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To Study of Credit Ratings in Commercial Buildings in Maharashtra (A Green Building Approach)

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Abstract - Credit rating plays a pivotal role in the decision-making process of stakeholders in the capital market including regulators, issuers and investors. Therefore, it has been focused by the researchers doing research in the field of finance domain on this emerging concept. Many studies have been conducted in the Indian context as well as the global arena on rating methodology, importance of ratings, performance of rating agencies, investors' awareness, etc. This report puts a light on Credit Ratings of Commercial Buildings and Quality Parameters of Credit Rating Agencies and their impact on the project from customer and investor point of view.Focusing on Quality Ratings as a prime factor of Credit Ratings of Commercial Buildings. The main objective of my project is to prepare a Quality Rating Guide named Q.R.I.C BOOK for benefitting the credit worthiness of companies and for assuring utmost customer satisfaction by guiding them to make better decisions.

Keywords - Green building Credit Rating, Quality Rating

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INTRODUCTION

The Quality Rating Guide is a comprehensive tool covering broad aspects of commercial projects. The prime focus is on the vast parameters on which project quality depends. It will act as a tool for companies to achieve the highest quality ratings and also act as a priority reference for customers to justify their quality related decisions.

DRIVERS OF CREDIT RATING

- Project Quality Ratings
- Legal Documentation
- Construction Related Risks
- Financial Flexibility
- Track Record

QUALITY RATING

Quality Rating is defined as the assessment of project quality in the form of ratings, by certain quality parameters. The impacts of quality ratings on project are:

- Quality ratings assure debt repayments due to customer satisfaction, robust sales and customer advances.
- Quality ratings ensure proper risks and returns.
- Quality ratings directly benefit in the credit worthiness of a company.

Broadly the quality rating parameters are divided as:

- Construction Quality Parameters
- Legal Parameters

RATING CRITERIA

The rating would involve detailed examination of critical factors, which would help the investor to evaluate the project. The criteria given by NAREDCO, CRISIL, CARE Ratings and ICRA broadly include:

- **Project Developer Quality**

It involves assessment of the track record of developer to estimate the stipulated timelines given to current project. It also studies the developer's

ability to complete the project based on the adequacy of the organizational setup and financials to manage the funding of the project till completion.

- **Project Construction Quality**

It includes innovative concepts like green building, amenities, recreational facilities, etc. It studies the operational track record of these facilities promised. It also involves assessment of various factors like track record of various contractors deployed by the developer, use of construction technology, ease of availability of the raw material and labor which may lead to time overruns.

- **Project Legal Quality**

The project legal quality refers to the clarity of the legal title of the land, status of various government approvals including 7/12 extract, usage of land, environmental clearance, commencement certificate, etc. It covers assessment of the sale agreement to ensure a transparent and clean transaction.

- **Project Financial Quality**

The analysis of the project financial quality primarily refers to status of the funding of the project, funding mix and project financial flexibility

PURPOSE

For developer and company it will be a guide for better quality related decisions for the project and help to achieve:

- Debt repayments due to customer satisfaction
- Increasing sales,
- Customer advances,
- Proper returns on risks.

For customers it will act as a tool to generate awareness regarding:

- Construction quality,
- Construction materials,
- Legal documentation.

OBJECTIVES OF RATING

The quality rating guide works to fulfill certain broad objectives which typically cover the vast aspects of the construction processes and materials. The objectives are enlisted in a tabular form with the corresponding merits and demerits.

A rating has been assigned to the item or process with respect to each objective.

- **FUNCTION & UTILITIES**

An attribute factor giving a broad idea about the features and characteristic functions of the item or process.

The response given by the item towards intrinsic and extrinsic factors.

- **LIFE SPAN & CONSTRUCTION TIME**

A time factor considering service life of the item, speed of construction or process and other relevant periods.

- **ENVIRONMENTAL & HEALTH**

Being the need of the hour, green and eco-friendly attributes of the item or process are highlighted.

Impacts of the item or process on human health and well being are considered.

- **MISCELLANEOUS**

Unique and relative features intrinsic to the item or process are brought up.

Labor skills, tools and equipments for the item or process are considered.

- **COST**

Involves the financial aspect of the item or process.

Initial and installations costs along with their dependency are considered.

Frequency and cost of maintenance and servicing are highlighted.

Q.R.I.C BOOK

Q.R.I.C BOOK stands for 'Quality Ratings In Commercial building.'

Q.R.I.C BOOK is name of the quality rating guide. It will be made accessible

PROCESS

LEGAL DOCUMENTATION REQUIRED

A. Land Title: First and foremost, the builder has to get clear title for the land or plot. Clear title ensures that the property is clear, marketable and it traces any charges or encumbrances created on the property and its present status. It enables a prospective buyer to know the chain of holdings, transfers over a period and check any dispute on the ownership of the property. The best possible

scenario is that the builder buys the land first and then start the project. In Maharashtra, builders prefer upfront purchase of land whereas in Delhi and Karnataka Joint Development Agreement is route normally taken.

B. Land Clearance: On account of urbanization agricultural land is sometimes converted into Non – Agricultural land which can further be used for constructing building for residential or commercial purpose. In such cases a developer needs to get approval from concerned authority to convert agricultural land to non-agricultural (NA) purpose.

Approval for change in land use of the plot is required from local body and the State Ministry of urban Development (UD), when the land use shown in master plan / zonal plan (where the plot is located)/ land allotment letter is to be changed (as the same is not permitted / not compatible with master plan/ zonal pan). The land use plan for land area is to be notified by the State Ministry of UD after the same is approved by local body.

C. Zonal Clearance: After the land title & clearance, builder is required to take zoning approval from the local body / authority.

The revenue department provides the ownership certificate for building permit under the provisions of Local Body Acts.

The state town planning checks regarding city development with the planning board and forwards the proposals to the various other concerned authorities in the city as required for issue of case specific approvals/ NOC before granting zoning approval. As per data collected by CII on the overall approvals required in most of the housing projects in Delhi, Haryana, Noida / Greater Noida, Rajasthan, Punjab and Maharashtra, it has been observed that as per the following table, 51 approvals are required by housing projects that vary from approvals required for land to approvals for putting in place basic amenities like electricity, water, connecting roads, etc.

D. Building Approval: The next step requires an approval from authority for sanction of building plans/ building permit under the provisions of Building Byelaws, Master plan and Local Body Acts. The Building approval comprises of the building plan and the layout approval for the construction of the building.

1) Building Plan:

- A builder should submit building plan before starting the construction activities. Building plans are a graphical representation of what a building will look like after construction.
- Building plan ensures that building complies with building laws.
- Once the building plan is approved, the builder should commence construction work within two years and there should be no deviation from the sanctioned plan.

2) Layout approval: The builder has to get approval of layout plan from concerned authorities before starting construction of residential or commercial building.

- Approved Layout Plan is as per approved FAR (Floor Area Ratio) or FSI (Floor Space Index).
- Constructing building on unapproved layout will not be given permission to be occupied or such layout plots will be treated as unlawful and exemplary penalties will be levied as per Municipal Laws.
- Land which is sub-divided into plots without permission from authority is considered illegal or unapproved layout.
- No facilities such as roads, drainage, street lighting will be extended in such areas.

3) Intimation of Disapproval: Intimation of Disapproval or IOD basically states conditions that needs to be complied with during different phases of Under Construction Project. Intimation of Disapproval in some places is also i known as Building Permit. These conditions are normally divided into 3 parts:

- Immediately before commencement of construction work.
- During the construction period.
- After the construction is completed.

4) Commencement Certificate in layman terms: commencement certificate is the permission to start construction from local development authority. Please note that the builder cannot lay the “Foundation Stone” & “Build Boundaries” in the absence of these 2 critical documents.

E. Completion Certificate: After the construction is completed, Completion certificate is mandatory for building constructed before selling the building.The completion certificate is issued after the inspection process. Issuing of Completion Certificate will ensure that the builder or owner has constructed the building as per approved plan.

F. Services & Utilities Installation: The builder should get approval from concerned authorities for electricity, gas and water for potable and non-potable use. The building should comply with building laws for sanction or approval of basic amenities. The builder has to get NOC from pollution board on the project. Builder has to get NOC from

municipality or respective authority for digging bore well. It is essential for the approval for sewer or water supply.

G. Occupancy Certificate: Lastly, an occupancy Certificate is required from local body/ authority before occupation of a building or part of a building for any purpose. The local body forwards the proposals to the various other concerned authorities in the city as required for issue of case specific

LITERATURE REVIEW

Ms. M Sandra Kirthy,", 2015 **s**: The services of Credit rating agencies to the investors play a major role in evaluating risk and return of the investment in taking the decisions. It is very much essential to understand the credit rating agencies methodology process and rating symbols adopted and overall services. This paper emphasizes on comparing the rating methodology, process, symbols and services of CRISIL (Credit rating information service Ltd.), ICRA(Investment information and credit rating agencies), CARE (Credit Analysis and Research Limited), and Fitch India Ltd. The rating agencies in India need to evolve their own methodologies, rating agencies have made strategic alliance with reputed international agencies. The rating agencies in India have to evolve their own methodologies, process, and symbols within the context of macro-economic environment.

Binh K. Nguyena 2011 The paper presents the comparative review of five prominent sustainable rating systems namely BREEAM, LEED, CASBEE, GREEN STAR and HK-BEAM. The review process adopts a system of criteria which encompasses all features of sustainable rating tools. The main goal of the study is to consider all aspects of the systems in order to find out the best one(s). The study provides a deep insight into sustainable rating tools and can be a recommendation and reference for users when choosing between rating systems.

Omair Awadh, , 2017 In the built environment, a green building rating system provides the project team a framework and a tool to help achieving a better sustainable development. The research presents how Green Building Rating Systems (GBRSs) are environmental-oriented tools and should not be confused with Sustainability Assessment Systems; the latter is defined by the sustainability three pillars; environmental, social and economic. Achieving a green building certification does not necessarily mean that the building succeeded in achieving its environmental targets. The financial-driven and prescriptive implementation of GBRS are reasons behind a masked sustainability outcome.

Dat Tien Doan,"2017This paper aims to develop a systematic review of the development of green rating systems focusing on four well-known rating systems, namely BREEAM, LEED, CASBEE, and Green Star NZ The results indicate that green rating systems have become the focus point of various researchers recently. Since 1998, 408 papers mentioned BREEAM, LEED, or CASBEE in E&B, B&E, A&C, BR&I, SBT&UD, CP, EIAR, R&SER while 202 of these papers focused on these ratings with a more in-depth approach. During the research period of 1998-2016, the number of green rating related papers rises sharply from only 2 to 36 on an annual basis..

OBJECTIVES

- To review and compare Credit Rating Systems and Agencies along with Green rating agencies.
- To focus on Quality Ratings as a prime factor of Credit Ratings in commercial/ Industrial buildings.

METHODOLOGY

To review Credit Rating Systems and Agencies, focus on Quality Ratings as a prime factor of Credit Ratings in commercial buildings and prepare a Quality Rating Guide for commercial building.

DATA COLLECTION

Company Name : **ADVIK HI- TECH PVT.LTD. (**
Building: Advik Store Unit, Advik Manufacturing Unit, Advik Packing Unit
Address : Gat No.357/99, Chakan-Talegaon Road, Kharabwadi,
Tal-Khed, Chakan, Pune- 410501, India.

Details: ADVIK Hi-Tech Private Limited (AHPL) is one of India's leading & Global automotive components manufacturers. We have been catering to the needs of a number of domestic and overseas customers across four continents in the two-wheeler, stationary engine and transmission system segment for the past twelve years. They provide custom-made solutions for our customers designs, keeping in mind their needs and specifications. Our customer base includes leading automotive original equipment manufacturers in India, Europe, UK, US and ASEAN Region.

DATA ANALYSIS

Work In Rating Syastem:
Advik Hi-Tech Pvt. Ltd. in , Pune, Maharashtra was recently awarded the CII - Indian Green Building Council - IGBC GOLD certification under Green Factory Building Rating.
In this regard, a virtual IGBC Plaque presentation ceremony was organized on 24 December 2020.
Received First prize in Maharashtra Energy Development Agency (MEDA) awards 2021
Key Green features of ADVIK HI-TECH factory in Chakan, Pune are as follows:
- 34% energy savings and more than 40% water savings, over baselines
- 303 kWp Solar PV which offsets 17% grid energy

use

- Green Power of 1.25 MW has been wheeled in to replace 100% non-process grid energy consumption
- STP of 70 KLD to treat 100% of waste water
- High SRI coated GI roofing sheet were used and also several trees were planted to improve the micro climate
- 20% of the site area has been maintained for landscaping
- Gym facilities along with enhanced daylighting and ventilation ensures better health and well-being of occupants
- Use of Green products such as eco-friendly housekeeping chemicals

1) Advik Store Unit

Total Area = 295000 sq. Ft.

No. Of store unit = 69

Parking Capacity = 600

Worker capacity = 650 seats

1. FLOORING

- **Marble Flooring**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Extremely durable · Scratch free · Beautiful and high end look · Aesthetically good	· Heavy · Slippery when wet · Need for polishing	4.5/5
Life Span & Construction Time	· Long lasting	· Difficult installation	3.5/5
Environmental & Health	· Natural material	· Large waste generated in cutting	2.5/5
Miscellaneous	· Customizable	· High skilled labor	3/5
Cost		· Very costly · High degree of maintenance	0/5

- **Vitrified Flooring**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Highly Durable · Sheen long lasting · Scratch resistant · No need for additional glaze · Easy cleaning	· Slippery when wet	4.5/5
Life Span & Construction Time	· Easy installation · Long lasting		5/5
Environmental & Health		· Significant energy and carbon expenditure during manufacture	0/5
Miscellaneous	· Wide range and choice	· Skilled labor	3/5
Cost	· Easy maintenance · Cost varies between a large range	· Regular maintenance	3.5/5

- **Ceramic Flooring**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Durable · Water resistant · Easy to clean	· Prone to high coldness	3/5
Life Span & Construction Time	· Long lasting · Easy installation		5/5
Environmental & Health		· Artificial material	0/5
Miscellaneous	· Customizable · Semi skilled labor		5/5
Cost	· Easy maintenance	· High initial cost · Regular maintenance	2/5

TOTAL RATING - 3/5

2. WALLS

- **Brick Masonry Wall**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Hard and durable · Good compressive strength · Variety of orientations and sizes available · Highly fire resistant	Dependence on composition Prone to shrinkage and cracks	4/5
Life Span & Construction Time		Time consuming curing process	2/5
Environmental & Health	· Reusable · Recyclable · Less pollution during manufacturing	Waste generation during work	3.5/5
Miscellaneous	· Semi skilled labor		5/5
Cost	· Economically and easily available raw materials · Very low maintenance cost · Economic and easy demolition	Very costly transportation	4/5

TOTAL RATING - **3.7/5**

3. FALSE CEILING

Objectives	Merits	Demerits
Functions & Utilities	· Key role in acoustics and sound absorption · Provides an insulation layer which reduces heat in summers and cold in winter · Increases air conditioning performance	· Reduced height tends to decrease the roominess
Life Span & Construction Time		· Difficult to install · Short life span depends upon care and maintenance
Environmental & Health	· Recyclable materials · Energy efficient	
Miscellaneous	· Hides the ugly mesh of electrical fittings like pipes, ducts work.	· High skilled labor
Cost		· High installation cost · Requires regular maintenance

4. PLASTERS

- **Cement Plaster**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Used for interior and exterior · Smooth surface · One coat sufficient	· Less flexible · Prone to cracking	3.5/5
Life Span & Construction Time	· Standard setting time · Easy application		4/5
Environmental & Health		· Waste generated	0/5
Miscellaneous			-
Cost	· Low cost		5/5

- **Plaster of Paris (Gypsum)**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Durable · Lightweight · Moldable into any shape · Fire resistance · Low thermal conductivity · Insulating materials · Very smooth finish with sharp edges and corners	· Unsuitable for exterior finish	4.5/5
Life Span & Construction Time	· Faster construction time	· Difficult application	3.5/5
Environmental & Health	· Natural material	· Not reusable	3/5
Miscellaneous	· Improves the overall décor	· High skilled labor	3.5/5
Cost		· Very costly	0/5

TOTAL RATING -3.1./5

5. PAINTS

- **Plastic Emulsion Paint**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· High quality · Applicable on concrete and stucco surfaces · Washable · Water based · Cracking resistance · Readily thinned or diluted with water · Non flammable		4.5/5
Life Span & Construction Time	· Long lasting · Stable color over time · Very easy and fast to apply with brush	· At least 3 hours period required between two layers	4/5
Environmental & Health	· Low VOCs		5/5
Miscellaneous	· Improves the overall décor · Ornamental paint · Semi skilled labor		5/5
Cost	· Convenient to maintain	· High initial cost	2/5

TOTAL RATING -4.1/5

6. WATER PIPES

- **Galvanized Iron Pipes**

Objectives	Merits	Demerits	Rating
Functions & Utilities	· Great durability · Multiple grade available · Resist damage during transportation · Zinc coating protects against corrosion · Very high melting point	· Prone to rusting after internal zinc coating wears out · Threading wears out the zinc coating · Heavy weight · Less flexibility	4/5
Life Span & Construction Time	· 50 to 75 years life span · Fast assembly		5/5
Environmental & Health	· No leaching of iron into water since no rusting	· Zinc coating may react with minerals in water	3/5
Miscellaneous	· Easy inspection · Semi skilled labor		5/5
Cost	· Low maintenance cost	· Very costly · Have to be replaced and cannot be repaired	2/5

TOTAL RATING -3.8/5

7. SOLAR

- **Solar Panels**

Objectives	Merits	Demerits
Functions & Utilities	· Sustainable energy source · Efficiency around 40% · Very reliable · Silent	· Inefficiency in production · Inadequate storage · Weather dependent
Life Span & Construction Time	· 25 years life span	
Environmental & Health	· Avoids green house gases · Decentralizes energy production	
Miscellaneous	· Tax credits for individuals and companies	
Cost	· 30 to 45 per Watt · Easy maintenance	· Very costly installation

CONCLUSION

Quality Ratings is the prime factor for Credit Ratings in real estate projects. Every decision made regarding quality will have a good or bad impact depending upon the direction of the decision. Quality parameters of Credit Rating Agencies were analyzed and were broken down into a simpler format. This data was either divided as per items, processes or legal regulations. The Quality Rating Guide was created as a comprehensive tool containing the analyzed data regarding quality parameters of Credit Rating Agencies. Corresponding data was collected and divided into three parts viz. Processes, Interior and Surroundings. This data was further subdivided into approx five objectives viz. Functions & Utilities, Life Span & Construction Time, Environmental & Health, Miscellaneous and Cost.

- **Future Scope:** This research methodology is also applicable to other infrastructure projects like roads, bridges, railways, ports, etc. Corresponding quality rating guides can be prepared.

- Websites are temporary and can be

accessed only with an internet connection. To serve a semi permanent purpose, a smart phone application can be developed

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