



**Assessing Perceptions  
of UPGREAT's Training  
Procedures:  
A Readiness Survey  
Among Trainees**

Supported by:



Federal Ministry  
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EUKI

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on the basis of a decision  
by the German Bundestag

# Assessing Perceptions of UPGREAT's Training Procedures: A Readiness Survey Among Trainees

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**This Report includes two complementary Annexes for Improved Energy Efficiency Methods:**

### **Annex I: Training Methodology & Lessons Learned**

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### **Annex II: Long Term Exploitation Plan**

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HELLENIC REPUBLIC  
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UPGREAT Project – Upskilling Professionals for deep energy efficiency  
REnovations: A Tool for better schools

# Assessing Perceptions of UPGREAT's Training Procedures: A Readiness Survey Among Trainees

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***Annex I: Training Methodology & Lessons Learned***

***Annex II: Long Term Exploitation Plan***

**Responsible Partner:** Cyprus Energy Agency [CEA]

**Authors:** Christina Palochi & Andreas Pastides [CEA]

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# 1. Introduction

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Assessing the readiness levels of participants in energy renovation training is essential for understanding their preparedness to tackle the challenges and opportunities within the built environment. In addition, gender equality is a fundamental principle crucial for achieving sustainability and innovation across various sectors, including energy retrofits. As societies endeavor to meet sustainable development goals, it's imperative to ensure equal access to education, training, and opportunities for all individuals, regardless of gender, particularly in fields essential for environmental progress.

This report presents findings from a "readiness" survey conducted at the conclusion of the UPGREAT project, where a total of 146 building professionals, students of the built environment and practitioners participated, offering valuable insights into their perceptions of the training procedure developed within its framework. Furthermore, the study delves into the gender dynamics within energy renovation training, aiming to identify strategies for promoting gender equality in this vital sector. By analyzing survey responses from participants in UPGREAT's energy renovation training programs, this report aims to uncover perceptions faced by individuals of different genders in acquiring the knowledge and skills required for successful energy renovation projects.

The survey aimed to gauge participants' readiness levels regarding their understanding, skills, and confidence in implementing energy-efficient renovation practices. Six key questions were addressed, exploring participants' readiness, confidence in recognizing common practice errors, understanding of key concepts, adequacy of training, and overall usefulness of training in enhancing their understanding and skills in the built environment. Additionally, the survey provided insights into gender-specific differences in responses, shedding light on areas where disparities exist and where targeted interventions are necessary to promote gender equality.

Through an examination of the survey findings and the provision of recommendations for stakeholders such as educational institutions, industry professionals, policymakers, and community organizations, this report seeks to enhance the effectiveness of energy renovation training. By fostering collaborative efforts and implementing targeted initiatives based on the recommendations provided, stakeholders can contribute to the development of a skilled and prepared workforce capable of driving sustainable practices in energy renovation and advancing the goals of environmental stewardship and resilience in the built environment. Through these efforts, we can cultivate a more inclusive and diverse sector, ultimately contributing to the creation of a resilient and energy-efficient future.

This introduction sets the stage for the report, highlighting the focus on assessing readiness levels of participants in energy renovation training and providing an overview of the survey analysis and objectives.

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## 2. Methodology

The purpose of this report is to assess participants' readiness levels regarding their understanding, skills, and confidence in implementing energy-efficient renovation practices. For the evaluation of the participants' readiness levels, a survey was conducted from December 2023 until January 2024, addressed to those who had attended UPGREAT's training seminars conducted from September to December 2023 targeted to white and blue collar professionals as well as to students of the building sector from Cyprus and Greece.

### 2.1 UPGREAT's Seminars

The UPGREAT project, led by the National and Kapodistrian University of Athens in collaboration with the Hellenic Passive House Institute, the Cyprus Energy Agency, and the German Da-Di-Werk, aims to enhance energy efficiency in buildings, with a focus in schools, in Cyprus and Greece, by improving the readiness of these countries for deep energy-efficient renovations. This is achieved through the development and implementation of a Total Training Toolkit, an educational package, which targets building professionals involved in all phases of renovation processes. The goal is to minimize the performance gap commonly observed in such projects.

The Total Training Toolkit is specifically focused on deep energy renovations in buildings in Greece and Cyprus. It has been developed to educate and train professionals in the building industry. The curriculum, provided in Greek, covers an educational program for EQF levels 3-7. The educational material is designed for students as well as for both blue- and white-collar professionals, including technicians, installers, architects, engineers, and other building experts responsible for designing and implementing deep energy renovation measures. Additionally, it is considered a valuable resource for Public Authorities at the municipal and regional levels, as well as technical and engineering staff seeking to enhance their expertise in energy efficiency, particularly for schools.

During the project's lifespan, the partners have organized 6 training sessions in Cyprus and 12 sessions in Greece. These sessions aimed to upgrade existing knowledge on the subject while also promoting the Total Training Toolkit. The educational seminars hosted by the Cyprus Energy Agency attracted 28 technicians/builders, 30 engineers, and 111 students from technical high schools specializing in construction-related subjects. In Greece, seminars organized by the National and Kapodistrian University of Athens saw the participation of 134 undergraduate students studying relevant fields. Additionally, sessions conducted by the Hellenic Passive House Institute drew 168 engineers, 42 university students, 13 high school students, 30 primary school students, 27 students enrolled in PHPP designer courses, 9 scouts, 31 teachers and school headmasters, 4 members of local municipalities, 2 employees from construction sector supplier companies, 14 construction company employees, 1 real estate agent, and 14 individuals involved with the Odyssey project, aimed at providing employment opportunities to individuals from minority backgrounds. Therefore, a total of 658 participants attended the seminars described.

In terms of preparing and conducting the training sessions, a standardized methodology is expected to be adhered to. Initially, details such as the date, location, trainers, and agenda for each session need to be defined. An open call should then be disseminated through the project's communication channels approximately 7-15 days prior to the session, along with an online participation form. Upon closure of the participation form, an overview of the total number of participants and their professional backgrounds is compiled.

To align with the interests, needs, and expectations of the audience, the educational material of the Total Training Toolkit should be selected accordingly, considering the EQF level of each target group and the subjects to be covered. Practical demonstrations of specific procedures, such as installing external insulation on walls or roofs, may be incorporated to provide hands-on experience. These demonstrations could be facilitated by professional installers or companies specializing in the topic, in collaboration with allocated trainers. The combination of theoretical and practical training fosters a comprehensive understanding of deep energy renovations and significantly contributes to upskilling professionals in the construction industry.

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The closing session of each training agenda aims to stimulate open discussions about any thoughts or concerns raised by participants regarding the subjects and educational material presented. Participants are encouraged to ask questions and share personal experiences related to the topic with fellow attendees, trainers, and external experts.

Upon completion of each training session, participants are asked to complete an evaluation assessment of their overall experience with the training and the trainers. The feedback collected during the evaluation process is then systematically reviewed by the trainers to enhance future sessions, focusing on improving the educational material and session structure. Following the successful completion of the 18 educational sessions mentioned above, the training methodology and the various lessons learned from the process are presented in Annex I.

## 2.2 Data Collection for the Readiness Survey

The questionnaires were disseminated through emails to the seminars' attendance lists. The consortium disseminated the survey in the end of December 2023 with emails to those who attended the seminars the project partners had already organized. The contractual target of 120 valid questionnaires was achieved not earlier than the mid of January 2024.

The questionnaire was opened a total 177 times; however more than 30 entries were rejected as they were either invalid or not enough information was provided for a meaningful data analysis. More specifically, the valid questionnaires of those who answered were 146 while those included for the gender analysis were 145. For this study, a Confidence Level is set at 99%; this indicates a high degree of certainty that the collected data is representative of the entire population. The Margin of Error, set at 10%, represents the potential percentage of error that may exist within the sample data. It's important to note that as the margin of error increases, the confidence level of the results decreases. With a Population of 658 individuals, representing the total number of people within the study's universe, the required Sample Size is calculated to be 132 respondents, that is 20% of the population. This sample size is essential for ensuring the accuracy and reliability of the study's findings while maintaining a high level of confidence in the results' representativeness. Therefore, this share of 20% or 132 participants required for statistically meaningful analysis was achieved and a 22%, of those participated (146 out of 658) in the seminars, answered the circulated questionnaire.

The questions of the survey were divided into two broad categories, those concerning demographics and those concerning readiness levels of those who attended the seminars the project partners organized. The questionnaire included multiple-choice and rating scale questions. In the first type of question the participants of the survey had some possible options to choose from while in the second type respondents were asked about the level of agreement with given questions. An online version of the questionnaire survey was created on LimeSurvey. The answers were processed using Microsoft Excel and IBM SPSS software.

**Table 1 Number of respondents considered in the analysis**

	<b>Cyprus</b>	<b>Greece</b>
<b>Participants</b>	55	91

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### 3. Demographics and Background

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Respondent demographics investigated through the questionnaire were nationality, gender, age, degree, work sector and years of experience. The demographic characteristics of this survey are the following:

**Nationality and Gender:** Ninety-one respondents or the 62% of the total sample were from Greece while 55 or the 38% from Cyprus. A larger proportion of males participated in the survey compared to females, with 69% being men and 31% women.

**Age:** The largest percentage (34%) of participants belonged to the 18-24 age group. Twenty-three per cent (23%) was between 25-30 whereas 18% belonged to the 31-35 age group. Closely following, 15% of the respondents belonged to the age group of 36-45. In addition, 7% were between 46-55 years old and 3% of the survey participants were in the age range of 56-65 years old.

**Degree:** The highest share of respondents, that of 32%, had a bachelor's degree and 20% had a master's degree. A 24% had attended some college/university with no degree awarded by the time of the survey, and about 8% had a high school degree or equivalent. Furthermore, 16% of the participants had a Technical / Vocational degree. Finally, 1% had a doctorate.

**Work sector:** Thirty percent (30%) of the total number of participants were employed in the construction sector, while 26% were in the private sector. Sixteen percent (16%) of the participants worked as a freelancer, and 8% in technical service in the public sector. Finally, 15% worked in academia and 7% in other sectors.

**Years of experience:** A big share of the participants, 32%, had 4 to 8 years of work experience and 31% had 0 to 4 years of experience. In addition, 15% had 8-12 and 12%, 12-15 years of work experience. Finally, 10% had more than 15 years of experience.

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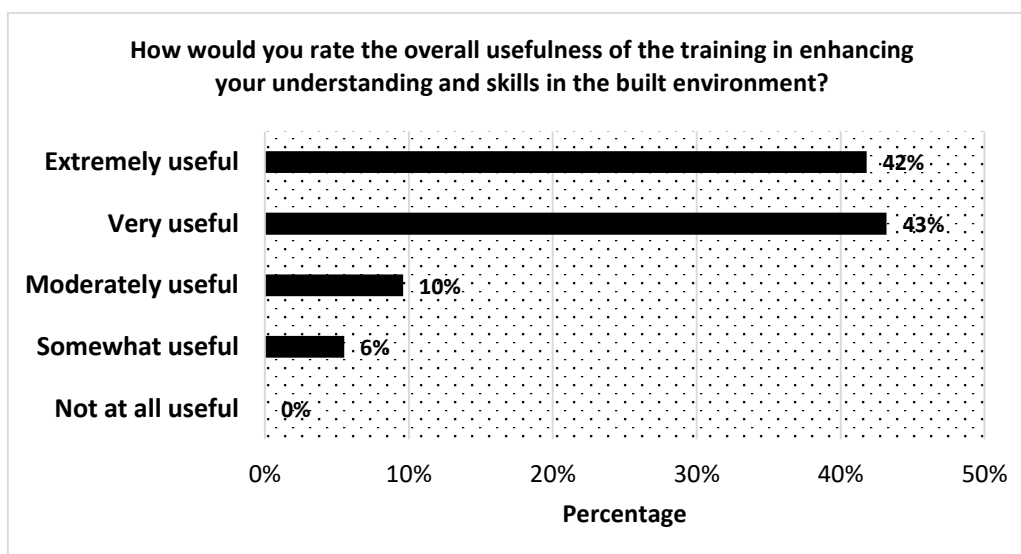


## 4. Participants' Perceptions and Gender Dynamics

In assessing the efficacy of UPGREAT's energy renovation training program, it is essential to delve into aspects of participants' perceptions, including gender analysis. This chapter presents the usefulness of training in enhancing understanding and skills in the built environment, rating understanding of key training concepts, readiness to recognize common practice errors, perceived adequacy of training for energy-efficient renovations, consultation of training material for future energy renovation endeavors, and integration of training knowledge into practical projects. By examining these dimensions through a gender lens, we gain valuable insights into the effectiveness of training initiatives and identify areas for improvement, particularly concerning gender-specific differences.

### 4.1 Usefulness of the training

Participants were asked how would they rate the overall usefulness of the training in enhancing their understanding and skills in the built environment. The findings for the entire sample are depicted in Figure 1, whereas the results specifically from the gender analysis are illustrated in Figure 2. The survey results suggest a widespread perception of the training's effectiveness in enhancing participants' understanding and skills in the built environment. A significant majority of respondents, 42%, rated the training as "Extremely useful," while an additional 43% considered it "Very useful." This indicates a high level of satisfaction with the training program's overall utility in improving knowledge and skills related to the built environment, which is crucial for successful energy-efficient renovations.



**Figure 1 Trainees' Perception of the Training Usefulness**

Notably, none of the respondents from either gender rated the training as "Not at all useful," further emphasizing the perceived value of the training. However, there are discernible differences in responses between genders. A slightly higher percentage of men (45%) compared to women (36%) rated the training as "Extremely useful," indicating potentially differing levels of satisfaction or perceived utility. Similarly, a larger proportion of men (45%) than women (38%) rated it as "Very useful." Conversely, a higher percentage of women (20%) than men (5%) reported finding the training "Moderately useful," while a larger proportion of women (7%) than men (5%) considered it "Somewhat useful." These findings suggest an overall positive perception of the training's usefulness in enhancing understanding and skills in the built environment, with some variations between genders that could inform tailored approaches to address specific learning needs or preferences among participants.

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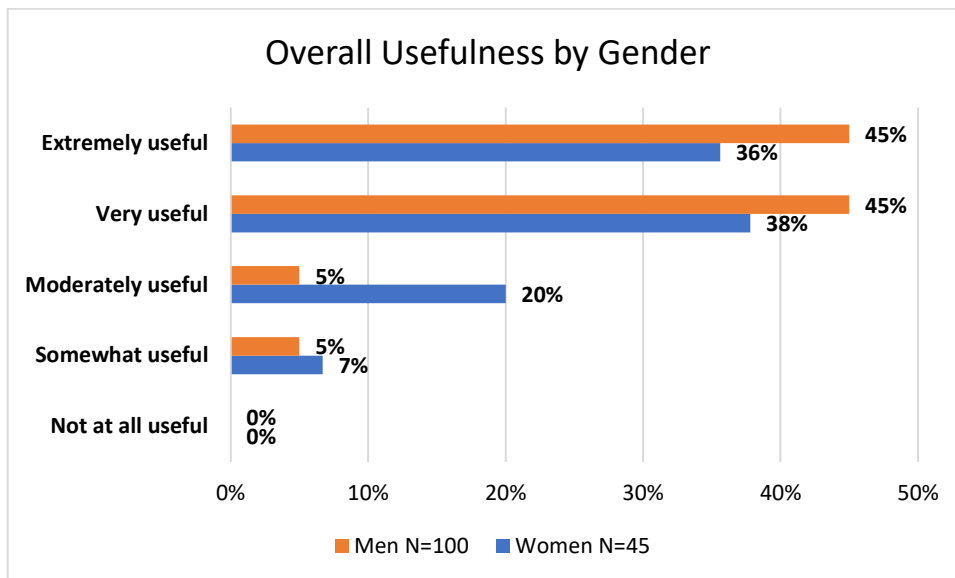


Figure 2 Trainees' Perception of the Training Usefulness by Gender

## 4.2 Adequacy of Training

Participants were asked to what degree of adequacy do they think that the training prepared them for the implementation of energy efficient renovations of even a partial extent (e.g. window replacement, thermal insulation, etc.). The results pertaining to the entire sample are showcased in Figure 3, whereas Figure 4 exclusively presents the outcomes of the gender-based analysis.

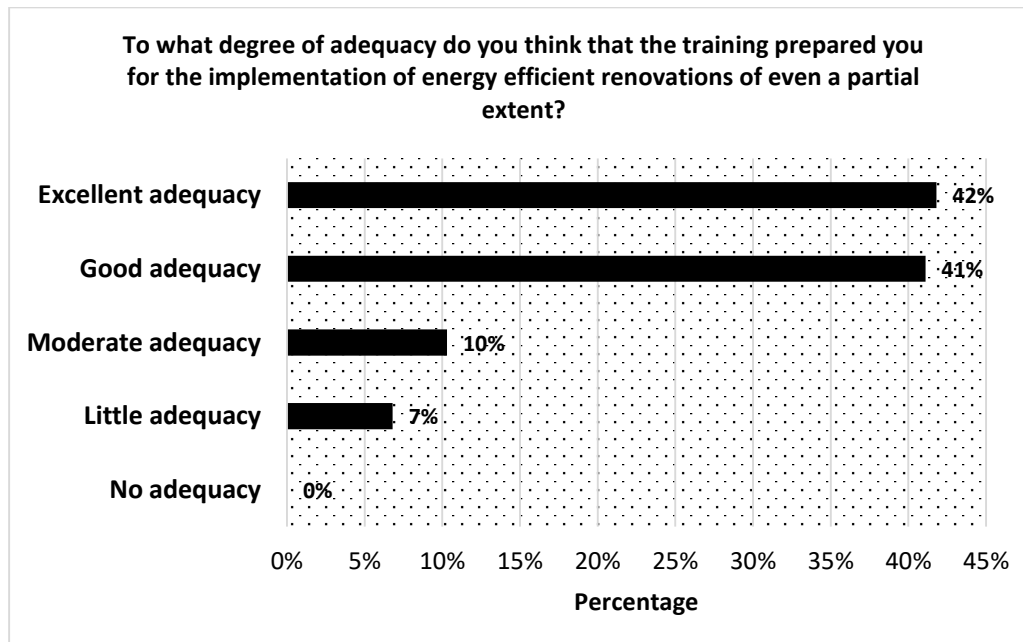


Figure 3 Perceived Adequacy of Training for Energy Efficient Renovations Implementation

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The survey results indicate a high level of perceived adequacy in how the training prepared respondents for implementing energy-efficient renovations, even to a partial extent. A majority, 42%, rated their training as providing "Excellent adequacy" while an additional 41% deemed it to be of "Good adequacy". Furthermore, it was just a small share of respondents, 7%, that rated the trainings' adequacy as little. This suggests that the training program effectively equipped participants with the knowledge and skills necessary to undertake energy-efficient renovations, including tasks such as window replacement and thermal insulation.

On the other hand, there are discernible differences in responses between genders. A slightly higher percentage of men (44%) compared to women (38%) rated the adequacy of their training as "Excellent," indicating potentially differing levels of satisfaction or confidence in the preparedness for implementation. Similarly, a larger proportion of men (45%) than women (33%) rated their training as providing "Good adequacy." Conversely, a higher percentage of women (18%) than men (6%) reported feeling that the training provided "Moderate adequacy," while a larger proportion of women (11%) than men (5%) felt it provided only "Little adequacy." Notably, none of the respondents from either gender rated their training as providing only "No adequacy." These findings suggest an overall positive perception of the adequacy of the training in preparing respondents for energy-efficient renovations, with some differences between genders that could inform targeted approaches to address specific training needs or preferences among participants.

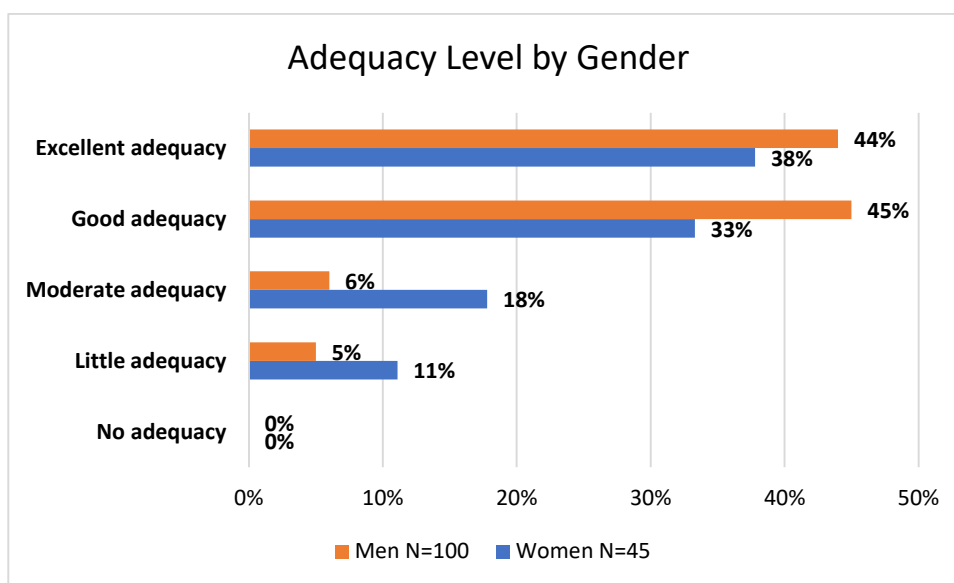


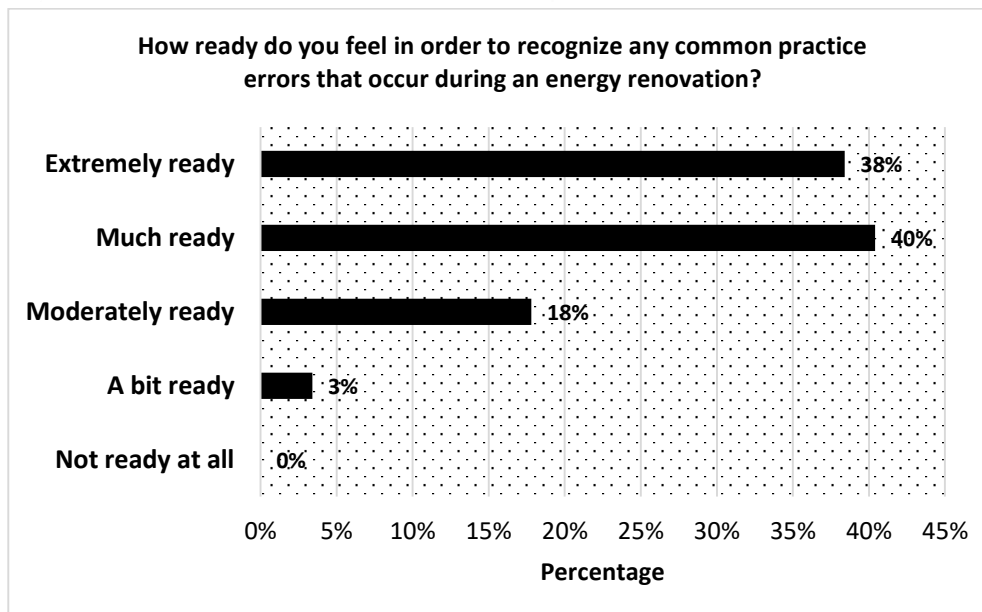
Figure 4 Perceived Adequacy of Training for Energy Efficient Renovations Implementation by Gender

### 4.3 Readiness to Recognize Practice Errors

Respondents were asked how ready do they feel in order to recognize any common practice errors that occur during an energy renovation. In Figure 5, the findings encompass the entire sample, whereas Figure 6 elucidates the outcomes of the gender analysis.

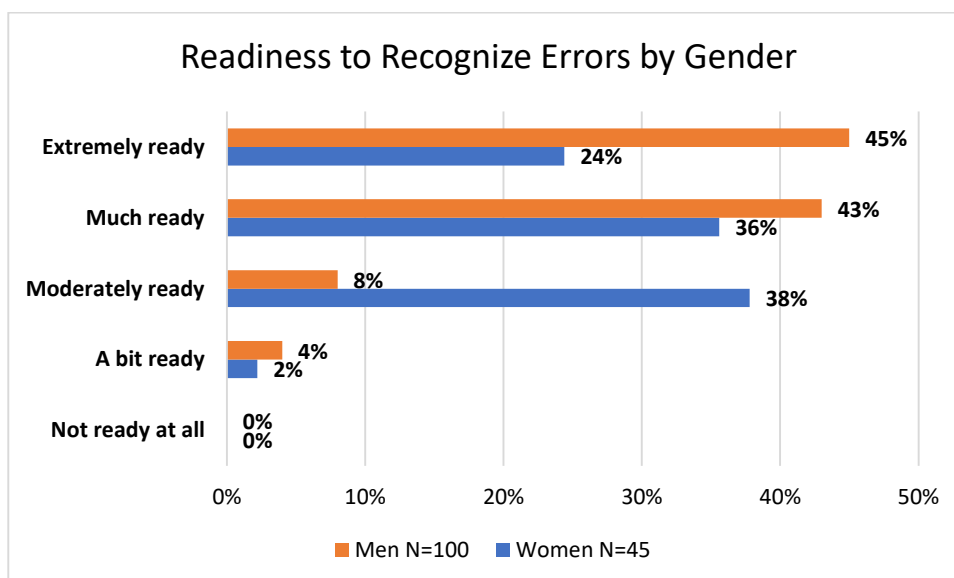
The survey results reveal a generally high level of readiness among respondents to recognize common practice errors during energy renovation projects. Notably, a significant majority of participants, 38%, indicated feeling "Extremely ready," while an additional 40% expressed they were "Much ready." This suggests a strong confidence among respondents in their ability to identify and address common errors, such as incorrect window glass choices leading to thermal bridges, which are crucial for ensuring the success of energy renovation efforts.

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**Figure 5 Perceived Readiness to Identify Common Practice Errors in Energy Renovations**

However, there are notable differences in responses between genders. A higher percentage of men (45%) compared to women (24%) reported feeling "Extremely ready," indicating potentially differing levels of preparedness or experience in recognizing common errors. Similarly, a larger proportion of men (43%) than women (36%) stated they were "Much ready." Conversely, a significantly larger percentage of women (38%) than men (8%) reported feeling "Moderately ready," suggesting potential differences in perceived levels of readiness or confidence in recognizing common practice errors. Additionally, a small percentage of men (4%) stated they were "A bit ready," while none of the women respondents reported this level of readiness. Notably, none of the respondents from either gender indicated they were "Not ready at all." These findings suggest an overall high level of preparedness among respondents to recognize common practice errors during energy renovation projects, with some variations between genders that could inform targeted training or support initiatives to ensure comprehensive understanding and readiness across all participants.



**Figure 6 Perceived Readiness to Identify Common Practice Errors in Energy Renovations by Gender**

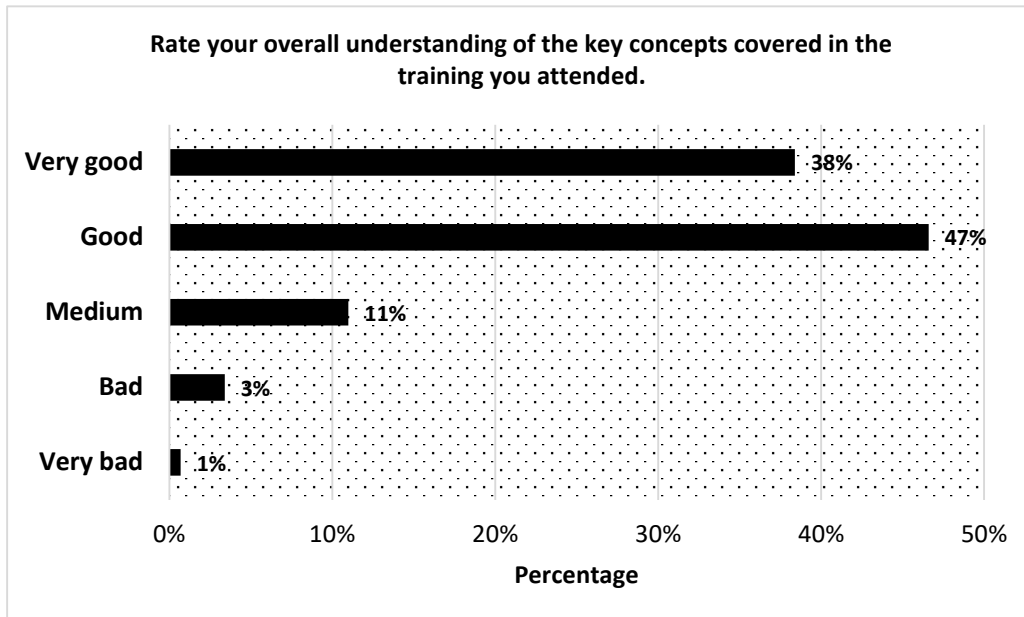
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## 4.4 Understanding of Key Concepts

Respondents were asked to rate their overall understanding of the key concepts covered in the training they attended. Figure 7 provides an overview of the findings for the entire sample, whereas Figure 8 highlights the results from the gender-specific analysis.

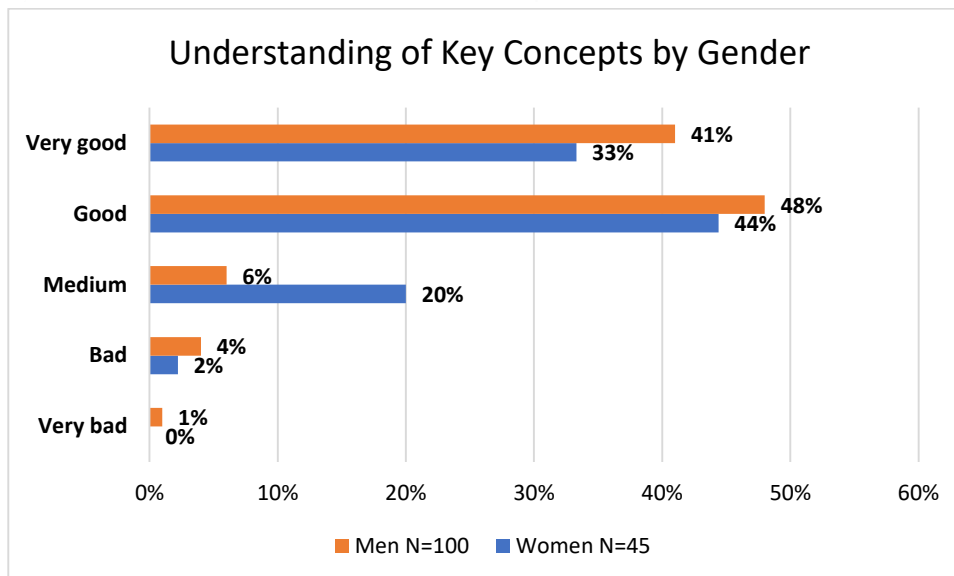
The survey findings indicate generally positive perceptions regarding the overall understanding of key concepts covered in the training sessions attended. Notably, a significant proportion of respondents, 38%, rated their understanding as "Very good," while 47% considered it "Good." This suggests a strong grasp of the training material among participants, reflecting positively on the effectiveness of the training program.



**Figure 7 Rating of Overall Understanding of Training Key Concepts**

Nevertheless, there are discernible differences in responses between genders. A slightly higher percentage of men (41%) compared to women (33%) rated their understanding as "Very good," while a larger proportion of women (44%) than men (48%) rated it as "Good." Moreover, women (20%) were more likely than men (6%) to rate their understanding as "Medium," indicating potentially varying levels of comprehension or engagement with the training content. Conversely, a small percentage of men (4%) rated their understanding as "Bad," whereas none of the women respondents did so. Additionally, only 1% of men rated their understanding as "Very bad," while none of the women respondents reported such a low rating. These findings suggest an overall positive perception of the comprehensibility of the training material, with some differences between genders that could inform tailored approaches to address specific learning needs or preferences among participants.

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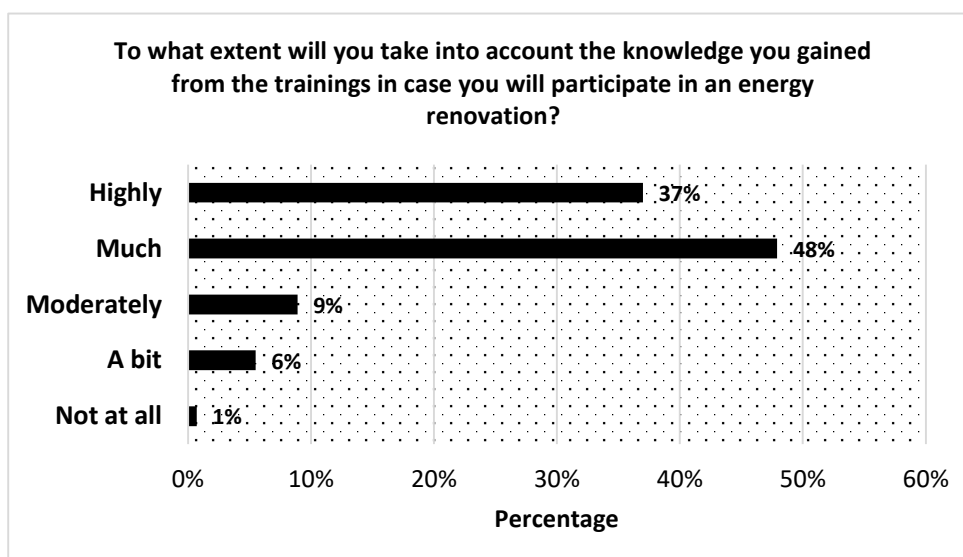


**Figure 8 Rating of Overall Understanding of Training Key Concepts by Gender**

## 4.5 Integration of Training Knowledge

The next question was about the extent respondents will take into account the knowledge they gained from the trainings in case they will participate in an energy renovation. While Figure 9 encapsulates the findings for the entire sample, Figure 10 delves into the results obtained from the gender analysis.

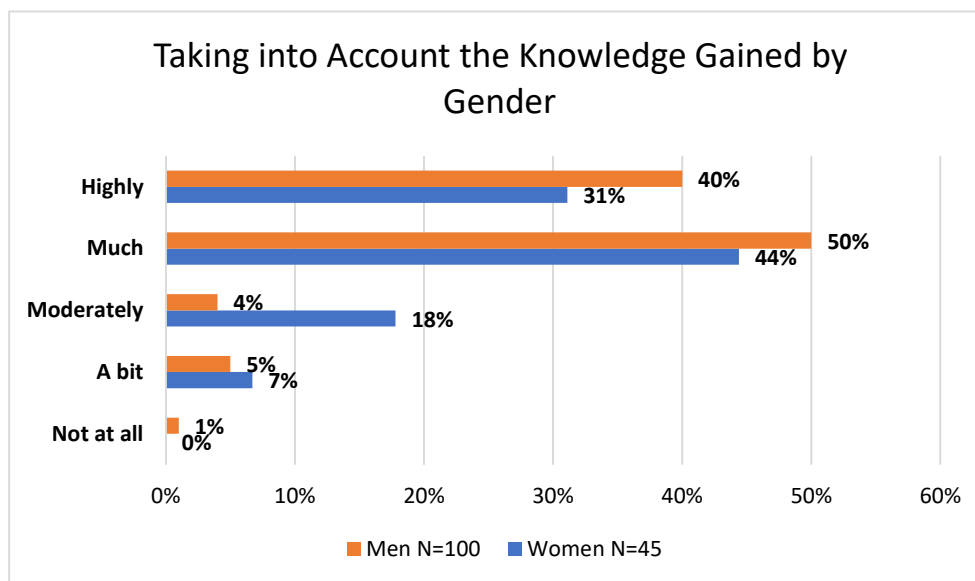
The survey results demonstrate a strong recognition among respondents of the value of knowledge gained from training in the context of energy renovation. Notably, a significant portion of participants, 48%, indicated they would take into account this knowledge "Much," while 37% expressed they would do so "Highly." This suggests a widespread acknowledgment of the importance of applying learned information in practical scenarios, indicating a positive outcome of the training programs.



**Figure 9 Incorporation of Training Knowledge into Future Energy Renovation Participation**

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However, there are variations in responses based on gender. A higher percentage of men (40%) compared to women (31%) stated they would take the knowledge into account "Highly," while a slightly larger proportion of women (44%) than men (50%) opted for "Much." Additionally, the breakdown reveals that women (18%) were more likely than men (4%) to choose "Moderately," indicating potentially differing levels of confidence or willingness to apply the training knowledge. Conversely, a larger percentage of men (5%) than women (7%) responded they would take the knowledge into account "A bit." Notably, no women responded "Not at all," while only 1% of men did so. These findings suggest a generally positive attitude towards integrating training knowledge into energy renovation practices, with some nuanced differences between genders that could inform targeted approaches to further enhance participation and application of learned skills.



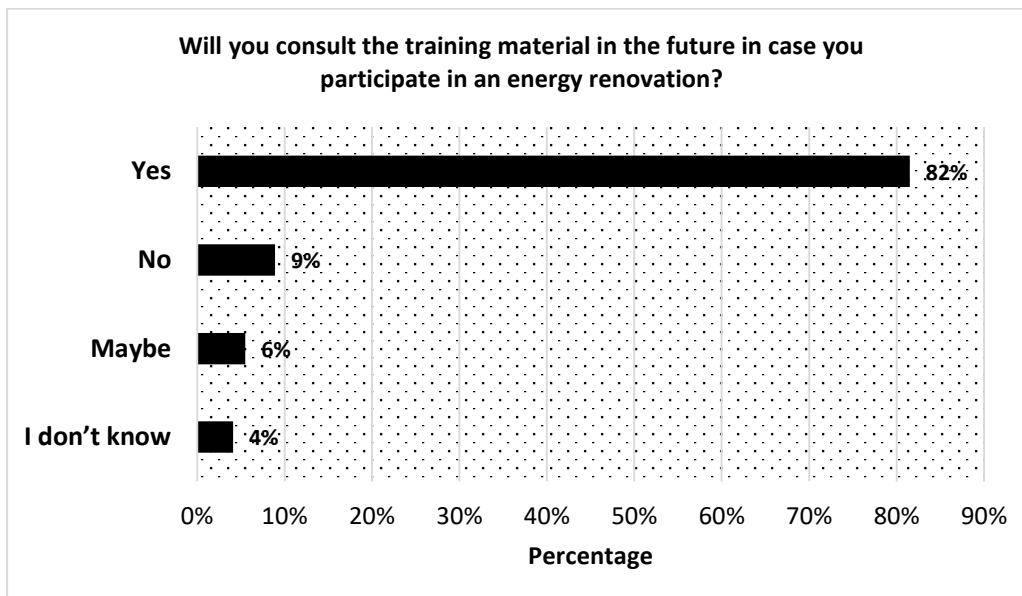
**Figure 10 Incorporation of Training Knowledge into Future Energy Renovation Participation by Gender**

## 4.6 Consultation of Training Material

Survey participants were asked if they will consult the training material in the future in case they will participate in an energy renovation. Within Figure 11 lies the comprehensive findings of the entire sample, whereas Figure 12 is dedicated to delineating the outcomes of the gender analysis.

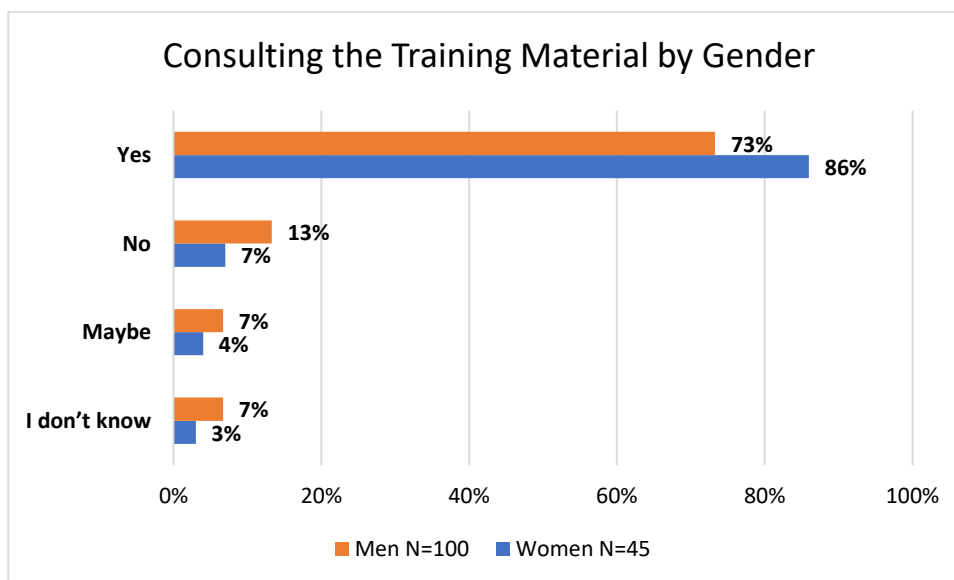
The survey results indicate a strong inclination towards consulting training material for future participation in energy renovation, with 82% of respondents answering "Yes." This suggests a significant interest among participants in seeking guidance or information when engaging in energy renovation projects. The minority of respondents who answered "No" (9%), "Maybe" (6%), or "I don't know" (4%) could represent a segment of the population requiring further clarification or persuasion regarding the benefits of consulting training materials.

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**Figure 11 Future Consultation of Training Material**

A deeper analysis based on gender reveals some nuanced differences in responses. Among men, 73% replied "Yes," while among women, a slightly higher percentage, 86%, indicated they would consult training material. Conversely, a larger proportion of men (13%) answered "No" compared to women (7%). The differences in responses between genders could stem from varying levels of familiarity or confidence in energy renovation practices, suggesting potential areas for targeted education or outreach efforts to ensure broader engagement across demographics.



**Figure 12 Future Consultation of Training Material by Gender**

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## 5. Discussion and Conclusions

The completion of UPGREAT's energy renovation training seminars marks a significant achievement in addressing the pressing need for sustainable building practices in Cyprus and Greece. As we transition towards a greener future, the dissemination and continued utilization of the training material developed through this project are crucial. This report outlines the results of a "readiness" survey carried out at the culmination of the UPGREAT project. A total of 146 individuals, including building professionals, students studying the built environment, and practitioners, took part in the survey, providing valuable perspectives on their perceptions of the training program developed within the project's framework. Based on the findings of the survey regarding respondents' readiness level for energy renovations, several key conclusions and recommendations can be drawn.

Firstly, the survey findings demonstrate that the training was perceived as highly useful in enhancing respondents' understanding and skills in the built environment, with 85% finding it useful. This highlights the importance of continuing to invest in quality training programs that provide tangible benefits to participants. Secondly, the majority of respondents (83%) rated their training as adequately preparing them for implementing energy-efficient renovations. This indicates the effectiveness of the training program in equipping participants with the necessary knowledge and skills for successful renovation projects.

The analysis reveals that in both perceptions of usefulness and adequacy of training, there are slight differences between men and women. Men generally rated the training as more useful and adequate compared to women. Specifically, 45% of men rated the training as "Extremely useful" compared to 36% of women, and 44% of men rated the adequacy of their training as "Excellent" compared to 38% of women. Conversely, women tended to rate the training lower on the usefulness and adequacy scales, with more of them considering it "Moderately useful" (20% of women compared to 5% of men) and providing "Moderate adequacy" (18% of women compared to 6% of men). However, it's important to note that overall, both genders viewed the training positively. These gender-based variations, could be utilized to tailor approaches for addressing specific learning needs or preferences among participants.

Moreover, the survey indicates a high level of confidence among respondents in recognizing common practice errors during energy renovation projects, with 78% feeling ready to do so. However, there were differences in readiness levels between genders, with 45% of men feeling "extremely ready" compared to 24% of women, suggesting the need for targeted training or support initiatives to ensure comprehensive understanding and readiness across all participants. In addition, while most respondents rated their understanding of key concepts covered in the training as good or very good (85%), there were some differences between genders with 41% of men regarding their understanding of key concepts as "very good" compared to 33% of women. This highlights the importance of ensuring training materials are effectively communicated and inclusive of diverse learning styles.

Lastly, the survey reveals a strong interest and intention among respondents to consult training materials for future energy renovation projects, with 82% expressing this intention. This underscores the importance of providing accessible and comprehensive training resources to support individuals in their renovation endeavors. Gender-based analysis uncovers nuanced variations in responses, with 73% of men and a slightly higher 86% of women expressing intent to consult training material, implying potential differences in familiarity or confidence in energy renovation practices, thus highlighting opportunities for targeted education or outreach initiatives to ensure broader participation.

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In conclusion, the survey findings underscore the importance of providing accessible, comprehensive, and tailored training programs to support individuals in their energy renovation efforts. Recommendations include ongoing evaluation and refinement of training materials to ensure inclusivity and effectiveness, as well as targeted initiatives to address any disparities in readiness or understanding observed between genders. By addressing these recommendations, stakeholders can enhance the impact and effectiveness of energy renovation training programs, ultimately contributing to the promotion of sustainable and energy-efficient built environments.

Closing the gender gap observed in the survey responses regarding the readiness for energy renovations requires targeted measures aimed at addressing underlying factors contributing to the disparities. Some recommendations for stakeholders, including educational institutions, to promote gender equality in energy renovation training are:

**Tailored Training Programs:** Develop training programs that cater to diverse learning styles and preferences, ensuring inclusivity for all participants. Offer flexible learning formats, such as online modules or in-person workshops, to accommodate varying schedules and preferences.

**Gender-Sensitive Curriculum:** Review and update training curriculum to include gender-sensitive content that addresses specific needs and challenges faced by individuals of different genders in the context of energy renovation. Include case studies and examples that reflect diverse experiences and perspectives.

**Mentorship and Support Networks:** Establish mentorship programs and support networks to provide guidance and encouragement to individuals, particularly women, pursuing careers or education in energy renovation. Connect participants with mentors who can offer insights and advice based on their own experiences.

**Promote Diversity in Leadership:** Encourage diversity in leadership roles within the energy renovation sector, including educational institutions offering training programs. Provide opportunities for women to take on leadership positions and serve as role models for aspiring professionals.

**Address Stereotypes and Bias:** Raise awareness about gender stereotypes and bias that may influence perceptions and opportunities within the energy renovation field. Offer training and workshops on unconscious bias and promote a culture of inclusivity and respect.

**Research and Data Collection:** Conduct research and collect data on gender dynamics within the energy renovation sector to better understand the barriers and challenges faced by women. Use this information to inform policy development and program design aimed at promoting gender equality.

**Promote Female Representation:** Increase visibility and representation of women in promotional materials, events, and conferences related to energy renovation. Showcase the achievements and contributions of women professionals in the field to inspire others and challenge stereotypes.

**Collaboration and Partnerships:** Foster collaboration and partnerships between educational institutions, industry stakeholders, and community organizations to promote gender equality initiatives in energy renovation training. Pool resources and expertise to implement effective strategies and programs.

By implementing these measures and recommendations, stakeholders can work towards closing the gender gap observed in energy renovation training and promoting greater diversity and inclusion within the sector. This not only benefits individuals by providing equal opportunities for learning and advancement but also strengthens the overall sustainability and effectiveness of energy renovation efforts.

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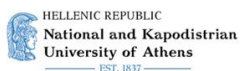
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## Annex I

UPGREAT Project – Upskilling Professionals for deep enerGy efficiency  
REnovations: A Tool for better schools

# Improved Energy Efficiency Methods

Training Methodology & Lessons Learned

**Responsible Partner:** Cyprus Energy Agency [CEA]  
**Authors:** Christina Palochi & Andreas Pastides [CEA]  
**Reporting period:** April 23 – December 23

**Dissemination Level:** To be provided to local authorities and technical associations  
of the construction sector.

This project is part of the [European Climate Initiative \(EUKI\)](#) of the German  
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### 1) Definitions

**UPGREAT:** Upskilling Professionals for deep enerGy efficiency RENovations: A Tool for better schools

**Grant Agreement Number:** 81291792

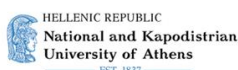
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## a) Introduction

The UPGREAT [Upskilling Professionals for deep energy efficiency REnovations: A Tool for better schools] project, which is coordinated by the National and Kapodistrian University of Athens, in cooperation with the Hellenic Passive House Institute, the Cyprus Energy Agency, and the German Da-Di-Werk, was conceived to improve the readiness of Cyprus and Greece for energy efficient deep renovation of school buildings, through the development and implementation of a Total Training Toolkit, targeting building professionals involved in all phases of building renovation processes, minimizing in this way the performance gap.

The Total Training Toolkit, focused on deep energy renovations in school buildings in Greece and Cyprus, was developed in order to educate and train the professionals of the building industry. The curriculum, which is in Greek language, covers an educational program for EQF levels 3-7. Specifically, the educational material, is addressed to blue- and white-collar professionals such as technicians, installers, architects and engineers and other building experts responsible for the design and implementation of deep energy renovation measures. In addition, it is considered to be a useful tool for Public Authorities at municipal and regional level and Technical and engineering staff working to enhance their expertise in energy efficiency approaches especially for schools.

During the project's lifetime, the partners have organized 6 pilot training sessions in Cyprus and 12 sessions in Greece, to upgrade the existing knowledge on the matter while promoting the Total Training Toolkit. After the successful completion of the 18 above mentioned educational sessions, the training methodology and the various lessons learned from the procedure, are presented in the current Annex.

## b) Methodology

Regarding the preparation and conduction of the training sessions, a standard methodology is expected to be followed. Firstly, the date, venue, trainers, and agenda should be defined for each session and an open call should be published about 7-15 days in advance, through the project's communication channels, along with an online participation form for the interested individuals to fill in. Upon the closing date of the online participation form, an overview of the total number and professional background of the participants is formed.

In order to be as consistent as possible with the interests, needs and expectations of the audience and depending on the EQF level of each target group, the educational material of the Total Training Toolkit should be selected accordingly, as well as the subjects to be taught. In some cases, the practical demonstration of specific procedures, such as the installation of external insulation on walls or roofs, may be introduced into the training material so as to provide a visual and hands-on experience to the participants. Notably, the demonstration could be conducted by a professional installer or company which specializes in the specific topic, in collaboration with the allocated trainers. The combination of theoretical and practical training promotes a holistic approach in understanding the importance and methodology of deep energy renovations and contributes significantly to upskilling the professionals of the construction industry.

The closing session of the agenda of each training, aims to initiate open discussions in focus groups regarding thoughts and concerns that the participants may raise, related to the subjects and educational material presented. During this session, participants have the opportunity to ask specific questions and discuss their personal experiences on the subject with the rest of the audience, the trainers and the external experts.

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After the completion of each training session, the participants are required to complete an evaluation assessment for their overall experience of the training itself as well as the trainers. The feedback gathered through the evaluation process should be systematically reviewed by the trainers for improving future trainings regarding the educational material and the structure of the sessions.

### c) Lessons Learned

The pilot implementation of the Total Training Toolkit in Cyprus and Greece through 18 training sessions, was successful and constructive in various aspects, for the participants as well as for the UPGREAT project partners. It is worth mentioning that in Cyprus, about 170 participants attended the free educational seminars that were conducted by Cyprus Energy Agency, of which 28 were technicians/builders, 30 were engineers and 111 were students at technical high schools focusing on subjects related to the construction industry. Regarding the educational sessions which were conducted in Greece, by the National and Kapodistrian University of Athens, the participants reached 134, all of them undergraduate students in relevant fields. About 355 participants attended the free educational seminars, live workshops and talks that were conducted by the Hellenic Passive House Institute, of which 168 were Engineers, 42 were university students, 13 were high school students, 30 were primary school students, 27 were students from our PHPP designer courses, 9 were scouts, 31 were teachers and school headmasters, 4 were members of local municipalities, 2 were employees of supplier companies related to the construction sector, 14 were employees of construction companies, 1 was a real estate agent and 14 were individuals in cooperation with Odyssey project, which is a project that gives employability chances to people from minority backgrounds.

Regarding the outcomes and the lessons learned through this procedure, some of the gaps for each target group, in terms of knowledge and skills, were particularly evident during the discussions between the participants. The results gathered are presented in the following table:

**Table 2 Lessons learned during the training process, regarding the gaps in knowledge/skills of the participants.**

TARGET GROUP	SUBJECT DESCRIPTION	LESSONS LEARNED
TECHNICIANS / BUILDERS	Legislative framework (EU, National)	<b>Lack of knowledge</b> <i>Should have knowledge of the EU and National objectives regarding climate change (energy efficiency, CO<sub>2</sub> emissions)</i>
	Importance of thermal insulation	<b>Limited knowledge</b> <i>Should be able to understand the benefits of thermal insulation on buildings</i>
	Passive House Principles	<b>Lack of knowledge</b> <i>Should be able to understand the advantages of a Passive House</i>
	Installation methodology	<b>Improvement of technical skills required for specific tasks</b> <i>(e.g. installation of mechanical ventilation)</i>

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<b>ENGINEERS</b>	<b>Legislative framework (EU, National)</b>	<b>Sufficient knowledge</b>
	<b>Importance of thermal insulation</b>	<b>Sufficient knowledge</b> <i>More technical examples required</i> <i>(e.g. thermal bridging, airtightness)</i>
	<b>Passive House Principles</b>	<b>Basic to adequate knowledge</b> <i>Should be able to understand the advantages</i> <i>of a Passive House</i>
	<b>Installation methodology</b>	<b>Basic knowledge</b> <i>Practical training required</i>
<b>TECHNICAL HIGH-SCHOOLS STUDENTS (construction related courses)</b>	<b>Legislative framework (EU, National)</b>	<b>Lack of knowledge</b> <i>Should have knowledge of the EU and National objectives regarding climate change (energy efficiency, CO2 emissions)</i>
	<b>Importance of thermal insulation</b>	<b>Limited knowledge</b> <i>Need for better understanding the building's physics</i>
	<b>Passive House Principles</b>	<b>Lack of knowledge</b> <i>Should be able to understand the advantages</i> <i>of a Passive House</i>
	<b>Installation methodology</b>	<b>Basic knowledge - Improvement of technical skills required</b> <i>(e.g. installation of mechanical ventilation)</i>

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## d) Conclusions

In conclusion, this Annex highlights the efforts made in disseminating knowledge on deep energy renovations in schools and other building typologies, among technicians, builders, engineers, and students. Through a systematic and comprehensive methodology, the educational seminars served as a platform to bridge the gap between theoretical understanding and practical application in the field of energy-efficient construction.

The document presents the experiences gained through the pilot sessions, emphasizing the importance of a well-structured training methodology to meet the expectations of each audience as well as to spread knowledge regarding the evolving landscape of deep energy renovations. In some cases, the engagement with a diverse audience, including blue- and white-collar professionals, has not only facilitated knowledge transfer but has also encouraged a collaborative environment where insights were exchanged, and innovative approaches were explored.

The lessons learned section discusses the practical implications of the educational initiatives, pointing out the importance of the participants' skills, expertise and awareness related to deep energy renovations. Noteworthy successes and areas for improvement have been identified, offering valuable insights for refining future educational programs.

To sum up, this Annex serves as a comprehensive reflection on the methodology employed and the valuable lessons extracted from the conduction of the 18 training sessions which were a successful pilot implementation of the Total Training Toolkit, in Greece and Cyprus. It is an important step and a commitment towards advancing expertise in deep energy renovations and promoting a sustainable and resilient built environment for future generations. The knowledge gained could contribute significantly to the ongoing discourse in energy-efficient construction practices while minimizing the performance gap between the design and construction phase, thereby shaping a more sustainable and environmentally conscious future.

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## Annex II

UPGREAT Project – Upskilling Professionals for deep enerGy efficiency RENovations: A Tool for better schools

# Improved Energy Efficiency Methods

Long Term Exploitation Plan

**Responsible Partner:** Hellenic Passive House Institute [HPHI]  
**Authors:** Dimitris Pallantzas [HPHI]  
**Reporting period:** April 23 – December 23

**Dissemination Level:** To be provided to local authorities and technical associations of the construction sector.

This project is part of the [European Climate Initiative \(EUKI\)](#) of the German Federal Ministry for Economic Affairs and Climate Action (BMWK).

### a) Definitions

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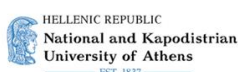
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## 1. Introduction

The completion of the energy renovation training project marks a significant achievement in addressing the pressing need for sustainable building practices. As we transition towards a greener future, the dissemination and continued utilization of the training material developed through this project are crucial. Therefore, an exploitation plan that aims to extend the impact of the project by fostering collaboration, innovation, and continuous improvement in energy renovation practices is presented in ANNEX II of this report.

An Exploitation Plan (EP) is designed to facilitate the utilization and dissemination of the knowledge acquired throughout a project, highlighting its added value and catalyzing further advancements in both scientific and market domains. This current report assesses the opportunities for exploiting the achieved and anticipated outcomes of the UPGREAT project. It is based on progress towards attaining general and specific project performance indicators and the implementation of communication and dissemination strategies during the first half of the project duration. The document outlines the strategic approach of the UPGREAT project toward exploitation, considering the needs of key user groups and factoring in external influences such as the policy context and the ongoing pandemic.

The key exploitable results are identified and scrutinized for their practical applicability in diverse contexts, with particular attention given to preparatory activities that offer substantial replication potential. The assessment encompasses two levels of exploitation: a generic evaluation of EU-wide exploitation followed by country- and partner-specific analyses. These analyses illustrate the opportunities and specific measures that project partners and potential replicators should undertake to optimally exploit the project's outputs. Sustainability of exploitation and considerations regarding Intellectual Property Rights (IPR) are also addressed.

## 2. STRATEGIC APPROACH TO EXPLOITATION OF PROJECT RESULTS

The long-term strategic plan for the exploitation of the project results, notably the Total Training Toolkit, encompasses a multifaceted approach to ensure sustained impact and widespread adoption within the field of energy-efficient building renovations. By focusing on integration into educational systems, establishing certification standards, and fostering continuous capacity building, the strategy aims to create a lasting foundation for professionals. Advocacy for regulatory inclusion, international collaboration, and engagement with stakeholders forms a key pillar for widespread acceptance. Emphasis on public awareness, feedback mechanisms, and incorporation into training programs underscores the commitment to adaptability and responsiveness to industry needs. With a strong focus on long-term funding, strategic partnerships, and the development of an Annex for improved methods, this comprehensive strategy positions the project's outcomes for enduring success, contributing significantly to the advancement of sustainable and energy-efficient practices in the building sector.

### 1. Integration into Educational Systems:

- Collaborate with educational institutions to integrate the Total Training Toolkit into relevant curricula for building professionals.
- Establish partnerships with educational providers to ensure the toolkit becomes a fundamental component of long-term learning in the field.

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## 2. Certification and Skill Validation:

- Implement a certification system linked to the toolkit to validate the skills acquired by professionals.
- Encourage the adoption of the certification scheme as a recognized standard in the industry, adding credibility and motivating individuals to undergo training.

## 3. Continuous Capacity Building:

- Develop a sustainable capacity-building program that extends beyond the project's timeline.
- Conduct regular training sessions using the toolkit, ensuring professionals stay updated on the latest practices and technologies in energy-efficient building renovations.

## 4. Regulatory Advocacy:

- Advocate for the incorporation of the toolkit's methodologies into building regulations and industry standards.
- Collaborate with relevant authorities to establish the toolkit as a recommended guideline for achieving energy efficiency in building renovations.

## 5. International Collaboration and Adaptation:

- Explore opportunities for international collaboration to share the toolkit with other countries facing similar challenges.
- Adapt the toolkit to different contexts while ensuring its core principles and effectiveness remain intact.

## 6. Public Awareness and Stakeholder Engagement:

- Implement a sustained public awareness campaign to highlight the importance of energy-efficient building renovations.
- Engage stakeholders, including professionals, authorities, and citizens, in workshops, seminars, and events to promote the toolkit's value.

## 7. Feedback and Improvement Mechanism:

- Establish a feedback mechanism to continuously gather insights from users on the toolkit's effectiveness.
- Use feedback to improve and update the toolkit, ensuring it stays relevant and responsive to the evolving needs of the building industry.

## 8. Incorporation into Training Programs:

- Collaborate with vocational training programs to incorporate the Total Training Toolkit into their offerings.
- Ensure that the toolkit becomes an integral part of training initiatives for both new and existing professionals in the construction and renovation sector.

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## 9. Long-Term Funding and Sustainability:

- Develop a long-term funding strategy to ensure the sustainability of the toolkit.
- Seek financial support from both public and private sources to maintain accessibility and support for the toolkit beyond the project's duration.

## 10. Strategic Partnerships for Material Dissemination:

- Form strategic partnerships with educational providers for the integration of training materials into their long-term structures.
- Develop an Annex for improved energy efficiency methods to be used in educational curricula and industry training programs.

By implementing these strategic approaches, the project can ensure the Total Training Toolkit's enduring impact, fostering continuous learning, and contributing to the long-term success of energy-efficient building renovations.

## 3. KEY EXPLOITABLE RESULTS

In pursuit of sustainable renovations in schools and other building types, the UPGREAT project emphasizes an integrated approach through four key pillars that encompass all stakeholders. The first pillar, "**Educational Empowerment**" targets students, early-stage engineers, and craftsmen, providing them with knowledge and skills crucial for the next decade of renovations. The second pillar, "**Professional Capacitation**" focuses on engineers in the public sector and freelance engineers, aiming to create a new construction culture and immediate impact through education. The third pillar, "**Decision-Maker Engagement**" extends the initiative to public authorities and decision-makers, emphasizing the pivotal role they play in minimizing CO<sub>2</sub> emissions and enhancing overall quality of life. The fourth pillar, "**User-Centric Awareness**" addresses citizens and end-users, empowering them to influence construction companies and demand more efficient procedures. This strategy ensures that each stakeholder group contributes to the market and societal impact concerning the renovation of existing buildings, thereby promoting energy efficiency, healthy environments, and sustainable construction practices. The project's key exploitable results include training material, guidelines for organizing seminars on deep energy renovations, stakeholder engagement and mobile training units. Additionally, various supporting outputs, such as certification schemes, methodologies for stakeholders' analysis, and unique value propositions, contribute significantly to the long-term success of the initiative. The UPGREAT project's comprehensive approach seeks to foster collaboration, awareness, and expertise, ultimately driving a paradigm shift in sustainable school renovations. An approach to promote an impactful initiative for energy-efficient renovations in schools, but not limited to school buildings, is described:

### 1. Integrated Training Framework:

- *Target Groups and Impact:* Define a comprehensive target group, including students, early-stage engineers, public sector engineers, freelance engineers, public authorities, and citizens. Quantify their impact on the market, considering their roles in the construction industry and potential influence over the next decade.
- *Capacity Building Programs:* Develop an integrated training program addressing diverse stakeholders, providing knowledge and skills for energy-efficient building renovations. Emphasize early-stage engineers and students as key influencers in setting industry standards.

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- *Certification and Recognition:* Establish a certification system for participants, enhancing their visibility as leaders in energy-efficient construction. Encourage the adoption of certification standards within the industry.

## 2. Stakeholder Engagement and Decision-Making:

- *Educational Advocacy:* Inform and educate public sector engineers, freelance engineers, and public authorities on the benefits of energy efficiency, emphasizing the directive for deep energy retrofits. Immediate impact is expected, particularly in local communities around educational institutions.
- *Public Awareness and Decision-Making Influence:* Raise awareness among citizens and end-users about the principles of Zero Energy Buildings. Mobilize end-users to demand more efficient construction procedures, influencing decision-makers and creating a market demand for advanced practices.

## 3. Schools as Catalysts for Change:

- *Interactive Learning Environments:* Leverage schools as focal points for interaction between target groups and decision-makers. Prioritize school renovations to showcase the benefits of energy-efficient buildings to students, the most demanding end-users.
- *Demonstrating Impact:* Share experiences from Passive House schools worldwide, emphasizing their efficiency, low operating costs, and positive impact on student learning outcomes. Highlight successful cases where renovations led to the adoption of energy-efficient concepts in entire municipalities.

## 4. Global Standards and Adaptability:

- *Passive House Concept as a Guide:* Promote the Passive House Concept as a global guide for nearly Zero Energy Buildings and renovations. Emphasize its adaptability in various climate zones and its role in ensuring energy efficiency and thermal comfort.
- *Continuous Education and Standardization:* Emphasize continuous education for engineers and technicians, aligning with global standards. Highlight the adaptability of the Passive House Concept in creating efficient schools and public buildings.

This consolidated approach ensures a comprehensive strategy that covers all stakeholders involved in school buildings and training, promoting an impactful initiative for energy-efficient renovations.

## 4. EXPLOITATION OPPORTUNITIES

The UPGREAT project, with its approach to highlight sustainable renovations in schools and other buildings, presents significant exploitation opportunities across Eastern Europe as well as across the European Union (EU). The developed Total Training Toolkit, including guidelines, methodologies, and unique value propositions on deep energy renovations, forms a comprehensive resource that can be seamlessly integrated into educational curricula and professional training programs across the countries of Eastern Europe and the EU Member States. The project's focus on engaging diverse stakeholders, from students and engineers to decision-makers and end-users, ensures adaptability to various national contexts. The guidelines for organizing seminars, stakeholder engagement, and mobile training units offer replicable models for other European countries seeking to enhance energy efficiency in their building sectors. Moreover, the emphasis on creating a new construction culture through education and awareness aligns with the broader EU goals for sustainable urban development. The UPGREAT project, with its pan

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European-wide exploitable results, stands poised to contribute substantially to the transformation of renovations in various types of buildings including schools, fostering a greener and more energy-efficient future across Europe.

*Integrated Approach for Sustainable School Renovations and Future Opportunities:*

The successful groundwork laid by the UPGREAT project now converges into three strategic pillars for ongoing efforts and future opportunities:

**1. Empowering Education and Professional Capacitation:**

- **Stakeholder Engagement:** Strengthening engagement with students, early-stage engineers, and public authorities to create a comprehensive and sustainable knowledge base.
- **Continuous Toolkit Enhancement:** Iteratively improving the Total Training Toolkit, incorporating emerging technologies, and expanding its reach to a broader audience.
- **Collaborative Capacity Building:** Deepening partnerships with educational institutions, industry associations, and vocational training providers to enhance the capabilities of professionals and students alike.

**2. Decision-Maker Awareness and User-Centric Impact:**

- **Policy Advocacy:** Advocating for policy changes and incentives to promote energy-efficient renovations, collaborating with policymakers to integrate sustainable methodologies into national regulations.
- **Public Awareness Campaigns:** Expanding campaigns to foster a collective understanding of the benefits of sustainable building practices among communities, parents, and local authorities.
- **Exploration of Financing Models:** Exploring and promoting innovative financing models for sustainable renovations, fostering partnerships with financial institutions and investors interested in supporting environmentally conscious projects.

**3. Practical Implementation and Geographic Expansion:**

- **Actual Building Renovation Pilots:** Recognizing the need for practical implementation, the initiative will emphasize actual building renovation pilots alongside training initiatives. This ensures the application of learned principles in real-world scenarios, contributing to tangible sustainability outcomes.
- **Expanded Geographic Reach:** Extending the geographic reach of efforts to include a wider range of Eastern European countries and EU Member States, promoting the dissemination of knowledge, and adapting methodologies to diverse regional contexts.
- **Long-Term Monitoring and Evaluation:** Establishing a robust system for long-term monitoring and evaluation to track the implementation of sustainable practices in renovated schools, ensuring continuous refinement based on real-world impact.

This strategic approach not only positions the ongoing efforts for sustained impact but also opens doors for future opportunities in advancing sustainable construction practices and energy-efficient renovations across Europe.

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## 5. Conclusion

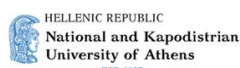
In conclusion, the UPGREAT project's exploitation plan underscores a comprehensive strategy for advancing sustainable renovations focused on, but not limited to, schools and building a lasting legacy in the realm of energy efficiency. Through the implementation of a Total Training Toolkit, stakeholder engagement, and awareness campaigns, UPGREAT has laid a robust foundation for transformative change. The focus on educational empowerment, decision-maker awareness, and practical implementation has created a holistic approach that goes beyond theoretical knowledge, making tangible impacts on building renovations.

Looking ahead, the future steps for UPGREAT involve a relentless commitment to continuous improvement and expansion. By enhancing the training toolkit with emerging technologies, strengthening partnerships, and advocating for policy changes, UPGREAT aims to fortify its position as a catalyst for sustainable building practices. The incorporation of actual building renovation pilots ensures that the knowledge imparted translates into on-the-ground results, contributing to a more energy-efficient and environmentally conscious future.

The geographic expansion of UPGREAT, coupled with long-term monitoring and evaluation, sets the stage for broader dissemination and adaptation of sustainable methodologies. Future steps involve navigating innovative financing models and exploring collaborative opportunities to further amplify the project's impact across Europe.

As UPGREAT concludes its initial phase, it paves the way for an exciting and impactful future. The project's approach, coupled with a forward-looking strategy, positions UPGREAT to continue shaping the landscape of sustainable renovations in schools and other building types, making a lasting contribution to education, energy efficiency, and the broader goals of a greener future for Europe.

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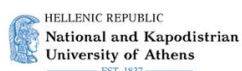


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