

MINISTERIUM FÜR EIN LEBENSWERTES ÖSTERREICH

klima**aktiv**

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KLIMA**AKTIV** THE AUSTRIAN PATH TO SUSTAINABLE BUILDING





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KLIMAAKTIV – INNOVATIVE IN THE COUNTRY – SUCCESSFUL IN THE WORLD

AUSTRIA'S ENVIRONMENTAL

TECHNOLOGY sector ranks among global front-runners. Particularly in terms of innovations such as using biomass for energy, solar thermal energy and hydropower, as well as in rail technology and sustainable building technologies, Austria is a shining example worldwide. The initiative Best of Austria turns the spotlight on those who are the driving force behind this success, and provides important impulses for the culture of innovation in our country. The domestic environmental economy has been growing by around two percent per year, guaranteeing revenue and jobs on a significant scale. With renewables accounting for one-third of total energy consumption, Austria takes fourth place within the EU.

To reach its ambitious targets, Austria relies on tough minimum standards, promoting of high-quality projects and the klima**aktiv** climate protection initiative. Formed in 2004, the initiative klima**aktiv** has become the Austrian climate protection network, which is forcefully moving Austria's energy transition aheadd. Quality standards provide guidance; knowledge is converted into practical application by means of consulting and implementation tools. As a result, best-practice examples and successful projects are constantly being completed. klima**aktiv** brings together players from politics, government, finance and society to disseminate and connect ideas and projects which get applied across Austria.

The energy transition is succeeding thanks to buildings that consume little energy but are comfortable, well implemented and attractive. klima**aktiv** shows how all of these demands can be reconciled. klima**aktiv**'s expertise and experience, such as the klima**aktiv** building standards, are already being exported successfully. The klima**aktiv** building standard is Austria's very special rating system for the sustainability of buildings and the associated efforts to mitigate climate change. It defines Europe's most stringent and at the same time most cost-effective requirements with respect to energy efficiency.

Global climate protection is the only effective answer to climate change. I am convinced that we can achieve our goal by taking a sustainable path which remains in close touch with nature and gives equal weight to tradition and innovation.



Sincerely,

ANDRÄ RUPPRECHTER Federal Minister for Agriculture, Forestry, Environment and Water Management



THE AUSTRIAN CLIMATE INITIATIVE KLIMA**AKTIV**– THE AUSTRIAN PATH TO SUSTAINABLE BUILDING

DIMINISHED ENERGY CONSUMPTION,

more efficient use of energy, resource conservation and a larger share of renewables in the building sector are all vital for long-term climate protection. With the Austrian Climate Initiative klima**aktiv** the Federal Ministry for Agriculture and Forestry, the Environment and Water Management (BMLFUW) is engaged in influencing all areas of market activity so that energy-efficient building and utilizing renewable sources of energy help to cut back on greenhouse gases. The aim is to achieve the climate protection targets set by the EU and the Republic of Austria. To assure the quality of energy-efficient, sustainable buildings in Austria, the Austrian Climate Initiative building standard has been developed.

THE INITIATIVE IS ALL ABOUT SUSTAIN-

ABILITY. Its building standard is the system for assessing how sustainable buildings are, and to what extent they help to protect the climate. It defines the most rigorous energy efficiency requirements in Europe, which at the same time have a beneficial effect on costs; the most basic standard laid down for Austria requires the level of thermoenergetic performance that will become obligatory in 2021, when the Building Code will define Nearly Zero Energy Buildings (residential and non-residential), both new starts and renovation. **THE INITIATIVE ASSURES TOP QUALITY**. With the Initiative's building standard a single nationwide, neutral, transparent seal of approval for sustainable, climate-friendly building has been created. The list of criteria constitutes a system for evaluating planned and actual buildings, and is accessible to all users free of charge.

BUILDINGS OF THE FUTURE. With the Initiative's seal of approval not only energy efficiency, but also the quality of materials and structures and key aspects of convenience and air quality indoors, are assessed and evaluated objectively.

THE INITIATIVE'S BUILDING STANDARD

provides all the tools and information needed for this. It is available for residential and service buildings, and is a real help to property developers, planners, builders, housing corporations and grant administrators, and of course to anyone building or renovating a house. Full details are available at www.klimaaktiv.at/english/buildings



OUT OF 1000 POSSIBLE AUSTRIAN CLIMATE INITIATIVE POINTS

PRIMARY SCHOOL IN MARIA GRÜN, GRAZ, STYRIA

Promoters: GBG Gebäude- und Baumanagement Graz GmbH Architects: Architekturwerk Berktold Kalb



THE AUSTRIAN CLIMATE INITIATIVE BUILDING STANDARD

PROPERTY DEVELOPERS, PLANNERS AND PROMOTERS can declare their building, whether a new start or renovated, to the Austrian Climate Initiative quality standard online, free of charge. Brick or timber, heat pump or pellet heating system, it makes no difference: with the aid of the standard any building can be planned and implemented for best results.

THE AUSTRIAN CLIMATE INITIATIVE'S LIST

OF CRITERIA is the primary guideline for energy-efficient building and long-term renovating. For residential and service buildings the Austrian Climate Initiative lays down quality criteria, which are freely available to the general public in the form of lists. For both types of building a distinction is made between new starts and renovation. For a building to qualify at all under the Initiative's rules, it must at the very least satisfy the essential criteria.

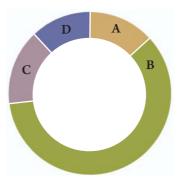
BUILDINGS ARE ASSESSED in line with the Austrian Climate Initiative's criteria to three quality levels: the Initiative's list of criteria makes climate-relevant quality measurable and transparent. Details are available at

www.klimaaktiv.at/gebaeudestandard (in German only)

- --- BRONZE: buildings that satisfy all essential criteria.
- --- SILVER: buildings that satisfy all essential criteria and score at least 750 points.
- --- GOLD: buildings that satisfy all essential criteria and score at least 900 points.

Buildings to the Initiative's quality standard are assessed, and their quality is assured, by means of a straightforward 1000point system, which is documented in the lists of criteria. The Initiative's criteria are grouped into four categories; the category "Energy supply" is given the most weight. The aim is to reduce energy consumption and pollutant emissions significantly when buildings are being planned and during actual operation.

KLIMAAKTIV CRITERIA WEIGHTING FOR RESIDENTIAL NEW STARTS



- A PLANNING AND IMPLEMENTATION up to 130 points
- B ENERGY SUPPLY up to 600 points
- C MATERIALS AND CONSTRUCTION up to 150 points e
- D COMFORT AND AIR QUALITY INDOORS up to 120 points



KLIMAAKTIV: BUILDING STANDARD WITH A FUTURE

A PLANNING AND IMPLEMENTATION

AFFORDABILITY, COUPLED WITH TOP

QUALITY. High quality standards are assured during planning and implementation, laying the foundation for long-term cost-effectiveness. Here selecting the site and taking full account of life-cycle costs are as important as providing a proper air seal, minimizing thermal bridging and providing instrumentation to measure energy consumption

B ENERGY SUPPLY

LOW ENERGY CONSUMPTION. New starts and renovated buildings that satisfy the Initiative's basic criteria consume roughly a third less energy for heating than ordinary buildings do. In the Initiative's Gold class only a quarter as much energy is needed

C MATERIALS AND CONSTRUCTION

HEALTHY INDOOR CLIMATE. Building to the Initiative's standard, with non-polluting materials and automatic ventilation systems, satisfies the highest standards of indoor air quality. In particular, materials harmful to the climate are ruled out, and points are awarded for environmentally friendly materials.

D COMFORT AND AIR QUALITY INDOORS

MORE COMFORT. Summer or winter – in a building to this standard just the high-grade thermal insulation ensures real comfort. Points are awarded for providing a ventilation system with heat recovery.



A – AFFORDABILITY, COUPLED WITH TOP QUALITY

FUTURE-PROOF INVESTING

- -- The Initiative's list of criteria encourages taking full account of life-cycle costs, as opposed to the cost of construction alone. What decides whether a building is cost-effective is the overall cost per month (or year) throughout its useful life.
- --- Even at today's energy prices, buildings with the Initiative's seal of approval achieve considerable savings in expenditure on energy. In the future, with energy prices climbing, this economic advantage will be even more marked than today.
- --- As a rule the Initiative's quality standards qualify for the most generous level of grant in Federal and Provincial grants schemes.
- --- As a rule buildings complying with the Initiative's standards involve little extra expenditure (in the Initiative's Gold class) or none at all (in the Initiative's Bronze class) in comparison with conventional buildings, and safeguard the investments made over the medium to long term.

A1 IN PLANNING AND IMPLEMENTATION

- --- Choosing exactly where to build involves a very important decision early on. The aim is to meet day-to-day needs within a radius of 1000 m.
- --- Access to public transport, bicycle parking, cycle tracks: to reduce private motor traffic, the Initiative awards points for making it easy to use alternatives to the car..
- Minimizing thermal bridging: avoiding design weaknesses in the thermal insulation reduces energy consumption and at the same time rules out the risk of moisture condensing and mould forming around critical joints between structural members.
- --- Tests for air seal: these make it possible to track down and remedy defects in the building envelope at an early stage, so as to ensure high-quality implementation.
- --- Monitoring energy consumption: extra points are awarded specially for including instrumentation to measure energy consumption.



B – LOW ENERGY CONSUMPTION

IN INITIATIVE-STANDARD BUILDINGS ENERGY CONSERVATION IS A CENTRAL

ISSUE: Energy consumption for heating is at least a quarter less than the limits currently in force – in the case of Gold-class buildings the savings can come to as much as three-quarters.

ENERGY CONSUMPTION: LESS HAS ADVAN-

TAGES Residential buildings, service buildings – regardless of the category, buildings to Initiative standard stay well within the statutory limits for energy consumption. People living or working in Initiative-standard buildings consume about one-third less energy than in conventional buildings. This target applies not only to energy consumption for heating and hot water; ceilings for cooling energy consumption in service buildings (20 % less than construction-industry standard) and primary energy consumption are also defined.

AND THE WINNER IS KLIMA AKTIV GOLD!

Apart from satisfying all essential criteria, the classification Austrian Climate Initiative Gold guarantees that maximum energy conservation requirements are met. A building awarded Initiative Gold today is already better in terms of energy consumption than the target defined for 2020 in Austria's National Plan. Buildings in this category have the very best thermal insulation, triple glazing and (in most cases) convenience ventilation with heat recovery.

RENEWABLE SOURCES OF ENERGY HAVE PRIORITY

With the Initiative's ambitious targets for primary energy consumption and carbon-dioxide emission, employing renewable sources of energy is promoted (along with energy conservation). Providing heat from biomass, using waste heat or cogeneration for district heating, and utilizing solar power all take priority over heating systems based on fossil fuels such as oil or gas. More about renewable sources of energy can be found at

www.klimaaktiv.at/erneuerbarewaerme (in German only).

In the case of detached residences buildings without heat recovery from indoor air can qualify, if a high-quality building envelope is combined with a very large solar collector system.

NO MATTER WHICH APPROACH IS ADOPTED,

in buildings at this level of energy efficiency the residual heating requirement is so modest that there is no need to worry about future increases in the price of energy. Highly efficient buildings such as passive and energy-surplus houses have proved their worth in real life for more than 15 years now, as demonstrated by thousands of examples in Austria and abroad



C – HEALTHY INDOOR CLIMATE

AIR IS OUR MOST VITAL LIFE SUPPORT.

Inside Initiative-standard buildings air quality is better than in conventional buildings. The fresh air drawn in from outside is purified in high-grade filters, and only non-polluting materials are used in construction.

NON-POLLUTING MATERIALS

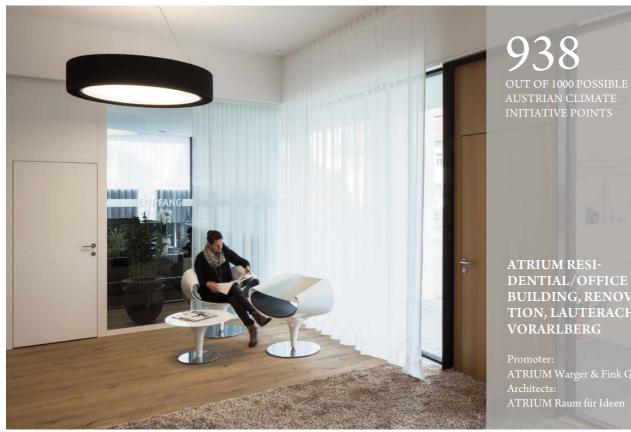
The Initiative's recommendations include a number of measures involving non-polluting materials. Materials employed in fitting interiors out (floorings, laying materials, woodwork, coatings for wall and ceilings) are particularly important here, as they are in immediate contact with the air indoors. If the actual levels of pollutants in the air indoors are measured in a standardized procedure and they are below the threshold values laid down, the building in question is awarded extra quality points.

TOP-CLASS VENTILATION

For satisfactory air quality fresh air must be supplied at a rate of around 20 to 30 m3 per person and hour. As revealed by numerous measurements, this hygienically necessary rate of air supply cannot be ensured purely by opening the windows by hand; for that to work they would need to be opened every two hours or so. In most cases ventilation is inadequate and air quality suffers as a result. Poor air quality leads to lack of concentration and, general indisposition; in the worst case mould may develop. Buildings in the Initiative Gold class are equipped with automatic ventilation systems that supply fresh air to each room at exactly the rate needed for a healthy, agreeable indoor climate. In the case of convenience ventilation systems with heat recovery, up to 90 % of the heat in the exhaust air is brought back into the building.

FILTERED AIR FROM OUTDOORS

Every single ventilation system employed in an Initiativestandard building includes a high-grade filter to purify the air from outdoors. Convenience ventilation systems can feature special pollen filters which may alleviate the discomfort of sufferers from pollen allergies. All in all, air quality inside modern buildings is a crucial issue: as a proper air seal has become important, it is now essential to use non-polluting materials and to install top-class ventilation systems. The Initiative's seal of approval takes this into account.



ATRIUM RESI-DENTIAL/OFFICE BUILDING, RENOVA-TION, LAUTERACH, VORARLBERG

D – THE RIGHT CLIMATE

COMFORT ZONE. Agreeably warm in winter, not too hot in summer. The degree of comfort can not only be felt, but – as measurements show – is demonstrably better than in conventional building.

AGREEABLE SURFACE TEMPERATURE. People's temperature sensations depend not only on air temperature, but also on the temperatures of the surfaces surrounding the room: walls, ceiling, floor, windows. In spite of an air temperature of 22 °C a room may still be experienced as unpleasantly cool, if these surfaces are significantly colder. In buildings with the Initiative's seal of approval the all-embracing thermal insulation minimizes heat losses and keeps all structural elements warm just like a modern duvet jacket on a winter ramble.

MINIMAL AIR MOVEMENT. Relatively low air speeds are enough to interfere with comfort, resulting in a permanent feeling of draughtiness. In Initiative-approved buildings all structural elements in the building envelope are properly sealed, draughts cannot occur. Initiative Gold-class buildings feature ventilation systems which supply prewarmed fresh air to the relevant rooms at very low speeds. Of course the windows can still be opened at need, none the less. However, excellent air quality is assured in every room at all times, even if the windows stay closed. Particularly in winter, opening windows to ventilate rooms by hand - often regarded as a nuisance - is thus unnecessary.

IDEAL HUMIDITY. Air that is too dry or too moist is experienced as disagreeable. A humidity between 30 % and 60 % is recommended: values in this range can be ensured with the ventilation systems incorporated in Initiative-standard buildings.

COMFORT IN SUMMER. Sunlight contributes to a sense of wellbeing, but in summer too much insolation can result in overheating. Initiative-standard buildings are designed not to overheat. Window quality, sizing and orientation, in conjunction with solar shading, adequate thermal mass and matching ventilation design, ensure an agreeable indoor climate at all times.



OUT OF 1000 POSSIBLE AUSTRIAN CLIMATE INITIATIVE POINTS

ENTRY PORTAL TO OPEN-AIR MUSEUM, NIEDERSULZ, LOWER AUSTRIA

Promoters: NÖ Landesimmobilien GmbH (LIG), Weinviertler Museumsdorf Niedersulz Errichtungs- und BetriebsGmbH Architects: ah3 ZT GmbH



YOUR ROUTE TO AN INITIATIVE-STANDARD BUILDING

INITIATIVE BUILDING DECLARATION

The comprehensive demands of the seal of approval require an efficient, productive processing mechanism. For promoters and planners the effort involved in furnishing proof must be minimized; for the users the qualities of an Initiativestandard building must be immediately obvious. Assessment is carried out in two stages:

- 1. DECLARING THE BUILDING. The building's quality is documented in an online declaration tool with the aid of the Initiative's criteria. At this stage planners or promoters must provide the necessary evidence. Residential buildings are declared with the declaration tool for residential buildings at www.baubook.at . The online tool for service buildings is available at www.klimaaktiv.baudock.at
- 2. **PLAUSIBILITY CHECK.** Independently of the applicant, the Initiative checks the plausibility of the building's quality and of the documentation attached. The building is awarded the Initiative's seal of approval only if if the results of the check are positive.

INITIATIVE-STANDARD BUILDING QUALITY.

The Initiative's evaluation system is transparent, since buildings are assessed in terms of uniform criteria. Buildings declared by the Initiative's rules are given special publicity in all Austria's provinces:

- --- **BUILDING DATABASE.** SDetails of all buildings with the Initiative's seal of approval are published in the building database at www.klimaaktiv-gebaut.at (in German only).
- --- **PUBLIC RELATIONS.** The Initiative supports specially ambitious projects by means of public-relations activities throughout Austria.
- --- **PARTNERS.** A constantly expanding network of architects and planners, promoters and construction companies contributes significantly to the spread of the Initiative's seal of approval.

All aspects of declaring buildings and public relations are supported by the management of the Initiative's Building & Renovating program throughout Austria.



SCHACHINGER L STIK COMPANY BUIL DING, HÖRSCHING, UPPER AUSTRIA

Schachinger Immobilien und Dienstleistungs GmbH und Co KG Architects: Poppe Prehal Architekten ZT GmbH

STATE PRIZE FOR ARCHITECTURE AND **SUSTAINABILITY**

AUSTRIA'S NATIONAL AWARD FOR

SUSTAINABLE ARCHITECTURE honours outstanding achievements by property owners, architects and planning professionals that combine superior architecture and resource-efficient building.

In 2014/15 the Austrian Ministry for the Environment awarded the State Prize for Architecture and Sustainability for the fourth time to projects distinguished equally by their architectural value and by their high quality with respect to ecology, energy use and social and economic sustainability. The invitation to submit projects was extended within the framework of the climate protection initiative klima**aktiv**. The buildings were assessed to the klimaaktiv building standard.

The large number of submissions for the State Prize are a sign of the positive developments in the area of sustainable architecture in Austria. Those buildings which attract interest by being nominated for or winning the State Prize are a source of inspiration, and count as showcase projects in both fields: architecture and sustainability.

An increasing number of competent and promising architectural partnerships and building services consultancies are working on these issues - as revealed by the upward trend in submissions. Some years ago only a small circle of dedicated pioneers were involved, while these days the majority of Austria's best architects are among the applicants.

More details are available at www.klimaaktiv.at/staatspreis (in German only).

KLIMA**AKTIV** CRITERIA

The criteria are grouped in four assessment categories; in the 1000-point marking system special weight is given to energy consumption.

DOUR	UEADING.	essential	Points
GROUP	HEADING	criterion	available
A	PLANNING AND IMPLEMENTATION		up to 130
	Planning	T	
	Infrastructure and access to public transport	E	
	Bicycle parking Thermal bridging minimized in building		
	Simplified calculation of life-cycle costs	E from 1.000 m ² on cond. GFA	
	Detailed check of energy consumption calculations (PHPP) Implementation		
	Building envelope airtight	Е	
	Identifying energy consumption (differentiated) / fine tuning	E from 1.000 m ² on cond. GFA	
	ENERGY SUPPLY	E from 1.000 m on cond. GFA	up to 600
	Energy supply (alternative 1, as per OIB Guideline 6)		up to 000
	Useful energy OIB		
	Heating energy requirement OIB	Е	
	End-use and primary energy + CO_2 emissions OIB	2	
	Convenience ventilation energy-efficient OIB		
	Primary energy requirement OIB	Е	
	CO ₂ emissions OIB	E	
	Photovoltaic facility OIB	~	
	Energy supply (alternative 2, as per PHPP)		
	Useful energy PHPP		
	Energy consumption rating (heating) PHPP	Е	
	End-use and primary energy + CO_2 emissions PHPP		
	Convenience ventilation energy-efficient PHPP		
	Primary energy consumption rating PHPP	Е	
	CO ₂ emissions PHPP	Е	
	Photovoltaic facility PHPP		
С	MATERIALS AND CONSTRUCTION		up to 150
	Materials		, î
	Excluding substances harmful to the climate	E	
	Avoiding PVC		
	Employing products with a seal of environmental approval		
	Structures and building (either 2.1a or 2.1b)	Е	
	Ecological index of entire building		
	Ecological index of thermal building envelope		
D	COMFORT AND AIR QUALITY INDOORS		up to 120
	Thermal comfort		
	Thermal comfort in summer	E	
	Air quality indoors		
	Convenience ventilation enhanced by heat recovery		
	Employing products low in emissions and pollutants		
	Measuring VOC's and formaldehyde	E from 1.000 m ² on cond. GFA	
		TOTAL	1.000

Full details of assessing buildings and of the Initiative's list of criteria are available at www.klimaaktiv.at/bauen-sanieren (in German only).

ABOUT KLIMA**AKTIV,** THE AUSTRIAN CLIMATE INITIATIVE

THE INITIATIVE'S BUILDING STANDARD - CRITERIA APPLICABLE AROUND THE WORLD.

Starting from the Initiative's building standard, quality criteria applicable around the world have been developed for energyefficient, sustainable building. Austrian excellence in the field of sustainable, energy-fficient building is recognized all over the world. Initiatives such as the Austrian Climate Initiative klima**aktiv** (Federal Ministry of Agriculture, Forestry, the Environment and Water Management, BMLFUW) and research programs such as "Building of the Future" (Federal Ministry for Transport, Innovation and Technology, BMVIT) play a key part in these developments in the building sector. With this award system Austrian quality in sustainable building is

in the international limelight. Apart from energy efficiency, the international building standard concentrates on the aspects of health and user comfort, avoiding polluting materials and highquality implementation. The awards go to energy-efficient, sustainable buildings abroad that are implemented with Austrian involvement. More details will soon be available.

PROGRAM MANAGEMENT IN THE INITIATIVE

The place to go with all questions about building and renovating to the Initiative's standard is ÖGUT – the Austrian Society for Environment and Technology. The management there is backed up by specialists and by partners in the regions. Details of these partners (within Austria) are provided at www.klimaaktiv.at/bauen-sanieren (in German only).

THE INITIATIVE'S LISTS OF CRITERIA

Together with the associated declaration tools, the lists of criteria provided by the Initiative for the various types of building represent the core of the Initiative's assessment system; they are available at www.klimaaktiv.at/gebaeudestandard (in German only).

THE INITIATIVE'S BUILDING DATABASE

All the buildings planned and implemented within the purview of the Initiative (Building and Renovating) are detailed in a separate database publically accessible at www.klimaaktiv-gebaut.at (in German only).

THE INITIATIVE'S NETWORK OF PARTNERS

Architects and planners, construction companies, specialist firms, energy consultancies and similar specialists in sustainable building throughout Austria are linked together in a continually growing network of partners of the Initiative: www.klimaaktiv.at/maps (in German only).

THE AUSTRIAN CLIMATE INITIATIVE

goes far beyond building and renovating to protect the climate. Acting for the Federal Ministry of Agriculture, Forestry, the Environment and Water Management, it supports active climate protection in Austria with a variety of measures. Information and guidance about energy conservation, renewable sources of energy and mobility are available at www.klimaaktiv.at/english

KLIMAAKTIV BUILDING AND RENOVATING

The Austrian Climate Initiative has the full support of the Federal Ministry of Agriculture, Forestry, the Environment and Water Management. Since 2004 the Initiative has covered all the key fields of technology central to using energy sustainably, focussing on *Building and Renovating, Conserving energy, Renewable sources of energy* and *Mobility.*

By developing quality standards, providing consultancy and training services, and disseminating information on a broad front, the Initiative makes an important contribution to protecting the climate; it also serves as a platform for initiatives launched by firms, administrative bodies, organizations and individuals.

PARTNERS AND CONTACT

BURGENLAND

Forschung Burgenland GmbH 7423 Pinkafeld, Steinamangerstrasse 21 www.fh-burgenland.at/forschung

CARINTHIA Ressourcen Management Agentur GmbH 9500 Villach, Burgenlandstrasse 38 www.rma.at

LOWER AUSTRIA

Energie- und Umweltagentur Niederösterreich 3100 St. Pölten, Grenzgasse 10 www.enu.at

UPPER AUSTRIA FH OÖ F&E GmbH

4600 Wels, Stelzhamerstrasse 23 www.fh-ooe.at

SALZBURG Salzburger Institut für Raumordnung und Wohnen (SIR) 5020 Salzburg, Schillerstrasse 25 www.sir.at

STYRIA Energieagentur Steiermark GmbH 8010 Graz, Nikolaiplatz 4a www.ea-stmk.at

TIROL Energie Tirol 6020 Innsbruck, Südtiroler Platz 4 www.energie-tirol.at

VORARLBERG

Energieinstitut Vorarlberg 6850 Dornbirn, Stadtstrasse 33 www.energieinstitut.at

VIENNA pulswerk GmbH 1070 Vienna, Seidengasse 13/3 www.pulswerk.at

Österreichisches Institut für Bauen und Ökologie GmbH (IBO) 1090 Vienna, Alserbachstrasse 5/8 www.ibo.at

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Learn more about klima**aktiv** and Austria's Building Competence in this video: www.klimaaktiv.at/video-bauen-en

OTHER PARTNERS

AEE – Institut für nachhaltige Technologien www.aee-intec.at

Allplan GmbH www.allplan.at

Bau. Energie. Umwelt Cluster Niederösterreich www.bauenergieumwelt.at

ConPlusUltra GmbH www.conplusultra.com

e7 Energie Markt Analyse GmbH www.e-sieben.at

Grazer Energieagentur www.grazer-ea.at



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