



SERVICES DESIGN TECHNOLOGY International



Environmental
And
Waste Management



SDT Environmental Professional Services

SDT is a leader in environmental and sustainable services. Providing our clients sustainable environmental solutions to meet international compliance, business and operational needs.



Our environmental dynamic team is capable to cover several technical discipline, including:

- Environmental, health and safety management
- Impact assessments
- Governments permits
- LEED
- Water and natural resources
- Waste services

We are the leaders in the industry with respect to alliance and other relationship-based contracting approaches due to our capability of collaborating effectively.



Environmental Assessment and Management

One of the most significant issues that industries, businesses and governments encounter is the protection of our natural environment.

We are able to contribute to various kinds of projects through our knowledge and commitment to deal with, and solve environmental problems in a business-oriented manner.

- **Environment planning, approvals and auditing**
 - Risk planning and analysis
 - Options identification and evaluation
 - Environment in design
 - Permits and statutory approvals
 - Permits and licensing
 - Feasibility and due diligence assessment
 - Environmental auditing
- **Environmental management**
 - Environmental management systems (development and auditing)
 - Environmental management and monitoring plans
 - Stakeholder and community engagement
 - Construction environmental management
- **Environmental assessment**
 - Environmental impact assessment and study
 - Ecology
 - Sustainability assessment



Waste Management

At SDT, we understand that each client has a different requirement and each project has a distinct context. We become familiar with the environmental restraints and risks so we could provide cost-effective studies, remediation solutions for waste management, and contaminated land management approaches.

A part of our services is the provision of effective management for contaminated land that needs specialist experts to work on recognising needs of clients and providing economical evaluation, management, and remediation methods; besides working on regulatory conditions.

We offer a comprehensive range of environmental audits, evaluations, and remediation services to waste plants in addition to Principal Contractor, engineering, and strategic planning skills.

For our clients, we can work with different kinds of abilities and experience to make sure that the work is in line with future planning and changing site management approaches. This strategy often leads to considerable cost savings for clients and also leads to optimising outcomes.

SDT Waste Management division includes:

- Approvals and permits
- Contaminated land and groundwater rehabilitation
- Water quality and management
- Waste Minimization & Recycling Studies
- Environmental planning
- Waste Infrastructure Planning and Design
- Air and noise quality
- Construction and Demolition Waste Management
- Waste to Energy and New Technologies
- Sustainability assessment

Waste handling is a critical activity especially in highly populated buildings and areas.

The below describes the recommended waste collection and storage strategy which integrates key features such as waste recycling and minimization of waste quantities shipped to landfills, in accordance with latest sustainability principles.

Description of waste storage and collection strategy:

Solid Waste Collection

Solid waste collection and storage concept to be adopted in any project can be summarized as follows:

- a- Waste will be collected on daily basis from each room by cleaning agents to the garbage collection room.
- b- From the garbage, the Municipality waste vehicle will transport the waste to the Municipality collection system (recycling, landfill...).

Sustainability and Solid Waste Sorting

A substantial amount of the waste generated can be recycled. Therefore sorting of recyclable materials should be encouraged in order to be in line with sustainability principals and to set the example in environmental responsibility.

Waste streams to be considered are:

- a. Wet Waste which is constituted of the waste generated from organics (food) and general trash.
- b. Paper and cardboard.
- c. Dry recyclables including plastic bottles, glass bottles, and metal cans.

Waste composition and quantities

The waste composition and quantities depend on the usage of the building or the different part of the building.

Example: In residential areas, occupants will generate all kind of municipal waste,

In office areas, the composition of the waste is mainly paper and cardboard.

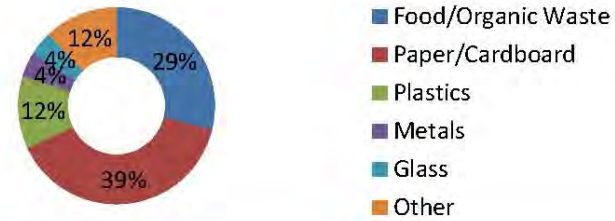
In restaurants, it is mainly organic waste (food).

The quantity of the waste generated depends on the occupancy and is calculated on a rate per capita bases, for example 1Kg per capita per day.

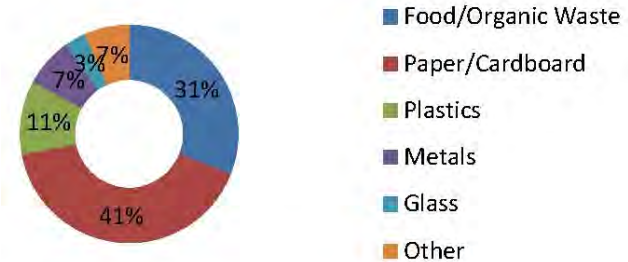
The waste volume is then calculated depending on the density of the waste.

The garbage room dimensions and the bins inside it are then decided accordingly.

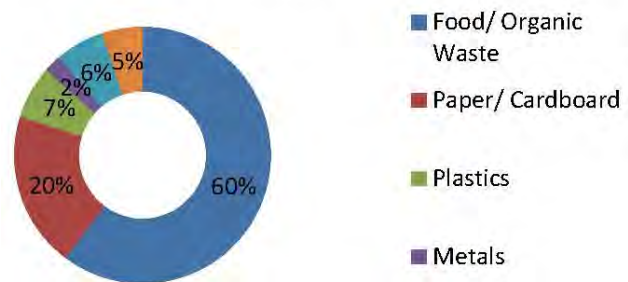
Dormitories Waste Composition



Office Waste Composition



DiningWaste Composition





Renewable Energy Technologies

Renewable Energy Technologies (RET) are an integral means for reduction of carbon footprint, reduce Green-house Gas emissions, and maximize energy savings.

Usually, RETs are active components of the development, and specifically target energy production for specific uses:

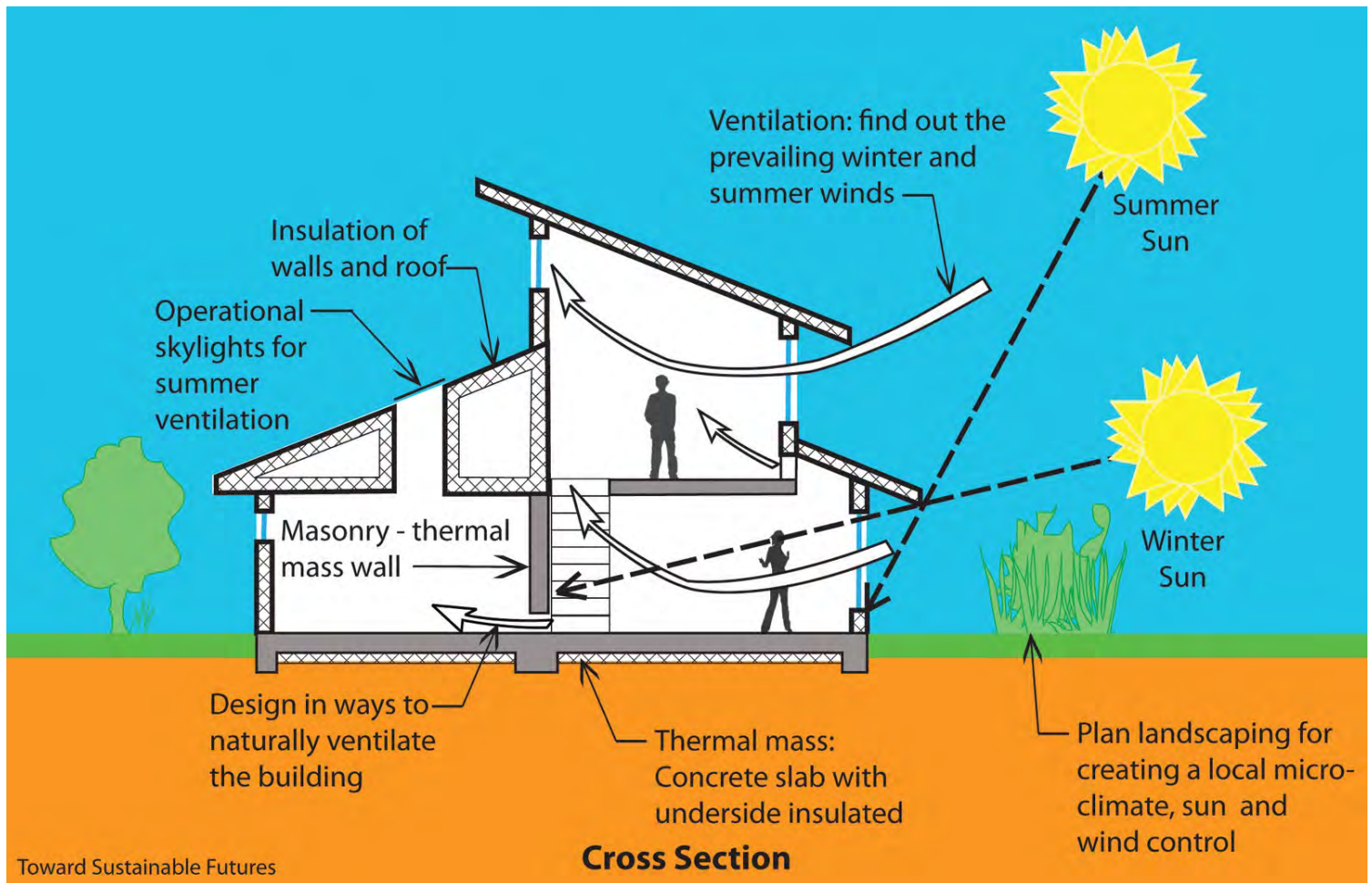
- Photovoltaic Systems
- Wind Systems
- Solar Water Heating Systems
- Geothermal Heat Pump Systems
- Hydro-electric Power Systems

RETs also work in parallel with standard systems, and/or each other, to optimize the efficiency of each system and provide the maximum energy output (eg. combined photovoltaic-wind systems, and combined solar-geothermal heating systems, etc...

Other modern technologies are integrated along-side the RETs in green developments, that play a role from the energy and water consumption side of the equation:

- CFL and LED Lighting Fixtures
- CO2 Sensors for Parking Ventilation
- Occupancy Sensors for Lighting and HVAC
- Energy Star Certified Equipment
- Low-Flow and ULTRA-Low-Flow Water Fixtures

Where RETs produce energy from renewable and clean sources, the above technologies consume less energy and water than the base-line standards, and therefore significantly improve the building/development 's energy and water performance.



Passive Green Design

Passive green design approaches integrate various approaches for the development during the earliest stages of the project, from site selection to basic building architectural design.

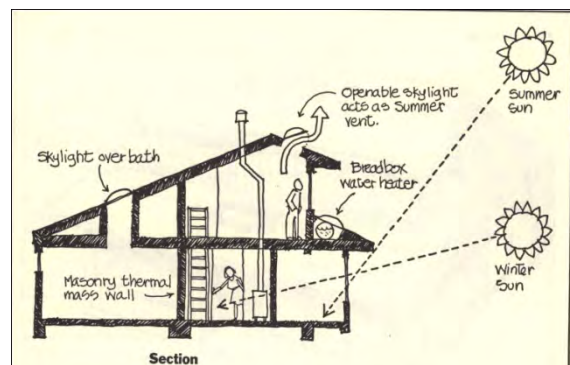
From the site connectivity to basic urban services (transportation, hospitals, schools, commercial areas, etc...), from the building orientation and relationship with the solar plane (that impacts daylighting and thermal loads) to the building material, all play an important role in the sustainability of the development.

Even the slightest details, from Low-VOC finishing material, rapidly renewable material, solar reflection indices, to Low-E glazing and building envelope insulation and U-Value, the passive elements of the design are considered in both ways:

- Cost and Feasibility
- Energy and Water Efficiency

SDT Environmental Department provides consultation, documentation, feasibility studies, technical analysis, and value engineering services to assist the developer in reaching most feasible, efficient, and practical performance of the development.

A whole-building design approach also considers the passive elements from the earliest concept stages of the project, and integrates all the desirable active components to meet the client's objectives from the development and the sustainability targets.



Previous Projects

Waste Management:

- Exxon Mobil Compound - Nigeria
- Lagos building - Nigeria
- GTH General Teaching Hospital-Iraq
- Al Rashid Shopping Mall – KSA- Dammam, 400 000 sqm
- Al Rashid Hotel – KSA-Dammam, 300 Keys
- Al Rashid Hotel – KSA-Khobar , 57,000 m2

Environmental Assessment

- Aya Tower - Lebanon
- U Park - Lebanon
- Asset Affaire - Qatar
- Bchamoun Residences - Lebanon
- Ballouneh 110 - Lebanon
- Boulevard Heights - Lebanon
- Central B - Lebanon
- District S - Lebanon
- Damac Tower - Lebanon



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About SDT

SDT international was established in 1991 as an engineering consultancy company that provides comprehensive range of services in the Structural, Mechanical, Electrical, Infrastructure, Environmental and Plumbing design.

For the past 22 years, we have been a pioneering force in the planning, design and implementation of development projects in the Middle East, UK and Australia.

With six offices in six countries, we employ high caliber specialized engineers capable to apply innovative approaches to design and deliver practical and cost effective solutions.

UK . Lebanon .KSA.Qatar.Dubai. Australia

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