Funded by the European Union

Mitigation Enabling Energy Transition in the MEDiterranean region

GRASSMED OVERVIEW

Presented by Adel MOURTADA, ALMEE

Training on GRASSMED – meetMED II

WP3_A3.1.6

Date : February 26, 2024

OUTLINE

- ✓ Introduction
- ✓ Definition
- ✓ Levels of Certifications
- ✓ Commercial Buildings' Distribution of Weightings
- ✓ Residential buildings' Distribution of Weightings
- ✓ Why GRASSMED?

Introduction

Planet earth is warming up

CHALLENGES FACING THE SOUTHERN MEDITERRANEAN REGION

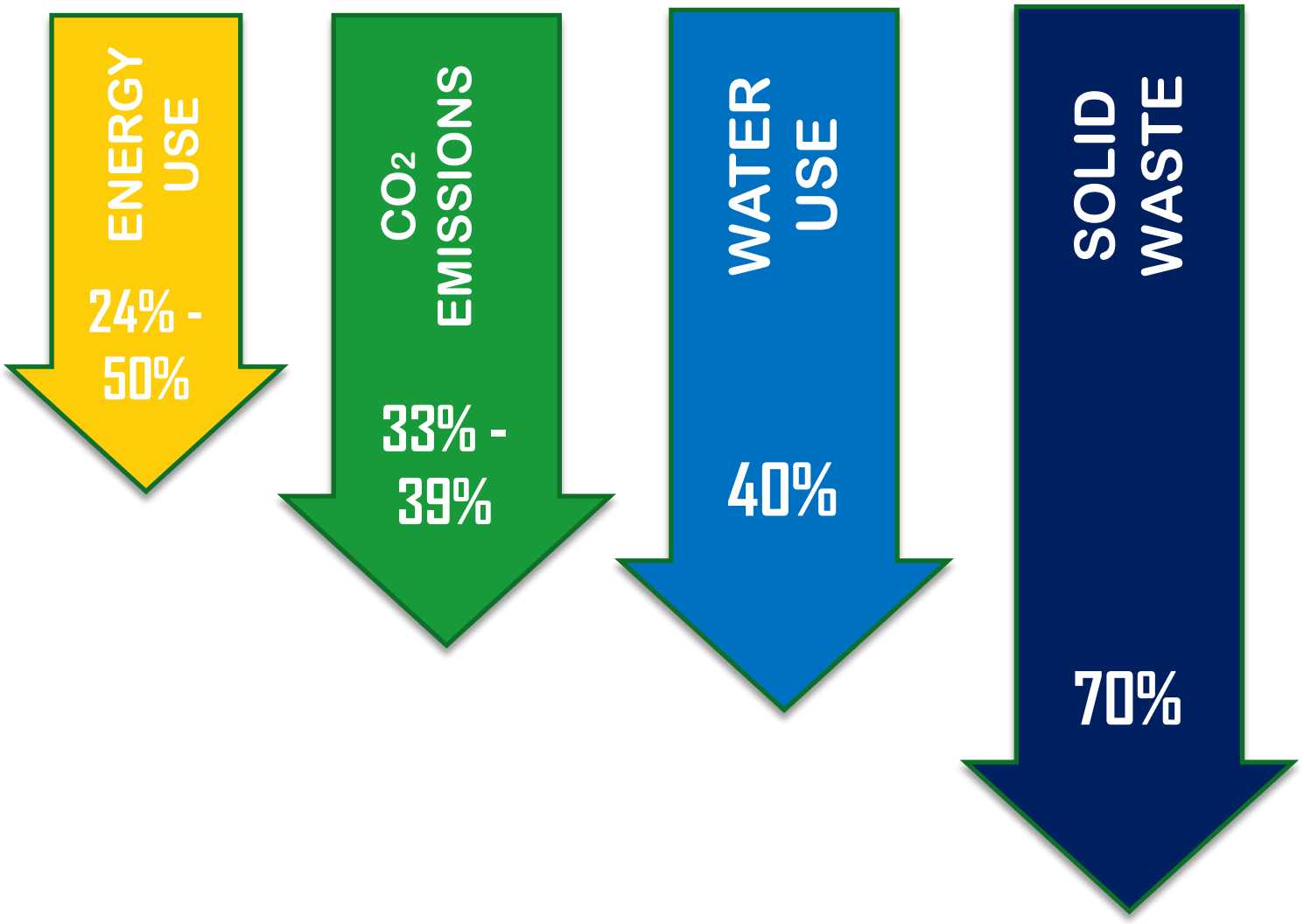
The Mediterranean region faces a series of well-known challenges, including socio-economic and environmental problems. Economic growth has not kept pace with the region's rapid population growth, leading to high unemployment rates, particularly among young people (28%), as well as widening inequality. Furthermore, the Southern Neighborhood economies have limited trade and economic integration among themselves and remain insufficiently competitive in the global market.

Unsustainable use of natural resources, environmental degradation and the impacts of climate change have further exacerbated existing challenges, jeopardizing access to water, food and energy, accelerating the desertification and loss of biodiversity and threatening lives and livelihoods. The Mediterranean region has been called a climate change hotspot, warming on average 20% faster than the rest of the world.

Source : Conclusions of the first Mediterranean Assessment Report (MAR1) of Mediterranean experts on climate and environmental change, published in 2020.

Green Buildings

Green Buildings Can Reduce



Green Building Rating System

Guidelines

Tools

Green Building Rating Systems

- BREEAM — 1990
- LEED — 1998
- GREEN GLOBES — 2000
- CASBEE — 2004
- ESTIDAMA — 2008

Green Building Rating Systems Comparison

Categories	BREEAM	LEED	HQE	EDGE	ARZ 1.0	ARZ 2.0	GRASS
Management (and Operations)	✓	✓	Included as a target in theme (Environment)	X	✓	Included in each of the assessment criteria	✓
Building Envelope	X	X	X	X	✓	Included in the assessment criteria (Energy)	✓
Energy	✓	✓	✓	✓	included under two categories Energy Performance and Electrical Energy	✓	✓
Location and Transport	✓	✓	Included as worksite targets in theme (Environment)	X	Included in the assessment criteria (Operations and Managements)	✓	Included in the assessment criteria (Energy)
Sustainable Sites (or Land use and Ecology)	✓	✓	Included as a site and worksite targets in theme (Environment)	X	Included in the assessment criteria (BONUS)	✓	✓
Indoor Environmental Quality (or Health and Wellbeing)	✓	✓	✓	X	✓	✓	✓

Green Building Rating Systems Comparison

Heating, Ventilating, Air Conditioning and Refrigeration	Included in the assessment criteria (Health and Wellbeing)	Included in the assessment criteria (Energy and Atmosphere)	Included as a site and worksite targets in theme (Health)	X	✓	Included in the assessment criteria (Energy)	
Water efficiency	✓	✓	Included as a Water and Water quality targets in theme (Environment and Health)	✓	✓	✓	✓
Material and Resources	✓	✓	Included as a components target in theme (Environment)	✓	✓	✓	✓
Pollution	✓	Included in the assessment criteria (Material and Resources and Indoor Environmental Quality)	X	X	X	Included in the assessment criteria (site)	✓
Waste	✓	Included in the assessment criteria (Material and Resources)	Included as a target in theme (Environment)		Included as Solid waste management in the assessment criteria (Operations and Managements)	Included in the assessment criteria (Materials)	✓
Innovation (bonus)	✓	✓	X	X	✓	Included in each of the assessment criteria	✓

Green Building Rating Systems Comparison

Categories	BREEAM	LEED	HQE	EDGE	ARZ 1.0	ARZ 2.0	GRASS
Weighting System	Applied to each category	All credits are equally weighted, but the number of credits related to each issue is different	X	X	Applied to each category	Applied to each category	Applied to each category
Rating Levels	Unclassified Pass Good Very Good Excellent Outstanding	Certified Silver Gold Platinum	Pass Good Very Good Excellent Exceptional	EDGE certified EDGE Advanced ZERO Carbon	Uncertified Certified Bronze Silver Gold	Uncertified Certified Bronze Silver Gold Platinum	Laurel Jade Matis Emerald
Life Cycle Phase							
Pre-Design and Design	✓	X	✓	✓	✓	✓	✓
Construction	✓	✓	✓	✓	✓	✓	✓
Post-Construction	✓	✓	✓	✓	✓	✓	✓
Use/Maintenance	✓	✓	✓	X	✓	✓	✓
Building Types Certified							
New Residential	✓	✓	✓	✓	X	✓	✓
New Commercial	✓	✓	✓	✓	X	✓	✓
New Tertiary	✓	✓ (Not Including Industrial Bldgs.)	✓	✓	X	✓	✓
Existing Residential, Commercial and Tertiary	✓	✓ (Not Including Industrial Bldgs.)	✓	X	✓ (Not Including Residential Bldgs.)	✓	✓

- **BREEAM**

BREEAM®

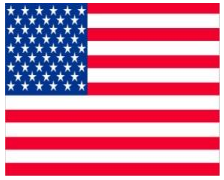
- BREEAM Scheme
- BREEAM Rating Benchmark
- BREEAM Evidential Requirements
- BREEAM Assessment Criteria

TARGET

- ✓ Aid BREEAM Accredited Professionals
- ✓ Help Qualified BREEAM Assessors
- ✓ Guide Project Teams
- ✓ Guide for Customers

[BREEAM UK New Construction 2014 Technical Manual]

- **LEED**



LEED Minimum Program Requirements

LEED Project Checklist

LEED Reference Guide

TARGET

- ✓ **Aid Qualified LEED Assessors**
- ✓ **Help Project Teams**
- ✓ **Used as Guide for Customers**

[USGBC, LEED 2009 Minimum Program Requirements]

[USGBC, LEED Reference Guide for Green Building Design, and Construction 2009]

- **GRASS**

ALMEE

MEDENER

BREEAM®

- Restricted to Luxurious Buildings
- High Standards
- Unsuitable Standards

U.S. GREEN BUILDING COUNCIL LEED USGBC

GRASS

- New and Existing Buildings
- Residential and Non-Residential
- MEDENER and MENA Region

[ALMEE – Lebanese Association for Energy Saving and for Environment]

- **GRASS**

GRASS Documents

GRASS Article

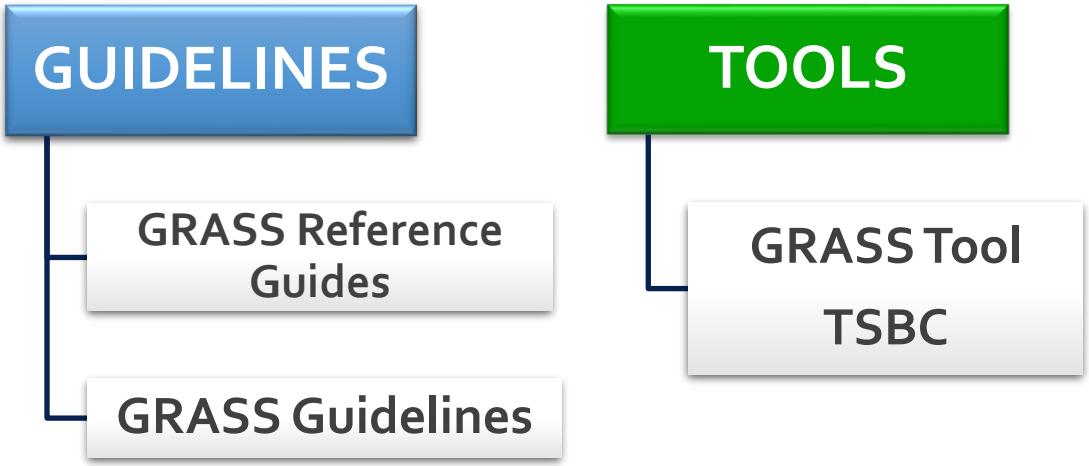
GRASS Booklet

GRASS Green BOOCC Platform

GRASS Training

[ALMEE – Lebanese Association for Energy Saving and for Environment]

- **GRASS**



Green Recovery And Sustainable Solutions

[ALMEE – Lebanese Association for Energy Saving and for Environment]

GRASS*MED* Green BOOCC Platform

Green Building Platform

A large number of participants connected at the same time on the platform

Open

Accessible free to all users

MEDENER Agencies can share Guides, information, regulations …

Online

Online to be connected at any time to the agencies, community of professionals educators and assessors

Courses

A real educational path allowing the acquisition of knowledge , share best practices and becoming assessors

Certification

Online registration of the project and obtaining a provisional Green building

certificate

GRASS*MED*

Introduction

Because "Green Building Design and Construction" is a new trend conquering our regional construction market, the South-Mediterranean countries should be among the pioneers who tend to adapt and support these concepts.

It's obvious that our national legislations do not offer the incentives that promote for "Green Buildings", that's why it's essential to build our own high standards of design and construction that contribute to save our environment, and our energy without losing high efficient performance of buildings as well as their internal thermal comfort.

For the sake of Green Sustainability in the South-Mediterranean region, these high standards must be all integrated in one rating system to provide a full package of "Effective and High-Efficient Performance of Buildings". **The new proposed rating system is called "GRASS*Med*".**

Med GRASS

Introduction

GRASS*Med* : A regional Green Building Rating System

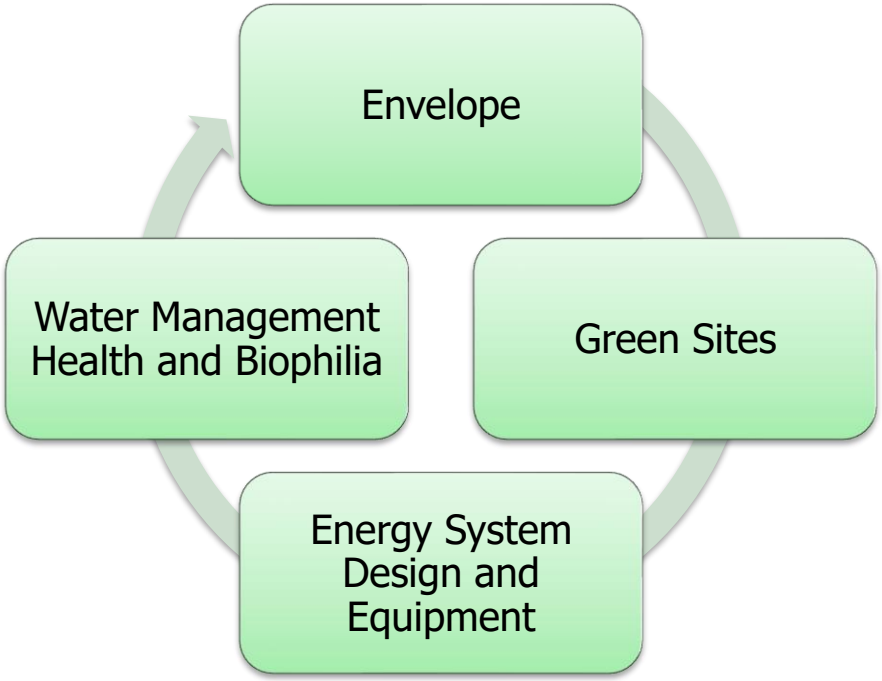
- GRASS*Med* is free and voluntary.
- Intended for Residential and Tertiary sectors.
- Intended for existing Buildings as well as new Buildings.
- GRASS*Med* has been fully developed and implemented for Lebanon (meetMED I) by ALMEE in collaboration with ADEME.

Developed for South Mediterranean countries of MEDENER as part of WP3 of meetMED II

Definition

GRASS*Med* – Green Recovery And Sustainable Solutions in the Mediterranean – is a new approach for a pure regional rating system for Newly Designed and Existing Commercial & Residential Buildings. From its name, its intent is to mitigate negative impacts of buildings on the environment including CO2 emissions, heat island effect, intensive energy consumptions, water consumption…etc. Not only that, but also it aims to provide our next generations with the opportunity to live in healthier, durable, and friendly environmental buildings.

GRASS*Med* consists of four major categories of indicators:



Each indicator in each category tackles several credits as follows:

Envelop
- Thermal Performance of Building Envelope - E1
- Eco-construction - E2
- Eco-Roofs - E3

Green Sites
- Pre-Developed Sites - GS1
- Existing Infrastructure - GS2
- Proximity to Basic Services - GS3
- Site Plantation - GS4
- Green Parking Structure - GS5
- Parking Capacity - GS6

Energy System Design and Equipment
- Solar Water Heating - EDE1
- Renewable Energy Technologies - EDE2
- Daylight Design - EDE3
- Natural Ventilation - EDE 4A
- Mechanical Ventilation - EDE 4B
- Efficient Lighting - EDE 5A
- High Efficiency Parking Lighting - EDE 5B
- Boiler/HVAC - EDE 6A
- Air Curtains - EDE 6B
- Back-up Electricity - EDE 7
- Building Management System - EDE 8

Water Management Health and Biophilia
- HealthCare and Biophilia - WMHB 1
- Water Efficiency - WMHB 2A
- Water Conservation - WMHB 2B

Levels of Certifications

To earn "GRASS*Med*" for Newly Designed or Existing Building certification, the project must satisfy all of the prerequisites and a minimum number of points based on its compliance with the requirements of each credit.

Using the checklist of Commercial or Residential Building Assessment, the assessor must go through all the credits of the four indicators mentioned above to calculate and submit the final scoring points out of 525. Then the total points are divided by 525 in order to calculate the score out of 100.

Based on this percentage, the level attained is determined.

Percentage = (Awarded Points/525) x100

1 ≥ 80.1%

2 70.1% - 80%

3 60.1% - 70%

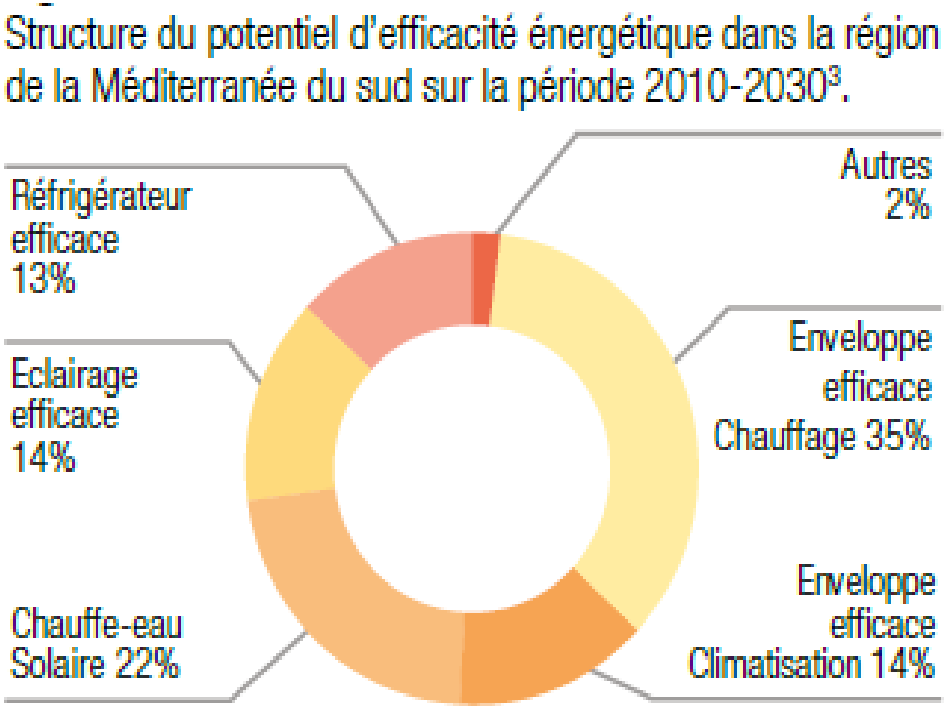
4 50% - 60%

Potential of Energy Efficiency in Residential Buildings in Southern Mediterranean Countries

Efficient refrigerator

Efficient Lighting

Solar Water Heater



Others

EE Envelop Heating

EE Envelop Cooling

Source : https://planbleu.org/wp-content/uploads/2011/06/2-EN_Batiment_Energie_CC.pdf

Commercial Buildings' Distribution of Weightings

The weighting of these categories is based on Commercial Buildings features and needs:

Envelope with 36% receives the highest weighting due to its direct impact on thermal performance of the building. This is because it's more effective and efficient to optimize the performance rather than design Building equipment with larger capacity to meet the comfort zone requirements (temperature, humidity, fresh air…etc.).

Energy Design and Equipment with 34%Because one of the targets is to provide thermal comfort, an adequate energy system must be designed as well as the complying equipment must be chosen to reflect the effectiveness of these designed systems. That is why it's necessary to upgrade the level of this indicator for the sake of promoting high – efficient performance of design and equipment without any oversize of capacities.

Green Sites, receiving 15%, focuses on the importance of proper site selection without disturbing our eco-system or polluting our environment.

"Water Management Health and Biophilia" which receives the same least weighting of 15%. The choice of weighing doesn't underestimate the importance of improving indoor environment including indoor air quality as well as water supply management.

Residential Buildings' Distribution of Weightings

The weighting of these categories is based on Residential Buildings features and needs:

Envelope with 36% receives the highest weighting due to its direct impact on thermal performance of the building. This is because it's more effective and efficient to optimize the performance rather than design Building equipment with larger capacity to meet the comfort zone requirements (temperature, humidity, fresh air…etc.).

Energy Design and Equipment with 35%. Because one of our targets is to provide the thermal comfort, an adequate energy system must be designed as well as the complying equipment must be chosen to reflect the effectiveness of these designed systems. That is why it's necessary to upgrade the level of this indicator for the sake of promoting high – efficient performance of design and equipment without any oversize of capacities.

Green Sites, receiving 13%, focuses on the importance of proper site selection without disturbing our eco-system or polluting our environment.

"Water Management Health and Biophilia" which receives 16%. This choice of weighting differs from that of commercial buildings' due to the fact that water supply consumption is much higher in residential buildings although the number of occupants might be less. Besides, indoor air quality must be improved and tackled properly for the sake of healthy indoor environment for residents.

		Commercial	Residential	Total Com	Total Res
Envelope	E1	150	150		
	E2	26	26		
	E3	15	15	191	191
Green Sites	GS1	7	10		
	GS2	4	10		
	GS3	4	10		
	GS4	15	10		
	GS5	24	23		
	GS6	24	4	78	67
Energy Design and Equipment	EDE1	8	30		
	EDE2	15	15		
	EDE3	20	20		
	EDE4A	20	20		
	EDE4B	10	10		
	EDE5A	25	15		
	EDE5B	8	8		
	EDE6A	35	35		
	EDE6B	6	0		
	EDE7	15	15		
	EDE8	15	15	177	183
WMHB	WMHB1	29	29		
	WMHB2A	21	26		
	WMHB2B	29	29	79	84
				525	525

Green Building Guideline of Jordan

Chapters	Weight	Chapter
Green Building Management	20	6%
Site Sustainability	24	8%
Water Efficiency	110	35%
Energy Efficiency	98	33%
Healthy Indoor Environment	24	8%
Materials & Resources	32	10%

Source : Green Building Guideline of Jordan - *Jordan International Energy Conference 2011 – Amman*

Green Building Guideline of Palestine

1. نظام احتساب النقاط :

تتوزع عملية احتساب النقاط للأبنية الخضراء ضمن ستة محاور رئيسية كما هو موضح في الجدول (1-1).

جدول (1-1) : نظام احتساب النقاط

النسبة المئوية	عدد النقاط	Domain	المجال
% 15	30	Site Sustainability	استدامة الموقع
% 30	60	Energy Efficiency	كفاءة استخدام الطاقة
% 25	50	Water Use Efficiency	كفاءة استخدام المياه
% 15	30	Indoor Environment Quality	جودة البيئة الداخلية
% 10	20	Materials and Resources	جودة استخدام المواد والموارد
% 5	10	Innovation and Building Integrated Design	الافكار الابداعية و تكامل تصميم المبنى
% 100	**200**		**المجموع**

Source : Green Building Guideline State of Palestine

Green Building Guideline of Palestine

2. تصنيف المباني الخضراء:

يمنح الدليل الإرشادي للأبنية الخضراء أربعة تصنيفات للمباني الخضراء وفق الفئات المدرجة في جدول (1-2).

جدول (1-2) : تصنيفات المباني الخضراء

الرقم	المستوى	التصنيف	عدد النقاط
	* * * *	ماسي	160 أو أكثر
	* * *	ذهبي	159-140
	* *	فضي	139-120
	*	برونزي	119-100

Source : Green Building Guideline State of Palestine

Why GRASSMED?

International Building Certification labels (LEED, BREEAM) have been developed for western countries, where EE and RE industries and markets are more advanced, thus making the standards often unreachable.
Certification processes and fees can be daunting to applicants.

GRASS*Med* is to be tailored from the reality of local green building markets, and is intended to evolve with these markets.

The GRASS*Med* Green BOOCC platform offers a set of useful tools for construction professionals and students alike, allowing them to test their design while taking into consideration national building codes and/or labels for each participating country.

Overall, it's a powerful mean to get familiar with energy efficiency and sustainability.

Contact us!

meetMED
Mitigation Enabling Energy Transition in the MEDiterranean region
Together We Switch to Clean Energy

For any inquires or comments,
please don't hesitate to contact us

www.meetmed.org
meetMED Project
@meetmed1

www.almeelebanon.com
almeelb
AlmeeLB
AlmeeLB
almeelb

This project is funded by the European Union