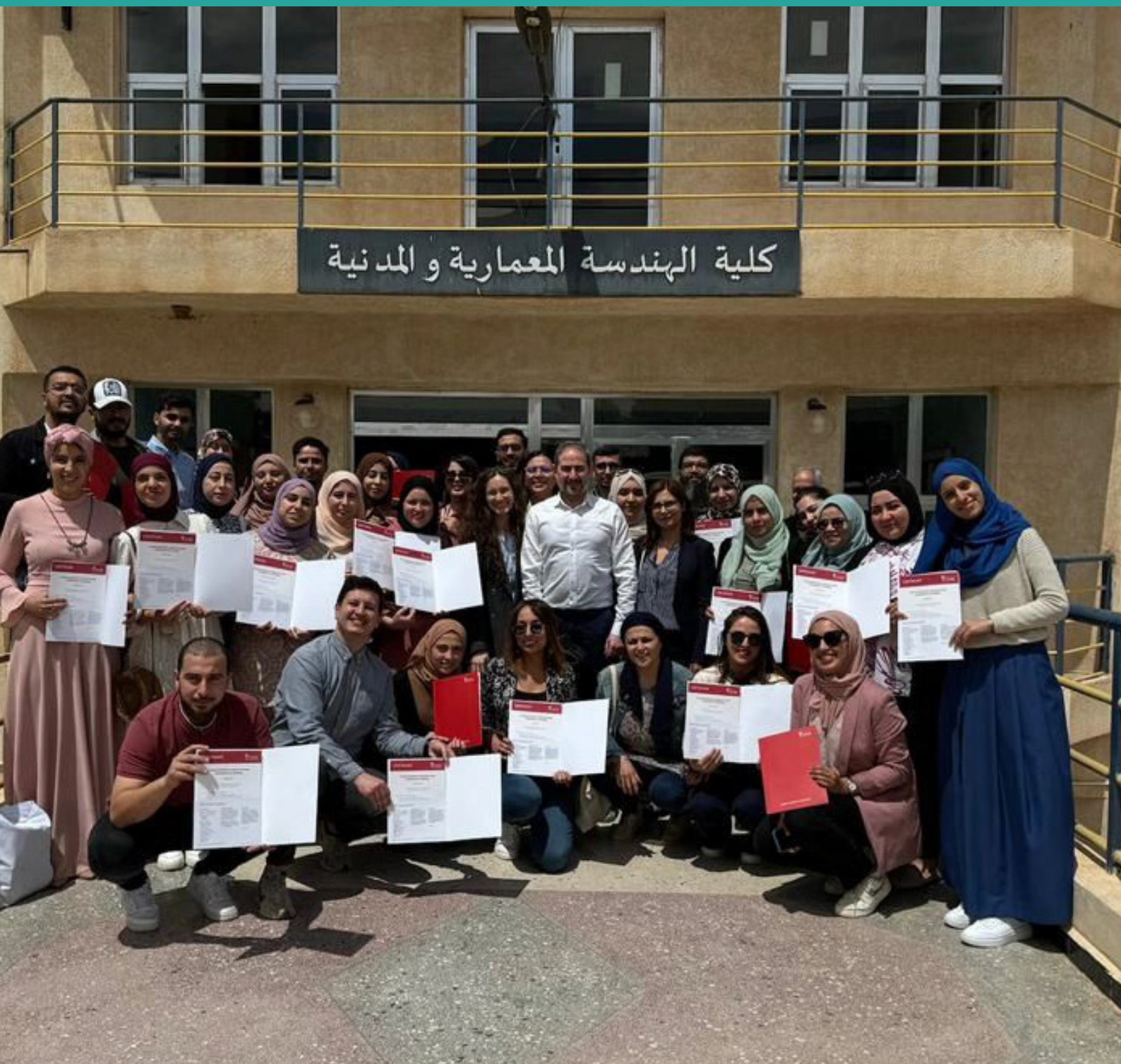
Empowering Universities in Algeria in the field of energy efficiency in buildings

A Collaborative Success Story



FOREWORD

According to the International Energy Agency more people work in the energy sector today than in 2019. It is almost exclusively due to the growth in clean energy and energy efficiency, which now employs more workers than fossil fuels.
Energy efficiency programs for buildings, transportation and industries create jobs in areas such as energy auditing, retrofitting and the manufacturing of energy-efficient technologies. Among the most important practical skills in energy efficiency jobs are project planning, understanding energy use and identification of potential opportunities, working with energy data, ability to incorporate energy efficiency into the operational plans and business strategies.
Nowadays, when we need to make our processes es in more sustainable way, we also need to find new approaches of doing the business with more circularity and we need more people, who know how to do the things smartly, effectively and with more flexibility. That is why it is so important, that no matter if you are mechanical engineer, electrical engineer, or architect, you need to incorporate sustainability into the processes and, in certain way, act as a sustainability expert. Education plays a big role in this.
Thanks to the pilot Master Program in energy efficiency in buildings, the Universities in Oran, Blida and Constantine in Algeria did their step towards sustainability and incorporated sustainability element into their curriculum. What's so unique about this Master Program? It connects students with architectural and engineering background and builds the bridge between the designing of a building and its energy performance. It is as much important for architects to understand the importance of technical aspects of energy efficiency in buildings as it is for engineers to understand the designing techniques to assess the energy performance of a building.
RENAC delivered intense training programs to support the Master Students and University Faculty Members by bringing international expertise and best practices.
We are happy to present the results of our collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the Universities in the format of interviews with the University Professors, Faculty Members and Master Students.
I want to thank partners, my colleagues and experts, who contributed to achieving the objectives and making this program such a success. Wish you an enjoyable read!

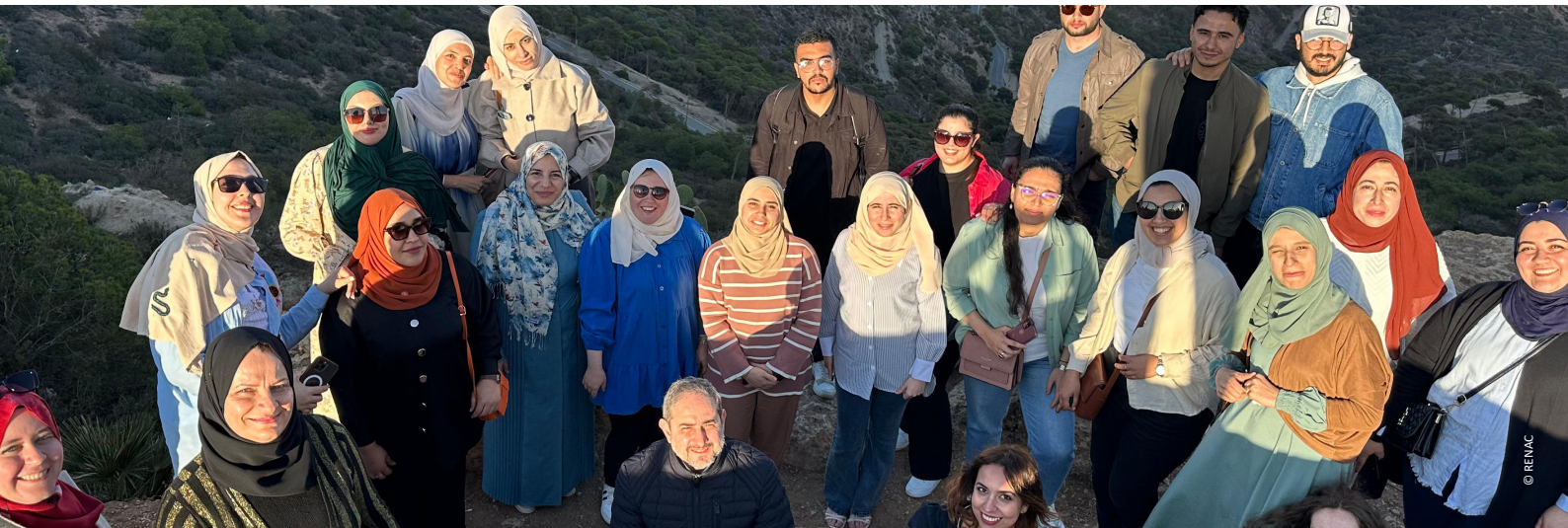
Marta Stetsiv
RENAC

coopération allemande
DEUTSCHE ZUSAMMENARBEIT

Mise en œuvre par
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

WBA | Bauhaus Weiterbildungsakademie Weimar e.V. Institut an der Bauhaus-Universität Weimar

CETTEG Conseil en énergie

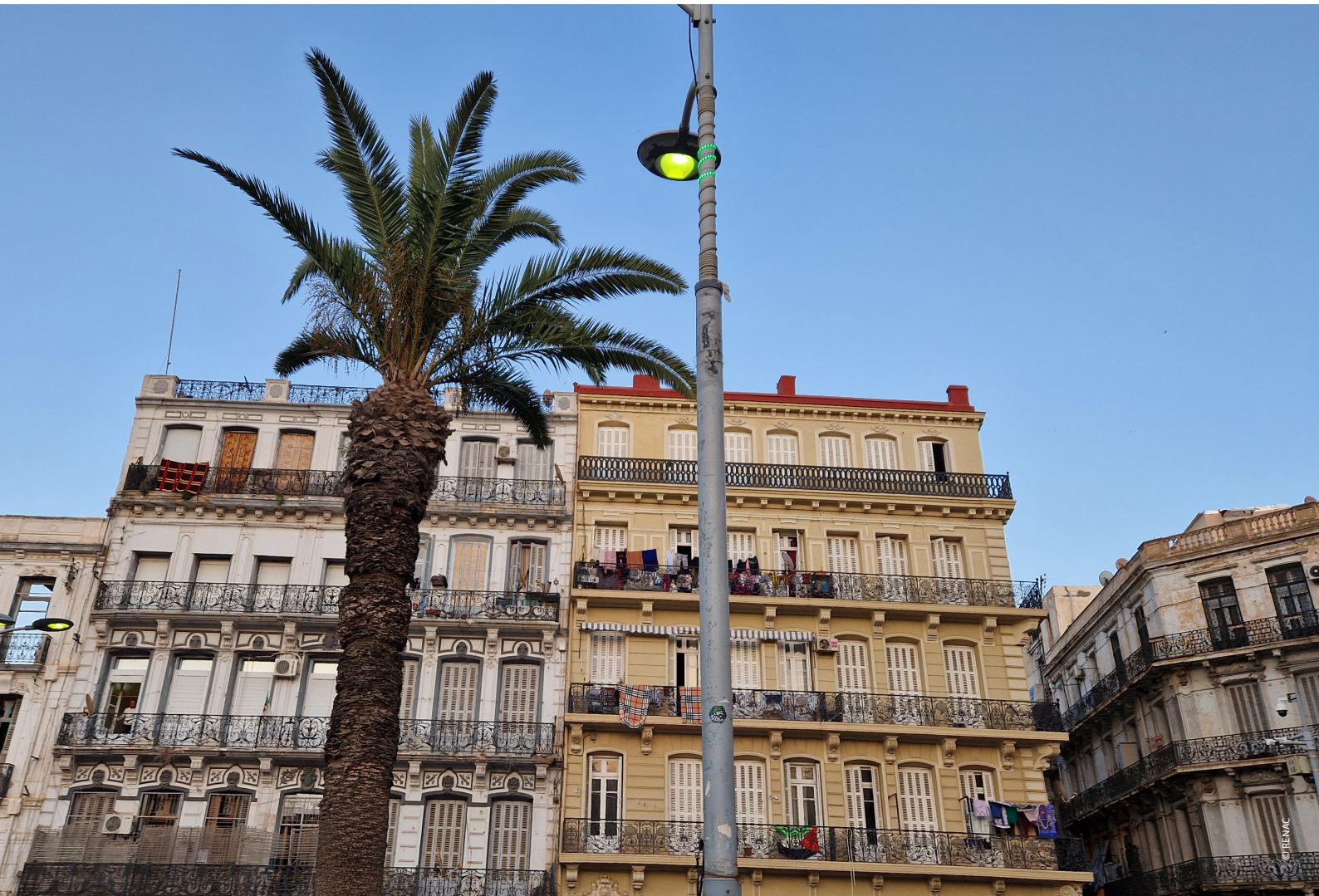


OBJECTIVES

Energy efficiency in buildings is very crucial for sustainable development, particularly in the regions like Algeria, where energy consumption is a significant concern. The importance of building capacities within educational institutions and universities cannot be overstated, as these institutions are instrumental in shaping the next generation of architects and engineers.
To strengthen the connection between educational systems and the economy, it is important to integrate energy efficiency modules into educational programs, develop practice-oriented continuing education for teachers, and enhance digital approaches in education. Fostering these skills will allow to equip students with the expertise needed to contribute to Algeria's energy goals and to succeed in the evolving job market.
Three Universities in Blida, Oran and Constantine are running a pilot Master Program (Program) in „Energy Efficiency in Buildings".

More than 30 master students have been taught according to a newly designed curricula and will graduate this year.
To support the Universities in a successful integration of energy efficiency learning modules, „Amélioration d'Employabilité des Formations Professionnelles et Universitaire AEDA" („Improvement of employability for graduates of vocational and university training in Algeria") Project was commissioned by German Federal Ministry for Economic Cooperation and Development (BMZ). This project was implemented by GIZ in a cooperation with RENAC.

As an implementing partner, RENAC designed and accomplished trainings in energy efficiency in buildings and BIM (Building Information Modelling) for two different target groups:
Master Students and Professors and Faculty Members in three partner Universities.



PARTNER UNIVERSITY

UNIVERSITY BLIDA 1

Year of foundation
1981

Faculty members
2015

Number of students
31 068

Master Students
11 in „EE in buildings 2024

VISION

Our vision in terms of energy efficiency education focuses on interdisciplinary education, integrating architecture, engineering, IT, and environmental science, alongside practical learning through equipped laboratories. Students will apply innovative energy efficiency solutions in real-life university projects, while gaining global perspectives and best practices through international collaboration tailored to various climates..

How did you tailor the Program to meet the specific needs of your students and faculty?

We have conducted surveys, interviews in order to understand the expectations. We looked into what kind of skills are currently under the demand. Our faculty members did a lot of research and preparatory work to develop the curriculum tailoring both aspects – architectural design solutions and sustainability and energy efficiency part.

What future plans do you have for sustaining and expanding this Program?

We put a lot of recourses from our side, that is why continuing of this Program is very important. We consider offering distance learning courses, covering key technologies in energy renovation of buildings and, in addition to that, to test and integrate into the Program practical elements to better meet the needs of energy efficiency market service providers.

What role do you see for this Program in shaping the future of energy efficiency in your country?

The main role of the pilot Program is, of course, developing the skills of young professionals in designing and managing energy efficiency projects. These skills are under demand and we hope will contribute into the creating new jobs in the construction sector. Apart from this, teaching energy efficiency at the Universities helps to promote the use of renewable and innovative technologies in the building sector and encourages for more responsible use of energy.

Dalel Kaoula
PhD in Architecture and Environment, Department of Architecture, University of Blida 1, Project Coordinator

PARTNER UNIVERSITY

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF ORAN MOHAMED-BOUDIAF USTO-MB

Year of foundation
1971

Faculty members
942

Number of students
18 484

Master Students
13 in „EE in buildings 2024

VISION

Continue to promote the Master's Degree in Energy Efficiency in Buildings and increase awareness amongst the students.

How did you tailor the Program to meet the specific needs of your students and faculty?

The Program has a big positive impact on the academic environment. Through active collaboration with the faculty members from different disciplines we managed to create the bridges between architecture, engineering, environmental sciences, and IT.

What future plans do you have for sustaining and expanding this Program?

One of the main challenges was bringing together teachers from different disciplines and encouraging them to collaborate. Each discipline had its own approach, and finding common ground for effective teamwork and curriculum development required significant effort and coordination.

What role do you see for this Program in shaping the future of energy efficiency in your country?

To integrate the training activities, we consulted extensively with colleagues from different departments to find compromises and align the new courses with the existing curriculum. This ensured that the energy efficiency content is complemented and covers different prospectives.

Karima Anouche
Professor, Architecture Department USTO-MB, Project Coordinator

PARTNER UNIVERSITY

UNIVERSITY OF CONSTANTINE 3

Year of foundation
2011

Faculty members
183

Number of students
20 000

Master Students
12 in „EE in buildings 2024

VISION

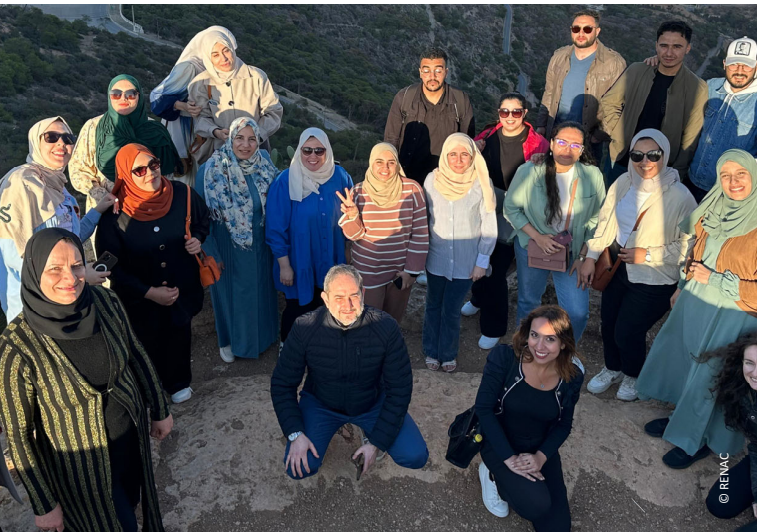
To create a modern, interdisciplinary learning environment that equips Algerian students to address climate change through more sustainable building and energy efficiency, and foster collaboration between University, industry, and Government.

How did you tailor the Program to meet the specific needs of your students and faculty?

Digitalisation plays a very important role in teaching, research, administration and is one of the key elements in keeping our program up-to-date. Digitalisation foster collaboration among different parties and stakeholders involved and make the processes more effective, for example the process implementation of the energy efficiency measures. That is why, I think, matching both BIM and technical aspects of energy efficiency is very important. We teach our students how to work with open BIM software and simulation and modelling software products. To keep our curricula up-to date, we regularly review it, incorporate the latest research findings and case studies into the training material, offer different workshops and seminars.

What future plans do you have for sustaining and expanding this Program?

GIZ and RENAC provided specialized training sessions and seminars for both students and faculty members. These sessions were led by international experts with extensive experience in energy efficiency and sustainable building practices. Collaboration facilitated integration of the advanced energy efficiency topics and latest international best practices into the curriculum, ensuring that the master program is aligned with international standards. Participants, who successfully finished the trainings, received RENAC certificates, which are recognized globally, thereby increasing their employability in the international job market. It was also a great opportunity for all for networking and professional exchange.



What role do you see for this Program in shaping the future of energy efficiency in your country?

Collaboration with GIZ and RENAC has a great positive impact on the success of the “Energy Efficiency in Buildings” Master Program by bringing international expertise and enriching the existing curriculum. Students gained a hands-on practical experience in conducting energy audits, working with the DesignBuilder software, BIM planning. Train-the-Trainer Program for University Faculty Members ensured that the faculty was always up-to-date with the latest trends and teaching methodologies in energy efficiency and sustainable building practices.

Djallel Abada
Lecturer-Researcher, Department of Architecture, University of Constantine 3, Project Coordinator

TRAINING PROGRAM FOR MASTER STUDENTS

1 ENERGY PERFORMANCE AUDIT AND ENERGY REHABILITATION OF BUILDINGS

FORMAT: in-person (Oran, Algeria)
DURATION: 5 days
PARTICIPANT: 33 students

2 BIM – INTRODUCTION AND APPLICATION – SIMULATION AND MODELLING IN DESIGNBUILDER

FORMAT: online
DURATION: 35 hours
PARTICIPANT: 37 students

3 MENTORING PROGRAM

FORMAT: online
DURATION: 3 weeks
PARTICIPANT: 37 students

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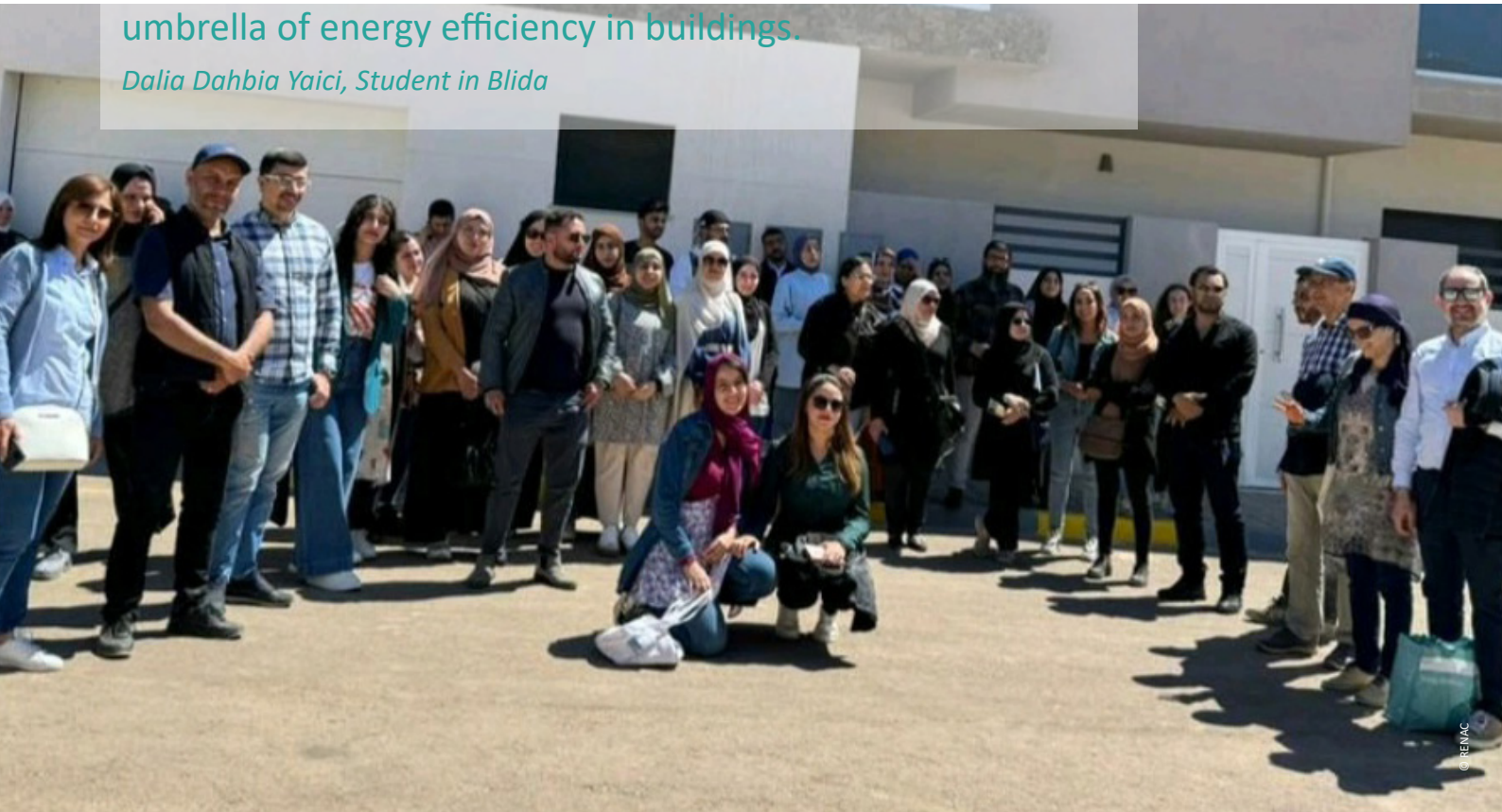
My learning experience with RENAC Academy provided more comprehensive, personalised and focused education by incorporating several disciplines under the same umbrella of energy efficiency in buildings.

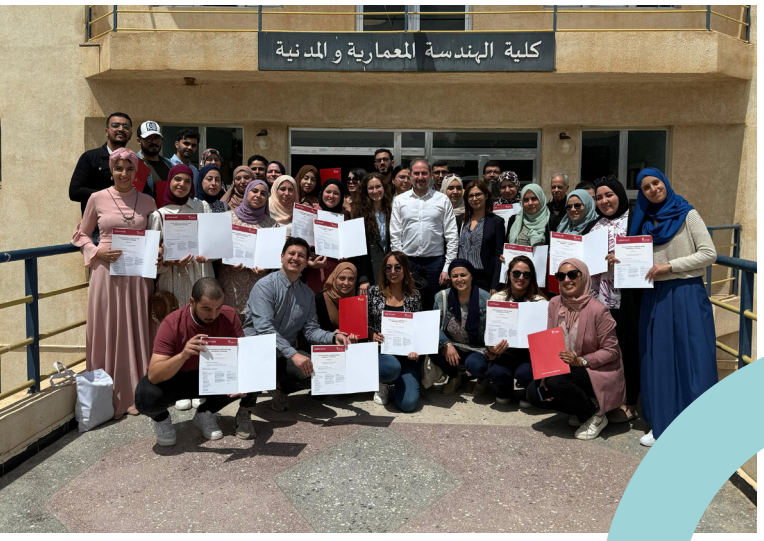
Dalia Dahbia Yaici, Student in Blida

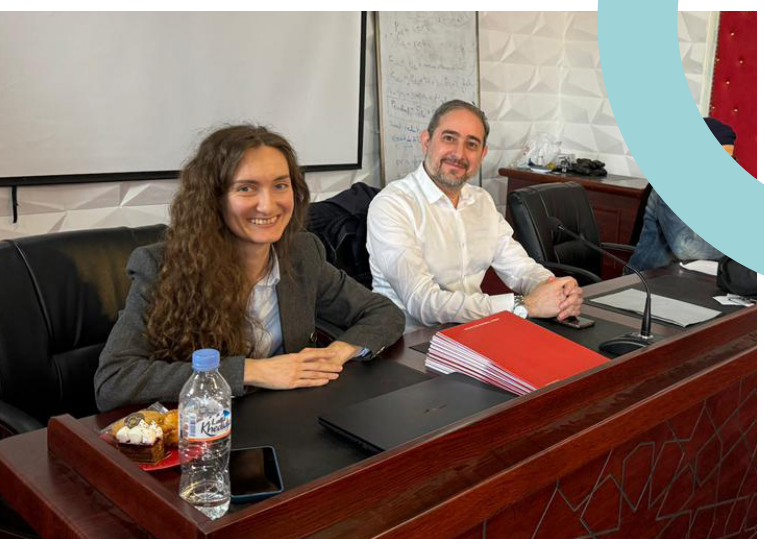


1 ENERGY PERFORMANCE AUDIT AND ENERGY REHABILITATION OF BUILDINGS

5-DAY IN-PERSON TRAINING IN ORAN, ALGERIA

During these sessions the master students dived deeply into the topics like thermal comfort, building envelope and physics, calculation of energy balance, performing an energy audit, preparation and conducting an on-site visit of a building and identifying energy improvements, quality assurance during construction works, financial estimation of the energy efficiency measures. **33 Master Students** have received a RENAC certificates of successful completion of this in-person training.

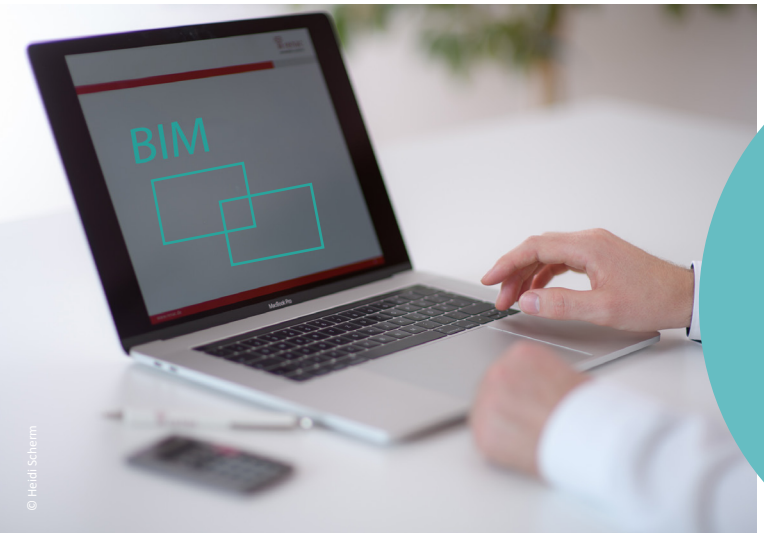


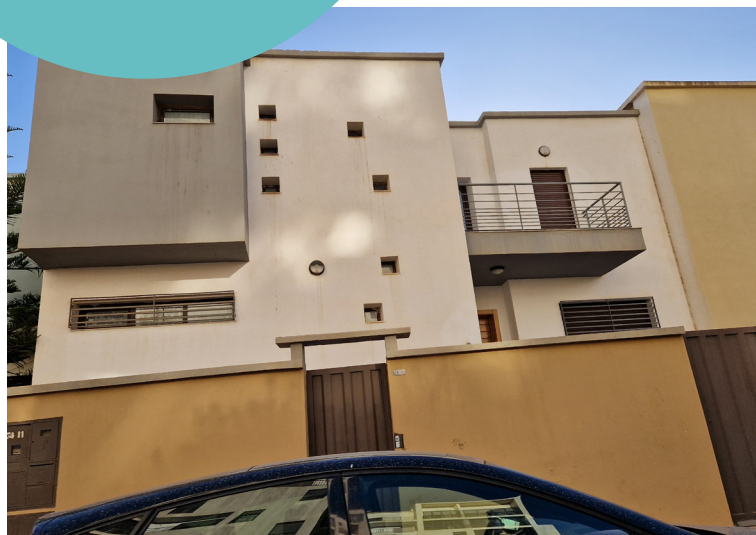


2 BIM – INTRODUCTION AND APPLICATION – SIMULATION AND MODELLING IN DESIGNBUILDER

35-HOUR ONLINE TRAINING

The training provided the basic knowledge in **BIM - Building Information Modelling**, understanding the roles and responsibilities within the project team (BIM coordinator, BIM engineers, BIM modeler etc.), understanding what does open BIM means and what are the benefits. During the work on the master thesis and master projects most of the **37 students** have decided to work in **DesignBuilder** - the most widely used energy modelling tool in education for quantifying and analysing building performance. On- line sessions covering topics like geometry modelling, simulation of simple and detailed HVAC systems, visualisation of solar path and shadows, occupancy and internal gain, lighting systems helped to develop necessary practical skills in working with the modelling software.





3 MENTORING PROGRAM

ONLINE SUPPORT OF MASTER STUDENTS

The mentoring program provided Master Students with an expert support during the work on their Master Thesis. **37 students** have been grouped into 5 groups according to the topic of the master the- sis. Each group had its own mentor. Prior to the sessions master students have submitted their current challenges related to the work on the master thesis, questions to their mentor and their tips and recommendations for the group mates. Mentors addressed the questions and students 'challenges. Despite an online format of the sessions, students have actively engaged with mentors, receiving valuable guidance and support.

GROUP 1 - Mentor: Ingo Theoboldt

Sustainable construction materials and bio-sourced materials

GROUP 2 - Mentor: Dušan Gvozdenac

Case studies

GROUP 3 - Mentor: Frank Schillig

HVAC systems and passive cooling

GROUP 4 - Mentor: Ingo Theoboldt

Innovation design and digital solution

GROUP 5 - Mentor: Zoran Morvaj

Building energy performance analysis

3 MENTORING PROGRAM

SHORT PROFILES OF MENTORS

INGO THEOBOLDT

Ingo Theoboldt is Passive House Certifier and Consultant. He has been involved in over 100 Passive House projects in 9 different countries and has a deep knowledge in Passive House constriction, technology and is valuable and key expert in the network of Passive House experts.

FRANK SCHILLIG

Frank Schillig has 26 years of professional experience in the areas of renewable energy and energy efficiency. Currently, Mr. Schillig is Managing Director of Energiegewinner Technik GmbH, an EPC-company for renewable energy projects. He specialises in PV projects of different scales from Kilowatt to megawatt, roof-top and greenfield, as well as energy efficiency.

DUŠAN GVOZDENAC

Dušan Gvozdenac is a senior energy advisor and has more than 50 yeras of professional experience in the field of energy, renewable energy, energy efficiency, energy policy, trainings and capacity buildings. Mr. Gvozdenac conducted over 600 energy audits in industry and buildings as a team member or a team leader.

ZORAN MORVAJ

Zoran Morvaj is an expert in energy, energy efficiency and decarbonisation policy development and implementation. Mr. Morvaj has more than 30 years of experience in managing national and international projects focused on green climate finance, climate change mitigation, environmental sustainability and capacity building.

SHORT PROFILES OF TRAINERS

MARTA STETSIV

Marta Stetsiv is an energy efficiency expert at RENAC and conceptualises, plans and manages international training programs and projects for energy efficiency. She is Certified Lead Auditor of ISO 50001 Energy Management System and Certified Expert in Climate Adaptation Finance.

FOUZI TABET

Fouzi Tabet is an energy efficiency and renewable energy expert at RENAC. Mr. Tabet holds a PhD degree from ICARE-CNRS France and has more than 20 years of international working experience in academies and industry as consultant, expert, project manager, group manager, researcher and professor.

LAURENT VIDAL

Laurent Vidal is an expert in thermal, energy, building and lighting simulations. Mr. Vidal is providing technical support and trainings in simulations and modelling to his clients and is also managing French company CETTEG, a DesignBuilder partner since 2006.

HABEB ASTOUR

Habeb Astour is professor for BIM and construction Informatics at a University of applied science in Germany. Beyond that Prof. Dr.-Ing. Astour worked for different German companies as BIM consultant, BIM Manager and BIM Project manager.

TRAIN-THE-TRAINER (TTT) PROGRAM

50-HOUR ONLINE TRAINING

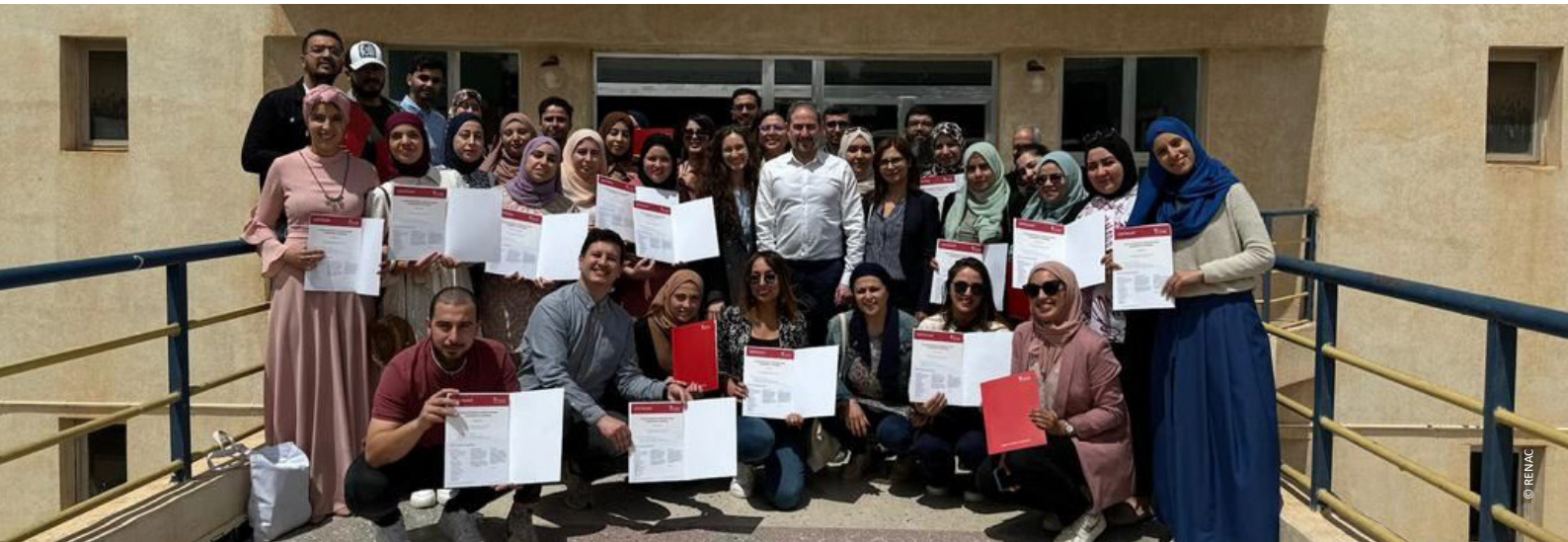
The **Train-the-trainer program in Energy Efficiency in Buildings c**onsisted of four training modules. A total of **19 University Professors and Faculty Members** successfully completed the **50-hour online TtT program** and received certification. The comprehensive training sessions covered a range of key topics including Building Information Modelling (BIM), simulation and modelling techniques using DesignBuilder, energy audits in buildings, design principles of passive houses, quality control during construction.

MODULE 1 – BUILDING INFORMATION MODELLING (BIM) – Introduction and Application

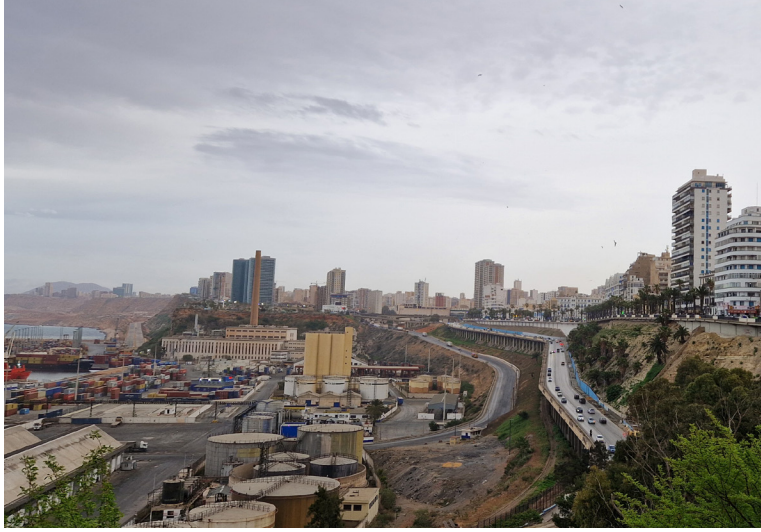
MODULE 3 – ENERGY PERFORMANCE AUDIT AND ENERGY REHABILITATION OF BUILDINGS

MODULE 2 – SIMULATION AND MODELLING TECHNIQUES IN DESIGNBUILDER

MODULE 4 – DIDACTICS



LECTURER



Dr Abdelkrim Benammar

Senior Lecturer, Department of Architecture, USTO - MB Oran

Why do you believe it is essential to teach students in Algeria the topic of energy efficiency in buildings?

It is essential to shift towards a more sustainable building environment in Algeria, because the skills that are currently under demand. Our faculty members did a lot of research and preparatory work to develop the curriculum, tailoring both our climatic and economic environments are degrading rapidly. Our country is beginning to implement energy efficiency programs on the academic level at universities, that is why it is crucial to start increasing awareness among our young architects and engineers' generation now.

> "This training has been a great opportunity to raise and gain valuable knowledge in the field of EE in buildings.

What are some of the key challenges and opportunities in implementing energy-efficient building practices in Algeria? How do you address these in your teaching?

Most of the knowledge I gained from the various training programs was tailored to countries in the Northern Hemisphere. One of the challenges I see, is about adapting such international knowledge and technology, including best international practices to the Algerian context, our climatic, cultural and economic conditions. Algeria is continuously suffering from heat and draft, that is why it is essential to adapt our buildings to our climate. On my opinion, it is important to focus and prioritise education of the low cost and passive techniques first, as Algeria hasn't got developed building technology nor sufficient economic resources as in the western countries.

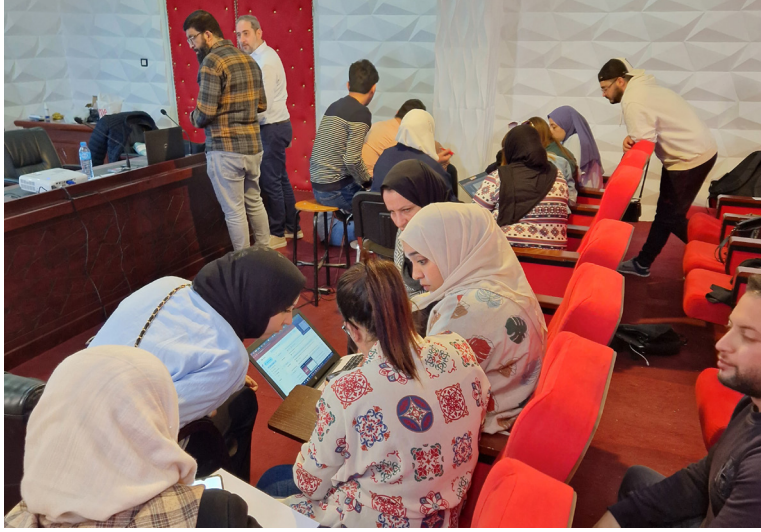
How did you tailor the Program to meet the specific needs of your students and faculty?

Most of the knowledge I gained from the various training programs was tailored to countries in the Northern Hemisphere. One of the challenges I see, is about adapting such international knowledge and technology, including best international practices to the Algerian context, our climatic, cultural and economic conditions. Algeria is continuously suffering from heat and draft, that is why it is essential to adapt our both aspects – architectural design solutions, sustainability and energy efficiency part.

How has the focus on EE in buildings evolved in Algeria over the past decade? What role do you see for future architects and engineers in advancing this field?

Not much has been done in the field of energy efficiency during the last decade. Local authorities keep on constructing in a very unsustainable way. However, I see positive movements. About two decades ago, I attended my first training program in energy efficiency and sustainability in buildings. Since then, I am enhancing Eco architecture within the Department of Architecture at USTO-MB, where I am working. I have noticed that more and more lecturers and students are trying to develop their knowledge in this area. This shows that a new trend of teaching architecture is growing at our universities which is very satisfactory for the future.

STUDENT



Dalia Dahbia Yaici
University of Blida1

What was the topic of your master thesis?

My Master Thesis was about using the Design of Experiments (DOE) method for energy consumption optimisation in residential buildings (collective housing).

In what ways did the training from RENAC and mentoring program complement your academic studies?

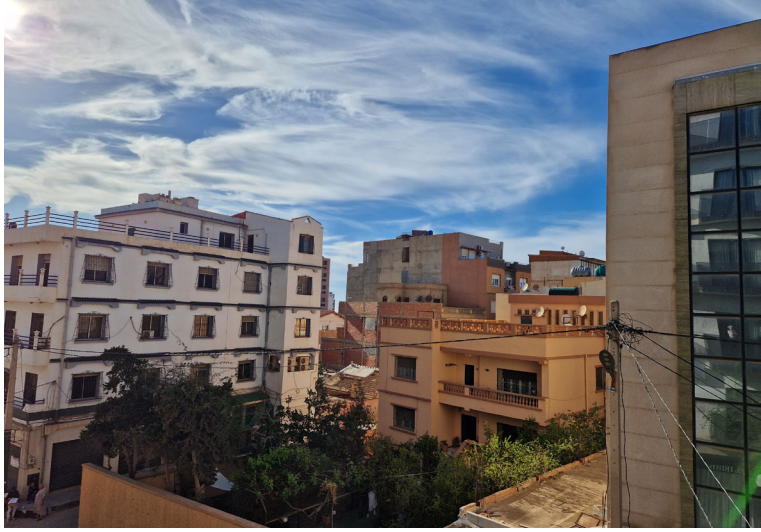
My learning experience with RENAC Academy provided more comprehensive, personalised and focused education by incorporating several disciplines under the same umbrella of energy efficiency in buildings. This allowed me to look on the process of energy efficiency from different prospectives.

How using the DesignBuilder software helped you in your master thesis?

The training consolidated my theoretical knowl- edge and opened some new insights of the topic of energy efficiency in buidlings. I have received the valuable practical skills in performing inspection of the real building facility and conducting necessary technical and financial calculation of potential energy efficiency measures in buildings.

> "The training consolidated my theoretical knowledge and opened some new insights of the topic of energy efficiency in buidlings.

STUDENT



Asmaa REKKAB

USTO - MB Oran

What was the topic of your master thesis?

My master's thesis was focused on increasing the level of energy efficiency of individual housing in Algeria, with a specific emphasis on the Cité Perla** in Oran. The main objective was reducing energy consumption of the individual homes by conducting a thorough energy audit, proposing exact solutions to improve thermal insulation, optimising heating, ventilation, and air conditioning (HVAC) systems, and integrating smart technologies. The aim of my thesis is to demonstrate, how a methodical approach can transform homes into models of energy efficiency while providing economic, environmental, and social benefits.

> "The mentoring program was largely helpful in overcoming the obstacles I encountered.

In what ways did the training from RENAC and mentoring program complement your academic studies?

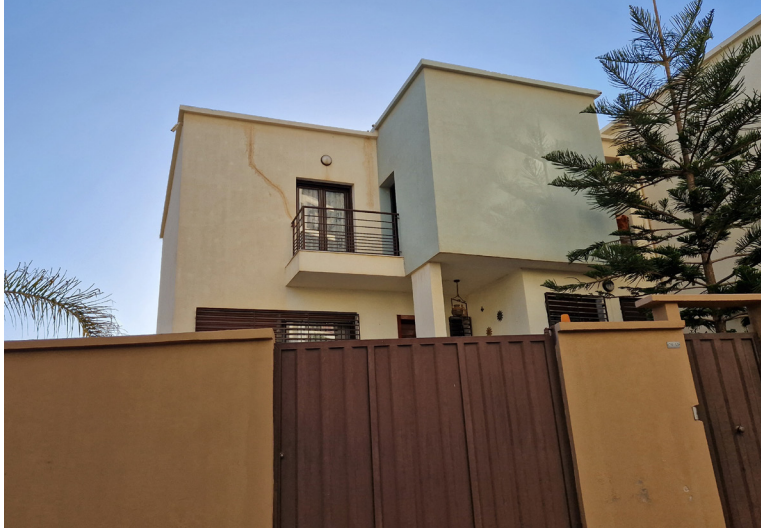
The mentoring program was largely helpful in overcoming the obstacles I encountered. The mentors, with their deep expertise, answered all my questions and clarified my doubts. Their feedback on my inquiries and the practical advices provided were particularly valuable in facilitation of my work and helping me to understand complex concepts and applying specific techniques.

How using the DesignBuilder software helped you in your master thesis?

The training sessions, whether in-person or online, were crucial for the success of my thesis project. They filled many gaps in knowledge related with techniques, systems and simulation tools. The richness of the content, the quality of the instructors, and their ability to convey practical knowledge were incredible. These training sessions enabled me to acquire valuable skills and a deep understanding of energy efficiency policies and techniques in building, which had a significant impact on the quality of my project.

** Cité Perla – a fenced area with the modern villas in the city Oran, Algeria.

STUDENT



Zerifi Djawad
USTO - MB Oran

What was the topic of your master thesis?

In my master thesis I working on the energy renovation of a school facility in Algeria, based on the ENERPHIT* standard by means of the BIM process.

In what ways did the training from RENAC and mentoring program complement your academic studies?

The RENAC training and mentoring program have been of a great value to me, both personally and professionally. I have considerably enriched my end-of-studies project, deepen my knowledge and improved my skills in the field of energy efficient renovation.

Thanks to the whole sequence of trainings, I was able to gain a better understanding of the essential energy efficient techniques, such as thermal insulation, managing thermal bridges, choosing environmentally-friendly materials and optimizing heating and ventilation systems. In addition to that, I learned the importance of the energy audit as a starting point for any renovation project, aimed to identify possible improvements and increase the building's energy efficiency.

> "The RENAC training and mentoring program have been of a great value to me, both personally and professionally.

The integration of BIM into energy efficiency projects was another fundamental aspect that I have in-depth explored. I have imporved my skills in modelling, analysing and simulating energy performance, taking into consideration the project stakeholders, as a the part of the project. These tools opened to me an opportunity to better anticipate the challenges related with energy renovation and to propose sustainable and effective solutions in the project I was working on.

How using the DesignBuilder software helped you in your master thesis?

The practical training in simulation and modelling techniques in DesignBuilder helped me with the energy modeling of my thesis case study and provided the correct workflow, from the initial input of the building parameters, modelling to running simulations and interpreting the results. Understanding the logic of the dynamic simulations was very helpful to effectively conduct mathematical experiments, which were a key element in my master thesis.

* ENERPHIT – Quality-Approved Energy Retrofit with Passive House Components developed by Passive House Institute (PHI).

INTERVIEW

LECTURERS AND RESEARCHERS ABOUT THE STATUS OF THE BIM ADOPTION IN ALGERIA

The globally increasing adoption of BIM is driven by its potential to improve collaboration, increase project efficiency and lower costs. Recent statistics show that BIM is gaining traction in both developed and developing countries with more projects incorporating BIM technologies each year. We have interviewed lecturers and researchers and asked their opinion about the current status of BIM in Africa and Algeria.

What is the current state of BIM adoption in Africa?

Nowadays, Building Information Modelling is the backbone of modern construction projects. According to the African BIM report published in 2022, there is a high level of BIM awareness among the professionals across the five regions of the continent. But comparing to the survey conducted in 2020, the BIM implementation is progressing slowly due to different kind of barriers. Economic-related barriers are perceived as the most severe challenges hindering the proliferation of BIM such as high cost of implementation and lack on investment, followed by process and people related challenges (lack of skilled personnel and government support for example) and technology-related barriers (interoperability and lack of BIM standards and protocols).

“According to the African BIM report published in 2022, there is a high level of BIM awareness among the professionals across the five regions of the continent.

However, we think that the future is promising and full of opportunities regarding to the Africa construction industry size which is estimated at 58.42 billion dollars in 2024, and which is expected to reach 74.81 billion dollars by 2029, growing at a Compound Annual Growth Rate of 5.07% during the forecast period 2024-2029.

Dr. Sarah Benharkat, Lecturer-Researcher
Department of Architecture
University of Constantine 3

INTERVIEW

What is the current state of BIM adoption in Africa?

In Algeria, interest in Building Information Modelling (BIM) has only recently emerged. The first significant event to promote BIM, the CityCAD 1st edition, was organized in 2015 to discuss the need for BIM implementation in Algeria. Since then, several institutions have been established to promote BIM through training programs for individuals and companies.

In 2018, BIM was introduced into the architectural curriculum as a course titled "Modeling and Simulation BIM" for third-year architectural training in the LMD (Licence-Master-Doctorate) system. This initiative is a crucial step in the implementation of BIM in Algeria. Firstly, it helps to overcome the barrier of lack of BIM training for architects. Secondly, it trains the next generation of architects to adopt BIM as a design and build process.

> "Since 2015, several institutions have been established to promote BIM through training programs for individuals and companies.

As part of a research study, survey questionnaires were distributed to 100 Algerian architects with different profiles. The findings revealed that the most significant barriers to BIM implementation were related to people and policy factors. Additionally, there were differences in BIM maturity levels between large and small organizations in Algeria. The study highlighted that, at the current BIM maturity level, implementation would not occur without the involvement of local authorities and policymakers, who have a significant impact on promoting and accelerating BIM adoption in the country.

Therefore, it is recommended that Algerian authorities impose the gradual implementation of BIM for large public projects through regulation. Furthermore, the government should provide incentives to accelerate BIM training courses in private and public schools. This would encourage large construction companies to include BIM training as part of their internal programs, leading to greater implementation of BIM in their projects.

TEHAMI Mohamed Architecture Department, USTO-MB, Oran

INTERVIEW

What kind of obstacles do you see in implementation of BIM in Algeria?

The implementation of BIM in Algeria faces obstacles such as a lack of awareness and understanding among professionals, high costs of software, insufficient training and skills development, and the absence of national BIM standards. Additionally, cultural resistance to change, limited regulatory support, and challenges in collaboration and data management further hinder adoption. Addressing these obstacles requires a multi-faceted approach, including raising awareness, providing education and training, developing national standards, and fostering a supportive regulatory environment. With concerted efforts from government, industry, and educational institutions, Algeria can overcome these challenges and fully realize the benefits of BIM.

Dr. Djallel ABADA Lecturer-Researcher, Department of Architecture, University of Constantine

> "I believe that the adoption of BIM in Algeria could significantly transform the construction industry by enhancing collaboration among stakeholders, increasing project efficiency...

What's your opinion how could the way of working be improved by BIM in Algeria?

I believe that the adoption of BIM in Algeria could significantly transform the construction industry by enhancing collaboration among stakeholders, increasing project efficiency, and ensuring more accurate and sustainable designs. The shift from traditional project management, based on independent consecutive sequences, to BIM-based management represents a major change in both project management methods and the organizational structure of the stakeholders involved. This transition will require time, perseverance, and strong commitment from authorities, as well as an adaptation of the existing regulations. Although these challenges are significant, the long-term benefits—such as cost savings, better regulatory compliance, and innovation—make it a strategic choice for the future of construction in Algeria.

Dr. Ismahan Nadji Maachi Lecturer, Department of Architecture, USTO-MB

Which approach you are using to teach the master students as a part of the master program?

When I am teaching students BIM, I am using several approaches. First one - using proper software. Next one - the open-BIM approach. Finally, they learn to design their own BIM tool through a shared database whose data is instantly transformed into project objects. When they are confronted with BIM in a professional environment, they will have the keys to develop their own BIM tool which can be either a complement or an alternative to the other approaches. In particular, proprietary BIM whose cost often represents an obstacle to construction actors in developing countries such as Algeria.

Dr. Farid Rahal, Lecturer – Researcher, Architecture Department, USTO-MB Oran