Republic of Türkiye
MINISTRY OF ENVIRONMENT, URBANISATION AND CLIMATE CHANGE
GENERAL DIRECTORATE OF CONSTRUCTION AFFAIRS

Seismic Resilience and Energy Efficiency in Public Buildings Project (SREEPBP)

TÜBİTAK Gebze Campus Public Buildings Structural Assessment, Energy Study, Structural-Energy Reinforcement Design and Construction Supervision Consultancy Services (WB/CS-DESSUP-07)

TÜBİTAK GEBZE CAMPUS PUBLIC BUILDINGS (MAM Food Laboratory Building, MAM Food Laboratory Administrative Building and MAM Administrative Building) PRE-RETROFITTING AWARENESS SURVEY RESULTS REPORT

MARCH 2026

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ABBREVIATIONS

MoEUCC	Ministry of Environment, Urbanisation and Climate Change
WB	World Bank
DESSUP	Design, Construction Supervision and Consultancy Services
FRP	Fibre Reinforced Polymer
SREEPBP	Seismic Resilience and Energy Efficiency in Public Buildings Project
MAM	Marmara Research Centre
SPSS	Statistical Package for the Social Sciences
TÜBİTAK	Turkish Scientific and Technological Research Organisation
GDCA	General Directorate of Construction Affairs

EXECUTIVE SUMMARY

The General Directorate of Construction Affairs (GDCA) of the Ministry of Environment, Urbanisation and Climate Change (MoEUCC) of the Republic of Türkiye has secured a loan from the World Bank (WB) under the Seismic Resilience and Energy Efficiency in Public Buildings Project (SREEPBP) Project. This loan is being used to achieve the objectives of earthquake resistance and energy efficiency in public buildings. Stakeholder participation standards are being followed in accordance with the World Bank's environmental and social requirements in the implementation of sub-projects carried out under the SREEPBP Project.

Within the scope of the SREEPBP Project, under the reference number WB/CS-DESSUP-07, TÜBİTAK Gebze Campus Public Buildings Structural Assessment, Energy Study, Structural-Energy Reinforcement Design and Construction Supervision Consultancy Services were provided for three buildings:

- MAM Food Laboratory Building [5,000 m²],
- MAM Food Laboratory Administrative Building [1,787 m²],
- MAM Administrative Building [1,305 m²];

total construction area 8,092 m²), various reinforcement and energy efficiency works will be carried out. As a result of these works, the existing structural systems of the buildings will be reinforced (using Buckling Restrained Braces (BRB), Fibre Reinforced Polymer (FRP) wrapping, FRP plates, reinforced concrete curtain wall and column cladding methods), mechanical and electrical systems will be renewed, energy-efficient equipment will be installed, and economically viable renewable energy systems (roof-mounted solar PV panels, ground-source heat pumps, etc.) will be integrated. In addition, fire detection and suppression systems will be installed, and accessibility, occupational health and safety standards will be implemented. This will significantly increase earthquake safety and energy efficiency in the buildings covered by the project.

Within the scope of the SREEPBP Project, it is aimed to monitor the social impacts of the sub-project with reference number WB/CS-DESSUP-07, namely TÜBİTAK Gebze Campus Public Buildings Structural Assessment, Energy Study, Structural-Energy Reinforcement Design and Construction Supervision Consultancy Services. In this regard, the Pre-Strengthening Awareness Survey was conducted to measure the beneficiaries' satisfaction levels with the current building conditions and their awareness of strengthening, energy efficiency, and earthquake regulations.

A total of 52 institutional employees working in the three buildings covered by the project (MAM Food Laboratory Building, MAM Food Laboratory Administrative Building, and MAM Administrative Building) participated in the online survey. Women constituted 51.9% (27 people) of the participants, while men constituted 48.1% (25 people). The survey data were analysed using frequency analyses and cross-tables based on gender and building, using the SPSS Statistics 26 programme.

The survey findings revealed that participants were generally satisfied with the lighting levels in the buildings (69.2%), but significant shortcomings were identified in other parameters. The dissatisfaction rate with the insulation properties of the buildings was 67.3% (35 people), while the rate of those dissatisfied with the internal ventilation system was found to be 53.8% (28 people) . The rate of those fully satisfied with the indoor temperature comfort was only 21.2% (11 people). Awareness of energy saving measures is quite low; 61.5% of participants (32 people) stated that they were not aware of these measures. The total percentage of those who were not aware of or were only partially aware of the 2018 Earthquake Regulation was calculated as 63.5% (33 people).

Significant differences were observed in the analyses based on gender. Female participants reported higher levels of dissatisfaction than males in terms of comfort factors such as insulation (74.1% dissatisfaction), internal ventilation (62.9% dissatisfaction) and internal ambient temperature (48.1% dissatisfaction). Male participants, on the other hand, had a higher level of awareness than women regarding energy saving measures and past renovation works. In the building-based assessment, dissatisfaction with light levels (6 people) and indoor ventilation (16 people) was more pronounced in the MAM Food Laboratory Administration Building than in other buildings. In the MAM Food Laboratory Building, dissatisfaction with indoor temperature (12 people) was prominent.

In terms of project awareness, it was determined that 55.8% of participants (29 people) had no information about the SREEPBP Project, while 42.3% (22 people) were only aware of the project by name but did not have detailed information.

The information obtained from the project's ultimate beneficiaries shows how important the awareness and acceptance of the project is to stakeholders. Furthermore, it is understood that stakeholder participation activities to be carried out within the framework of the Environmental and Social Management Plan will be equally important in order to inform them about the Grievance Mechanism established within the scope of the project.

INTRODUCTION

The social impacts of the Seismic Resilience and Energy Efficiency in Public Buildings Project (SREEPBP) Project will be monitored within the scope of Structural-Energy Strengthening Design and Construction Supervision Consultancy Services, reference number WB/CS-DESSUP-07, TÜBİTAK Gebze Campus Public Buildings Structural Assessment, Energy Study, Structural-Energy Retrofitting Design and Construction Supervision Consultancy Services, the social impacts of the sub-project in question will be monitored. The Pre-Retrofitting Awareness Survey, prepared as part of this monitoring activity, was conducted online between 10 November 2025 and 23 January 2026.

A total of 52 people participated in the survey, which aimed to measure beneficiaries' awareness and satisfaction levels regarding building reinforcement, energy efficiency, insulation, ventilation, and earthquake regulations. The survey data is analysed in detail in this report.

Frequency graphs for all questions were created and interpreted in the Pre-Retrofitting Awareness Survey Results Report. Within the scope of the study, the relationship between the data for all questions asked to participants was examined using gender and building name as independent variables.

The first section of the report addresses the survey methodology (data collection and analysis process), while the second section presents interpretations based on frequency and cross-tabulation analyses.

1. METHODOLOGY

This survey study aimed to measure participants' awareness levels prior to empowerment. The analysis phase of the survey results is presented below.

1.1. Data Collection and Analysis Process

The survey study was conducted as part of the SREEPB Project DESSUP-07 Sub-Project in three buildings located at the TÜBİTAK Gebze Campus (MAM Food Laboratory Building, MAM Food Laboratory Administrative Building, and MAM Administrative Building).

A total of 52 participants took part in the online survey. The survey data obtained was analysed using the SPSS Statistics 26 Program. The survey form consists of a total of 13 questions, 12 of which are closed-ended and 1 of which is open-ended (see Annex 1 for the survey questions).

During the data analysis process, bar charts showing the frequency distributions for each closed-ended question were first created and presented in the report. Subsequently, gender and building name were determined as independent variables; the findings obtained by examining the relationship between these variables and each closed-ended question posed to participants were presented in cross-tables and graphs.

A total of nine meaningful responses were obtained from the open-ended questions. Evaluations of these responses are discussed in the results and discussion section of the report.

To ensure the report is easy to read, frequency tables for the data are included in Annex 2.

2. FINDINGS

2.1. Findings Related to Frequency Data

This section presents frequency graphs related to the research data. In Annex 2, the table data for the frequency graphs can be viewed numerically and proportionally. First, the distribution of participants in the study according to the buildings where they work, along with their percentages, is presented below.

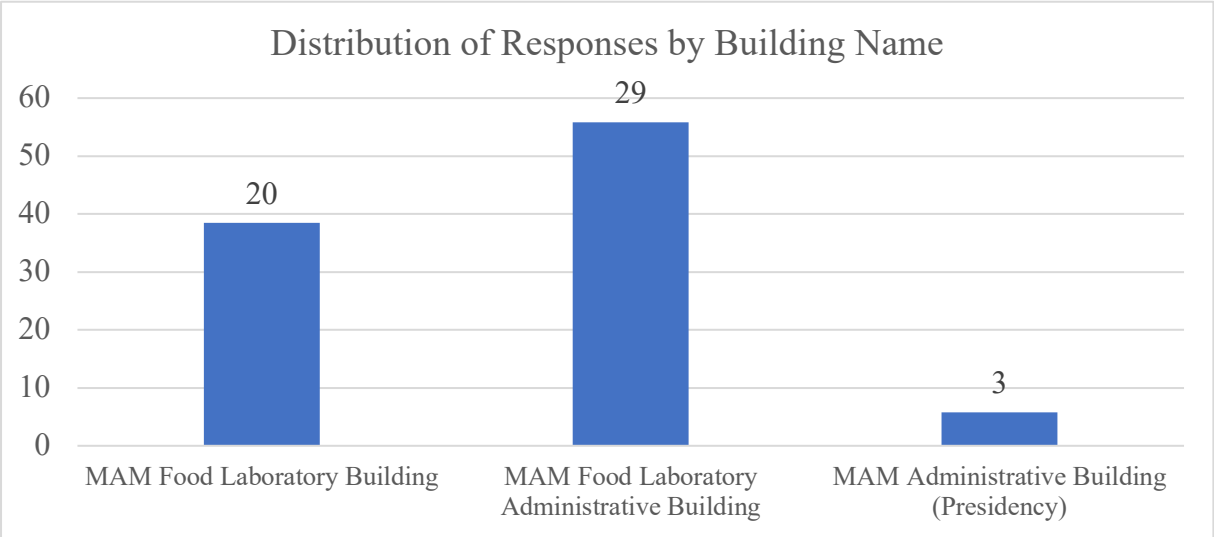

Figure1. Participant Distribution by Building Name

Of the 52 respondents, 55.8% (29 people) were users of the MAM Food Laboratory Administrative Building, 38.5% (20 people) were users of the MAM Food Laboratory Building, and 5.8% (33 people) were users of the MAM Administrative Building.

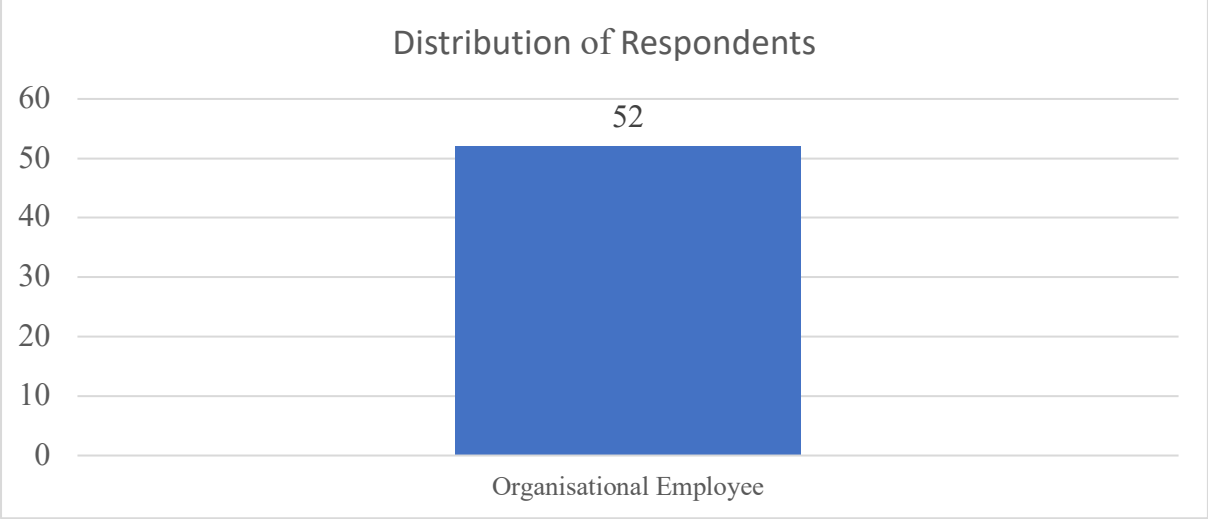

Figure2. Participants' Relationship Status with the Institution

100% (52 people) of the 52 people who responded to the survey are employees of the institution. The following graph shows the distribution of participants by gender.

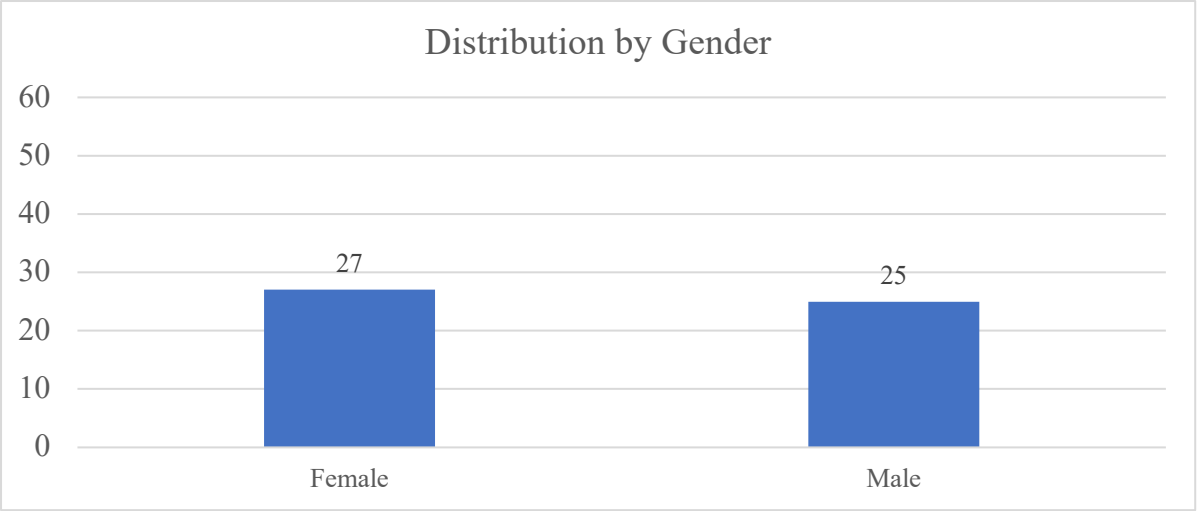

Figure3. Gender Distribution of Participants

51.9% of the survey participants (27 people) are female, while 48.1% (25 people) are male.

The participants' responses regarding their attitudes towards the adequacy of the lighting levels in the buildings they are in, within the scope of the current situation assessment, are presented below.

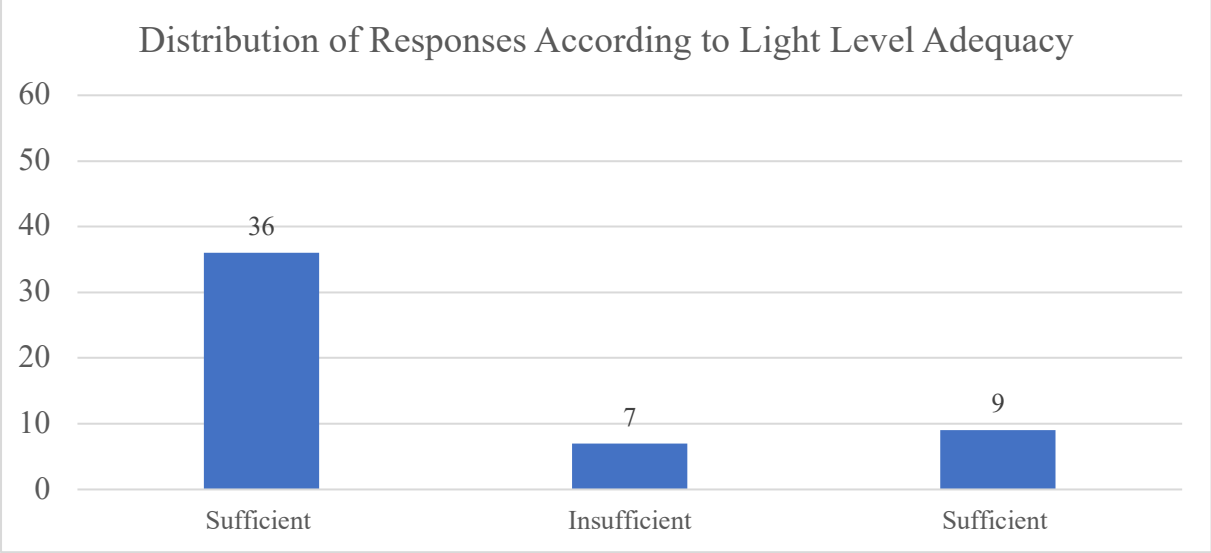

Figure4. Adequacy of Lighting Levels

When examining participants' assessments of the lighting level in buildings, 69.2% (36 people) considered the lighting level to be 'Adequate', 13.5% (7 people) were 'Undecided' on this issue, and 17.3% (9 people) described the lighting level as 'Inadequate'.

Participants' awareness levels regarding energy saving measures are provided below.

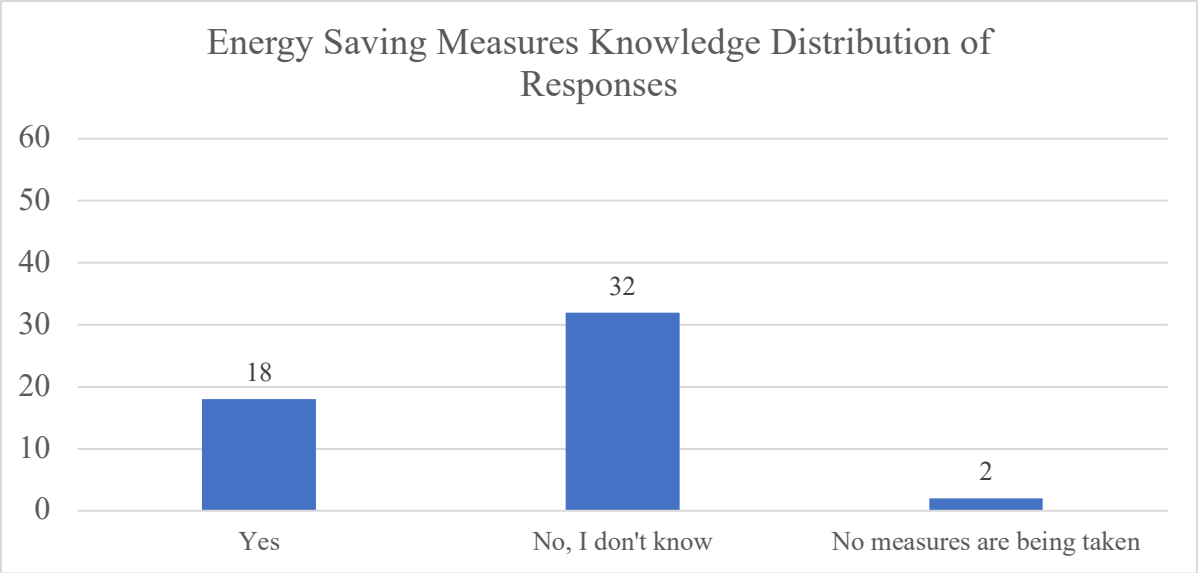

Figure5. Energy Saving Awareness

When examining participants' knowledge levels regarding energy saving measures at their workplaces or educational institutions, it was found that a large majority (61.5%, 32 people) were not aware of these measures. While 34.6% of participants (18 people) stated that they were aware of the measures (Yes), 3.8% (2 people) stated that such measures were not implemented.

The participants' comments regarding the insulation properties of the buildings they use are provided below.

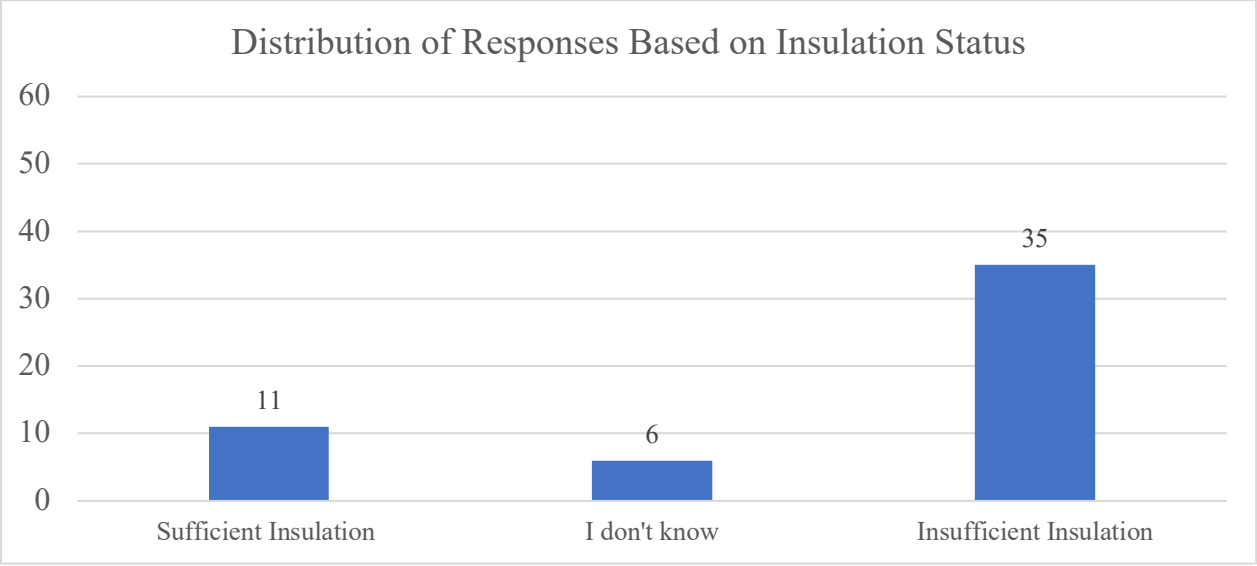

Figure6. Satisfaction with Current Building Insulation

When examining the participants' assessments of the insulation properties of the buildings they use, 67.3% (35 people) rated the insulation as 'Insufficient'. 21.2% of participants (11 people) found the insulation 'Adequate', while 11.5% (6 people) stated that they had no opinion on the matter.

Comments regarding general indoor temperatures are provided below.

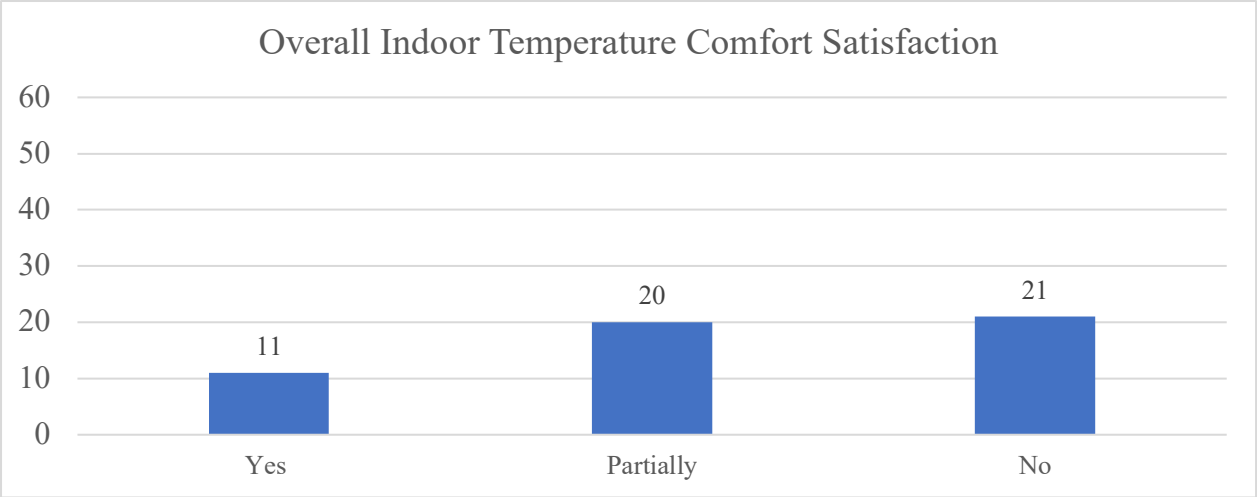

Figure7. Satisfaction with Current Indoor Temperatures

When examining the satisfaction levels of participants regarding the general indoor temperature comfort in the buildings they use, 40.4% (21 people) were found to be dissatisfied (No) with the temperature comfort. 38.5% of participants (20 people) expressed 'Partial' satisfaction in this regard, while the rate of complete satisfaction (Yes) remained at the lowest level at 21.2% (11 people).

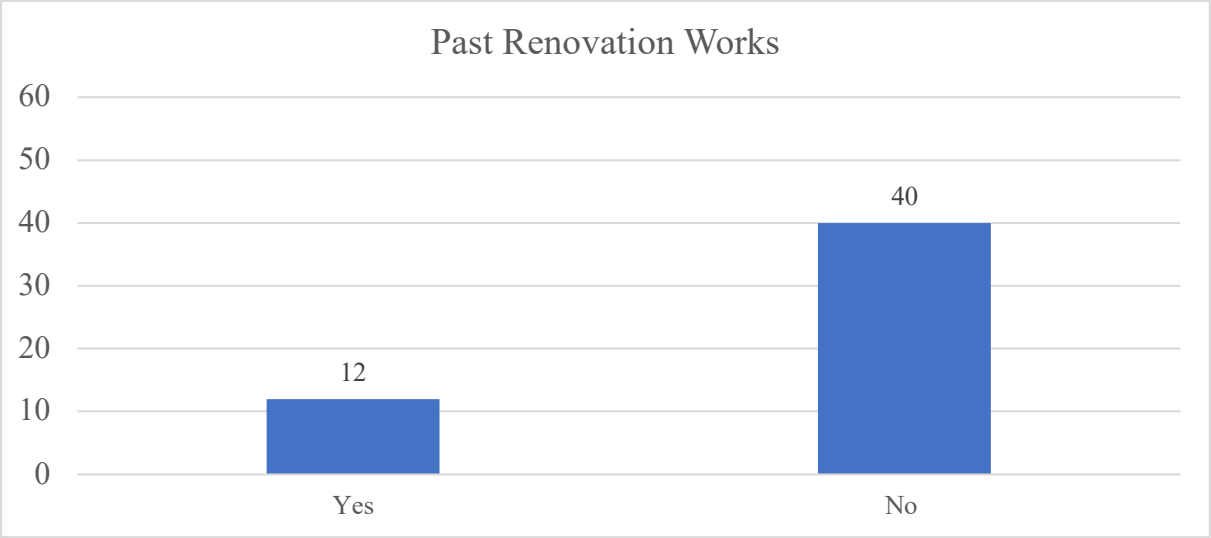

Figure8. Awareness of Past Renovation Works

When examining participants' awareness of physical improvements carried out in buildings, it is seen that a large majority (76.9%, 40 people) are unaware of past renovation works. The segment aware of these works is 23.1% (12 people). Looking at the type of renovations mentioned by these 12 people;

- 7.7% of participants (4 individuals) mentioned energy efficiency improvements (wall insulation, window replacement, etc.),
- 1.9% (1 person) reported renovations aimed at improving accessibility for people with disabilities; and one (1) person reported renovations to address damp and moisture issues.

- One participant (1) who indicated they did not know (1.9%) commented, *"I know that the existing building takes in water at ground level, yet insulation work was carried out on the ground floor, but despite this, this floor is still very cold."*

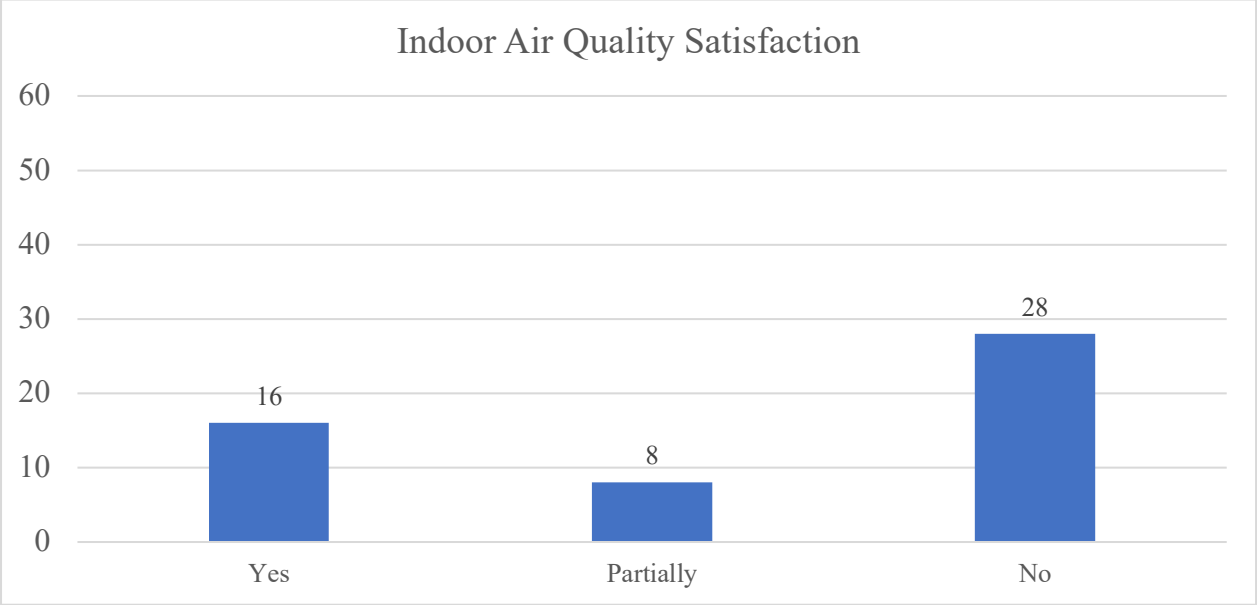

Figure9. Satisfaction with the Internal Ventilation System

When examining participants' assessments of their satisfaction with the internal ventilation system in buildings, 53.8% (28 people) were dissatisfied with the system (No), 15.4% (8 people) were 'Somewhat' satisfied, and 30.8% (16 people) were satisfied (Yes).

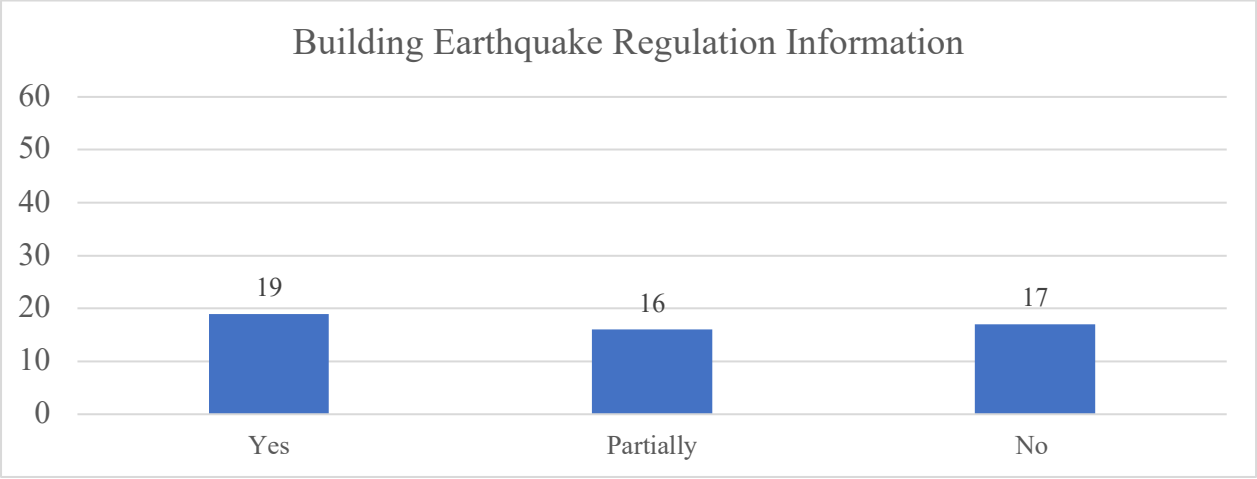

Figure10. Knowledge Level Regarding Building Earthquake Regulations

When examining participants' knowledge levels regarding the compliance of buildings with earthquake regulations, the responses show a relatively balanced distribution across three categories. 36.5% of participants (19 people) stated that they were knowledgeable on this subject (Yes), while 32.7% (17 people) stated that they were not knowledgeable (No). The proportion of those who stated that they had partial knowledge on the subject was determined to be 30.8% (16 people). These data reveal that approximately one-third of the participants had

full awareness of building safety and legal compliance, while the remaining majority had incomplete or insufficient knowledge.

When participants were asked whether they were aware of the SREEPB Project, the following responses were obtained.

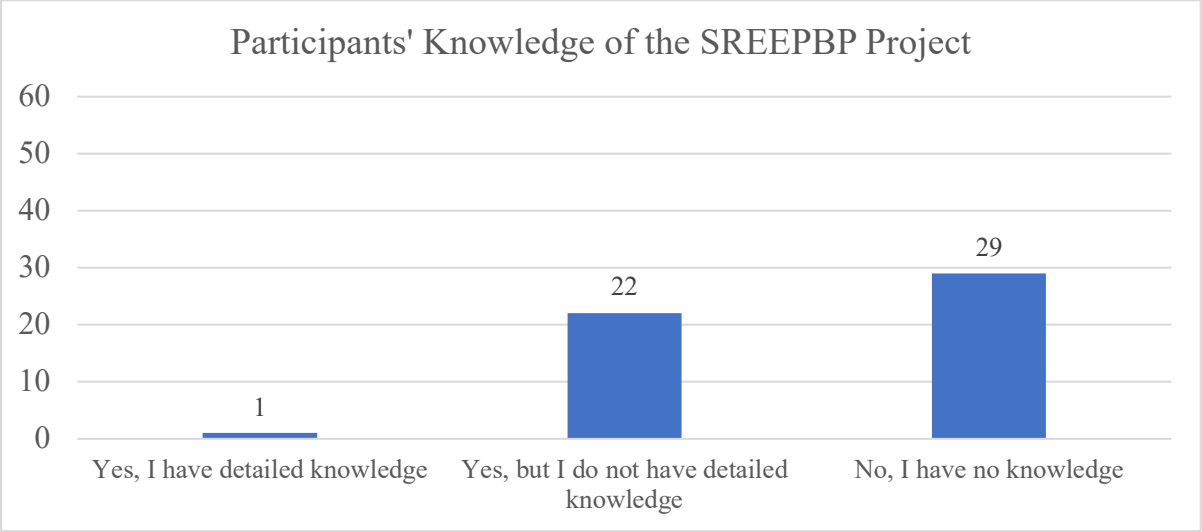

Figure11. Awareness of the SREEPB Project

Participants were asked about their knowledge of the Seismic Resilience and Energy Efficiency in Public Buildings Project (SREEPB) Project. 55.8% of participants (29 people) answered 'No, I am not aware', 42.3% (22 people) answered 'Yes, but I do not have detailed information', and 1.9% (1 person) answered 'Yes, I have detailed information'.

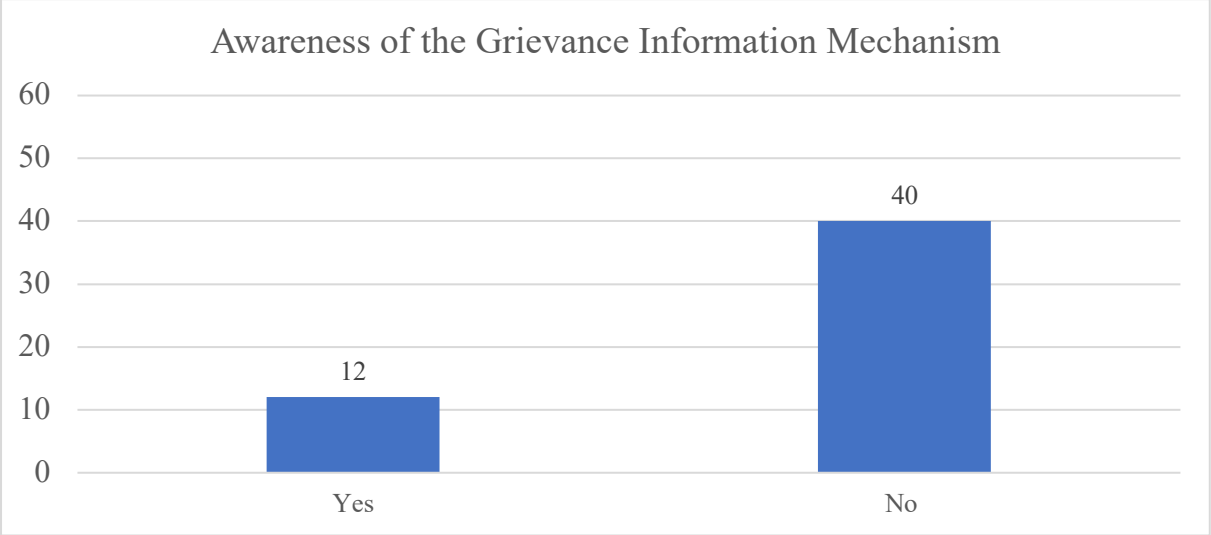

Figure12. Awareness of the Grievance Mechanism

Participants were asked whether they had any information about the 'Grievance Mechanism' within the scope of the SREEPB Project. 76.9% (40 people) answered 'No' and 23.1% (12 people) answered 'Yes'.

2.2. Cross-Tables by Gender

This section presents cross-tabulation analyses of participants' responses to survey questions according to their gender characteristics. The aim was to examine the relationships between the gender variable, defined as an independent variable, and participants' levels of awareness and satisfaction, thereby revealing similarities and differences between groups. The findings are detailed in the tables below. First, the gender distribution is provided below.

Table1. Gender Distribution of Employees by Building

			Building Name			Total
			MAM Food Laboratory Building	MAM Food Laboratory Administrative Building	MAM Administrative Building (Presidency)	
Gender	Male	Frequency	8	16	1	25
		Gender Inside the Building (%)	32.0%	64.0%	4.0%	100.0%
		Total (%)	15.4%	30.8%	1.9%	48.1%
	Female	Frequency	12	13	2	27
		Gender Inside the Building (%)	44.4%	48.1%	7.4%	100.0%
		Total (%)	23.1%	25.0%	3.8	51.9%
Total		Frequency	20	29	3	52
		Gender Inside the Building (%)	38.5%	55.8%	5.8%	100.0%
		Total (%)	38.5%	55.8%	5.8%%	100.0

- Of the 52 participants in the study, 51.9% (27 people) were women and 48.1% (25 people) were men.
- 55.8% of participants (29 people) work at the MAM Food Laboratory Administration Building.
- 64% of the men (16 people) use the MAM Food Laboratory Administration Building, while only 1 person (4%) is based in the MAM Administration Building (Presidency).
- 48.1% of women (13 people) work in the MAM Food Laboratory Administrative Building, while 44.4% (12 people) work in the MAM Food Laboratory Building.
- The MAM Administrative Building (Presidency) has the lowest number of participants, with only 3 people (5.8%).
- While the number of women (12 persons) exceeds that of men (8 persons) in the MAM Food Laboratory Building, the concentration of men (16 men, 13 women) is higher in the Food Laboratory Administrative Building.

The opinions of current employees regarding the adequacy of light levels in the buildings where they work are presented below, broken down by gender.

Table2 . Adequacy of Lighting Levels by Gender

			Gender		Total
			Women	Male	
Light Level Adequacy	Sufficient	Frequency	17	19	36
		Percentage of Responses (%)	47.2%	52.8%	100.0
		Gender (%)	63%	76%	69.2%
		Total (%)	32.7%	36.5%	69.2%
	Undecided	Frequency	3	4	7
		Percentage of Responses (%)	42.9%	57.1%	100.0%
		Gender (%)	11.1%	16%	13.5%
		Total (%)	5.8%	7.7%	13.5%
	Insufficient	Frequency	7	2	9
		Percentage of Responses (%)	77.8%	22.2%	100.0%
		Gender (%)	25.9%	8%	17.3%
		Total (%)	13.5%	3.8%	17.3%
Total		Frequency	27%	25%	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9%	48.1%	100.0%

Of the 52 participants in the study, 36 (69.2%) found the light level to be 'Adequate', 7 (13.5%) found it to be 'Undecided', and 9 (17.3%) found it to be 'Inadequate'.

- Of the 36 participants who found the light level adequate, 52.8% (19 people) were men and 47.2% (17 people) were women.
- Of the 9 participants who rated the light level as 'Insufficient', a large majority (7 people, 77.8%) were women.
- Among male participants, only 22.2% (2 people) found the light level insufficient.

- Of the 7 participants who stated they were 'Undecided' about the light level, 4 were men and 3 were women.
- Looking at the distribution among female participants, 17 out of 27 women found the lighting adequate, 7 found it inadequate, and 3 were undecided.
- Looking at the distribution among male participants, 19 out of 25 men found the lighting sufficient, only 2 found it insufficient, and 4 expressed uncertainty.

The distribution of knowledge about energy-saving measures by gender is given below.

Table3. Awareness of Energy Saving by Gender

			Gender		Total
			Female	Male	
Knowledge of Energy Saving Measures	Yes	Frequency	10	8	18
		Percentage of Responses (%)	55.6%	44.4%	100.0%
		Gender (%)	37%	32%	34.6%
		Total (%)	19.2%	15.4%	34.6%
	Not applicable	Frequency	0	2	2
		Percentage of Responses (%)	0.0%	100.0%	100.0%
		Gender (%)	0%	8%	3.8%
		Total (%)	0.0%	3.8	3.8%
	I don't know	Frequency	17	15	32
		Percentage of Responses (%)	53.1%	46.9	100.0
		Gender (%)	63%	60%	61.5%
		Total (%)	32.7%	28.8%	61.5%
Total		Frequency	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9	48.1%	100.0

Of the 52 people who participated in the survey, 18 (34.6%) stated that they were aware of energy saving measures (Yes), 32 (61.5%) stated that they were not aware (No, I don't know), and 2 (3.8%) stated that these measures were not implemented. Looking at the overall total, it

can be seen that the rate of lack of knowledge about energy saving measures in all buildings is significantly higher than the rate of knowledge.

- Of the 18 participants who were aware of energy saving measures (Yes), 55.6% (10 people) were women and 44.4% (8 people) were men.
- The gender distribution of the 32 participants who stated that they were not aware of the measures is quite similar (17 women, 15 men).
- All 2 participants who responded that 'measures are not being implemented' (100%) were male participants.
- Looking at the distribution among female participants, 10 out of 27 women stated that they were aware of the measures, while 17 stated that they were not aware of them.
- Looking at the distribution among male participants, 8 out of 25 men stated that they were aware of the measures, 15 stated that they were not aware, and 2 stated that the measures were not being implemented.

Table4. Satisfaction with Current Building Insulation by Gender

			Gender		Total
			Female	Male	
Insulation Status	Sufficient Insulation	Frequency	5	6	11
		Percentage of Responses (%)	45.5%	54.5%	100.0%
		Gender (%)	18.5%	24%	21.2%
		Total (%)	9.6%	11.5%	21.2%
	I don't know	Frequency	2	4	6
		Answer Within (%)	33.3%	66.7%	100.0
		Gender (%)	7.4%	16%	11.5%
		Total (%)	3.8%	7.7%	11.5%
	Insufficient insulation	Frequency	20	15	35
		Percentage of Responses (%)	57.1%	42.9%	100.0%
		Gender (%)	74.1%	60%	67.3%
		Total (%)	38.5%	28.8%	67.3%
Total		Frequency	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%

	Gender (%)	74.1%	60%	67.3%
	Total (%)	27%	25%	52%

Of the 52 participants in the survey, 35 (67.3%) rated the insulation of buildings as 'Inadequate', 11 (21.2%) found it 'Adequate', and 6 (11.5%) stated that they had no knowledge on the subject.

- Of the 35 participants who rated insulation as 'Inadequate', 57.1% (20 people) were women and 42.9% (15 people) were men.
- Looking at the distribution among female participants, 20 out of 27 women (74.1%) found the insulation inadequate, only 5 (18.5%) found it adequate, and 2 stated they did not know.
- Looking at the distribution among male participants, 15 out of 25 men (60%) found the insulation insufficient, 6 (24%) found it sufficient, and 4 stated that they did not know.
- Of the total 11 people who found the insulation 'adequate', 6 were male and 5 were female.
- Of the 6 participants who stated that they had 'no knowledge' about insulation, 4 were male and 2 were female.

Table5. Satisfaction with Current Indoor Temperatures by Gender

			Gender		**Total**
			Female	**Male**	
Overall Indoor Temperature Satisfaction	**Yes**	**Frequency**	5	6	11
		Percentage of Responses (%)	45.5%	54.5%	100.0%
		Gender (%)	18.5%	24%	21.2%
		Total (%)	9.6%	11.5%	21.2%
	Partially	**Frequency**	9	11	20
		Percentage of Responses (%)	45.0%	55.0%	100.0%
		Gender (%)	33.3%	44%	38.5%
		Total (%)	17.3%	21.2%	38.5
	No	**Frequency**	13	8	21
		Percentage of Responses (%)	61.9%	38.1%	100.0%

		Gender (%)	48.1%	32%	40.4%
		Total (%)	25.0%	15.4%	40.4%
Total		**Frequency**	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9%	48.1%	100.0%

Of the 52 participants in the study, 21 (40.4%) stated that they were dissatisfied (No) with indoor temperature comfort, 20 (38.5%) stated that they were "Somewhat" satisfied, and 11 (21.2%) stated that they were satisfied (Yes).

- Of the 21 participants who stated that they were dissatisfied (No) with the temperature comfort, a large majority (61.9%, or 13 people) were women.
- Looking at the distribution among female participants, 13 out of 27 women (48.1%) reported dissatisfaction, 9 (33.3%) reported partial satisfaction, and 5 (18.5%) reported satisfaction.
- Looking at the distribution among male participants, 8 out of 25 men (32%) stated that they were dissatisfied, 11 (44%) stated that they were partially satisfied, and 6 (24%) stated that they were satisfied.
- Of the total 11 people who were completely satisfied (Yes) with the indoor temperature, 6 were male and 5 were female.
- Of the 20 participants who reported being 'partially' satisfied, 11 were male and 9 were female.

Table6. Information Status of Past Renovation Works by Gender

			Gender		
			Female	Male	Total
Information Status Regarding Past Renovation Work	I don't know	Frequency	23	17	40
		Percentage of Responses (%)	57.50%	42.50%	100.00%
		By Gender (%)	85.19%	68.00%	76.92%
		Total (%)	44.23%	32.69%	76.92%
	Yes, energy efficiency improvements have been made	Frequency	1	3	4
		Percentage of Responses (%)	25.00%	75.00%	100.00%
		Gender (%)	3.70%	12.00%	7.69%
		Total (%)	1.92%	5.77%	7.69%
	Yes, renovations were carried out to reinforce the building against earthquakes	Frequency	0	0	0
		Percentage of Responses (%)	0.00%	0.00%	0.00%
		Gender (%)	0.00%	0.00%	0.00%
		Total (%)	0.00%	0.00%	0.00%
	Yes, alterations were made regarding the establishment/improvement of disabled facilities	Frequency	0	1	1
		Percentage of Responses (%)	0.00%	100.00%	100.00%
		Gender (%)	0.00%	4.00%	1.92%
		Total (%)	0.00%	1.92%	1.92%
	No alterations made	Frequency	2	3	5
		Percentage of responses (%)	40.00%	60.00%	100.00%
		Gender (%)	7.41%	12.00%	9.62%
		Total (%)	3.85%	5.77%	9.62%
	Other_1 (I don't know; *"I know that the existing building has water ingress in the*	Frequency	1	0	1
		Percentage of Responses (%)	100.00%	0.00%	100.00%
		Gender (%)	3.70%	0.00%	1.92%

	basement area , that insulation work has been carried out on the ground floor, but that this floor is still very cold.")	**Total (%)**	1.92%	0.00%	1.92%
	Other 2 (**"***Work was carried out against moisture and humidity***"**)	**Frequency**	0	1	1
		Percentage in Response (%)	0.00%	100.00%	100.00%
		Gender (%)	0.00%	4.00%	1.92%
		Total (%)	0.00%	1.92%	1.92%
	TOTAL	**Frequency**	27	25	52
		Percentage of Responses (%)	51.92%	48.08%	100.00%
		Gender (%)	100.00%	100.00%	100.00%
		Total (%)	51.92%	48.08%	100.00

Of the 52 participants in the study, 78.8% (41 people) stated that they had no knowledge of past renovations carried out on the buildings, while 21.2% (11 people) stated that they did have knowledge.

- Of the 11 participants who were aware of past renovations (those who answered Yes), a large majority (8 people, or 72.7%) were men, while the proportion of women was 27.3% (3 people).
- Of the 41 participants who stated that they were not aware of the renovation works, 58.5% (24 people) were women and 41.5% (17 people) were men.
- Looking at the distribution among female participants, 88.9% (24 people) of the 27 women reported that they were unaware of the renovations in the buildings.
- Sixty-eight per cent (17 people) of male participants stated that they were unaware of the renovations, while 32 per cent (8 people) stated that they were aware.
- When examining the details of the technical interventions carried out, it was found that only 1 of the 4 participants who stated that they were aware of the renovations aimed at energy efficiency (wall insulation, door and window replacement, etc.) was female.
- The only participant who stated that they had knowledge about renovations aimed at improving disabled access was male.

- Regarding renovations related to retrofitting the building against earthquakes, there was no awareness among either female or male participants (0%).

Table7. Satisfaction with the Internal Ventilation System by Gender

			Gender		Total
			Female	Male	
Indoor Ventilation	Yes	Frequency	5	11	16
		Percentage of Responses (%)	31.3%	68.8%	100.0%
		Gender (%)	18.5%	44%	30.8%
		Total (%)	9.6%	21.2%	30.8%
	Partially	Frequency	5	3	8
		Percentage of Responses (%)	62.5%	37.5%	100.0%
		Gender (%)	18.5%	12%	15.4%
		Total (%)	9.6%	5.8%	15.4%
	No	Frequency	17	11	28
		Percentage of Responses (%)	60.7%	39.3%	100.0%
		Gender (%)	63%	44%	53.8%
		Total (%)	32.7%	21.2%	53.8%
Total		Frequency	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9%	48.1%	100.0%

Of the 52 participants in the survey, 53.8% (28 people) stated that they were dissatisfied (No) with the indoor ventilation system, 30.8% (16 people) stated that they were satisfied (Yes), and 15.4% (8 people) stated that they were 'Somewhat' satisfied.

- Women constituted a large majority (60.7%, or 17 people) of the 28 participants who stated that they were dissatisfied (No) with the ventilation system.
- Looking at the distribution among female participants, 17 out of 27 women (62.9%) were dissatisfied with the ventilation system, while only 5 (18.5%) reported being satisfied.

- Looking at the distribution among male participants, 11 out of 25 men (44%) expressed satisfaction (Yes), while the other 11 (44%) expressed dissatisfaction (No), showing a balanced distribution.
- Of the total 16 people who were completely satisfied (Yes) with the indoor ventilation system, a clear majority (68.8%, or 11 people) were male.
- Of the 8 participants who reported 'partial' satisfaction, 5 were women and 3 were men.

Table8. Knowledge Status Regarding Building Earthquake Regulations by Gender

			Gender		Total
			Female	Male	
Earthquake Regulation Knowledge	Yes	Frequency	9	10	19
		Percentage of Responses (%)	47.4%	52.6%	100.0%
		Gender (%)	33.3%	40%	36.5%
		Total (%)	17.3%	19.2%	36.5%
	Partially	Frequency	11	5	16
		Percentage of Responses (%)	68.8%	31.3%	100.0%
		Gender (%)	40.7%	20%	30.8%
		Total (%)	21.2%	9.6%	30.8%
	No	Frequency	7	10	17
		Percentage of Responses (%)	41.2%	58.8%	100.0%
		Gender (%)	25.9%	40%	32.7%
		Total (%)	13.5%	19.2%	32.7%
Total		Frequency	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9%	48.1%	100.0

Of the 52 participants in the study, 36.5% (19 people) stated that they were knowledgeable about building earthquake regulations (Yes), 32.7% (17 people) stated that they were not knowledgeable (No), and 30.8% (16 people) stated that they were partially knowledgeable.

- The distribution of the 19 participants who stated that they had full knowledge (Yes) of the earthquake regulations was fairly balanced between genders (10 men, 9 women).
- Women constitute a large majority (68.8%, or 11 people) of the 16 participants who stated that they had 'partial' knowledge of the regulations.
- Of the 17 participants who stated that they had no knowledge (No), 58.8% (10 people) were men and 41.2% (7 people) were women.
- When examining the distribution among female participants, 40.7% (11 people) of the 27 women stated that they had partial knowledge, 33.3% (9 people) stated that they had full knowledge, and 25.9% (7 people) stated that they had no knowledge.
- Looking at the distribution among the male participants, 40% (10 people) of the 25 men stated that they were fully informed, another 40% (10 people) stated that they were not informed, and 20% (5 people) stated that they were partially informed.

Table9. Knowledge Status Regarding the SREEPB Project by Gender

			Gender		Total
			Female	Male	
Knowledge of the SREEPBP Project	**Yes, I have detailed information**	**Frequency**	1	0	1
		Percentage of Responses (%)	100.0%	0.0%	100.0%
		Gender (%)	3.7%	0%	1.9%
		Total (%)	1.9%	0.0%	1.9%
	Yes, but I don't have detailed information	**Frequency**	10	12	22
		Percentage of Responses (%)	45.5%	54.5%	100.0%
		Gender (%)	37%	48%	42.3%
		Total (%)	19.2%	23.1%	42.3%
	I don't know	**Frequency**	16	13	29
		Percentage of responses (%)	55.2%	44.8%	100.0%
		Gender (%)	59.3%	52%	55.8%

		Total (%)	30.8%	25.0%	55.8%
Total		**Frequency**	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9%	48.1%	100.0%

Of the 52 participants in the study, 55.8% (29 people) stated that they had no knowledge of the SREEPB Project. 42.3% of participants (22 people) stated that they were aware of the project's existence but did not have detailed information about it, while only 1 person (1.9%) stated that they had detailed knowledge about the project.

- The only participant with detailed knowledge of the project was female.
- Of the 22 participants who responded 'I do not have detailed information', 54.5% (12 people) were men and 45.5% (10 people) were women.
- Of the 29 participants who stated that they had no information about the project (No), 55.2% (16 people) were women and 44.8% (13 people) were men.
- When examining the distribution among female participants, it was found that 59.3% (16 people) of the 27 women were not even aware of the project's existence.
- Fifty-two per cent (13 people) of male participants stated that they were unaware of the project, while 48 per cent (12 people) stated that they were aware of the project's existence but were not familiar with the details.

Table10. Awareness of the Grievance Mechanism by Gender

			Gender		**Total**
			Female	**Male**	
Awareness of Grievance Mechanisms	**Yes**	**Frequency**	7	5	12
		Answer Within (%)	58.3%	41.7%	100.0%
		Gender (%)	25.9%	20%	23.1%
		Total (%)	13.5%	9.6%	23.1%
	No	**Frequency**	20	20	40
		Percentage of Responses (%)	50.0%	50.0%	100.0%
		Gender (%)	74.1%	80%	76.9%

		Total (%)	38.5%	38.5%	76.9%
Total		**Frequency**	27	25	52
		Percentage of Responses (%)	51.9%	48.1%	100.0%
		Gender (%)	100.0%	100.0%	100.0%
		Total (%)	51.9%	48.1%	100.0

Of the 52 participants in the study, 76.9% (40 people) stated that they were unaware of the existence of a grievance mechanism regarding physical conditions in buildings (No), while only 23.1% (12 people) stated that they were aware of it (Yes).

- Of the 12 participants who were aware of the grievance mechanism, 58.3% (7 people) were women and 41.7% (5 people) were men.
- The distribution of the 40 participants who stated that they were unaware of the grievance channels showed complete equality between the genders (20 women, 20 men) and demonstrated that ignorance was prevalent in both groups.
- Looking at the distribution among female participants, 74.1% (20 out of 27 women) were unaware of any grievance mechanism.
- Meanwhile, 80% of male participants (20 individuals) stated that they were unaware of any institutional mechanism through which they could report physical defects.

3. RESULTS AND DISCUSSION

This study was conducted as part of the SREEPBP Project in three public buildings located at the TÜBİTAK Gebze Campus (MAM Food Laboratory Building, MAM Food Laboratory Administrative Building, and MAM Administrative Building) aimed to determine the satisfaction levels of building users regarding the current situation and their awareness of earthquake resistance and energy efficiency issues prior to the reinforcement and energy efficiency works to be carried out. The data obtained from 52 institutional employees who participated in the survey was analysed to reveal both general trends and differences based on gender and building.

Assessment of Satisfaction with Current Building Conditions

The survey results reveal that the satisfaction levels of building users regarding physical working conditions show significant differences depending on the parameters. While the vast majority of participants (69.2%) found the lighting levels in the buildings to be adequate, this high percentage indicates that the basic lighting infrastructure of the buildings generally meets user expectations. However, the high rates of dissatisfaction with all physical conditions other than lighting are noteworthy.

Building insulation was the area where participants reported the highest level of dissatisfaction. More than two-thirds of participants (67.3%) found the insulation of the buildings inadequate. This highlights the urgent need for improvement, particularly in terms of energy efficiency and indoor environmental comfort. The high rates of dissatisfaction with insulation in the MAM Food Laboratory Building (75%) and the MAM Food Laboratory Administration Building (65.5%) confirm that the insulation performance in both buildings falls significantly short of user expectations.

Indoor temperature comfort and ventilation systems are other elements negatively evaluated by users. Only 21.2% of participants expressed complete satisfaction with the indoor temperature, while 40.4% stated they were not satisfied at all. Dissatisfaction with the ventilation system is even higher, at 53.8%. The concentration of dissatisfaction with ventilation (16 people) in the MAM Food Laboratory Administration Building and with temperature (12 people) in the MAM Food Laboratory Building highlights that each building has its own specific problems and that reinforcement work should be tailored to the needs of each building. In the MAM Administrative Building (Presidency), however, all participants reported complete satisfaction with the light levels and indoor temperature, indicating that the physical conditions of this building are better than those of the other two buildings.

Findings Regarding Awareness Levels

One of the most striking findings of the research is that building users' awareness levels regarding energy efficiency, earthquake regulations, and ongoing projects are quite low. 61.5% of participants are unaware of the energy saving measures implemented in their institutions.

This situation indicates that energy efficiency practices are not sufficiently communicated to users or that the visibility of existing practices is low.

A similar picture emerges regarding earthquake safety. While only 36.5% of respondents stated that they were fully informed about the 2018 Earthquake Regulation, 63.5% of participants stated that they either had no knowledge or only partial knowledge. In a country with a high earthquake risk such as Türkiye, the fact that the awareness of personnel using public buildings regarding earthquake regulations and building safety is so low clearly highlights the need for training and awareness-raising activities on the subject.

The rate of awareness about past renovation works is also quite low (21.2%). It is particularly noteworthy that none of the participants were aware of any renovations aimed at earthquake retrofitting. This finding confirms that no earthquake reinforcement work has been carried out in these buildings before, but also shows that any new reinforcement work to be carried out must be effectively communicated to users.

Project Awareness and Awareness of the Grievance Mechanism

When examining the awareness of the SREEPBP Project, it is understood that the project does not have sufficient recognition among its target audience, the building users. More than half of the participants (55.8%) are unaware of the project. The vast majority of those who have heard of the project (42.3%) only know its name and are not familiar with the details. The fact that only one participant (1.9%) has detailed knowledge about the project indicates that the project's promotion and information activities need to be strengthened.

An even more critical finding is that only 23.1% of participants are aware of the Grievance Mechanism established within the scope of the project. More than three-quarters of users (76.9%) are unaware of the existence of this mechanism, through which they can submit grievances, suggestions, or requests regarding physical conditions. The low awareness of the grievance mechanism, which is one of the fundamental tools for stakeholder participation and accountability, highlights the need to strengthen the social and communication components of the project. Accordingly, comprehensive stakeholder engagement activities will be carried out in line with the World Bank's environmental and social requirements to increase the transparency and social acceptance of the project. These activities will not only provide information but also encourage active participation by users and activate feedback mechanisms.

Finally, three participants requested additional information about the SREEPB Project. The most prominent views expressed in response to the question "Is there anything else you would like to add about the SREEPB Project?" asked at the end of the survey are quoted directly below:

> *"With the hope that efficiency and productivity will be sought not only in buildings but in all types of public property in order to prevent waste in the public sector..."*

> *"Announcements and information regarding the use of SREEPBP applications should be more persistent, promoted through multiple channels, and perhaps even made mandatory."*

> *"I believe more information should be provided about this project."*

> *"It would be appropriate to provide information as a reminder."*

Analysis of Gender-Based Differences

Research findings indicate that there are significant gender-based differences in perceptions and awareness levels regarding building conditions. Looking at the rates among female participants, women reported significantly higher dissatisfaction with comfort factors such as insulation (74.1%), internal ventilation (62.9%) and internal ambient temperature (48.1%) compared to the rates among men. Overall, while dissatisfaction with insulation was quite high among both women and men, it is noteworthy that women were more likely than men to find buildings inadequate. Similarly, it was found that the dissatisfaction rate among women regarding the internal ventilation system (60.7%) was considerably higher than that among men (39.3%). It is also noteworthy that 77.8% of those who found the light level inadequate were women; men's satisfaction rate with the light level is higher than that of women. These findings suggest that female users may be more sensitive to physical working conditions or that the current conditions fall short of meeting female users' comfort expectations.

On the other hand, male participants demonstrated a higher level of awareness regarding technical issues. 72.7% of those who were aware of past renovation works were male. Men's awareness of energy-saving measures is also relatively higher than that of women; nevertheless, overall, the rate of ignorance about energy-saving measures (61.5%) is significantly higher than the rate of awareness in both gender groups. This situation may stem from traditional division of labour or differences in areas of interest, but it may also indicate that the flow of information within the organisation is not equally distributed between genders. Indeed, although it was found that awareness of physical improvement works carried out in buildings was higher among

male participants than among women, the general level of knowledge remained quite low in both groups.

An interesting picture emerges regarding knowledge of earthquake regulations. While the percentage of those with full knowledge is balanced between genders (47.4%–52.6%), women constitute 68.8% of those with 'partial knowledge'. This awareness is concentrated in the 'Partial' category among women, while among men there is a sharper division between 'Yes' and 'No' responses. One of the most critical findings in the results section of the study is that institutional awareness of the SREEPBP project and physical improvements in buildings remains quite low among both female and male employees. This situation shows that women have a certain level of awareness on the subject but need to complete their knowledge.

Conclusions and Recommendations

The results of the Pre-Retrofitting Awareness Survey quantitatively demonstrate the necessity of the retrofitting and energy efficiency works to be carried out in three public buildings at the TÜBİTAK Gebze Campus. The vast majority of users are dissatisfied with basic physical conditions, particularly insulation, ventilation, and thermal comfort. This dissatisfaction indicates that the improvements to be made within the scope of the project will have a positive impact on user well-being and work efficiency.

However, the research highlights the nature of the actions required in terms of stakeholder participation and disclosure of information. Increasing awareness activities is critical to addressing these needs. Regular and clear information meetings, brochures and posters will be prepared for building users about the scope, objectives, timetable and expected results of the SREEPB Project. The stakeholder participation meeting and information activities will raise awareness of the SREEPB Project and the grievance mechanism within the scope of the project.

In conclusion, this survey study shows that, as much as the technical dimension of physical improvement works, informing the people who will be affected by these works, raising their awareness and involving them in the process are also critical to the success of the project. Designing empowerment efforts to bring about not only physical transformation but also institutional awareness and communication transformation will be decisive for the long-term success and sustainability of the project.

ANNEXES

Annex 1: Questionnaire Form

Seismic Resilience and Energy Efficiency in Public Buildings Project (SREEPBP) Pre-Retrofitting Awareness Survey (DESSUP-07)

This survey is being conducted as part of the "Seismic Resilience and Energy Efficiency in Public Buildings Project Project (SREEPBP)" funded by the World Bank and implemented by the General Directorate of Construction Affairs (GDCA) of the Ministry of Environment, Urbanisation and Climate Change. Detailed information about the project, the Grievance Mechanism established specifically for the project, and project documents can be accessed at https://kamuguclendirme.csb.gov.tr/. Your responses to the questions in this survey will be evaluated and a "Survey Results Report" will be prepared and shared with the public via the project's website. Therefore, for the security of your personal data, please do not provide any identifying information in the survey. Your responses to the survey questions will only be used within the scope of the project and will not be shared with any third parties.

Ministry of Environment, Urbanisation and Climate Change
General Directorate of Construction Affairs

1. **Which of the following buildings are you working in/studying at?**

   () MAM Food Laboratory Building

   () MAM Food Laboratory Administrative Building

   () MAM Administrative Building (Presidency)

2. **Respondent**

   () Institution employee

   () Student

   () Other: …

3. **Please indicate your gender**

   () Female

   () Male

   () I do not wish to specify

4. **Please assess the adequacy of the light level in the rooms/classrooms you are in for daily activities**

   () Adequate

   () Undecided

   () Insufficient

() Other: …

5. **Do you know about the energy-saving measures implemented at the institution where you work/study/temporarily reside?**

   () Yes

   () No, I am not aware

   () No energy-saving measures have been implemented

6. **Please assess the insulation of the building where you work/study/temporarily reside**

   () Insulation is adequate

   () Insulation is inadequate (draughts from doors and windows, roof leaks)

   () I don't know

   () Other: …

7. **Are you satisfied with the overall indoor thermal comfort of the building where you work/study/temporarily reside?**

   () Yes

   () No

   () Partially

8. **Are you aware of any renovation work previously carried out in the building where you work/study/temporarily reside? (You may select more than one option)**

   PLEASE DO NOT SKIP THIS QUESTION

   () I do not know

   () Yes, renovations related to energy efficiency (wall insulation, door/window replacement, etc.) renovations were carried out

   () Yes, renovations related to earthquake-proofing the building were carried out

   () Yes, renovations related to the installation/improvement of accessible facilities were carried out

   () No renovations were carried out

   () Other: …

9. **Are you satisfied with the indoor air ventilation system of the building where you work/study/temporarily reside?**

   () Yes

() No

() Partially

() Other: …

10. Are you aware of the Building Earthquake Regulation published in 2018?

() Yes

() No

() Partially

11. Are you familiar with the Seismic Resilience and Energy Efficiency in Public Buildings Project?

() Yes, but I do not have detailed information

() Yes, I have detailed knowledge

() No/I do not have any information

12. Are you aware of the "Grievances Mechanism" application where you can submit all suggestions/requests and grievances within the scope of the project?

() Yes

() No

13. Is there anything else you would like to add regarding the SREEPB Project?

……..

Annex 2: Frequency Tables

Table11. Participant Distribution by Building Name

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**MAM Food Laboratory Building**	20	38.5%	38.5%	38.5%
	MAM Food Laboratory Administrative Building	29	55.8%	55.8%	94.2%
	MAM Administrative Building (Presidency)	3	5.8%	5.8%	100.0%
	Total	52	100.0%	100.0%	

Table12. Participants' Relationship Status with the Institution

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**Institutional Employee**	52	100.0%	100.0%	100%

Table13 . Gender Distribution of Participants

	Gender	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**Female**	27	51.9%	51.9%	51.9%
	Male	25	48.1%	48.1%	100.0%
	Total	52	100.0%	100.0%	

Table14. Lighting Level Adequacy

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**Insufficient**	9	17.3%	17.3%	17.3%
	Undecided	7	13.5%	13.5%	30.8%
	Sufficient	36	69.2%	69.2%	100.0%
	Total	52	100.0%	100.0%	

Table15. Energy Saving Awareness

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	No, I don't know	32	61.5%	61.5%	61.5%
	Not applicable	2	3.8%	3.8%	65.4%
	Yes	18	34.6%	34.6%	100.0%
	Total	52	100.0%	100.0%	

Table16. Satisfaction with Current Building Insulation

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	Insufficient Insulation	35	67.3%	67.3%	67.3%
	I don't know/ no opinion	6	11.5%	11.5%	78.8%
	Insulation is adequate	11	21.2%	21.2%	100.0%
	Total	52	100.0%	100.0%	

Table17. Satisfaction with Current Indoor Temperatures

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	No	21	40.4%	40.4%	40.4%
	Partially	20	38.5%	38.5%	78.8%
	Yes	11	21.2%	21.2%	100.0%
	Total	52	100.0%	100.0%	

Table18. Indoor Ventilation System Satisfaction

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	No	28	53.8%	53.8%	53.8%
	Partially	8	15.4%	15.4%	69.2%
	Yes	16	30.8%	30.8%	100.0%
	Total	52	100.0%	100.0%	

Table19. Knowledge Status Regarding the Building Earthquake Regulation

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**No**	17	32.7%	32.7%	32.7%
	Partially	16	30.8%	30.8%	63.5%
	Yes	19	36.5%	36.5%	100.0%
	Total	52	100.0%	100.0%	

Table20. Awareness of the SREEPBP Project

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**No/I don't know**	29	55.8%	55.8%	55.8%
	Yes, but I don't have detailed information	22	42.3%	42.3%	98.1%
	Yes, I have detailed knowledge	1	1.9%	1.9%	100.0%
	Total	52	100.0%	100.0%	

Table21. Awareness of the Grievance Mechanism

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Within Valid Responses	**No**	40	76.9%	76.9%	76.9%
	Yes	12	23.1%	23.1%	100.0%
	Total	52	100.0%	100.0%	