privacy. This ranges from an isolated cocoon to an open and communal gathering place.

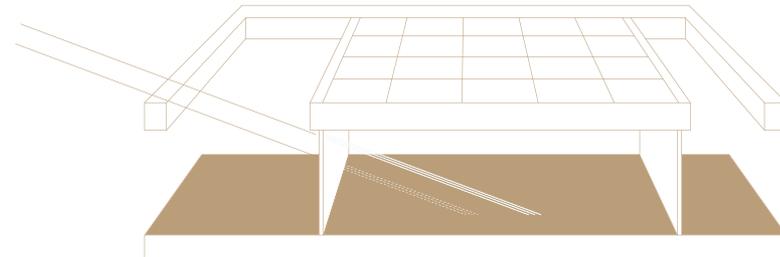


# CONCEPT

## REACTING TO THE SEASONS



CLOSED SUMMER FACADE

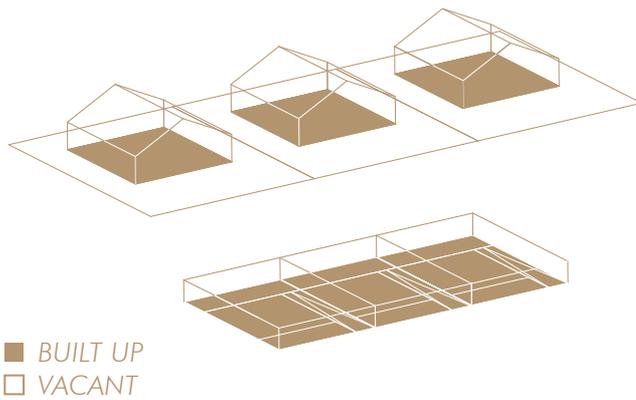


OPEN WINTER FACADE

**Automatically controlled shading elements help avoid overheating on hot, sunny days and minimize cooling loads.**



HORIZONTAL DENSIFICATION THROUGH PATIO CONCEPT



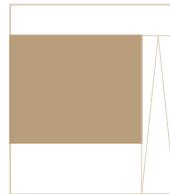
LISI is also functional in the context of city development. A varying configuration of both urban and rural structures can be achieved by horizontal addition of buildings. This ensures a high living density by optimizing the use of available space



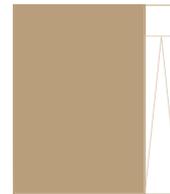
BUILDING SITE



TRADITIONAL HOME



LISI BASIS

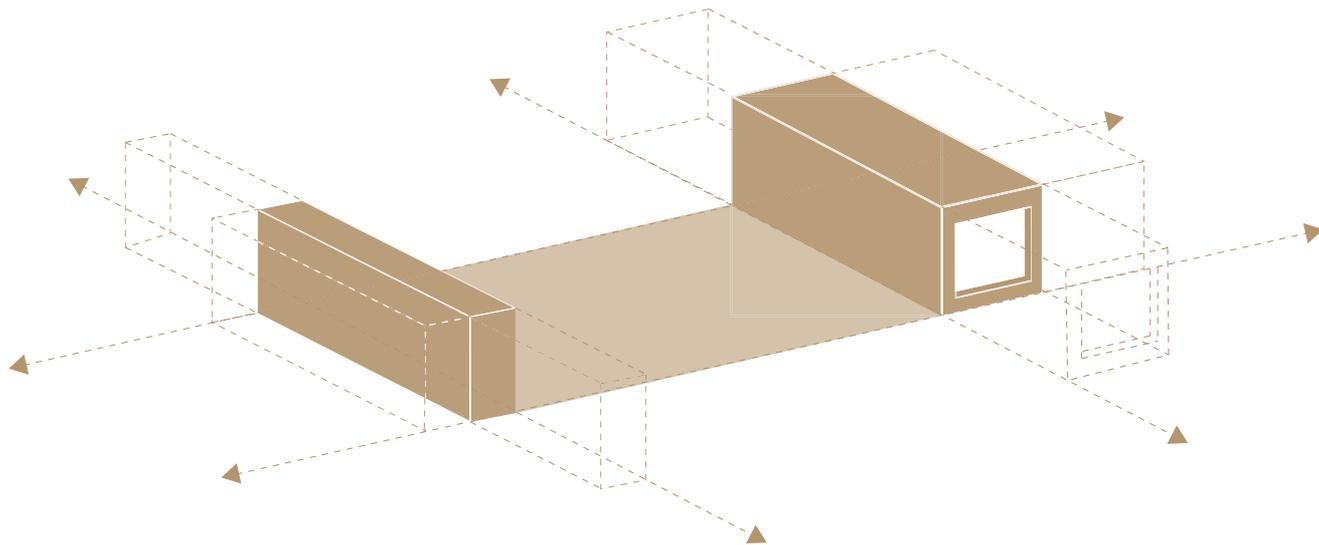


LISI EXTENDED



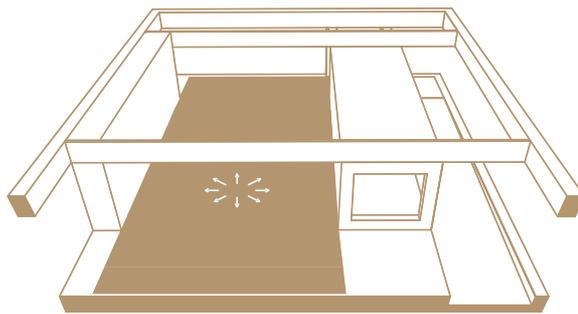
LISI COMPLETE

VARIOUS SIZES ARE POSSIBLE



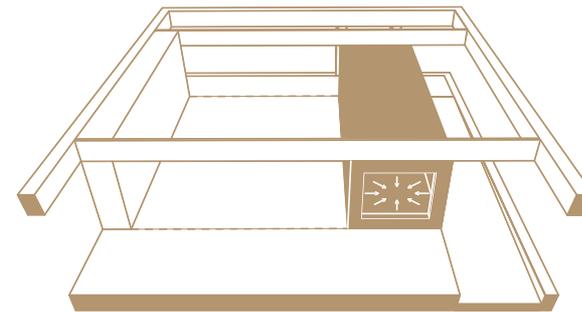


VIBRANT OPEN



The spacious living area is the center of the house and provides space for various activities. All storage areas are integrated into the walls completely freeing up the indoor space and allowing great flexibility in transforming it.

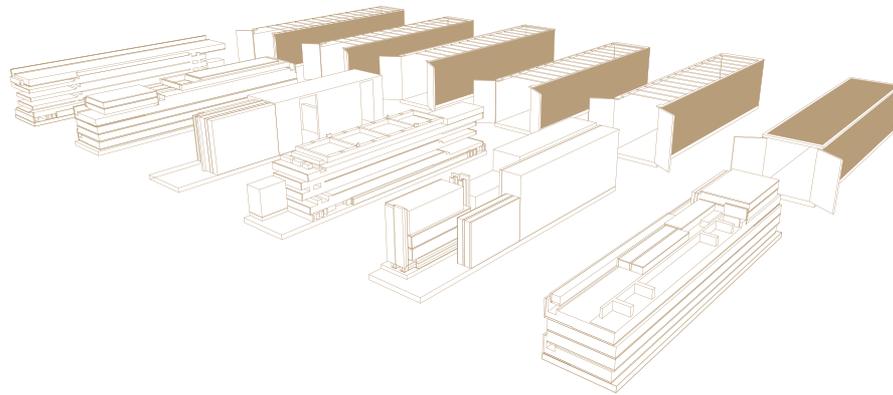
COZY INTERIOR SPACE



The walnut colored service core contains the bedroom, bathroom and all technical equipment. It serves as a private retreat and provides a contrast in color to the light and open living area.

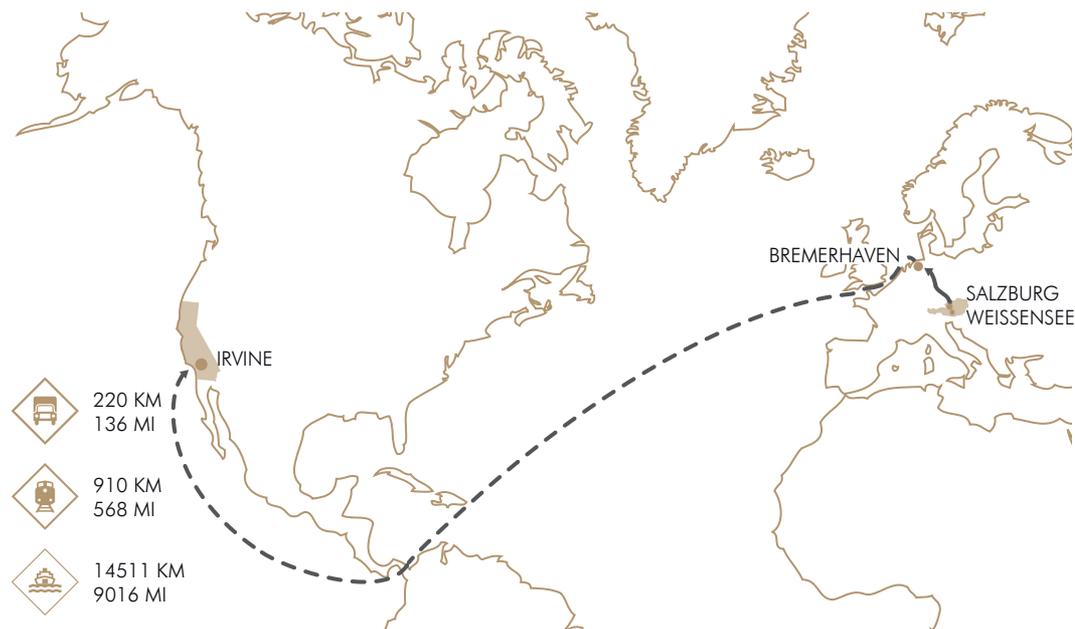
## TRANSPORT IN 6 INTERNATIONAL SHIPPING CONTAINERS

It is not only this spatial flexibility which sets LISI apart from conventional houses. Another key element is the geographical flexibility it offers. With merely slight adjustments to the thermal insulation LISI will function efficiently in almost all corners of the earth. The dimensions of the individual modules are tailored to the size of international freight containers and make LISI a flexible home for nearly everywhere.





## FROM AUSTRIA TO CALIFORNIA





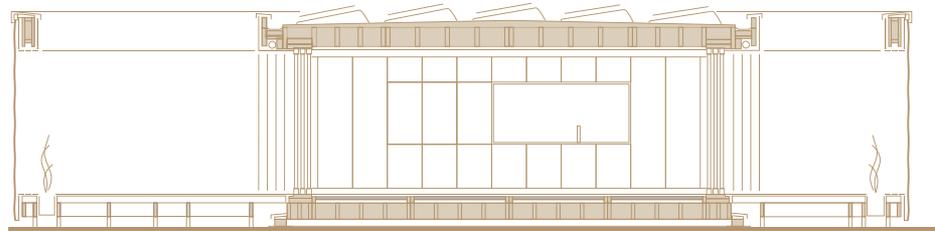
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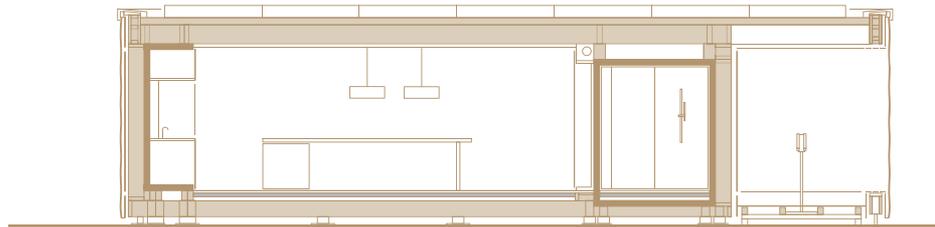
DESIGN

## SECTION

Designed for two individuals, LISI is an ecological house, which was developed according to aesthetic principles for living in harmony with nature. Two patios structure the space and create a balance between interior and exterior – public and semi-public spaces, providing enough daylight and the possibility for cross ventilation. Flexible architectural layers create borders between indoor, semi-indoor, semi-outdoor and public outdoor spaces which can be easily and seamlessly adapted depending on the users preferences.



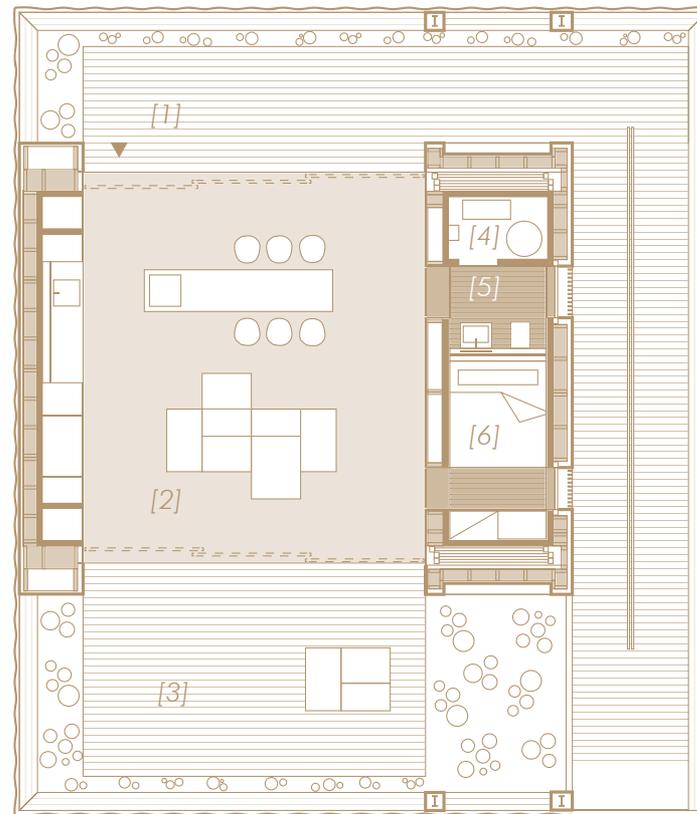
SECTION SOUTH-NORTH



SECTION WEST-EAST



The interior is easily accessible via a ramp which is already enveloped by a flexible outer façade. The spacious and flexible living area is at the center of the house. Large sliding glass elements open up to the patios on both the north and the south of the central living area.



- [1] PATIO: 172 ft<sup>2</sup> / 16 m<sup>2</sup>
- [2] LIVING AREA: 531ft<sup>2</sup> / 50 m<sup>2</sup>
- [3] PATIO: 290 ft<sup>2</sup> / 27 m<sup>2</sup>
- [4] TECHNICAL ROOM: 25 ft<sup>2</sup> / 2,28 m<sup>2</sup>
- [5] BATH ROOM: 31 ft<sup>2</sup> / 2,58 m<sup>2</sup>
- [6] BED ROOM: 68 ft<sup>2</sup> / 6 m<sup>2</sup>

## LISI



**net floor area** : 58.68 m<sup>2</sup> = 630.0 ft<sup>2</sup>

**total interior area:** 60.96 m<sup>2</sup> = 655.0 ft<sup>2</sup>



**gross floor area:** 84 m<sup>2</sup> = 904.2 ft<sup>2</sup>



**total built up area:** 201 m<sup>2</sup> = 2163.5 ft<sup>2</sup>

## COSTS

**300.000 €**

**including all technical components**

**including sanitary and electricity**

**including built-in furniture**

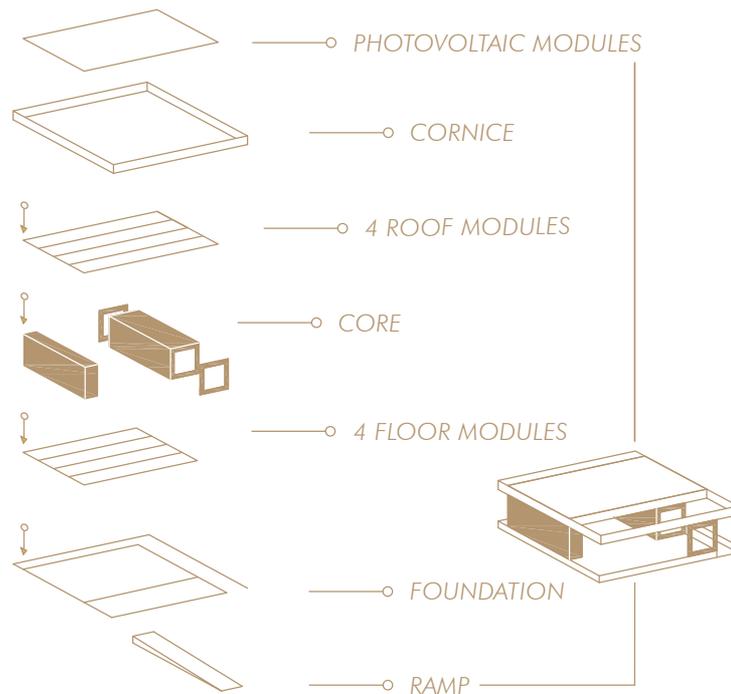


ENGINEERING

**8,62 kW polycrystalline silicon modules**  
area on roof:            **80 m<sup>2</sup>**            = **860 ft<sup>2</sup>**  
active PV area:         **57,75 m<sup>2</sup>**            = **621.6 ft<sup>2</sup>**  
yearly yield of:         **~ 13000 kWh**  
technical room:         **2,28 m<sup>2</sup>**            = **31 ft<sup>2</sup>**

MATERIALS

~ **96 % wood based materials**  
~ **1.8 % mineral materials**  
~ **1.0 % plastic**  
~ **0.9 % metal**  
~ **0.2 % glass**



## SIMPLE DESIGN

LISI requires a well thought out design in order for a repeated assembly and disassembly to work. Four floor modules are positioned horizontally with two stiffening cores, that contain the building's services, placed on top. Four ceiling modules with a mounted photovoltaic system make up the roof.

The load bearing structure, a wooden box-type design, is found in both ceiling and walls. Cellulose insulation located between the construction timbers ensures a pleasant indoor climate.



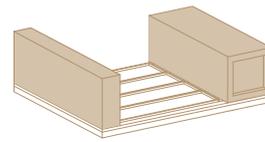
BEING CONSTRUCTED



[1] FOUNDATION



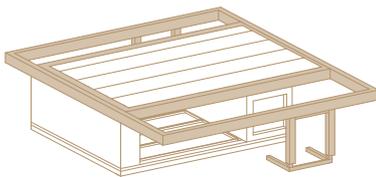
[2] FLOOR MODULES



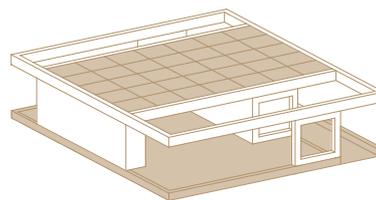
[3] CORES



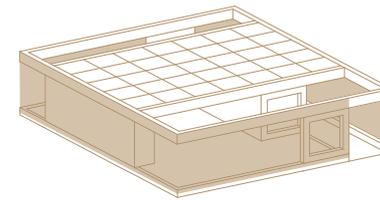
[4] CEILING MODULES



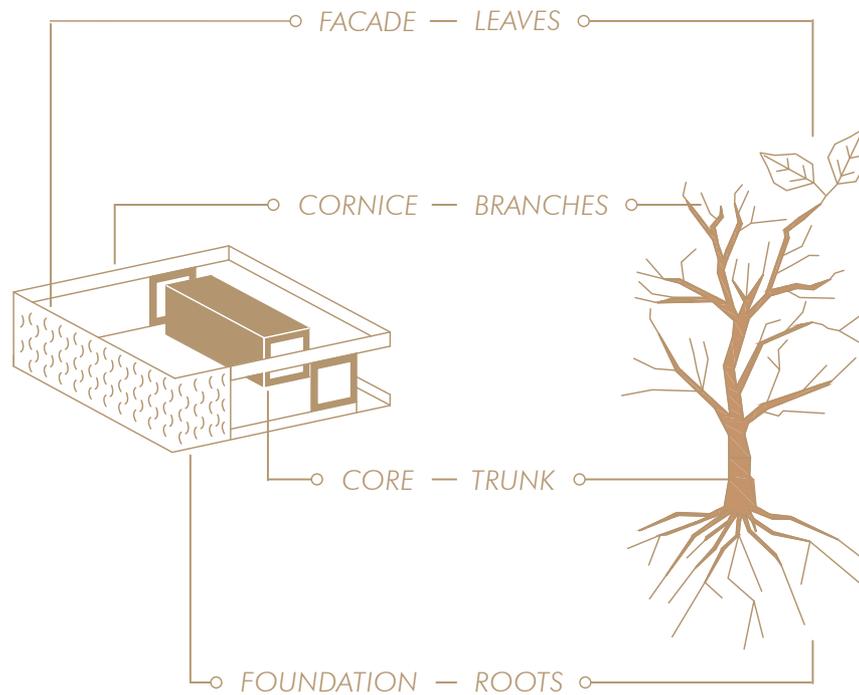
[5] CORNICE



[6] PHOTOVOLTAIC AND FLOORING



[7] FACADE



## SUSTAINABLE MATERIALS

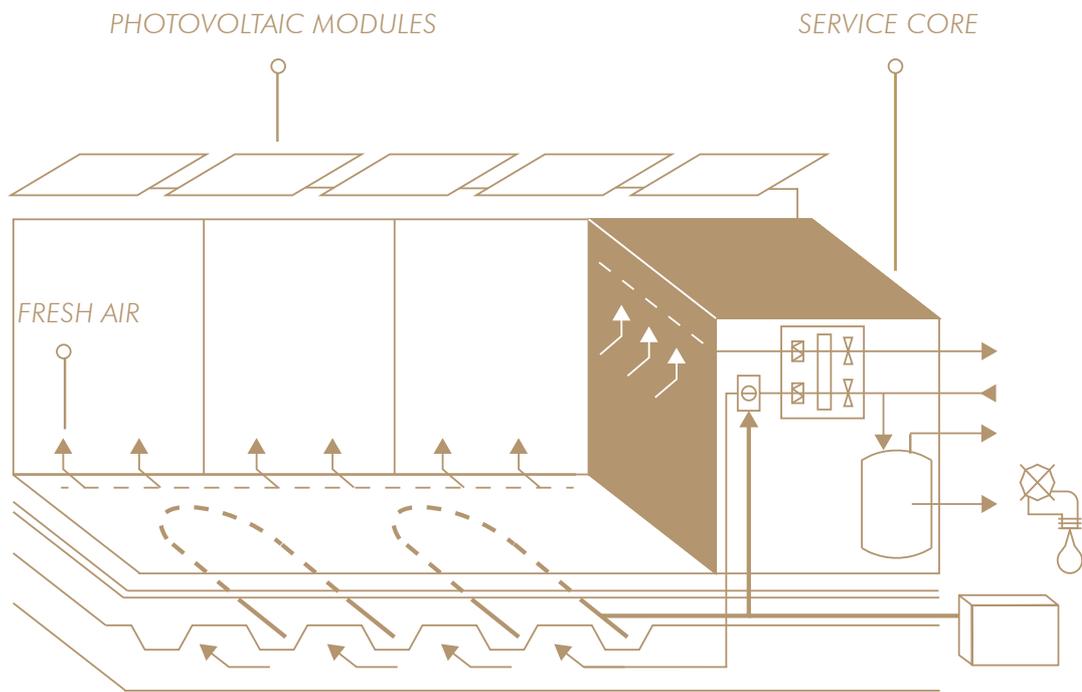
LISI consists largely of renewable resources and sustainable materials. Wood is used as a raw material for construction and insulation. Not only is it carbon-neutral but it also has a positive effect on the indoor climate and comfort in the home. As a natural product, wood is the ideal material for a prefabrication of houses – ease of use and transport.



**Due to the ecological material choice 70-122 kg CO<sub>2</sub> are stored in 1 m<sup>2</sup> of the respective construction.**









### PLUS-ENERGY-CONCEPT

LISI is a plus-energy home generating all its required energy electrically with a roof-mounted photovoltaic array. The supply of cold and hot water for space heating and cooling and for domestic hot water relies on two air-water heat pumps. Comfortable and healthy air conditions are provided by an

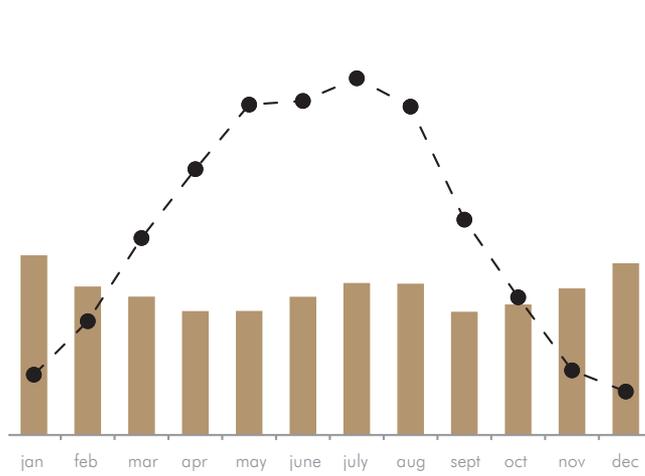
energy recovery ventilation unit, which acts as a heat and humidity exchanger between used outgoing air and fresh incoming air. A multifunctional floor system regulates the entire buildings climate using water, air and active cubic capacity. It efficiently provides heating, cooling and fresh air to create a consist-

ently comfortable indoor climate. Additionally an innovative shower tray, which recovers otherwise lost thermal energy from drain water through a heat exchanger, reduces energy consumption while taking a shower.

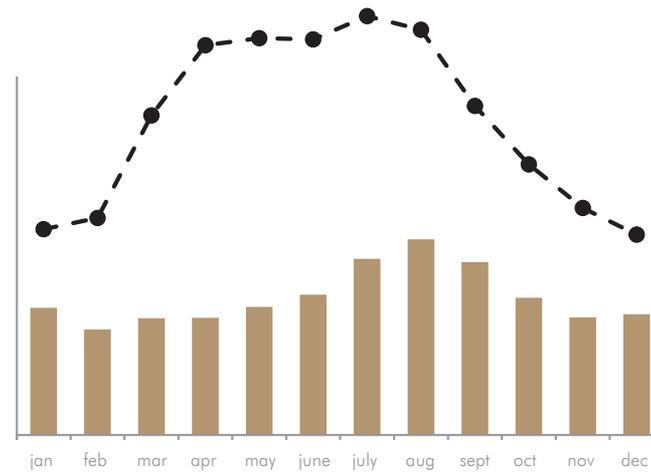
### 8,62 KW POLYCRISTALINE SILICON MODULES

|                 |  |
|-----------------|--|
| ACTIVE PV AREA: | 57,75 M <sup>2</sup> = 621.6 FT <sup>2</sup> |
| AREA ON ROOF:   | 80 M <sup>2</sup> = 860 FT <sup>2</sup>      |
| YEARLY YIELD OF | : ~ 13000 KWH                                |

PLUS-ENERGY-CONCEPT



ENERGY DEMAND AND GENERATION VIENNA, AUSTRIA



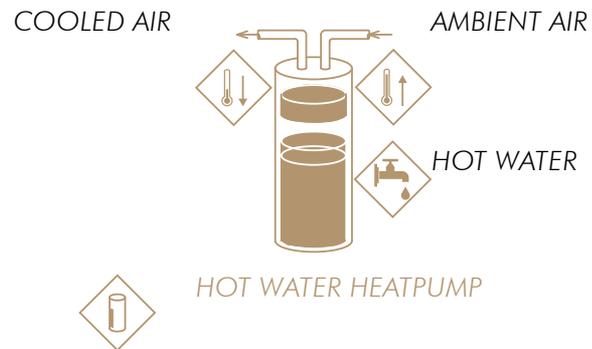
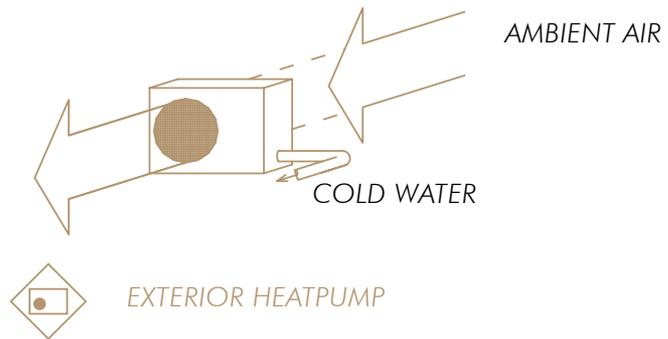
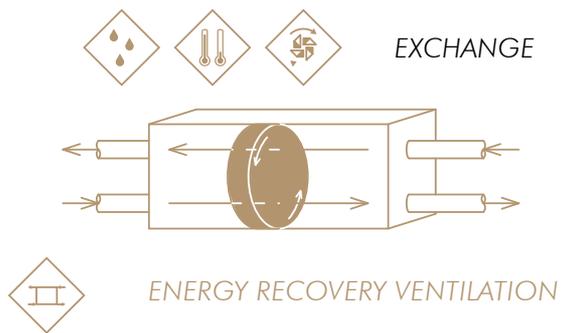
■ DEMAND  
● PV GENERATION

ENERGY DEMAND AND GENERATION IRVINE, CALIFORNIA



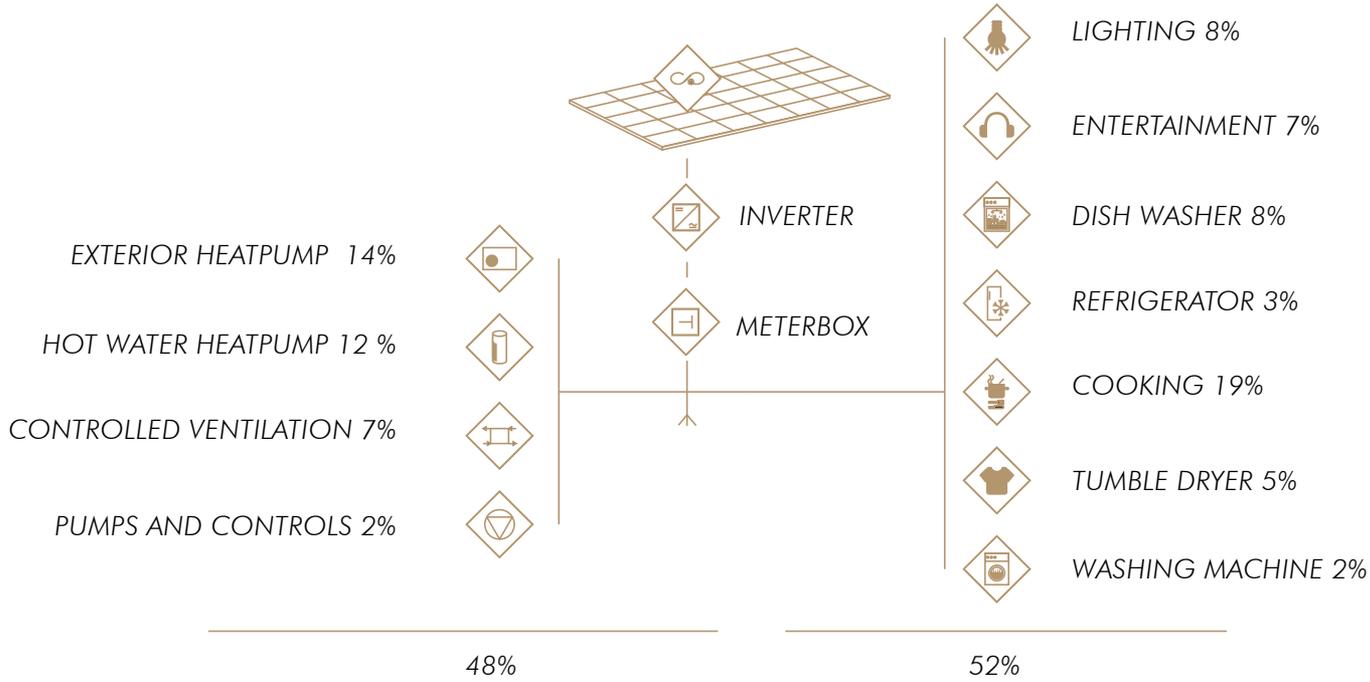
|                                   | VIENNA, AUSTRIA                       |   | IRVINE, CALIFORNIA                     |
|-----------------------------------|---------------------------------------|---|--|
| HEATING DEMAND                    | <b>9,7 kWh/m<sup>2</sup> per year</b> |   | <b>2,7 kWh/m<sup>2</sup> per year</b>  |
| COOLING DEMAND                    | <b>5,6 kWh/m<sup>2</sup> per year</b> |   | <b>10,6 kWh/m<sup>2</sup> per year</b> |
| SET POINT TEMPERATURE             | <b>21.7 °C - 24.4 °C</b>              | = | <b>72 °F - 76 °F</b>                   |
| ANNUAL<br>ELECTRICITY CONSUMPTION | <b>5722 kWh</b>                       |   | <b>5468 kWh</b>                        |
| ANNUAL<br>ELECTRICITY PRODUCTION  | <b>8104 kWh</b>                       |   | <b>12475 kWh</b>                       |

TECHNICAL DETAILS





ENERGY DISTRIBUTION



## ENGINEERING PHILOSOPHY

Beyond the basic demands LISI's technical system incorporates the following three areas pivotal in making a building fit for the future and for any location:

### 1. Efficiency and life cycle costs

All employed components not only individually represent the most efficient products currently available, but these are also configured in integrated systems, which together work as one efficient body. In addition, special care was taken in the choice of the individual system components regarding their impact on the overall life cycle balance.

### 2. Cost effectiveness and availability

Of course the market availability and the innovation of system components can be seen as somewhat contradicting features. However, we believe, that the best currently available products have reached a stage of maturity that does not leave significant room for further efficiency gains. The actual distribution and widespread application of houses like LISI were therefore regarded the most pressing goal Team Austria is addressing. Multiplying LISI and spreading energy efficient systems in homes will be best achieved by utilizing components that are both easily accessible and cost efficient in initial investment as well as in operation.



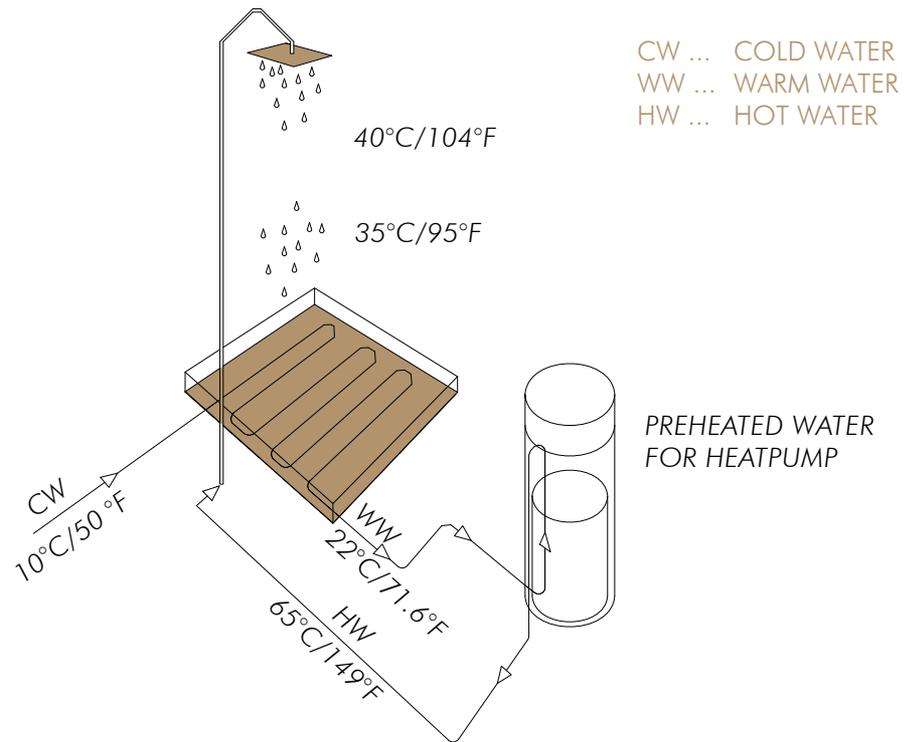
### 3. Plug & Play

LISI's energy system strives to combine simplicity and user-friendliness with efficiency and ingenuity. On the one hand, home owners need an interactive system in order to operate their inherently complex living environment on a day-to-day basis; on the other hand, they should not be expected to fully understand the technological underpinnings of their home's energy system in order to simply live there. The system must therefore be easy to operate and to maintain. This means that

the installers of system components absolutely have to understand the overall energy system that their components are a part of, as well as the influence of their components on the overall system. They must be able to design and correctly size LISI's system, and feel safely competent with operation modes and control strategies. A vastly used future energy system for homes must not require the mutual design effort of numerous experts or scientists.

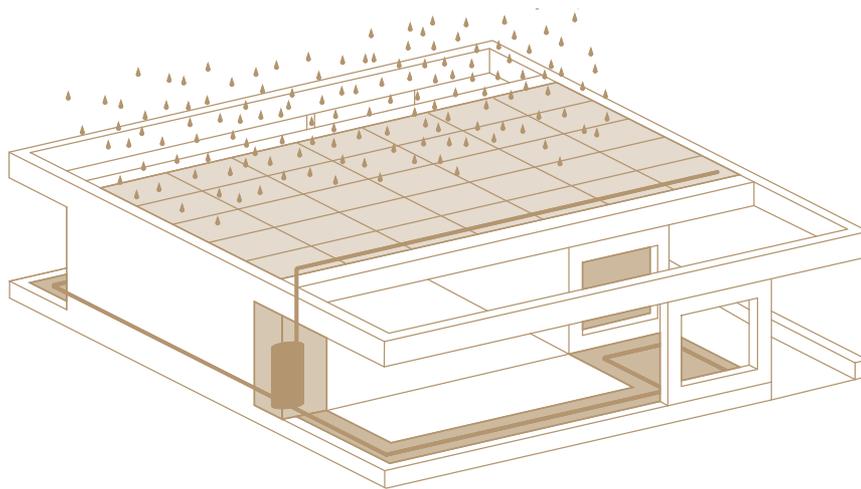
## SUSTAINABLE SHOWER

An innovative shower tray, which recovers otherwise lost thermal energy from drain water through a heat exchanger, reduces energy consumption while taking a shower.





OUTDOOR ACTIVITIES

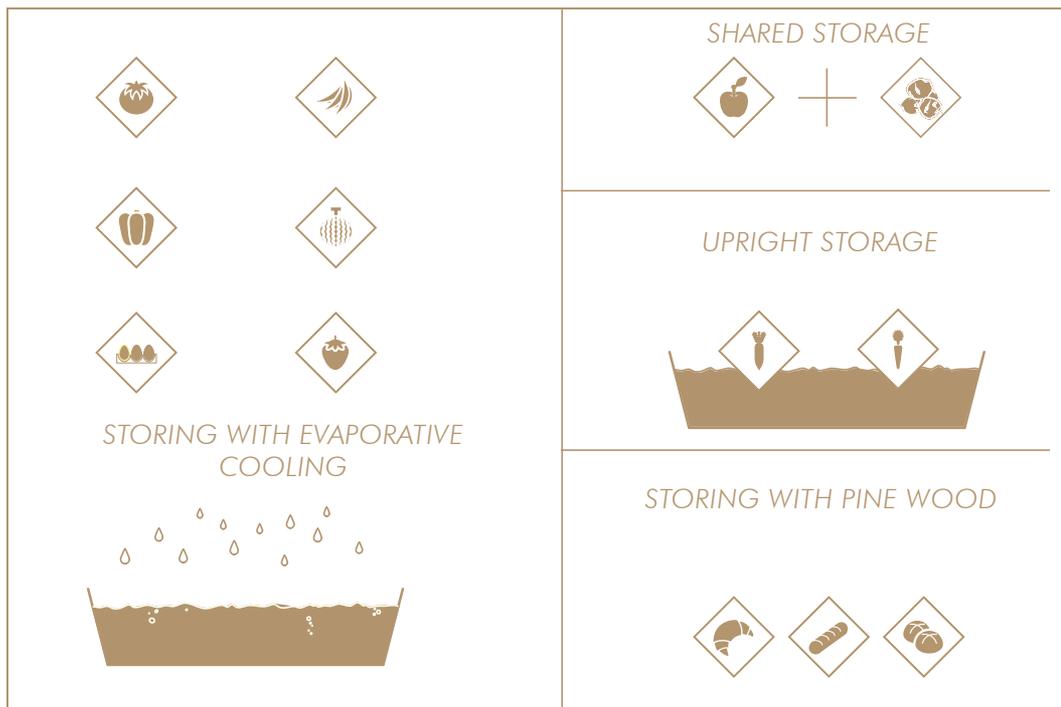


**Submerged plant troughs:** plants act as a barrier between private and public.

**rain water reservoir:** automatic irrigation of horizontal plants

**Green wall:** Herbs grown in Pockets made of 100% recycled plastic bottles, act as an weather protection

SUSTAINABLE FOOD STORAGE

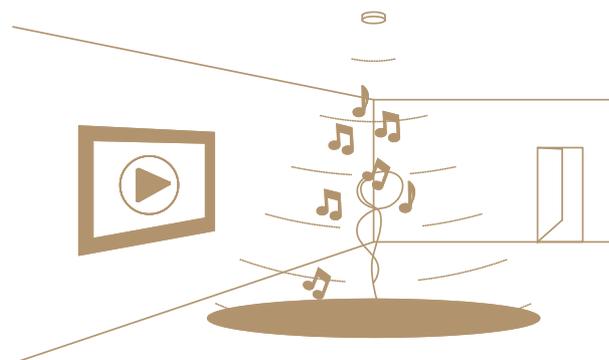
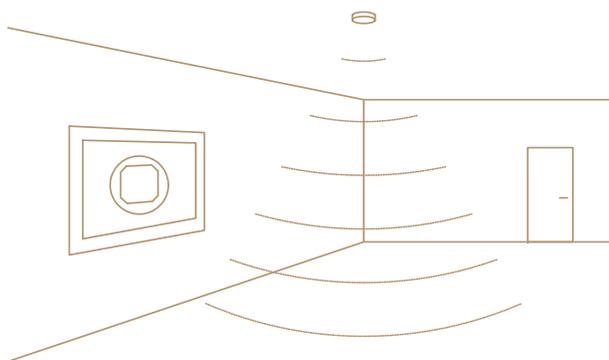




LISI stands for sustainable architecture. In addition, a sustainable lifestyle is taken into account in the building design. If you consider that a third of all food is thrown away, it makes sense to think about their proper storage. In LISI's kitchen, a holistic system for sustainable food storage is integrated so the food can be preserved according to its natural preferences.

### CONTEXT-SENSITIVE SMART-HOME-CONTROL

All technical components are ideally coordinated thanks to LISIs smart home system which offers innovative human computer interaction (HCI) and interaction design concepts for context-aware, multi-model home control and energy monitoring. Automatically bringing task light to the kitchen when working, watching TV by simply relaxing into the couch, eating dinner with music, switching off all lights and energy consuming devices when going to bed – all of this is possible, even without a remote, with the resident himself acting as the interface. LISI uses real-time sensors and actuators in order to aggregate, analyze and reason data such as the energy consumption of each individual appliance in the house. An energy profiling and control unit collects and analyzes all available data and estimates future energy consumption and saving potential.



### CONTEXT-SENSITIVE SMART-HOME-CONTROL

LISI offers an interactive system, an interface to all data and enables: ambient visualization displays, e.g.: live data on our website, a tablet interface for advanced visualization and control, small, ubiquitous LISI Flake modules that monitor activity in the house and enable implicit control.

The technology behind this is LISI Core and acts as a centralized hub for all systems. It allows the control of almost every device function, such as turning on the TV, as well as combined house scenario modes without the need to remote control explicitly. The control is implicitly based on context-data from the house and its inhabitants.



TABLET CONTROL



LIFE FEEDBACK



ENERGY SAVINGS



CONSUMPTION



COMFORT ZONES

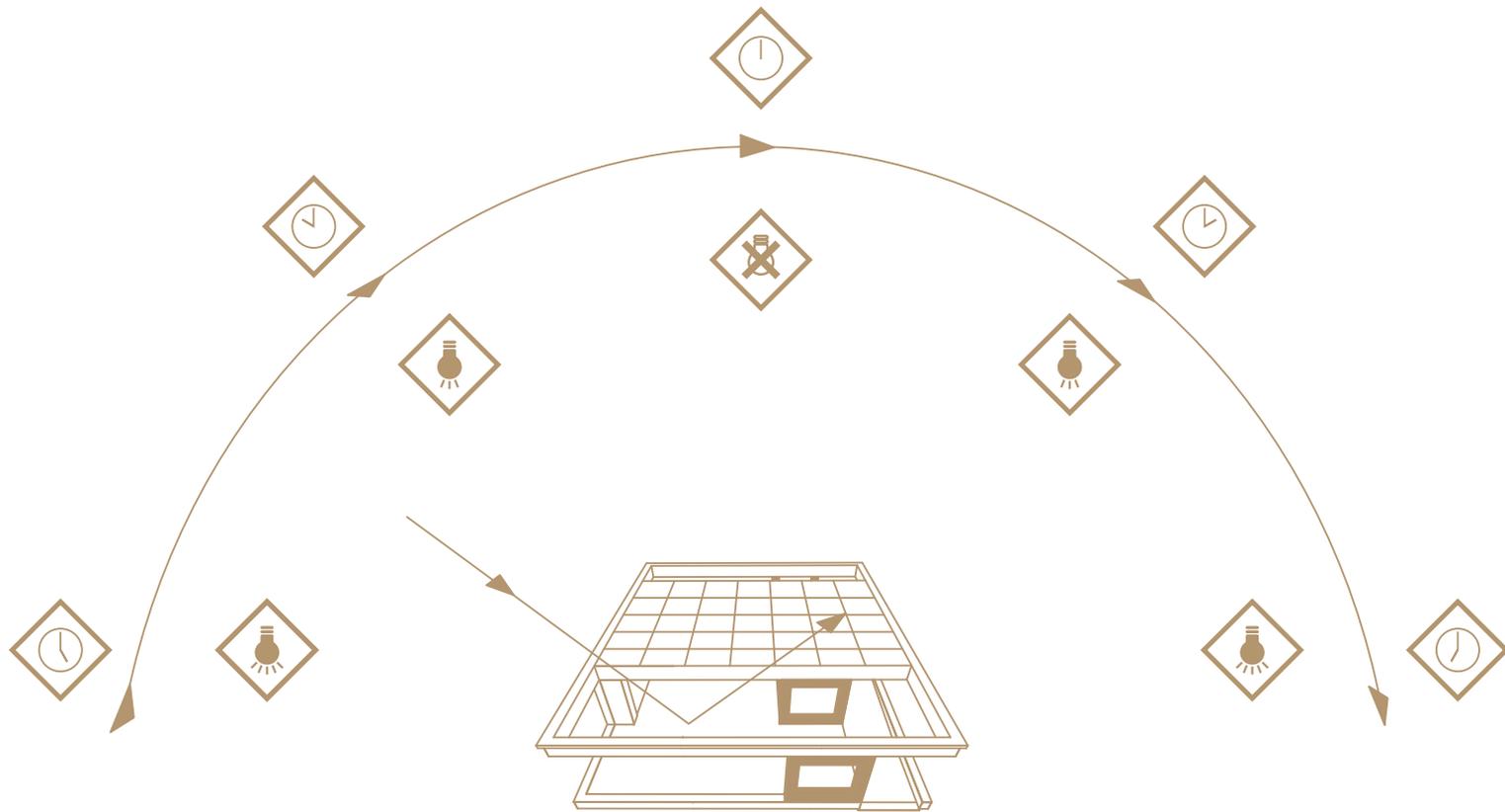


LIGHT SCENARIOS



AMBIENT ENTERTAINMENT







### SMART LIGHTING

Radar activity sensors, for instance, signal if someone is in a space or not to activate or deactivate the power supply to the room's lighting, entertainment systems, and other appliances – whenever there is no occupant demand, no energy is consumed. Light meters also detect reflections from the floor in order to calculate optimum overall lighting conditions in the spaces in combination with daylight conditions monitored throughout the day.

### *HEALTH, COMFORT AND ENVIRONMENTAL FACTORS*

– Studies have shown that occupants rate health and comfort as the most important criteria in their perception of a building's quality. Our house offers excellent daylight and sufficient sunshine in winter, shading in summer, as well as agreeable temperatures and high indoor air quality all year round. The design will be rated according to the environmental requirements of U.S., European, and Asian standards for state-of-the-art, energy-efficient buildings. Additionally, students will assess the long-term environmental and economic impacts of our design solutions by applying LCA and LCCA methods.



*ÖGNB*

The Austrian Sustainable Building Council (ÖGNB) was initiated and founded in Austria in January 2009, by a number of renowned and independent institutions in the field of sustainable building. The structure for the assessment system is designed in close consultation with House of Tomorrow/ Plus, which is the most extensive R&D initiative in the field of sustainable building in Europe.

*LEED*

Leadership in Energy and Environmental Design (LEED) “to promote the construction and design of buildings that are environmentally responsible, profitable, and healthy places to live and work.”



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COMPETITION

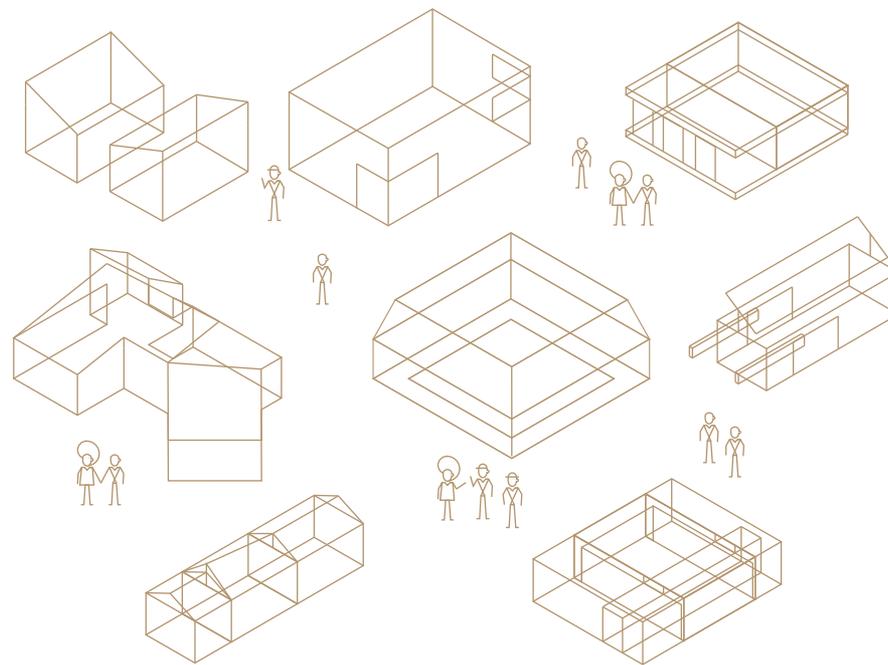
### SOLAR DECATHLON

– a biennial competition hosted by the US Department of Energy to promote the application of solar technologies in buildings.

In January 2012, the DOE selected twenty university teams to compete in the Solar Decathlon 2013, which will be held in Irvine, California. During the week-long competition, the twenty homes designed and built by student teams will be open to the public and evaluated by a jury. As one of only two European teams invited to SD 2013, we look forward to competing with the best!



For more information, please visit [solardecathlon.gov](http://solardecathlon.gov).



## HISTORY

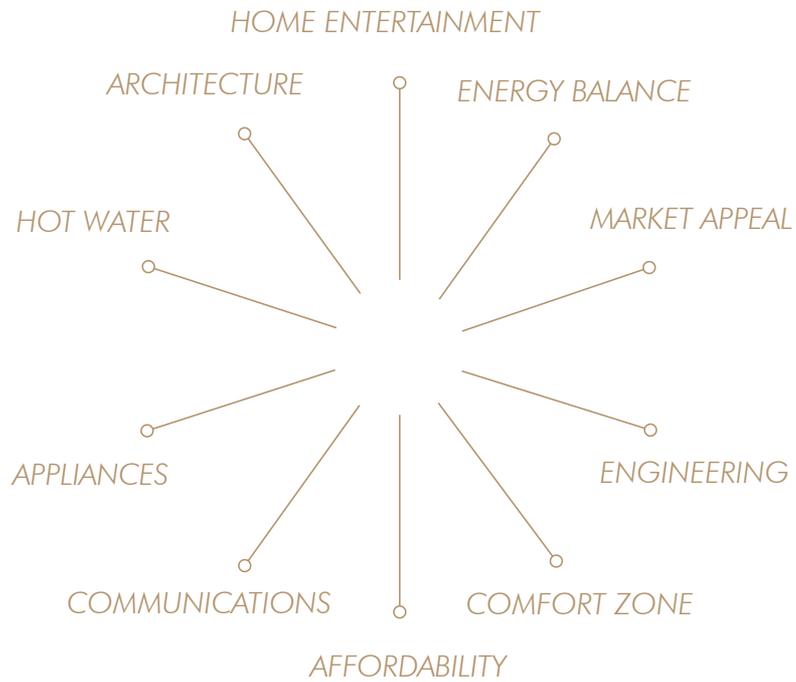
The Solar Decathlon originally began as a U.S.-American competition in which 14 teams of college and university students competed in 10 contests that focused on the teams' abilities to design and build energy-efficient, solar-powered homes. It has since expanded to include international participation in North America and other continents, garnering global attention in

press coverage and online media. The fifth U.S. Department of Energy's Solar Decathlon saw 19 teams from colleges and universities in the United States, Canada, New Zealand, Belgium, and China compete for the title in designing, building, and operating the most attractive, energy-efficient, solar-powered house.



PREVIOUS WINNERS

|          |          |           |           |          |
|----------|----------|-----------|-----------|----------|
| 2002     | 2005     | 2007      | 2009      | 2011     |
| COLORADO | COLORADO | DARMSTADT | DARMSTADT | MARYLAND |





## 10 CONTESTS

Just like with the Olympics, the the Solar Decathlon also consists of ten categories. These assess the performance, livability and affordability of the houses. Each category offers a maximum of 100 points meaning a total of 1000 points can be reached.

Criteria such as architecture, communications and aesthetics are evaluated by a panel of judges, while other catagories are determined by measurements. A dinnerparty and movie night are also being evaluated to portray livability.

## 20 TEAMS

With the energy+ atrium house “LISI – Living inspired by sustainable innovation“, for the first time, Austrian universities are participating in the most ambitious competition in the field of sustainable solar buildings, the Solar Decathlon. As one of only two Eu-

ropean teams invited to the SD 2013, we look forward to competing with the best!

For more information, please visit [solardecathlon.gov](http://solardecathlon.gov).

- |                        |                     |                        |
|------------------------|---------------------|------------------------|
| 1. AZ State/New Mexico | 8. SCI-Arc/Caltech  | 15. Team Texas         |
| 2. Czech Republic      | 9. Stanford         | 16. Tidewater Virginia |
| 3. Kentucky/Indiana    | 10. Stevens         | 17. Las Vegas          |
| 4. Middlebury          | 11. Team Alberta    | 18. North Carolina     |
| 5. Missouri S&T        | 12. Team Austria    | 19. U of So Cal        |
| 6. Norwich             | 13. Team Capitol DC | 20. West Virginia      |
| 7. Santa Clara         | 14. Team Ontario    |                        |



*SOLAR DECATHLON IN NUMBERS*

- 130** applications
- 20** teams elected
- 2** teams from Europe

*TIMELINE*

- 3** months construction period in Austria
- 1** months trial run and packaging
- 2** months transport to California
- 9** days buildup in California
- 2** weeks exhibition and competition
- 5** days disassembly

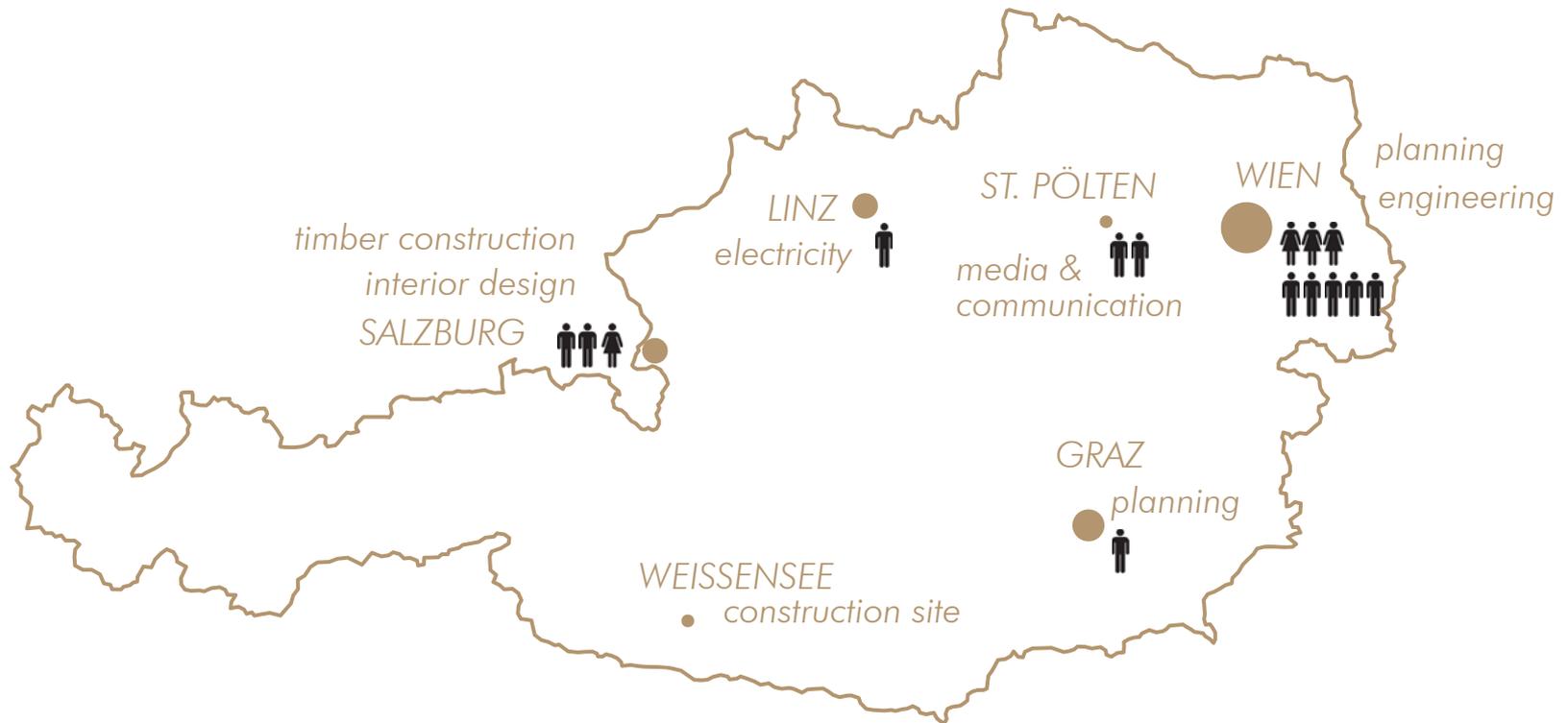


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DESIGNSTUDIO



TEAM

# AUSTRIA





### TEAM ORGANISATION

The Team is distributed throughout the country, operating on the Austrian contribution to the Solar Decathlon 2013.

There are 46 people from 18 subject areas located in five provincial capitals of Austria, all dealing with the LISI project. While the coordination of all areas is happening in Vienna, people from St. Pölten, Linz, Salzburg and Graz are also busy tinkering and planning. Finally, the entire team is gathering in Weissensee, Carinthia, where the knowledge from all areas is being combined to create a building.





## STUDENTS

– from Vienna UT develop the idea and concept that is LISI. 21 young adults from the field of architecture put their heads down and spent time planning the building, coordinating the construction and deadlines and are the conjunction to any further subject areas. Fire protection, safety, simulation and automation are also being handled by students from Vienna UT.



## VIENNA UNIVERSITY OF TECHNOLOGY

– is a culturally diverse and genuinely international institution. Founded in 1815, it employs more than 3100 scientists and enrolls more than 26000 students, making it the largest engineering science and research institution in Austria. Following a principle of research-driven teaching, the educational emphasis is balanced between theory and practice to actively engage students in a process of scientific discovery that allows specializations to develop, yet still ensures the acquisition of core skills required in the engineering and design disciplines. VUT also supports the increasingly important social imperative of “lifelong learning” through the initiatives and activities of its Continuing Education Center.



#### *ENERGY AND ENVIRONMENT RESEARCH CENTRE*

– serves to coordinate university activities across faculty disciplines; Energy active settlements and spatial infrastructures, Sustainable and low emission mobility, Environmental monitoring and climate adaptation, Efficient utilization of natural resources and Sustainable technologies, products, and production.

#### *INSO – INDUSTRIAL SOFTWARE*

The research group for Industrial Software deals with the study of development and maintenance of software systems in practice. Special focus goes to the issues project, process, product and people in software engineering.

#### *SUSTAINABLE BUILDING AND DESIGN GROUP*

– was founded in this context by Klaus Krec and Karin Stieldorf in 2002 for the purpose of research and development at the interface between building physics and architectural design. The activities of this work group focus on systematically applying advanced building simulation methods to inform the technical design process.

## WOOD TECHNOLOGY AND INTERIOR DESIGN

There are up to twelve students from Salzburg UAS supporting LISI with support structure and interiors – especially in the development of innovative materials. Equipped with lots of practical experience, three students from the field of wood construction coordinate the process of prefabrication.



## SALZBURG UNIVERSITY OF APPLIED SCIENCES

– is organized in four disciplines: Social Sciences and Economics, Engineering, Design, Media and Art and Health and Medicine. Currently there are 2400 students enrolled studying in Campus Urstein and Campus Kuchl.

Salzburg UoAS offers contemporary curriculum contents which are constantly adapted to the challenges of the economy and society. There are experienced and highly qualified staff who guarantee a cutting-edge education and constant developments made by research teams who also provide impetus for scientific and academic contents. Combined with state-of-the-art equipment in our auditoriums and labs, this creates the optimal basis from which knowledge can grow.



### CAMPUS KUCHL

The Bachelor degree programme HTB – Forest Products Technology and Timber Constructions provides specific material competences in wood and wood-based materials in the fields of wood processing and timber construction including technological, economic and planning knowledge.

The Bachelor course Design and Productmanagement deals with furniture and interior design in relation to materiality and marketing. Based on numerous projects and work experience technical and social skills are equally taught.

*MEDIA TECHNOLOGY*

– and communication are two of the many tasks of the students of the University of Applied Sciences St. Pölten. Starting with a concept, including design, production and programming, the six participants from St. Pölten are involved in the technical implementation of the website, video productions and building automation systems for the Solar Decathlon Team Austria.



*ST. POELTEN UNIVERSITY OF APPLIED SCIENCES*

– was founded in 1996 and currently has appr. 1,800 enrolled students. Study opportunities comprise degree programmes and continuing education courses in the fields of Health & Social Sciences, Business and Technology.

St. Poelten University of Applied Sciences offers students a vocationally oriented and academically sound training that prepares them to meet the challenges of the professional world. Alongside they acquire additional training in e.g. business administration, law, foreign languages, and interpersonal skills. The Campus Media – radio, TV and a magazine – provide opportunities for students from all disciplines to acquire excellent media and communications skills.



*IC\M/T – INSTITUTE FOR CREATIVE\MEDIA\TECHNOLOGIES*

– undertakes application-oriented research and development in the broader field of the creative industries. Audio-visual, interactive and mobile media are spreading through our daily lives. They are affecting almost every aspect of how we behave and are influencing our perception and our way of thinking and feeling. About 20 researchers investigate the resulting challenges and potentials for science and the economy and work on creative solutions for media-supported environments.

## SERVICES

The technical building equipment is developed in collaboration with the AIT. In their climate chamber, LISI's services room is replicated 1:1 and tested with all major components fully functional. Four team members are working on a sophisticated system to meet the competitive requirements in the technical disciplines.



## AIT, AUSTRIAN INSTITUTE OF TECHNOLOGY

– takes a leading position in the Austrian innovation system and a key role in Europe as the RTO focusing on the key infrastructure topics of the future. AIT provides research and technological development to realize innovations for infrastructure related technologies in the fields of health & environment, energy, mobility and safety & security.

These technological research areas are supplemented by the competence in foresight & policy development. As an (inter)national network node at the interface of science and industry AIT enables innovation through its scientific-technological expertise, market experience, tight customer relationships and high quality research infrastructure.



### THE ENERGY DEPARTMENT

– supports Solar Decathlon Team Austria: Growing energy consumption, the depletion of fossil fuels and climate change are the major challenges we face this century. The only way we will be able to rise to these challenges will be through the increased use of renewable energy sources, higher energy efficiency and smart energy management.

AIT favors a holistic approach to the environmentally friendly electricity supply, heating and climate control of the buildings and cities of tomorrow.



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AUSTRIAN FEDERAL MINISTRY

– for Transport, Innovation and Technology. The concern of the BMVIT is with the wellbeing of our citizens nationwide and with making an active contribution to European integration. Our work is geared to developing Austria in a sustainable manner, making the country a desirable location and improving the quality of life of its citizens. To that end we work to secure conditions in which a fair balance of interests in society can be achieved in the areas of communications and mobility and we promote innovation and technology.



BUILDING OF TOMORROW

– is one of the Federal Ministry of Transport, Innovation and Technology's research and technology programs. Starting from the low-energy solar building approach and the concept of the passive building, and incorporating ways of using environmentally friendly and renewable materials in construction, new designs with great promise for the future have been developed and implemented.



AUSTRIAN RESEARCH  
PROMOTION AGENCY (FFG)

– is the national funding agency for industrial research and development in Austria. As a “one-stop shop” offering a diversified and targeted programme portfolio, the FFG gives Austrian businesses and research facilities quick and uncomplicated access to research funding.

## THANK YOU TO OUR PRINCIPAL PARTNERS



JOSKO



– is the all-in supplier of windows, exterior doors, interior doors and all-glass systems. Since 1960 Josko has been pursuing clear objectives: best product quality and the highest demands in terms of design and innovations. Many of the Josko trends have already been adopted throughout Europe. For 50 years Josko has stood for windows and doors which always conform to the most recent level of quality, technology and design. This results in products which Josko has turned into some of the strongest brands on the Austrian and European window and door market.



WEISSENSEER

– Over the year we have become the leading passive construction company in Austria and Europe. Building intelligent skins – Weissenseer's main goal is to help in the creation of an energy efficient, sustainable and affordable space to live and work, while at the same time preserving our planets resources. Research and development are central missions in our daily work aiming to provide our clients with “autarc buildings” in the near future.

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