

CAREER PROSPECTS

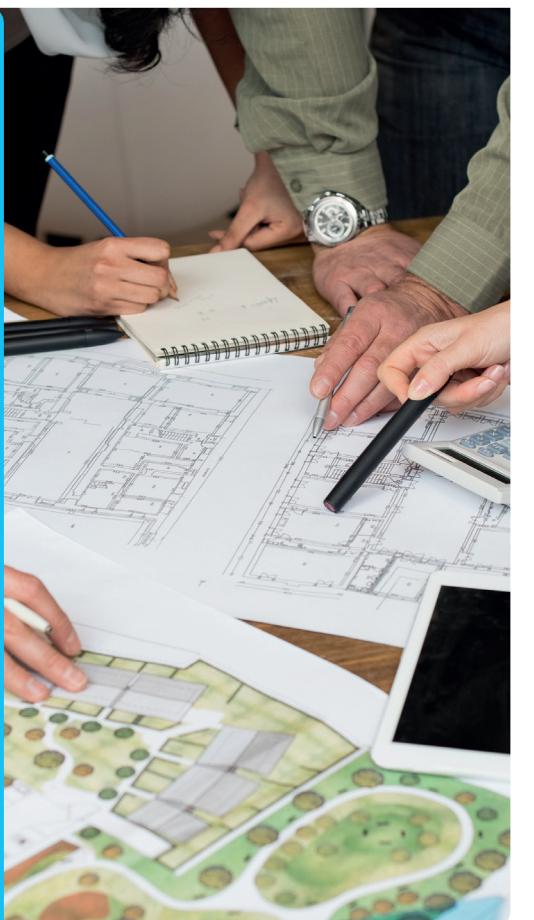
The Sustainable Architecture Engineering major offers opportunities in:

FIELDS

- Major corporations from the building industry
- Energy efficiency and Architectural consultancy firms
- Architecture and urban design firms
- Energy consultancy and audit firms
- Private or public research organizations in the energy, building, urban design fields
- Regional and local authorities

TARGETED POSITIONS

- Project Manager – BIM Manager (Building Information Modelling)
- Architectural Programming Engineer - Project Manager
- Scheduling, Planning and coordination Engineer – Project Manager
- Technical market researcher – EEB (Energy Efficiency of Buildings) and materials engineer
- Technical market researcher – EQB (Environmental Quality of the Building) and materials engineer
- General foreman
- Project Manager – technical expert/ consulting engineer
- Certification/ auditor project supervisor



PROJECTS

4th and 5th year-projects focus on urban design, architectural programming as well as building renovation from an energy and structural point of view through instrumentation and/or digital simulation.

These projects are carried out in collaboration with engineering consultants and companies.

ANY QUESTIONS?

Omar SAIFOUNI
omar.saifouni@epf.fr

Abdelatif MERABTINE
abdelatif.merabtine@epf.fr

Sophie TELLIEZ
international@epf.fr

For further information please check the "Application process for international students" section on our website www.epf.fr/en



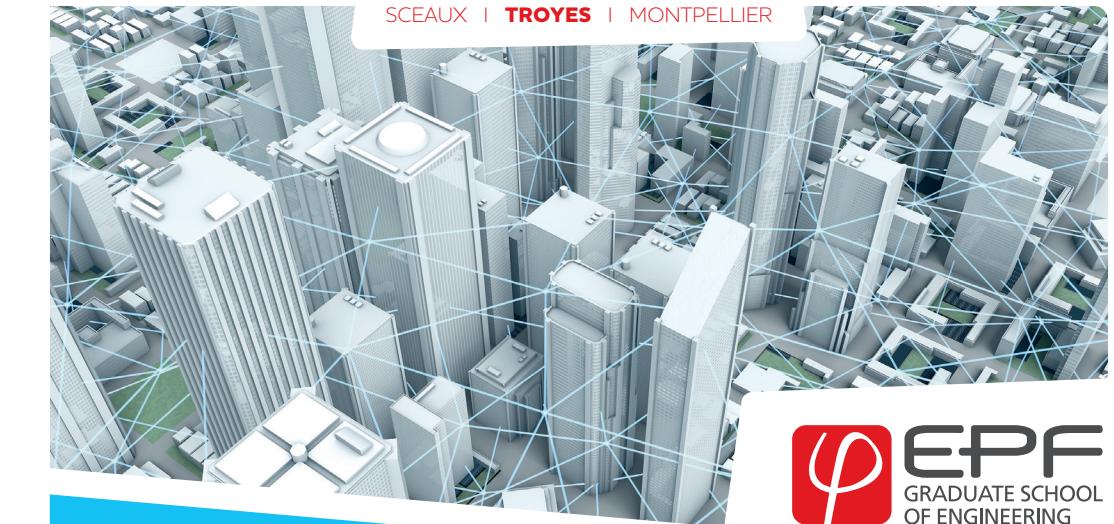
Antoine GASCOIN
Benzon Energies (Berlin)
(Class of 2015)

While working on a Year-3-project, I discovered that the building industry was the largest energy consumer. This made me realise that **the future was interesting and promising for engineers in that sector**. This is the reason why I chose the Sustainable Architecture Engineering major and looked for an internship relating to energy optimisation in the building industry.

Germany being one of the most advanced countries in that field, it seemed sensible to look in that direction. I found an internship in Freiburg (the world's ecological capital) in a consulting firm (Stahl und Weiss). I worked on a project that the firm had received from an architectural agency: **designing a positive energy building**.

That internship was an eye opener. I realised how France was lagging behind in the sustainable building field compared to Germany.

EPF provides **a professional aspect to the training program** notably through the participation of professional lecturers, through planning projects, the use of design software and on-site visits. The major covers all the systems that contribute to designing eco-efficient buildings. I don't regret making this choice!



SCEAUX | TROYES | MONTPELLIER

COMFORT REHABILITATION & RENOVATION **DIGITAL TRANSITION** **NUMERICAL SIMULATIONS**
BUILDING INFORMATION MODELING **ENERGETIC TRANSITION** **PASSIVE BUILDING**
SUSTAINABLE ARCHITECTURE ENGINEERING **MAJOR FUTURE CITIES**
SMART CITY, BUILDING & GRID **SUSTAINABLE DEVELOPMENT**
URBAN PLANNING & DESIGN **BUILDING STRUCTURE**
BIOCLIMATIC ARCHITECTURE

EPF GRADUATE SCHOOL OF ENGINEERING

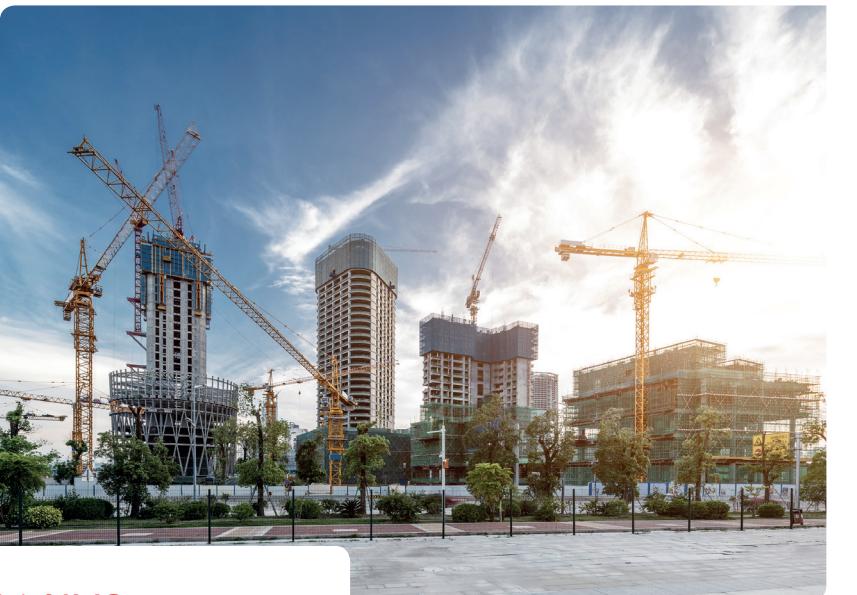
PARIS - SCEAUX CAMPUS
3 bis rue Lakanal
92330 Sceaux
Tel: + 33 (0)1 41 13 01 51

TROYES CAMPUS
2 rue F. Sastre
10430 Rosières-près-Troyes
Tel: + 33 (0)3 25 70 77 19

MONTPELLIER CAMPUS
21 boulevard Berthelot
34000 Montpellier
Tel: + 33 (0)4 99 65 41 81

epf.fr





PROGRAM AIMS

The Sustainable Architecture Engineering major offers a skills base to address city and building issues relating to safety, mobility and governance, sustainability and comfort in terms of energy and digital transitions. The scope of this major covers a wide array of fields from renovating existing buildings to designing tomorrow's cities and buildings and get sustainability in line with its environment.

The pedagogical objectives of the Sustainable Architecture Engineering major is **to train general engineers who are able to design buildings and urban fabric by skilfully incorporating legislative requirements** (thermal, acoustic, environmental) whilst ensuring an appropriate level of comfort according to their purpose.

PROGRAM STRUCTURE

The major extends over two academic years and is organised around two in-class semesters, alternating with two internship semesters: a student engineer internship in Year 4 and a "final year project" internship in Year 5.



COMPULSORY CUs – YEAR 4

COURSE UNIT	
Urban planning and ecocities 64 h 5 ECTS	
Territory development Urban networks Urban project	Acquire in-depth knowledge of territorial planning tools and techniques to respond to sustainable urban development issues and develop local / regional strategies.
Sustainable architecture 64 h 5 ECTS	
From ancient architecture to smart building Bioclimatic architecture Architectural analysis & building renovation English	Provides the necessary skills for programming and designing buildings and public spaces with a focus on building-climate interaction and taking into account cultural, social and economic dimensions as well as environmental requirements.
Energy transition at building scale 64 h 5 ECTS	
Physical acoustics Advanced heat transfer Renewable energies Building lighting	Apprehend the advanced notions of acoustics, thermal and lighting in buildings by combining renewable energies to improve energy efficiency.
Materials and structures for a sustainable building 64 h 5 ECTS	
Strength of materials Building structure Soil, foundations and geotechnical constructions Traditional and bio-based materials for construction	Acquiring basic knowledge of the building structure, the classical building materials and in particular bio-based materials. A reminder on the basis of structural calculations and an introduction to the Eurocodes.
Digital transition at city and building scale 64 h 5 ECTS	
BIM I : digital model (Autocad / Sketchup pro / Revit Architecture) Scan of existing buildings and 3D printing Geographic Information Systems (GIS)	Understanding the concept of realization of numerical 2D and 3D models in cities (GIS "Geographic Information System") and in buildings : BIM "Building Information Modeling". Learn tools and techniques of digitization of the existing and also the transition to the digital model.
Project 150 h 5 ECTS	

COMPULSORY CUs – YEAR 5

COURSE UNIT	
Professionalization 64 h 5 ECTS	
Labor law Quality and risk management Planning Business relations and networking (visits and conferences) Life-Cycle Assessment (LCA) of materials	Understand the project management tools integrating the risk, quality and sustainable development aspects while taking into account the legislation concerning labor law.
Simulation for renovation 64 h 5 ECTS	
Dynamic thermal simulation (DTS) VBA programming for energy and structural rehabilitation Finite Element Method (Robot Structural Analysis)	Knowing model and digital simulation for energetic and structural renovation comply with standards.
Comfort at building and city scale 64 h 5 ECTS	
Thermal engineering of buildings Applied acoustics Heating, Ventilation and Air Conditioning Equipment (HVAC) Urban comfort	Integrating the dimension of interior and exterior comfort into the design of the new building and the renovation of the existing building and designing HVAC equipment.
Dimensioning of buildings according to eurocodes 64 h 5 ECTS	
Building calculation - Metal structure - Wood structure - Reinforced concrete structure	Dimensioning the structures and verifying the dimensioning of existing buildings under the action of static and dynamic loads in accordance with the (Eurocodes) standards.
Intelligent building and city: digital and connectivity 64 h 5 ECTS	
BIM II : Multidisciplinarity (MEP / Structure) Collaborative work on a digital model Smart city Smart building	Acquiring advanced notions on Building Information Modeling (BIM Level 3) in a collaborative framework around multidisciplinary digital model that will serve as a smart building design tool and smart city.
Project 150 h 5 ECTS	