



DATACENTER VIENNA
Scalable, Safe and Innovative

Designed, built and
optimized for the security
of your data

Contents

Your Goals	2
Compound and Buildings	4
Energy Efficiency	6
Security	10
Infrastructure	12
Free Choice	14
Good Reasons	16
Our Additional Solutions	18
About e-shelter	20

Being Aware of the Risks Today

The challenges for IT are continuously changing through new technical developments and the new possibilities which are offered by the communications and network infrastructure – and therefore the requirements and goals of your organization. To be able to achieve these goals, not only are financial means required, but also adequate planning to be well positioned for the future. That is why recognizing, evaluating and minimizing risks is vital.

We can offer you the possibility of ensuring your IT systems are continuously available in an optimum environment – whether for short term projects or for a scheme that will be implemented in a few years' time. This brochure shows the possibilities and advantages of outsourcing IT and network systems to an external data center, whilst retaining full control of your IT – we simply provide the best possible environment.

Vienna is e-shelters eighth data center and the first e-shelter data center in Austria. It is situated in the South-West of the Vienna city center in the tenth district, Favoriten, approx. 6 km distance to Vienna city center and approx. 20 km distance to the Vienna International Airport. On the almost 29,000 sqm site approx. 8,400 sqm of data center space is being created in three building stages offering a gross floor space of more than 24,000 sqm after overall completion.



Built on Solid Ground

The building is a new dedicated data center building, developed in several construction stages. On the almost site at Wienerberg, almost 8,400 sqm of data center space is being created in three building stages. The first building stage was completed in June 2015. Two further building stages will be developed at a later date. Additionally, the data center Vienna offers storage space and approx. 1,000 sqm well equipped office space as well as flexible meeting facilities which provides place for up to 50 people.

The site was selected on the basis of a comprehensive risk analysis in order to satisfy the demanding requirements surrounding the security and availability of the infrastructure. In this context we paid special attention to the provision of power, connections to the data networks as well as protection against natural hazards.

When planning the e-shelter data centers we draw from almost 15 years experience in the field of managing data centers:

- The planning by our in-house planning department is based on the experience and know-how we have gained from the daily operation of over 90,000 sqm data center space in the e-shelter portfolio
- The buildings are planned and built for use as data centers only
- We use proven technologies to enhance our levels of energy efficiency and develop these ourselves in cooperation with the manufacturers
- The planning follows the principle of attaining the correct balance between availability, energy and cost efficiency
- The basic concept of the building is flexible to be able to respond to the requirements of changing future circumstances and to be able to guarantee scalability
- All external and internal installations are completed with high quality materials in accordance with industry standards
- The structural and technical security are tailored to meet the high security demands of our tenants. Even special requirements for your IT areas can be considered



Energy Efficiency

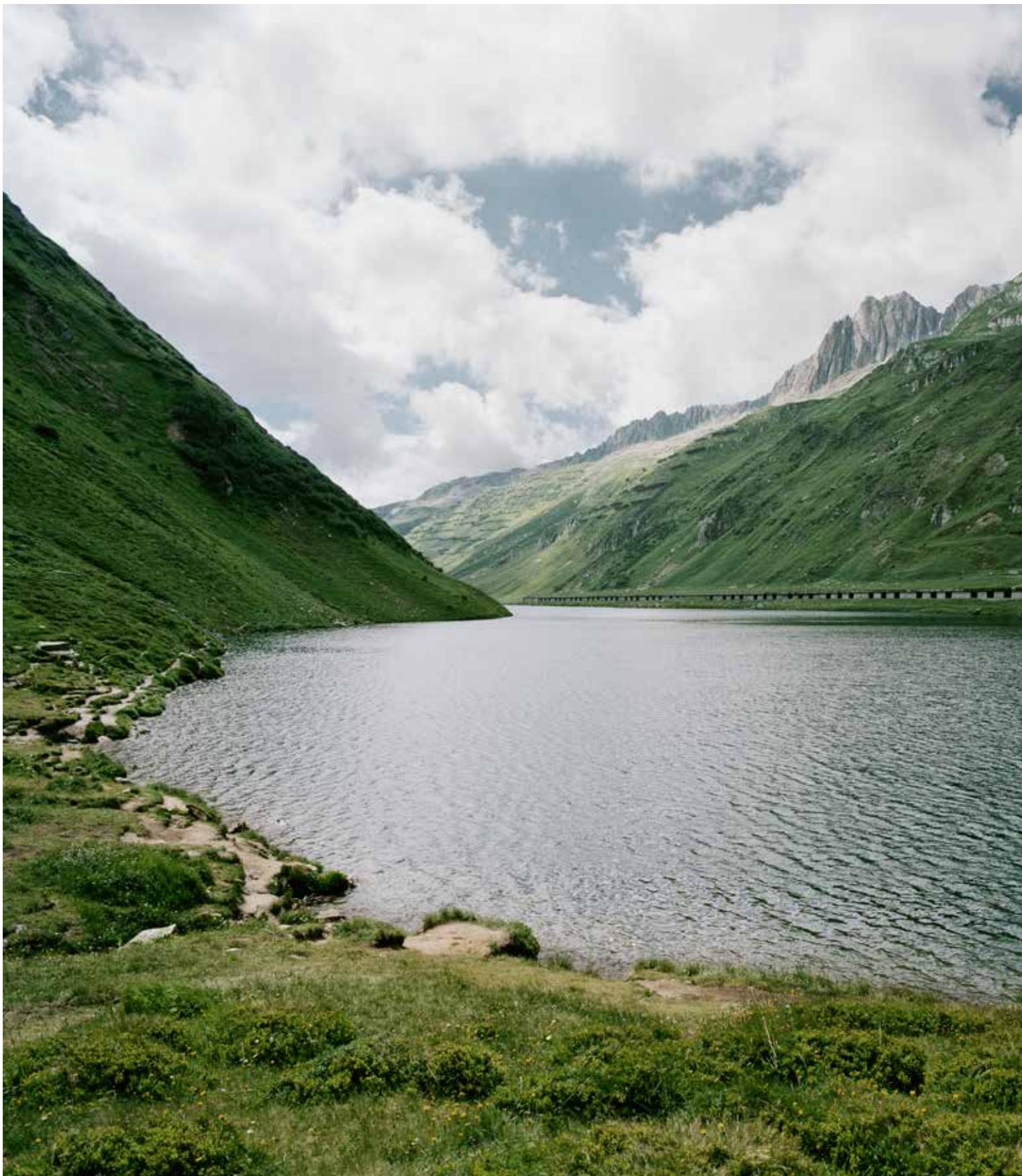
The latest technologies for increasing energy efficiency are used in the new building which is planned and built exclusively for use as data center. In particular, this means optimized systems for cooling technology, free cooling, cold aisle containment systems and double floor management.

Free cooling: the use of special recooling systems allows for environmentally friendly cooling using only external air. Modern recooling systems provide direct cooling without any cooling machines up to an external temperature of 16 degrees Celsius.

Within the data center, thanks to modern cold aisle containment systems, warm air zones are separated from cold air zones. An optimized air flow produces a level of cooling efficiency which saves up to 30 percent on energy costs and thus sustainably improves the CO₂ balance. Effective raised floor management ensures that high thermal loads can be distributed across the cavity of the raised floor, conserving resources: recirculating air cooling devices take in the air warmed by the server exhaust air via the ceiling. The warm exhaust air is cooled in the recirculating air cooling device using the cold water-fed cooling coils. The cooled air is channeled back into the e-suite via the floor and is fed into the servers' cold aisle via the ventilation plates. The cold water for the cooling coils is pumped from the cooler on the roof via ring feeders into the Cooling-Corridor.

The data center is operated using exclusively power from renewable energies. The waste heat generated by the operation of servers is used to heat neighboring buildings. A component of the data center thus delivers a total of around 3 million kWh of heat per year for supplying office buildings and hotels. A grass-covered roof uses natural vegetation to ensure climate-neutral privacy protection. Collected rainwater is used for cleaning the sanitary systems.

In addition, e-shelter is aiming for the highest Green Building Certification award level, platinum, in accordance with the US and internationally recognized LEED (Leadership in Environmental Design) Green Building Certification System. Furthermore, DIN 50001 is also implemented for the Vienna data center in order to sustainably reduce energy consumption during day-to-day operations.



▼ Cold-aisle containment





Security in the Best of Hands

Your security requirements as a tenant play a leading role in all of our services. We therefore entrust the responsibility of offering the best possible protection for your systems to nobody else but our own personnel. Every day, 24 hours a day, 7 days a week, 365 days a year.

SECURITY MANAGEMENT

e-shelter provides comprehensive security management services. In addition to the physical security and operational security, this also includes the information security, which also encompasses the security of our IT services and of the data network, for instance. Personal security services such as reception services and intervention complete the range of services available for operational security services.

THE SECURITY ZONES CONCEPT

The e-shelter security zones are separated from each other on a structural, technical and organisational basis and are co-dependent in terms of their configuration. Security-sensitive areas are arranged as closely as possible to the core of the building so that the areas in front of them are able to serve the purposes of detection and response. All of the security areas are monitored with technical measures that are mutually aligned.

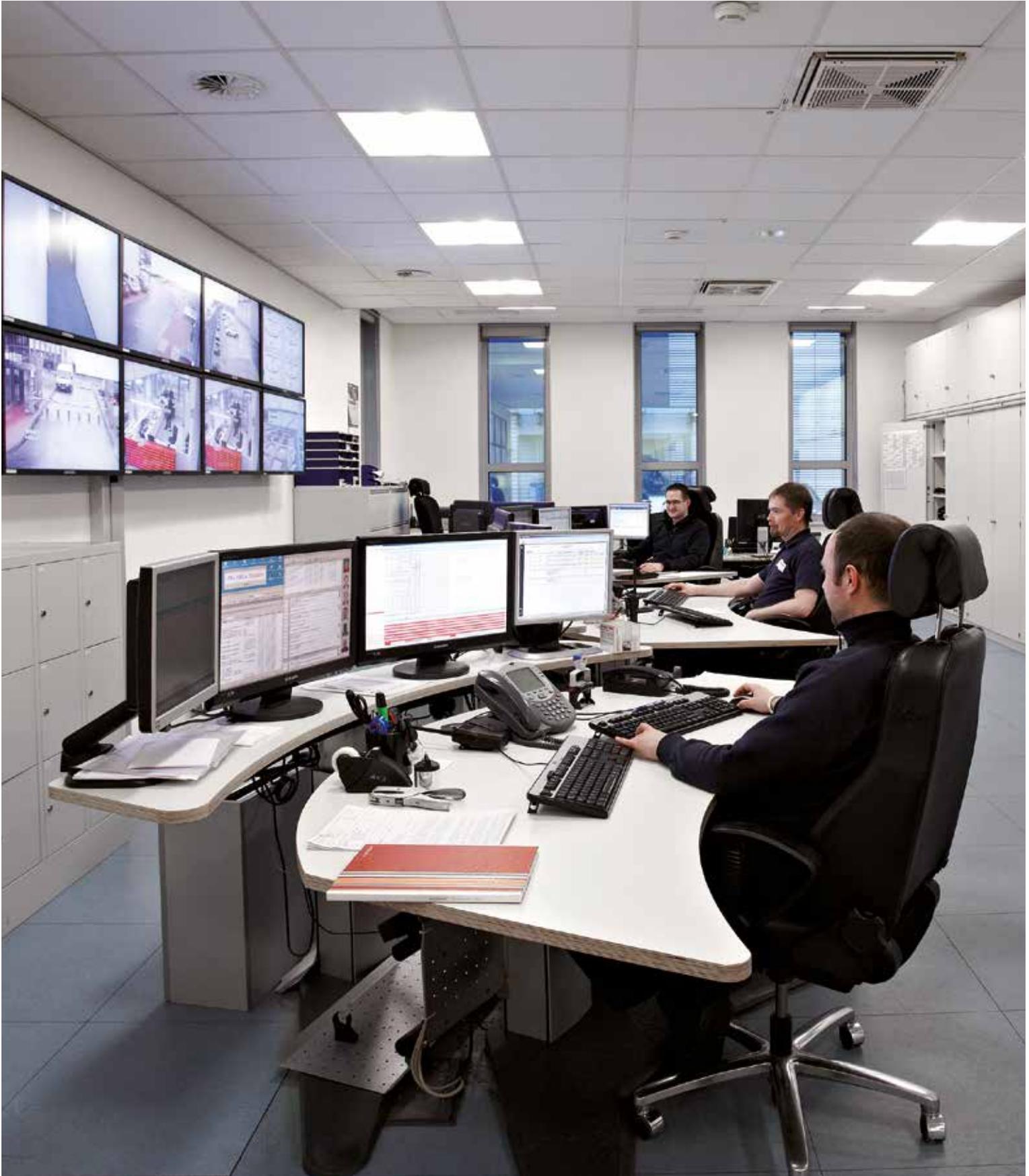
OPERATIONAL SECURITY

Due to the high security requirements, all of the services in the security-relevant functional areas are provided by the e-shelter personnel. The individual security devices work together and are subject to permanent monitoring by a superior technical and organisational risk management system. The Service Control Center in Vienna (SCC VIE 1) is connected to the emergency call and service point of e-shelter in Frankfurt (VdS-C approved) on a 24/7 basis.

e-shelter's operational security consists of the following core processes:

- Alarm management
- Access management
- Emergency management and fault management.

We adapt the security measures and the operational security to your requirements as the tenant and provide you with individual offers for your security solution.



Systems that You Can Count On

The technical infrastructure, particularly the power supply, is the heart of every data center. e-shelter has developed and implemented a comprehensive concept to ensure the highest degree of availability of the power supply facilities.

POWER SUPPLY

The critical power supply to the data center Vienna is designed as a dual power supply with uninterrupted A- and B-power supply for the tenants' IT systems and an additional redundant supply for all critical building engineering systems such as air-conditioning, cooling, ventilation and security systems. The data center Vienna power supply works via two feeds at a 10 kV level, the maximum power amounts to 20 MW each. The critical power supply for your IT systems is ensured by an active A- and B-power supply to the server racks. Maximum reliability is guaranteed by providing A- and B-UPS-systems in (n+n) configuration. Both sides can therefore carry 100 percent of the load, independent of each other. Relevant critical building engineering systems are also based on UPS. In addition, there are redundant emergency power systems available for each component with diesel generators to bridge any long-term power failures, which take over the data center entire supply. The diesel provision is designed for 72 hour autonomous operation.

Overall, the e-shelter power supply system meets all requirements of high availability:

- Power supply at 10 kV medium voltage level via two separate feeds from different substations
- Critical power supply is designed as a dual power supply with uninterrupted A- and B-power supply
- Redundant emergency power system with diesel generator

CARRIER CONNECTION

The e-shelter data center is connected by at least ten carriers from two separate feeds. It has two Carrier-Meet-Me-Rooms (CMMR), from which you can use the services of the carrier of your choice. There is an intersection-free A- and B-duct system for fiber optic cabling on the premises and in the building. Cross connects from the carrier rooms to your equipment can be realized in accordance with your requirements via dedicated, redundant designed pipelines. Internet connections from up to 100 Mbit/s can be provided as an additional service.

FIRE SAFETY AND FIRE EXTINGUISHING SYSTEMS

Physical fire protection, fire detection and fire extinguishing systems are designed for the greatest level of safety. For the interior configuration of the rental units, specialist non-combustible and/or fire-resistant materials were used only.

The individual data center areas are divided into separate fire safety zones. Comprehensive fire protection and fighting systems are installed in each tenant zone. Early smoke detection systems (smoke extraction systems), which are integrated into the fire alarm system, guarantee the earliest possible detection even before fire and smoke fumes or fire develop. The fire fighting system is based on an argon gas extinguishing system.

The building fire zones are configured to fire resistance class F 90, and all technical hardware locations feature:

- F 90 fire-fighting sections with
- Fire protection walls to fire resistance class F 90 and
- Monitoring with automatic digital fire alarm system.

CLIMATE CONTROL AND AIR CONDITIONING

Increasing energy costs and customer demand for high energy efficiency of the cooling and climate control infrastructure are the reasons why the optimization of these elements has become increasingly important – especially for facilities with a high level of availability. This is why e-shelter has developed new systems to save energy in the cooling systems. The programming of these systems are coordinated in-house to ensure high availability and optimal performance.

Overview of measurements:

- Utilization of adaptive reciprocating chillers with superior control as “Cooling Manager”
- Innovative chilled water distribution and transport systems such as stratified storage tanks and special hydraulic points, pump management systems and automatically adjusted hydraulics
- Peripheral ventilation and de-ventilation systems with energy-optimized operating points (rotation speed control, humidity-dependent control etc.)
- Peripheral humidifying and de-humidifying systems with low energy expenditure managing the humidity of IT areas
- Adiabatic support of cooling and air conditioning (humidification and condensation)
- Use of Free Cooling provides direct cooling without any cooling machines up to an external temperature of 16 degrees Celsius
- Heat recovery for heating (pre-heating) the emergency standby power system, use of rainwater and chemical-free hot-water treatment of all air-conditioning units
- Own programming and visualization of building management systems and electrical infrastructure to determine the detailed consumption data and the targeted energy management

A Solution for Every Requirement

Your requirements are the most important aspect of our service offering. We offer space that ranges from commercial property to completely configured, high availability data center space as well as all the services for planning, design, operation and security. You choose, we deliver. Whether you choose a building shell which you configure yourself, or which we configure according to your brief, or you decide on a fully configured suite with pre-installed racks: we will ensure the space is available to you on schedule and at consistently high standard of quality.

Overview of main e-shelter's product offerings:

Fully fitted:	e-rack™ e-power-rack	Separate space, server and network cabinet including infrastructure
	e-cage™	Separate lockable space from 20 sqm
	e-suite	Separate locked room with a size from 300 sqm
Shell and Core:	e-area™	Provision of constructed shell and core space from 1,000 sqm
Land:	e-site	Provision of land with upstream grid connection and planning

e-rack™/e-power-rack

Lockable 19" standard server and network cabinet, 800 x 1,200 mm, 47 height units, including redundant power connection (A- and B-supply). Standard server power available from 2 to 6 kW per e-power-rack.

e-cage™

Lockable steel mesh security unit. The individual steel mesh units are equipped with sneak-by protection in the raised floor. Available space from 20 sqm to be built according to your individual needs and operated within a larger data center space with other e-cages™.

e-suite

Self-contained, locked and monitored space with an area from 300 sqm. Each e-suite represents a separate firefighting section in the F 90 class. Layout, operational parameters and security features can be customized to your needs.



Good Reasons for Security with e-shelter

e-shelter currently employs approx. 350 staff. They are drawn from an exceptionally wide range of sectors and they all have one goal: finding the best possible solution for your challenges at all times.

SUSTAINABILITY AND ENERGY EFFICIENCY

We continually strive to enhance the energy efficiency of our data centers. We gain the know-how to master these challenges from the empirical analyses of existing data centers. We familiarize ourselves with the latest technologies on the basis of a close collaboration with research institutes and industrial associations. We already use optimized and coordinated cooling technologies such as free cooling, newly developed high temperature heat pumps, adiabatic cooling and cold aisle containment systems. Exhaust heat is used to heat the adjacent buildings.

EXPERIENCE AND SUSTAINABILITY

With more than 15 years of experience operating data centers that run over approx. 90,000 sqm of space, our engineers have considerable experience in the development of new, and always more efficient, systems. You will benefit from the know-how and experience of our specialists: we design, build, operate and secure data centers using all of our energy and dedication.



Additional Services at the Datacenter Vienna:

To ensure the on-time and cost-effective configuration of your rental units, and that your relocation proceeds smoothly, we offer you a range of additional services at our Datacenter Vienna:

CONSTRUCTION OF DATA CENTER SPACE

- Consulting and analyses for development concepts
- General and execution planning
- Project management
- Construction work
- Quality control

TECHNICAL SERVICES

- Plan and optimize data center space
- Plan and realize data center moves
- Setup and development of tenants space
- Plan and execute data center moves
- Reporting and supporting audits
- Connection to internet and/or carrier of choice
- 24/7 remote hands services

SECURITY SERVICES

- Staffed security services
- Technical surveillance services
- Data medium services
- Development of customized security services

PROPERTY MANAGEMENT SERVICES

- Property maintenance and operation
- Building equipment maintenance group
- Cleaning services
- Waste disposal services
- Transport services



About e-shelter

We design, build and operate high-availability data centers. Since our formation in 2000 we have developed into one of the leading providers of data center services in Europe. We operate altogether approximately 90,000 sqm of data center space, 60,000 sqm of space located at our main site in Frankfurt, Germany, making it Europe's largest single data center site. Our own e-shelter security personnel protects our datacenters and develops security solutions to individual requirements.

Our comprehensive experience in operating data centers means we are already a demanded contact especially for individual solutions of complex projects and high densities.

Additional sites are located in Berlin, Frankfurt, Hamburg, Munich and Zurich, Switzerland. Among e-shelter's clients are financial services companies, telecoms operators and IT service providers as well as cloud service providers. As a part of NTT Communications Corporation e-shelter provides access to a network of 140 data centers around the world.

e-shelter facility services (Austria) GmbH

Computerstraße 4
1100 Vienna

info@e-shelter.at

www.e-shelter.at

© 2017 e-shelter services GmbH

All rights reserved.

The information in this brochure contains only general descriptions which may not apply for each individual case or may change as products and service levels are adapted to new technological development. The required service elements are only binding when explicitly stated in a service contract. Technical specifications may be subject to alterations.

05/2017