

Patriarche.

Engineering: an integrated approach to addressing project complexity

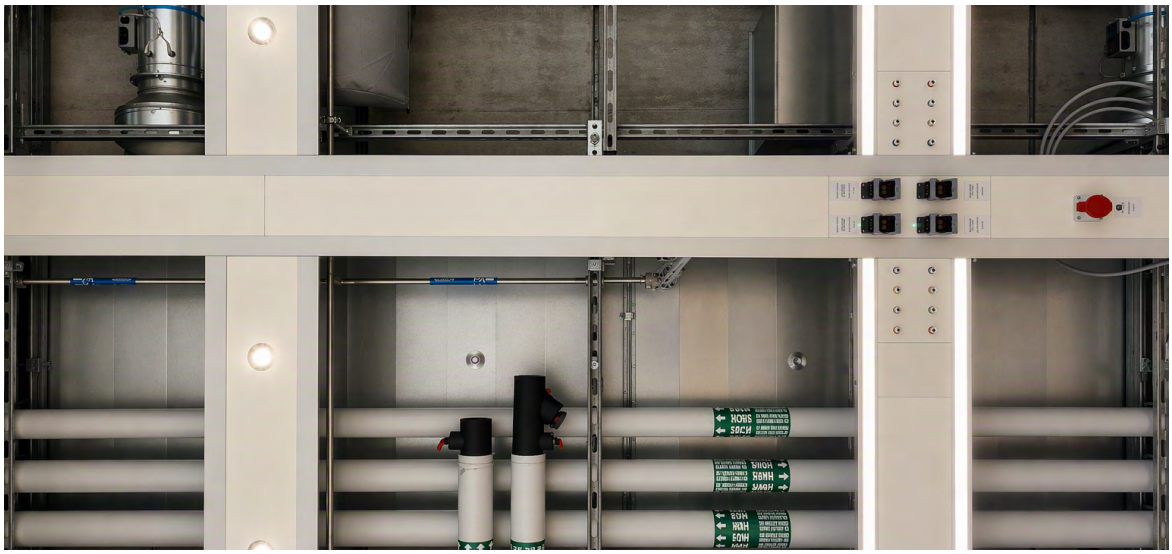
Since its creation, Patriarche has placed engineering at the heart of its practice.
The complexity of projects, the diversity of uses, regulatory requirements, environmental challenges and increasingly technical programmes have naturally led the agency to develop a model of augmented architecture, in which architects and engineers work closely together.
This approach makes it possible to anticipate constraints, optimise choices and turn complexity into an opportunity for design.

Engineering is therefore embedded within an integrated design process that brings together all the necessary expertise: technical, environmental, economic and operational. It becomes a fundamental component of the project, contributing fully to both its performance and its design.



Architects and engineers form a core around which a wide range of disciplines come together: urban planners, model makers, landscape architects, visualisation specialists, real estate operators, service providers, narrative designers, graphic designers...

This multidisciplinary platform harnesses collective intelligence to create holistic, flexible and highly functional projects.



Utility cross, flexible laboratory - © Patriarche

Expertise for demanding environments

Patriarche has developed expertise in highly technical fields characterised by stringent and evolving constraints: laboratories, industrial environments, defence, aeronautics, digital infrastructure and healthcare.

These contexts require in-depth knowledge of regulatory requirements, processes, flows and technical systems, as well as the ability to integrate constantly evolving environments. Supported by a multidisciplinary platform, the engineering team brings together specialist expertise to design tailored, robust and flexible solutions capable of meeting the most demanding requirements while supporting long-term sustainability and overall performance.

Co-designing with the client

At Patriarche, each project is developed through constant dialogue with the client and with the needs of users at its core.

Engineers and architects adopt a co-design approach based on listening, exchange and iteration, allowing needs to be progressively refined and solutions adjusted throughout the project.

This method helps create tailored responses that reflect real-world challenges and uses.

Through effective collaborative tools and a strong capacity for adaptation, the agency continuously supports the project as it evolves, integrating technical, regulatory and economic constraints.

Sustainable and adaptable projects

In a rapidly changing world, engineering must make it possible to anticipate, adapt and enable projects to evolve over time.

Engineers and architects therefore design projects that can respond to changing conditions and accommodate different uses.

Patriarche considers the entire building life cycle, from design through to operation.

This holistic approach brings together technical requirements, environmental impact and quality of use to create sustainable, resilient projects that can adapt to future transformations.



100+

Engineers are part of Patriarche's teams around the world.

Expertise to design, control and evolve projects

Our engineering teams bring together a range of complementary technical skills, applied at every stage of the project, from design through to construction.

Project management

Project management forms the backbone of each project. The project manager, whether an architect or engineer, is the client's primary point of contact and coordinates all disciplines. They ensure that cost, schedule, quality and risk management objectives are met, while maintaining dialogue with partners, contractors and administrative authorities.

Construction economics

Cost consultants support projects from feasibility through to delivery, ensuring budget control and the economic relevance of design choices. Drawing on in-depth market knowledge, lessons learned and data from tender processes, they provide reliable cost estimates and optimise costs in close collaboration with the design teams.

Environmental quality (QEB)

Environmental engineering is integrated into every phase of the project, with a comprehensive approach to performance and sustainability. Multi-criteria analysis, simulations, life cycle assessment (LCA) and certification processes make it possible to optimise projects while balancing comfort, carbon impact, whole-life cost and long-term adaptability.

BIM management

BIM lies at the heart of Patriarche's collaborative methodology. The digital model centralises all project data, enabling every stakeholder to work collaboratively. It facilitates coordination, clash detection and the monitoring of design and construction phases, while providing a valuable resource for building operation and maintenance.

Infrastructure and utilities (VRD)

The VRD teams ensure that each project is effectively integrated into its environment by designing infrastructure, utility networks and external works. They cover earthworks, water management, roads, and dry and wet utility networks, while addressing the technical, regulatory and environmental constraints specific to each site.

Structural engineering

Involved from the earliest design stages, structural engineering supports architectural choices and ensures project feasibility. It covers the design, sizing and assessment of a wide range of structures, including concrete, timber, steel and hybrid systems, as well as issues relating to refurbishment, safety and structural performance.

HVAC, plumbing and specialist fluids

HVAC engineering and fluid systems play a key role in user comfort and building performance. Our teams design optimised systems integrating thermal comfort, air quality, water management and energy performance, while meeting the requirements of complex environments such as laboratories, industrial facilities and healthcare facilities.

Electrical engineering (high and low voltage systems)

Engineers design electrical infrastructure, communication networks, security systems and building control systems. These installations, including power supply, lighting, BMS and safety systems, are integrated from the design stage to ensure performance, reliability and consistency with the architecture and intended uses.

Clean concept

The "clean concept" encompasses expertise in controlled environments, including laboratories, cleanrooms and spaces subject to stringent regulatory requirements. It is based on a multidisciplinary approach combining engineering, processes, regulations and user needs to design high-performance, flexible spaces tailored to the constraints of scientific and industrial sectors.

Engineering tailored to every sector and every level of complexity

Thanks to its integrated model and complementary areas of expertise, Patriarche works across a wide range of projects, from commercial buildings to critical environments. Each sector comes with its own specific constraints, which our engineering teams address through dedicated approaches combining technical performance, an understanding of user needs and adaptability.

Digital infrastructure

COMPUTE CENTER · AI CAMPUS

Patriarche designs critical digital infrastructure characterised by stringent requirements for continuity, security and energy performance.

Engineering plays a central role, particularly in power management, cooling, system redundancy and infrastructure resilience.

We design optimised technical architectures that address sovereignty, sustainability and local integration, ensuring reliable, scalable facilities tailored to the growing demand for computing power and data storage.



Le Bosquel AI site - France - © Patriarche, AI-enhanced



Sartorius Campus in France - Aubagne (FR) - © Denis Caviglia

Laboratories and controlled environments

LIFE SCIENCES · HEALTHCARE & PHARMACEUTICALS · COSMETICS · FOOD & BEVERAGE · MICROELECTRONICS & HIGH-TECH · ENERGY & NEW TECHNOLOGIES

Patriarche designs highly technical environments where control over processes, flows and regulatory constraints is essential.

Engineering addresses stringent requirements, including atmosphere control, differential pressure management, health and safety, operational continuity and compliance with specific standards.

Through a multidisciplinary approach and its “clean concept” expertise, the teams develop high-performance, flexible and adaptable spaces, including laboratories, cleanrooms and technical platforms, capable of supporting the rapid evolution of scientific and industrial activities.

Industry

AERONAUTICS · AUTOMOTIVE ·
DEFENCE · ENERGY · TECHNOLOGY

Patriarche designs complex industrial sites that integrate the entire value chain, from production to associated office and support functions.

Engineering challenges include process control, flow optimisation, the integration of technical constraints and environmental performance.

Patriarche develops robust, adaptable infrastructure capable of supporting industrial transformation by combining operational efficiency, technological innovation and spatial flexibility.



Dassault site - Mérignac (FR) - © C. Cosmao

Tertiary

OFFICES · PUBLIC FACILITIES ·
HOSPITALITY · EDUCATION · HOUSING

Patriarche develops tertiary projects designed as adaptable living and working environments, capable of responding to changing uses and occupancy patterns.
For engineers, the key challenges include spatial flexibility, energy performance, user comfort and cost control.

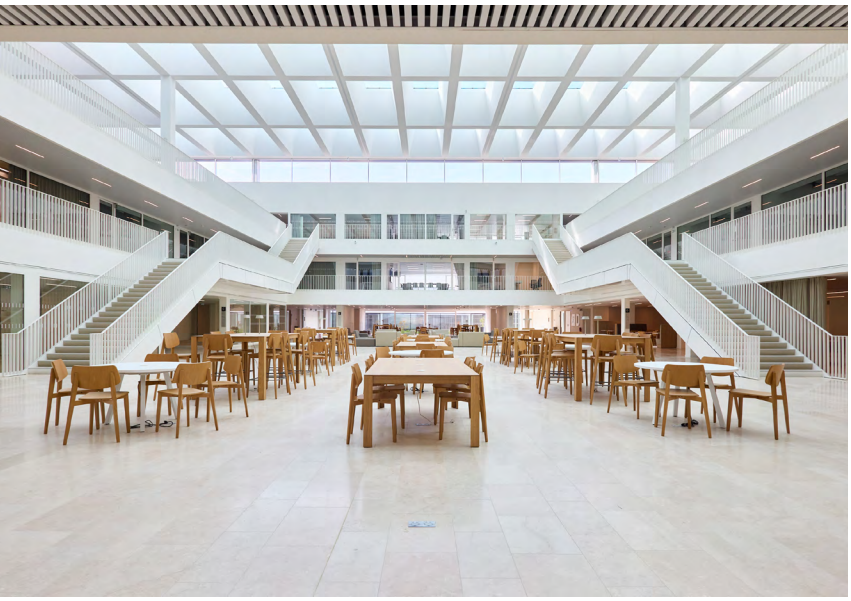
They design robust, modular technical systems that integrate flow management, indoor environmental quality and energy consumption monitoring to deliver high-performance, sustainable buildings centred on the user experience.

Refurbishment

ENERGY RETROFIT · HERITAGE RENOVATION ·
EXTENSION · VERTICAL EXTENSION

Working with existing buildings requires an in-depth understanding of their structures, systems and potential for transformation.
Engineering must address structural, technical and operational constraints while integrating key challenges related to carbon reduction and continuity of use.

Our teams develop tailored strategies based on assessment, energy optimisation, reuse and system adaptation to extend the lifespan of buildings and support evolving uses.



CentraleSupélec - Gif-sur-Yvette (FR) - © FocusKpture



Unesco - Paris (FR) - © Nicolas Grosmond

A selection of our projects

Digital infrastructure


© Patriarche, AI-enhanced

Site IA Le Bosquel

SOFTBANK, SESTERCE

Ongoing - Le Bosquel (80), France

Project engineering

- 60 to 120 MW technical pods.
- Free cooling, air cooling and direct liquid cooling.
- Thermal optimisation and heat recovery.
- A scalable, multi-phase project designed to support increasing computing capacity.


© Edouard Decam

Ecotox

SESTERCE, AIRE NOUVELLE, BART | PATRIARCHE

12 670 m²

Ongoing - Alixan (26), France

Project engineering

- Installable capacity: 40 MW.
- Data center equipped with 40,000 GPUs.
- Training spaces dedicated to artificial intelligence.
- Reuse of generated heat.


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Villeneuve-le-Roi

AIRE NOUVELLE ET BART | PATRIARCHE

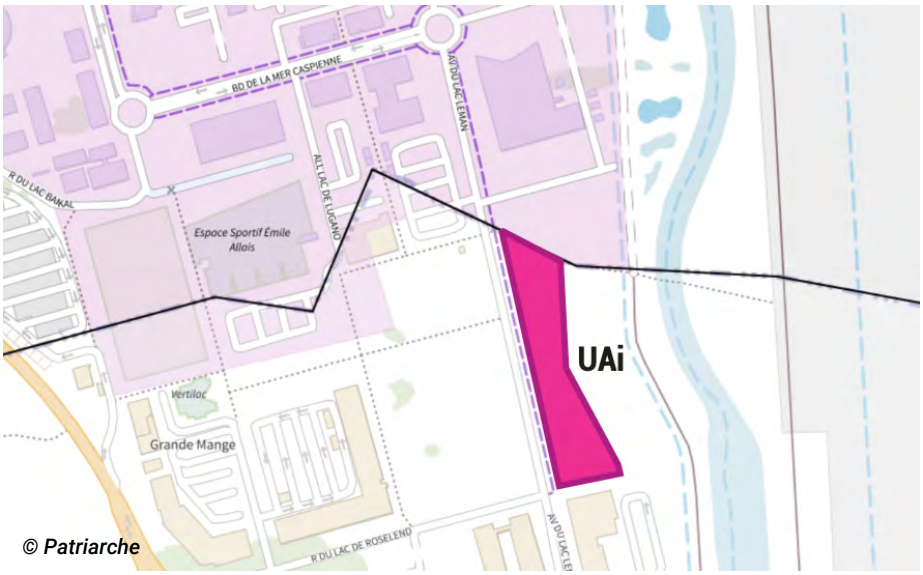
16 200 m²

Capacity study

Villeneuve-le-Roi (94), France

Project engineering

- Total IT capacity of 72 MW.
- 12 PODs totalling 2,420 m² of floor area.
- Technical areas comprising IT rooms, CRAH cooling units, electrical power supply units and transformers.
- GPU-optimised, designed for compute-intensive applications such as AI and deep learning.



© Patriarche

Technolac Data Infrastructure

CONFIDENTIAL

6 500 m²

Le Bourget-du-Lac (73), France

Project engineering

- Studies of various scenarios ranging from 12 MW IT to 24 MW IT.
- GPU-optimised, designed for compute-intensive applications such as AI and deep learning.
- Strategic location fostering synergies with the local economic and educational ecosystem.



© Patriarche

Laval Data Infrastructure

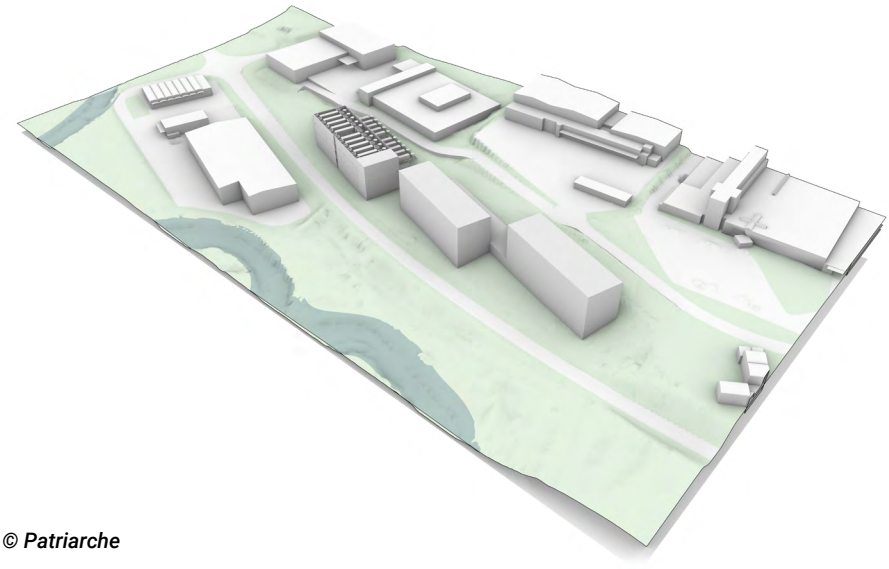
CONFIDENTIEL,
BART | PATRIARCHE

5975 m²

Ongoing - Laval (53), France

Project engineering

- 50 MW capacity.
- Site with strong development potential for industrial and technology projects.


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Bussigny Data Infrastructure

HIAG IMMOBILIEN AG

44 738 m²

Pre-leasing - Bussigny (VD), France

Project engineering

- Project engineering
- 20 to 60 MW delivered in successive phases.
- Closed-loop water cooling system.
- Recovery of heat generated by the cooling system to supply industrial processes and the district heating network.

Laboratories and controlled environments



Biotech development center

CONFIDENTIAL

16 000 m²

€80M, €250M investment

Delivered in 2023 - Corsier-sur-Vevey (VD), Switzerland

Project engineering

- Grade C and D bioproduction cleanrooms
- R&D Flexlab
- Biosafety Level 2 (BSL-2) laboratory
- Cooling tower
- Heat pumps
- Industrial steam production: 2,500 kg/h
- Compressed air production: 950 Nm³/h



Biotechnology production facility

CONFIDENTIAL

5 781 m²

€38M

Delivered in 2024 - Switzerland

Project engineering

- Grade C and D cleanrooms
- Industrial steam production: 3,900 kg/h
- Compressed air production: 1,800 Nm³/h
- AHU: 122,000 m³/h of treated air



La Timone

AIX-MARSEILLE UNIVERSITY

20 000 m²

€18M

Delivered in 2024 - Marseille (13), France

Project engineering

- Replacement of the oil-fired boiler plant with a gas-fired boiler plant
- Heating and chilled water production using hybrid VRF systems
- Heat recovery AHUs
- Dedicated make-up air system for laboratory fume cupboards



Sartorius Campus in France

SARTORIUS STEDIM BIOTECH

65 000 m²

€86M

Delivered in 2025 - Aubagne (13), France

Project engineering

- Heating and chilled water substations connected to a centralised heat pump system
- Reversible radiant panels
- Free cooling
- Energy recovery from compressed air production
- Centralised domestic hot water production using CO_2 heat pumps



Le Mistral

SAFRAN ELECTRONICS & DEFENSE, CDC - CRÉDIT AGRICOLE - MUTUALIA, BART I PATRIARCHE

4 655 m²

€15.3M

Delivered in 2021 - Valence (26), France

Project engineering

- Project engineering
- Chilled water production via 500 kW air-cooled condensing chiller
- ISO 7 cleanroom
- Chilled water loop
- Production of reverse osmosis water, nitrogen, hydrogen-enriched nitrogen and vacuum
- Compressed air production with energy recovery



Vivacy XL

VIVACY

3 035 m²

€4.9M

Delivered in 2023 - Archamps (74), France

Project engineering

- Project engineering
- Heating and cooling production via heat recovery VRF systems
- Heat recovery AHUs
- Fan coil units
- Heat recovery rooftop unit with air distribution via micro-perforated metal ducting
- Compressed air production and distribution

Laboratories and controlled environments



Santenov

DIJON MÉTROPOLE, SANTENOV DIJON BOURGOGNE, BART I PATRIARCHE, LÉON GROSSE IMMOBILIER

9 300 m²

€17M investment

Ongoing - Dijon (21), France

Project engineering

- Heating substation
- Cooling production with energy recovery
- Heat recovery AHUs and laboratory air treatment
- Extraction systems for cabinets and fume cupboards
- BMS
- Rainwater harvesting



Boiron

BOIRON

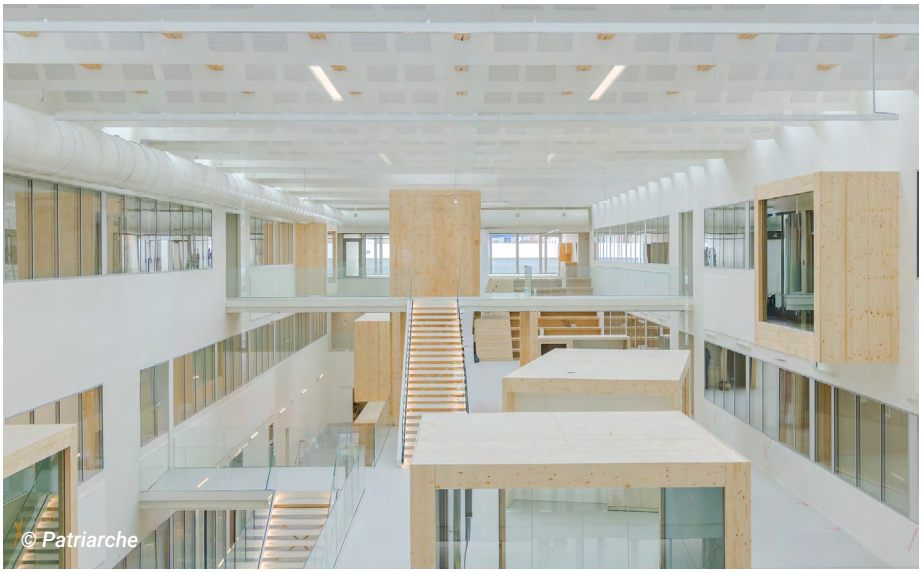
2 400 m²

€4.7M

Delivered in 2019 - Lille (59), France

Project engineering

- Chilled water production
- VRF system for the office area
- Cleanroom air treatment
- Fresh air AHU / dehumidification
- Air distribution via textile ducts and micro-perforated metal ducts
- Terminal coils
- Propane gas distribution



NTN Europe

NTN-SNR ROULEMENTS

10 000 m²

€28.5M

Delivered in 2026 - Annecy (74), France

Project engineering

- Heating and chilled water production using heat pumps and thermal dry coolers
- Air treatment for controlled-environment laboratories
- ISO 9 room qualification
- Free cooling
- Specialist gases: nitrogen, helium, argon, oxygen and propane



The Hive - Kadans

KADANS SCIENCE PARTNER

4 100 m²

€25M (€1,000/m² of fitted-out space)

Delivered in 2026 - Villejuif (94), France

Project engineering

- Specialist utilities distribution: compressed air, CO_2 and N_2
- 316L stainless steel laboratory networks
- CO_2 / oxygen depletion detection and safety systems
- Centralised BMS and metering of technical systems
- Cat. 6A digital infrastructure, fibre optics and Cisco active network
- Backup power supplies and access control systems adapted to laboratory spaces



Bioaster

IRT BIOASTER

5 830 m²

€11.5M

Delivered in 2015 - Lyon (69), France

Project engineering

- Cleanrooms, including a BSL-3 laboratory
- HVAC and air treatment systems designed for contained environments
- Production and distribution of specialist utilities
- Centralised BMS/BAS and monitoring of critical equipment
- Cooling production and independent cold rooms
- On-site treatment of laboratory effluents



GenoLife

BART | PATRIARCHE

140 000 m²

Ongoing - Évry-Courcouronnes (91), France

Project engineering

- Dedicated 100% fresh air treatment for laboratories
- Dedicated extraction for fume cupboards and ventilated cabinets
- Centralised heating and cooling production
- Centralised BMS and energy metering of technical equipment
- Standard and backup power supplies dedicated to laboratories
- ICT and fibre-optic infrastructure across the different levels

Industry



Naval

NAVAL GROUP

17 000 m²

Ongoing - La Londe-les-Maures (83), France

Project engineering

- Heating and chilled water production using heat pumps and reversible heat pumps
- Free cooling
- Energy recovery from compressed air production
- Laboratory areas with controlled temperature and humidity
- Rainwater harvesting for sanitary facilities



grEEn-campus

STELLANTIS, GROUPEMENT GA SMART BUILDING, CRÉDIT AGRICOLE IMMOBILIER CORPORATE ET PROMOTION, EQUINOX ET PROGRAMA

72 000 m²

Delivered in 2025 - Poissy (78), France

Project engineering

- Heating and chilled water production using air-to-water heat pumps and chillers
- Heating capacity: 2,700 kW
- Cooling capacity: 1,800 kW
- BMS installation



Dassault Aviation

DASSAULT

25 800 m²

€60M

Delivered in 2021 - Mérignac (33), France

Project engineering

- Heating production via a heating substation connected to the site's district heating network
- Cooling production via water-to-water chillers
- Compressed air production
- BMS



Simond

SIMOND GROUPE DECATHLON

3 800 m²

€3.6M

Delivered in 2020 - Chamonix (74), France

Project engineering

- Heating production using gas boilers in cascade
- Heat recovery AHUs
- Air distribution via micro-perforated metal ducts



HDF FACTORY

HYDROGÈNE DE FRANCE

7 170 m²

€14M

Delivered in 2024 - Blanquefort (33), France

Project engineering

- Heating and cooling production via heat recovery VRF systems
- Heat recovery AHUs
- Fan coil units
- Heat recovery rooftop unit with air distribution via micro-perforated metal ducts
- Compressed air production
- Nitrogen distribution



U8

FOURNIER

20 000 m²

€60M

Delivered in 2023 - Alex (74), France

Project engineering

- Heating production via biomass boiler plant, heating capacity: 4.5 MW
- Air treatment for production halls via rooftop units, cooling capacity: 2 MW
- Air distribution via micro-perforated ducts
- Compressed air distribution
- Siphonic rainwater drainage system

Refurbishment



69 - 71 Beaubourg

AEW

3 000 m²

€4.8M

Delivered in 2021 - Paris (75), France

Project engineering

- Complete refurbishment of HVAC and plumbing systems
- Heating and cooling production via VRF systems
- Heat recovery AHUs



CAVBS

COMMUNAUTÉ D'AGGLOMÉRATION VILLEFRANCHE BEAUJOLAIS SAÔNE

3 650 m²

€10M

Ongoing - Villefranche-sur-Saône (69), France

Project engineering

- Complete refurbishment of HVAC systems
- Heating production via a substation connected to the district heating network
- Passive cooling using adiabatic AHUs and ceiling fans
- Hot-water radiant ceiling panels



Saint-Gervais Thermal Baths

L'ORÉAL

4 480 m²

€4.8M

Delivered in 2018 - Saint-Gervais (74), France

Project engineering

- Refurbishment of thermal water plumbing systems
- Refurbishment of HVAC and plumbing systems



ECLA

OCEANIS DEVELOPPEMENT

20 500m²

€40M

Delivered in 2025 - Archamps (74), France

Project engineering

- Refurbishment of HVAC and plumbing systems
- Creation of a tempered water loop using gas boilers, heat pumps and dry coolers
- Water-to-water heat pumps connected to the water loop
- Capacity: 1,200 kW



Unesco

UNESCO

16 711 m²

€25M

Ongoing - Paris (75), France

Project engineering

- Refurbishment of HVAC and plumbing systems in an occupied building, with phased works
- Refurbishment of the CPCU steam substation
- Cooling production via water-to-water chillers connected to adiabatic cooling towers, capacity: 1,200 kW



Notre-Dame de Paris

REBÂTIR NOTRE-DAME

Ongoing - Paris (75), France

Project engineering

- All-utilities technical installations for the site facilities and construction site
- All-utilities technical installations provided for the various trades working inside and outside the cathedral
- Mechanical dust extraction system for the sculptors' workshops

Hospitality



La Cachette

FRIENDLY HÔTEL

6 000m²

€5.6M

Delivered in 2022 - Arc 1600 (73), France

Project engineering

Complete refurbishment of plumbing and ventilation systems



Le Chabichou

GROUPE LAVOREL

5 702 m²

€16.7M

Delivered in 2000 - Courchevel (73), France

Project engineering

- Heating production using oil-fired boilers
- Semi-instantaneous domestic hot water production
- Refurbishment of ventilation systems
- Heat recovery AHUs
- Partial direct expansion air-conditioning system
- Refurbishment of plumbing and sanitary systems



Black Bass

GROUPE LAVOREL

1 902 m²

€3.7M

Delivered in 2019 - Sévrier (74), France

Project engineering

- Heating and cooling production via VRF systems
- Heat recovery AHUs
- Exposed fan coil units
- Swimming pool air and water treatment
- Hammam and sauna installations



© Patriarche

M. Le Baron Hotel

CASINO GRAND CERCLE

3 514 m²

€18.5M

Ongoing - Aix-les-Bains (73), France

Project engineering

- Heating and cooling production via heat recovery VRF systems
- Heat recovery AHUs
- Fan coil units
- Greywater recovery and recycling


© Julius

Villa Colette

SNC VILLA COLETTE – GROUPE LT

1 800 m²

€10M

Delivered in 2026 - Lège-Cap-Ferret (33), France

Project engineering

- Heating production using condensing gas boilers
- Sludge removal from existing systems
- Heat recovery AHUs
- Hybrid ventilation for the residential building


© Romuald Nicolas

Meriadeck

DUVAL DÉVELOPPEMENT

13 270 m²

€14M

Delivered in 2022 - Bordeaux (33), France

Project engineering

- Heating and cooling production via heat recovery VRF systems
- Heat recovery AHUs
- Kitchen ventilation system

Tertiary



Supernova

BART | PATRIARCHE

6 610 m²

€8.5M

Delivered in 2021 - Le Bourget-du-Lac (73), France

Project engineering

- Heating and cooling production via VRF systems housed in an enclosed technical room
- Heat recovery AHUs
- Exposed fan coil units



Yuri

BART | PATRIARCHE

3 600 m²

Delivered in 2022 - Ivry-sur-Seine (94), France

Project engineering

- Heating production via a substation connected to the district heating network
- Air conditioning via an air-cooled chilled water system
- Heat recovery AHUs
- Exposed fan coil units
- Multi-system BMS
- Smart building system



Linklab

GROUPAMA, BART | PATRIARCHE

10 000 m²

€18.3M

Delivered in 2022 - Chambéry (73), France

Project engineering

- Heating production via a heating substation
- Air conditioning via an air-cooled chilled water system
- Heat recovery AHUs
- Exposed fan coil units
- Multi-system BMS



© Nicolas Grosmond

Emmanuel Mounier High School

ÎLE-DE-FRANCE REGION

25 505 m²

€18M

Delivered in 2025 - Châtenay-Malabry (92), France

Project engineering

- Heating production using condensing gas boilers
- Sludge removal from existing systems
- Heat recovery AHUs
- Hybrid ventilation for the residential building


© Patriarche, AI-enhanced

Val des Roses School

CITY OF ALBERTVILLE

3 500 m²

€6.5M

Delivered in 2025 - Albertville (73), France

Project engineering

- Heating production via a substation connected to the district heating network
- Heat recovery AHUs with adiabatic cooling coils for passive cooling
- Radiators and underfloor heating systems


© Romuald Nicolas

Cœur de Maine

ANGERS LOIRE HABITAT

11 000 m²

€19M

Delivered in 2022 - Angers (45), France

Project engineering

- High-efficiency collective condensing gas boiler systems
- Centralised domestic hot water production
- Humidity-controlled ventilation and heat recovery ventilation systems
- HVAC systems tailored to different uses
- BMS/BAS and energy metering
- Acoustic and anti-vibration treatment of equipment
- Enhanced airtightness of ductwork and service penetrations