Chapter1 – Introduction to Green Buildings & LEED

Credentials

1.1 What are the characteristics of Green Buildings?

Green Buildings are

· Energy Efficient

· Water Efficient

· Provide better Indoor Environment& hence better living conditions

· Use environmental friendly or sustainable materials

· Produce Less waste

· Have lesser transportation requirement

· Protect/restore habitat

The above characteristics results in reduced environmental impact

throughout the lifecycle of the building

Learning Objectives

At the end of this chapter, candidates will have an understanding of • What is a Green Building?

• What is the significance of Green Buildings?

• What are the various Green Building rating systems?

• Why LEED?

• What are the various LEED Credentials?

• LEED Examination information

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1.2 What is the Significance of Green Buildings?

The major environmental challenges today are

• Climate change

• Depletion of resources

• Ozone depletion

• Land pollution

• Water Pollution

• Air Pollution

There is a common perspective that industries are the major part of

greenhouse gas emissions. Interestingly fig 1.1 shows that buildings are the

major contributors towards greenhouse gas emissions

Fig 1.1 Building’s Contribution to CO2 emission

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Buildings directly contribute towards all the above environmental pollution.

Green Buildings can be major part of the solution to these environmental

issues.

Interest for Green Buildings has gained significant momentum in GCC

countries. Hence, we would like to provide some specific statistics related

to GCC countries. Fig 1.2 shows that percapita CO2 emission1

ishigher in GCC

countries. This could be because of climatic conditions, life style, lack of

infrastructure related to public transportation etc.

Fig 1.2Percapita CO2 Emissions of various countries

Fig 1.3 shows that Green Buildings can significantly reduce the resources

used in buildings and contribute to reduced environmental impact.

1Percapita CO2 emission is theCO2 emission of the country divided by midyear population.

44

30.3

22.6 20.7

17.2

8.5

1.5 0.8

0

5

10

15

20

25

30

35

40

45

50

Qatar Kuwait UAE Bahrain USA UK India Philipines

Percapita CO2 Emission

Percapita CO2 Emission in

metric tons

Data Source: Wikipedia - Apr 2015

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Fig 1.3Environmental benefits of Green Buildings

1.3 How a building can be certified as Green Building?

Buildings are certified as Green Buildings byvarious Green Building rating

systems.Green Building rating systems are tools which assess the building

on various aspects like energy efficiency, water efficiency, materials used,

indoor environmental quality, location of site etc and certify the buildings if

they qualify their preset criteria.

There are numerous Green Building rating systems across the world. Belowis a partial list of various Green Building rating systems

• Australia: Green Star

• Brazil: AQUA / LEED Brazil • Canada: LEED Canada/ Green Globes

• China: GB Evaluation standard for green building

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• Finland: PromisE

• Germany: DGNB

• Hong Kong: HKBEAM

• India: GRIHA and IGBC

• United Arab Emirates: Pearl Rating System

• United States: LEED

• United Kingdom: BREEAM

• Taiwan: EEWH

• Qatar: GSAS

1.4 Why LEED?

When there are various Green Building rating systems, why should

someone bother about LEED? Here are some of the reasons

• LEED- Internationally recognized Green Building rating system

• Adapted in many countries like Brazil and Canada

• Popular& accepted in GCC countries. Fig 1.4 shows that there are more

than 750 LEED registered projects1 and 180+ LEED Certified Projects2

in

GCC countries.

1LEED registered projects: LEED registered projects are the projects which has expressed their

interest to be LEED certified by filling an online application form. Registered projects are

analogous to candidates who have applied for the exam

2LEED Certified Projects: LEED Certified projects are the projects which has been successfully

assessed by GBCI and got LEED Certified. Certified projects are analogous to candidates who

have successfully passed the examination.

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Fig 1.4LEED Projects in GCC Countries

1.5 What LEED Credentials you can earn?

LEED offers three levels of credentials for professionals as shown in Fig 1.5

Fig 1.5LEED Credentials

89 80

13 1 1 0

564

83 74

10 8 24

UAE Saudi Arabia Qatar Bahrain Kuwait Oman

LEED Registered & Certified Projects in GCC

Countries

Certified

Source: USGBC Project directory as on 5th May, 2014

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LEED Green Associate: LEED Green Associates have understanding of green

building design, construction and operations. They possess knowledge level

equivalent to 200 in LEED core curriculum.

LEED AP: LEED Accredited Professionals will be able to implement their

knowledge by facilitating Certification process in a particular LEED rating

system. They possess knowledge level equivalent to 300 in the LEED core

curriculum. LEED AP Credential comes with a specialty; candidates can

choose the specialty based on their profile. For example a Professional in

design or construction may prefer to be a LEED AP BD+C; while a facility

manager shall be interested in LEED AP O+M.

LEED Fellow: LEED fellows are LEED APs who have demonstrated

exceptional achievement in LEED and Green Buildings.

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Fig 1.6Knowledge levels in LEED Curriculum

1.6 LEED Green Associate examination information

• Exam can be taken through prometric centers in any country. • Exam Fee is USD 200 for members and USD 250 for non members

• Apply for exam through www.usgbc.org

• Computer based test, 100 multiples choice questions. • Total duration is 2 Hrs and 20 minutes (10 minutes tutorial on interface

+ 2 Hrs exam + 10 minutes exit survey) • Passing score 170/200 – This doesn’t mean 85 percentage. The

evaluation is based on relative performance against baseline

performance. • No negative marking

• Results are available immediately after the exam