

THERMAL, ACOUSTIC AND FIRE PROTECTION

Office Facilities

Office and multi-functional buildings have an important impact on our urban environment. With their growing functional and structural complexity, designing and managing these buildings efficiently means reducing the energy consumption without compromising the safety and comfort of occupants. Armacell's best in class equipment insulation solutions save energy, help to cut operating costs and contribute towards a safer and more comfortable environment in offices. **Creating sustainable value for your customers.**

www.armacell.com



 **armacell**[®]
MAKING A DIFFERENCE AROUND THE WORLD

SOLUTIONS ENABLING ENERGY SAVINGS.

We are the inventors of flexible foams for equipment insulation and a leading provider of engineered foams. Our lightweight thermal, acoustic and mechanical solutions create sustainable value for our customers. Innovation and entrepreneurship are an integral part of our DNA. We drive industry-leading solutions and aspire to launch new technologies using alternative resources or natural feedstock. Day in day out, our products significantly contribute to global energy efficiency and make a difference around the world.

In meeting the challenges of megatrends, such as energy efficiency, acoustic comfort, lightweighting, the globalisation of food supplies, our product solutions stand out in terms of functionality and ease of installation.

Armacell. Making a difference around the world.



OPTIMISING ENERGY EFFICIENCY AND OCCUPANT COMFORT

Almost 20 percent of total expenditure for typical office buildings is spent on energy. A significant operational cost that deserves attention. While office buildings can be up to 70 percent more efficient when the means available today are used, there is still a lot of potential for saving energy and money.

Insulating mechanical equipment is one of the simplest and most efficient measures to save energy in buildings. With Armacell's insulation solutions energy costs in office buildings can be decreased for many years to come.

BEYOND GOING GREEN

Architects, building developers and engineers have recognised the link between buildings and occupants' health, and are designing places where workers are more productive, less stressed and less likely to fall sick. Post-pandemic office design will have to put hygiene at the heart of workplace planning.

Armacell's insulation solutions are fibre and dust free. They ensure greater comfort for employees, rapid amortisation and a reduced risk of downtime due to unplanned maintenance work. Even renovating while the building remains operational is no sweat with our easy-to-install solutions.

From preventing moisture and providing protection against bacterial growth to enhancing office comfort and implementing environmental considerations, the right type of insulation is key for the performance of an office building. Balancing **ENERGY-EFFICIENCY** and office experience is critical when creating optimal working spaces. When specifying insulation materials, objectives for **ACOUSTIC COMFORT**, **RELIABLE OPERATION**, **HYGIENE** and **INDOOR AIR REQUIREMENTS** as well as **FIRE SAFETY** have to be taken into account.



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ENERGY EFFICIENCY



ACOUSTIC COMFORT



FIRE SAFETY



RELIABLE LONG-TERM OPERATION



HYGIENE REQUIREMENTS





Building services
account for almost

80%

of commercial buildings'
energy demand

Up to

75%

energy savings
with Armacell
insulation*

CITIC TOWER

Beijing (China)

For a building of superlatives, reliable equipment insulation is crucial to safeguard energy efficiency. The 108-storey, 528-metre high Citic Tower in Beijing, popularly known as China Zun, is the tallest building in the Chinese capital and the ninth tallest in the world. The flagship building of Beijing's comprehensively planned 30-hectare central business district core has obtained LEED®-CS Gold Pre-Certification and the China Certificate of Green Building Label-Three Star. As energy efficiency was key to optimise the equipment design and construction, Armacell was commissioned to supply 7,000 cubic metres of ArmaFlex® to insulate the chilled-water pipes and air ducts of China Zun's HVAC systems.

ArmaFlex



* In standard cold applications with
an insulation thickness of 19 mm

INCREASED ENERGY EFFICIENCY WITH ARMAFLEX THERMAL INSULATION



The global building sector is growing at unprecedented rates. According to the International Energy Agency, 230 billion square metres in new construction will be built over the next forty years – adding the equivalent of Paris to the planet every single week. Around 75 percent of Europe's buildings are not energy efficient. Increasing the energy efficiency of new and existing office buildings therefore offers a huge energy- and cost-saving opportunity. Space heating is the most important end-use with cooling demand increasing rapidly. Modern glass facades, which allow plenty of daylight to enter the interior of building complexes, increase the need for cooling in summer and heating in winter.



The good news: By using the energy-saving means available today, the energy demand of a new office building can be lowered by up to 70 percent. In a typical office building heating, cooling, ventilation, hot water and lighting represent almost 80 percent of the total energy use, making these systems the best targets for energy savings. Sustainable office buildings can actually cost less to build, operate and maintain. They can generate substantially more profit and provide economic benefits to all stakeholders.

OUR SOLUTIONS

Tapping the significant potential for energy savings in new and existing office buildings brings benefits in terms of lower energy costs and decreased CO₂ emissions.



With our insulation solutions it is possible to achieve considerable energy savings at comparatively little

expense. It is often wrongly assumed that a well-insulated building shell is a sufficient barrier to prevent energy losses. However, even in modern, well-insulated buildings substantial energy losses occur due to uninsulated or poorly insulated technical infrastructure.

State-of-the-art insulation of mechanical equipment is one of the easiest and most efficient ways to save energy in buildings.

ArmaFlex is our product heritage. This highly flexible, lightweight insulation features a closed-cell structure and combines a low thermal conductivity with an in-built water vapour barrier.

As an independent life-cycle assessment (LCA) revealed, ArmaFlex saves 140 times more energy than is needed for its production. No other energy-saving measure pays off as quickly.

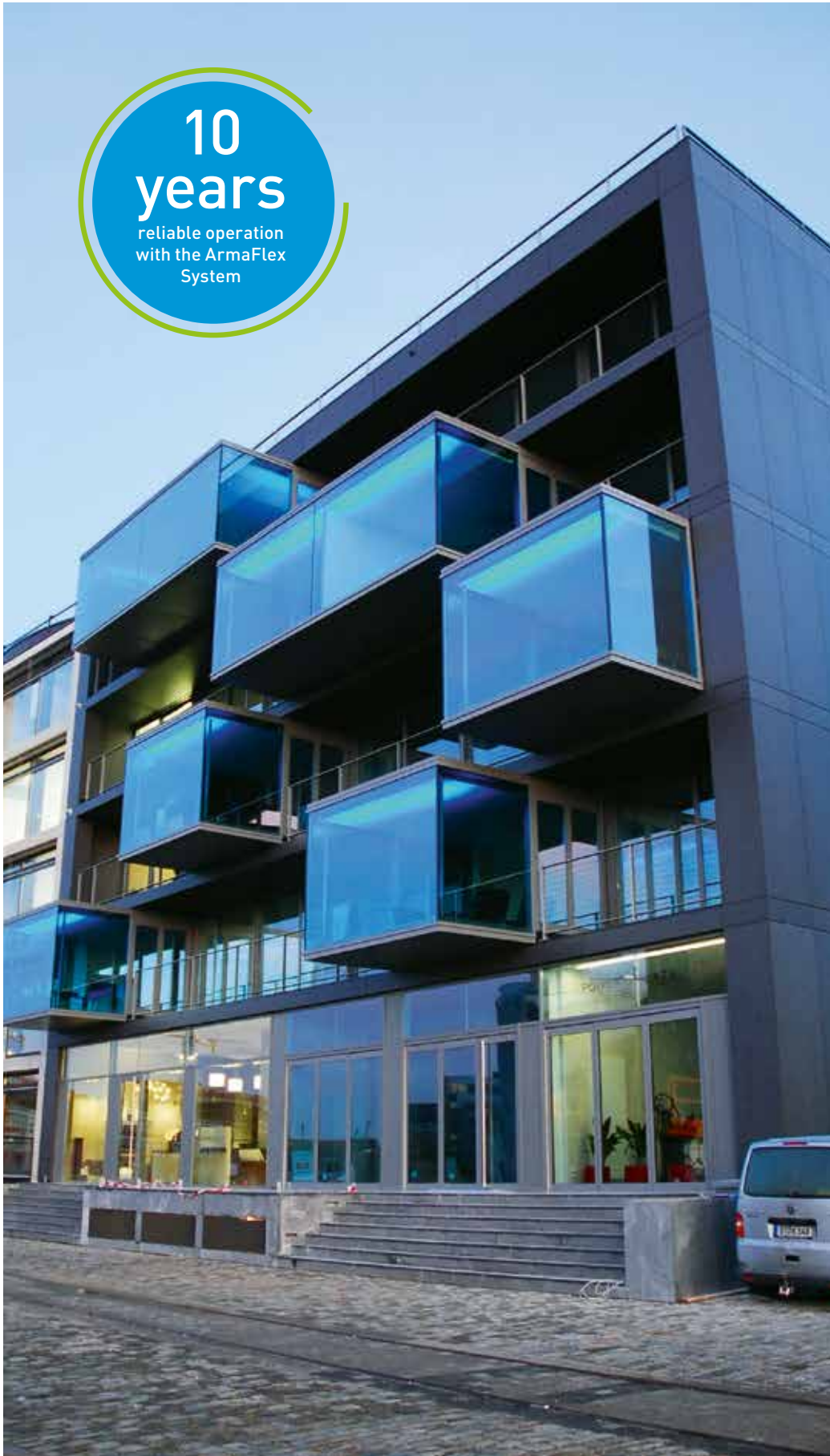
ArmaFlex saves

140

times more energy
than is needed for
its production



10
years
reliable operation
with the ArmaFlex
System



CUBE

Münster (Germany)

Modern, transparent, outstanding. Glass boxes which protrude from the façade over the harbour promenade are the architectural highlight of the Cube office complex built in Münster in 2007. The technical insulation is also outstanding: the heating, hot and cold water pipes were insulated with SH/ArmaFlex to protect them against energy losses. Chilled-water pipes were protected against condensation with AF/ArmaFlex and fire protection seals created with ArmaFlex Protect. Tubolit® AR Fonoblok reduced structure-borne noise transmission from the waste-water pipes. Installing the Armacell products as a system ensures high energy efficiency, reliable fire and structure-borne noise protection. And has been doing for more than 10 years.

AF/ArmaFlex

SH/ArmaFlex

Tubolit

ArmaFlex Protect



RESILIENCE IS CRUCIAL IN OFFICE BUILDINGS. THE POTENTIAL COST OF DOWNTIME IS TOO HIGH TO IGNORE.

Creating a great employee experience is critical to enable work that creates value. According to the Massachusetts Institute of Technology (MIT) a positive work experience results in increased engagement, greater levels of innovation and up to four times higher profits. Thermal comfort and indoor air quality are fundamental for a good office experience and, consequently, employee performance. A breakdown of the heating, ventilation, air conditioning or plumbing systems will not usually bring work to a complete standstill in an office building, but it can lead to an uncomfortable working environment that hinders productivity. Operation downtime can result in loss of revenue and reputation.

For technical installations, condensation is enemy number one: if moisture forms on the surface of pipes or water vapour penetrates the insulation material from the outside, the insulation system has failed. Humidity is the source of many problems: A reduced thermal performance because of humidity intake is often the least of them. Mould, corrosion, structural damage, water dripping from suspended ceilings or disruption of processes due to maintenance work can easily result in huge costs.



Frank Hoffmann
Managing Director of
Hermann Hoffmann GmbH (Münster, Germany)

“We’ve been installing Armacell products very successfully for decades to protect technical installations against energy losses, condensation, corrosion and noise emissions. Quality and service you can rely on.”

RELIABLE,
QUICK AND EASY
INSTALLATION



OUR SOLUTIONS

ArmaFlex is a closed-cell insulation with a high resistance to water vapour transmission. Equipment is reliably protected against condensation and energy losses throughout its service life.



We are a provider of systems where individual components fit perfectly together and are tested as a system. ArmaFix® pipehangers, our ArmaFlex Protect and ArmaProtect® passive fire protection solutions, flexible Arma-Chek®

claddings and ArmaFlex adhesives complement and strengthen the system to guarantee long-term functionality.

To ensure professional installation we developed a unique concept: trained ArmaFlex installation partners can be certified by Armacell and receive an extended warranty on AF/ArmaFlex products. In many European countries this certification has established itself as a seal of quality.





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LA TOUR LA MARSEILLAISE

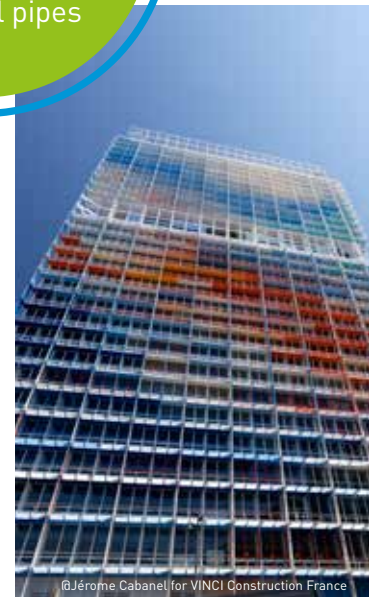
Marseille (France)

30 shades of blue, white and red: the office tower “La Marseillaise” is reminiscent of the French flag and evokes the typical colours of the region. By aiming for environmental excellence (HQE Excellent and Leed Gold certifications), the new landmark asserts itself at the leading edge of sustainable development. A key requirement in the specification was acoustic comfort. To minimise noise from waste-water pipes they were insulated with ArmaComfort® Alu Plus.

ArmaComfort Alu Plus

ArmaFlex

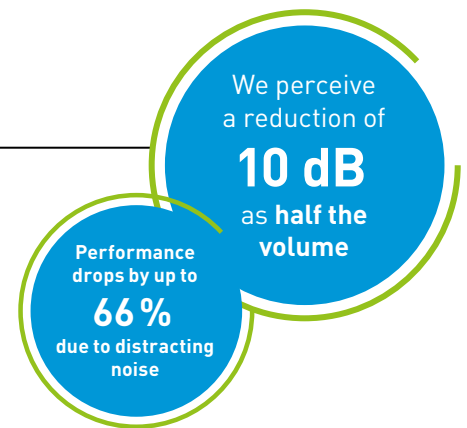
Noise
reduction of
22 dB(A)
with ArmaComfort
AB Alu Plus on
horizontal pipes



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ENHANCED OFFICE ACOUSTICS INCREASE PRODUCTIVITY

Noise is the single most disturbing factor for the majority of employees working in open-plan offices. Acoustics affect our performance. Noise levels of 60 to 65 dB which are common in open-plan offices well exceed the 55 dB recommended for intellectual work. By creating workplaces with good acoustics, communication, concentration and productivity can be increased, stress levels reduced and overall employee satisfaction improved.



A QUIETER
WORKPLACE CAN
BOOST EMPLOYEE
SATISFACTION AND
INCREASE
WORKPLACE
EFFECTIVENESS.

OUR SOLUTIONS

We offer comprehensive solutions for enhanced sound control on mechanical equipment and structural building elements. Our systems provide an effective means of sound



absorption or damping, and acoustic improvements can often be combined with the required thermal insulation.

Our ArmaFlex and Tubolit products have very good structure-borne sound insulation properties on small pipe diameters. As a system with ArmaFix pipehanger, ArmaFlex acoustically decouples pipes and ducts from the building structure and thus prevents the transmission of structure-borne noise into the building. Our high-performance, multi-layer ArmaComfort AB solutions provide both sound reduction

and acoustic decoupling of waste-water and rainwater pipes. Our latest innovation creates new types of acoustic barriers with excellent transmission reduction and ultra-thin thicknesses. ArmaComfort Barrier products allow space-saving sound attenuation of new and existing building constructions and mechanical equipment.

For applications which demand a high noise absorption, such as housings for emergency power generators, heat pumps and power plants, the open-cell acoustic foam ArmaSound® RD is the ideal solution.



In comparison to conventional products, our multi-layer ArmaComfort AB products achieve greater noise reduction with thinner wall thicknesses.



Our dust-
and fibre-free
insulation protects
against micro-
organisms



EMPIRE STATE BUILDING

New York (USA)

An icon like the Empire State Building moves with the times. The extensive LEED Gold certification process involved all areas of the building being carefully benchmarked to identify energy-saving potential. Although ArmaFlex had been installed years before on airducts, it did not require replacement as the fibre-free insulation was (and still is) delivering energy efficiency, indoor air quality protection and noise attenuation.

ArmaFlex



IN PARTNERSHIP WITH ARMACELL, OFFICE FACILITIES CAN STRIVE FOR TOP-NOTCH INDOOR AIR QUALITY.

Unprotected
surface



Protected with
Microban®



HEALTH, WELL-BEING AND PRODUCTIVITY

A healthy workplace is vital for employee productivity and the long-term success of any company. The air quality in office environments varies and occupants can be exposed to a range of airborne pollutants such as dust, irritants, pathogens, unpleasant odours, mould and mildew and other contaminants. Excess moisture in combination with dust and dirt particles provides an ideal breeding ground for microbial growth. The health implications associated with poor indoor air quality – from respiratory problems to infections – are well established. As studies have shown, improved ventilation and increased outside air rates can improve productivity by up to 11 percent.



Armacell is the only manufacturer of flexible technical insulation materials to provide its premium products with built-in antimicrobial protection: AF/ArmaFlex and SH/ArmaFlex are equipped with Microban®. These antimicrobial additives provide 'proactive' protection against harmful bacteria, mould and mildew.

OUR SOLUTIONS

Dust and fibre-free, ArmaFlex products provide protection against micro-organisms. It is much more difficult for microbes to settle on the smooth, non-porous surface of the elastomeric material than in open-cell mineral fibre and they do not find the nutrients they need to grow.



Due to their closed-microcell structure and high resistance to water vapour transmission, ArmaFlex insulation materials have reliable protection against condensation and moisture ingress. Plus, they have extremely low VOC emissions and can contribute to green building certification schemes.

Large office buildings can pose a particular risk of legionella infections. As a result of the Covid 19 pandemic shutdown, the water temperature in the plumbing systems of non-operational buildings could decrease and the risk for growth and spread of Legionella and other biofilm-associated bacteria increase. Our ArmaFlex and Tubolit insulation protect hot and cold water pipes against unacceptable temperature fluctuations which can lead to a contamination with legionella and pseudomonas aeruginosa bacteria.





10
times less
smoke with
ArmaFlex
Ultima

FIRES CAN NEVER BE COMPLETELY RULED OUT AND THEY OCCUR UNEXPECTEDLY. PROTECTING YOUR INVESTMENT AND EMPLOYEES AGAINST FIRE BREAKOUTS IS CRUCIAL.

FIRE SAFETY IS THE TOP PRIORITY

Business owners usually do not think of a fire destroying their company or offices. They are more worried about less tangible threats, such as downward trends in their industry or economy. If a fire hits a commercial building, it can cause great losses. According to the US National Fire Protection Agency, 112,000 fires in non-residential buildings and a loss of \$778 million in store and office properties were reported in 2018. In office buildings, fires are most likely to break out during regular work hours, thus endangering the lives and health of employees.

In the event of a fire, smoke poses a much greater threat than the fire itself: 95 percent of fire fatalities die as a result of smoke inhalation. If a fire breaks out in a building, low smoke density can mean the difference between life and death.





OSTERWALDER TOWER

Zurich (Switzerland)

A successful symbiosis of space planning and energy efficiency, the Osterwalder Tower forms a new, modern landmark in the north of Zurich. The asymmetrical double building was certified according to the Swiss Minergie standard. Fire protection was a top priority in the planning: ArmaFlex Ultima was used to insulate the cooling and sanitary installations and the pipes were sealed off with ArmaFlex Protect.

ArmaFlex Ultima

ArmaFlex Protect



Michael Doswald

Delegate of the Management Board and CEO
of Osterwalder Immobilien Zürich AG

“We are always keen to incorporate the latest technology in our planning. In the event of fire, ArmaFlex Ultima releases only a minimum amount of smoke and meets the ecological and health requirements of Minergie-Eco.”

OUR SOLUTIONS

At Armacell, safety comes first and maximum reliability is crucial. Our systems increase the fire safety in buildings. By mitigating the fire and smoke risk, they improve visibility and respiration, thus extending the time to safely evacuate a building in the event of a fire.



With ArmaFlex Ultima we have set a new safety standard in technical insulation. Based on the patented ArmaPrene® technology, ArmaFlex Ultima is the first flexible technical insulation material in the world with fire class B₁-s1,d0. In comparison to a standard elastomeric product, the flame-resistant insulation material exhibits 10 times less smoke.

To prevent fire spreading from one room to another, passive fire protection has a significant impact on safety in office facilities. ArmaFlex Protect and ArmaProtect systems have fire-stopping components which seal off pipe penetrations in fire-resistant walls or floors.



AT YOUR SERVICE



At Armacell, we are committed to creating an exceptional customer experience. We understand the challenges in today's construction industry and are here to help you complete your projects successfully. From the planning stage to the handover – our 360° service supports you throughout. At Armacell, we do all we can to ensure your project runs smoothly.

ARMACELL APPLICATION TRAINING

No other insulation material can be installed as reliably, neatly, simply and as fast as ArmaFlex solutions. To ensure that our thermal and acoustic insulation materials are installed properly, Armacell has trained thousands of installers around the world. Special training centres have been set up at many locations and we also provide valuable support on site. Several thousand insulators attend courses on installing Armacell products every year and are awarded the ArmaFlex application certificate.

EPDs FOR SUSTAINABLE BUILDING ASSESSMENT

Armacell is the first manufacturer of flexible technical insulation materials to present third-party verified environmental product declarations (EPDs). They are based on an independent lifecycle assessment (LCA) and are the key to designing green buildings in accordance with green-building schemes, such as LEED, BREEAM®, DGNB, HQM, and others.

ARMWIN – PROFESSIONAL INSULATION CALCULATIONS

With our powerful ArmWin software you can carry out all common technical calculations in HVAC applications - even on the building site, thanks to the app. You can easily determine not only the minimum insulation thickness required for condensation control, but also surface temperature, heat flow, temperature changes in flowing and stationary media, freezing times for water pipes and the most economical insulation thicknesses, i.e. those with the shortest pay-back periods.



ArmWin
All technical insulation calculations in one tool.

BIM PLUG-IN FOR PLANNING TECHNICAL INSULATION



The future of construction is digital: Business Information Modelling (BIM) allows buildings to be planned, built and operated digitally from design to commissioning, maintenance, demolition and disposal. Armacell's BIM plug-in is seamlessly integrated in the AutoDesk® Revit® program and provides key product information. The software accesses the data required directly in the model and supports the user in choosing and configuring products.

OFFICE BUILDINGS AROUND THE WORLD ARE RELYING ON OUR PROVEN SOLUTIONS



TRACK
RECORD

To name just a few of the **successful projects.**

// China

Citic Tower, Beijing
KK100, Shenzhen
Guangzhou International Finance Centre (ICF)

// Czech Republic

BB Centrum, Prague
Main Point Karlin, Prague

// France

La tour la Marseillaise, Marseille
Poste du Louvre, Paris
Grand Central Saint Lazare, Paris
Tour Alto, Paris
Pont d'Issy, Paris
Urban Garden, Lyon
Archipel, Nanterre

// Germany

Airbus, Ingolstadt
Arcadia Stern, Düsseldorf
B:HUB, Berlin
Bayrischer Rundfunk, München
Beiersdorf Campus, Hamburg
Cube, Münster
DB Tower, Frankfurt
FOUR, Frankfurt
Multiscale Imaging Centre (MIC), Münster
Nobilis, Paderborn
Olympus Campus, Hamburg
Stream Tower, Berlin

// Kingdom of Saudi Arabia

MOI Headquarters, Jeddah

// Kuwait

KIPIC Al-Zour NRP, Zour
Gulf Consult, Kuwait City

// Netherlands

Share Building in Park 20|20, Hoofddorp

// Oman

Institute of Public Administration, Muscat
Royal Oman Police - Officers Club, Muscat

// Poland

Bałytk, Poznań
Mennica Legacy Tower, Warsaw
West Station, Warsaw
Posejdon, Szczecin
Varso, Warsaw

// Romania

Swan Office & Technology Park, Bucharest
Skanska - Campus & Equilibrium, Bucharest
The Mark, Bucharest
AFI Park, Brasov
Park Lake, Bucharest
Orhideea Tower, Bucharest
The Bridge, Bucharest

// Sweden

Sergelhuset, Stockholm
SKF Headquarters, Gothenburg
Sveriges Radio Headquarters, Stockholm
SKY City Office One, Stockholm
Urban Escape, Stockholm
Vattenfall Headquarters, Solna

// Slovakia

Zuckermandel, Bratislava

// Singapore

Fusionopolis
SBF Center
ARC 380

// Spain

Torre Caleido, Madrid
Edificio Oficina Airbus, Getafe
Complejo Oficina A2 Plaza, Madrid
Edificio oficinas M-30, Madrid
Edificio Zara.com, Arteixo

// Switzerland

Osterwalder Tower, Zurich

// Turkey

Vadikoru, Istanbul
Seba Flats, Istanbul
Nevbahar, Istanbul
Vadi, Istanbul
Seba Flats, Ayazağa
Central Balat, Bursa
Sinpaş Kağıthane Flats, Istanbul
La Marin, Istanbul

// United Arab Emirates

Jafza-3, Dubai
Bee'ah Headquarters, Dubai
GV11, Dubai
Sol Bay Tower, Dubai

// United Kingdom

Goldman Sachs HQ, London
Devonshire Square Offices, London
Atlantic Square, Glasgow
Central Capital Square Offices, Cardiff
Calendar Park 3 Towers, Falkirk

// USA

Empire State Building, New York, NY
555 Mangum, Durham, NC
Chase Center, San Francisco, CA
Kirkland Urban, Kirkland, WA
One Glenwood, Raleigh, NC
Waterfront Corporate Campus, Renton, WA

// Vietnam

Kumho Asiana Plaza, Ho Chi Minh City

SMART SOLUTIONS FOR YOUR BUSINESS

Enjoy the benefits of our excellent customer service.

All over the world, our customers rely on sales representatives, technical consultants and applications engineers.

Your project demands more. You deserve the best solution. Get the original closed-cell thermal and acoustic solutions from Armacell.

All data and technical information are based on results achieved under the specific conditions defined according to the testing standards referenced. Despite taking every precaution to ensure that said data and technical information are up to date, Armacell does not make any representation or warranty, express or implied, as to the accuracy, content or completeness of said data and technical information. Armacell also does not assume any liability towards any person resulting from the use of said data or technical information. Armacell reserves the right to revoke, modify or amend this document at any moment. It is the customer's responsibility to verify if the product is suitable for the intended application. The responsibility for professional and correct installation and compliance with relevant building regulations lies with the customer. This document does not constitute nor is part of a legal offer or contract. By ordering/receiving product you accept the **Armacell General Terms and Conditions of Sale** applicable in the region. Please request a copy if you have not received these. At Armacell, your trust means everything to us, so we want to let you know your rights and make it easier for you to understand what information we collect and why we collect it. If you would like to find out about our processing of your data, please visit our **Data Protection Policy**.

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ABOUT ARMACELL

As the inventors of flexible foam for equipment insulation and a leading provider of engineered foams, Armacell develops innovative and safe thermal, acoustic and mechanical solutions that create sustainable value for its customers. Armacell's products significantly contribute to global energy efficiency making a difference around the world every day. With 3,135 employees and 24 production plants in 16 countries, the company operates two main businesses, Advanced Insulation and Engineered Foams. Armacell focuses on insulation materials for technical equipment, high-performance foams for high-tech and lightweight applications and next generation aerogel blanket technology. For more information, please visit www.armacell.com

For product information, please visit:
www.armacell.eu


MAKING A DIFFERENCE AROUND THE WORLD