

March 2016
Volume-I



**PRE-
ENGINEERED
BUILDING
SYSTEM (PEB)
OF BANGLADESH**



EMERGING
Credit Rating Ltd
an independent house of risk assessment

Table of Contents

A. Industry Classification:	1
B. Industry Analysis:	1
Introduction	1
Present scenario of Steel structured building	2
Market Size and Share	3
Production	3
Import	3
Export	4
Cost.....	4
Demand and location	4
Tax facilities.....	4
Benefits	5
Conclusion	5
Bibliography	6

Pre-Engineered Building system (PEB) of Bangladesh

Nabihatul Afrooz¹

A. Industry Classification:

International Standard Industrial Classification	Code
Construction of buildings	410
<ul style="list-style-type: none"> Construction of buildings 	4100

B. Industry Analysis:

Introduction

In the Pre-Engineered Building system (PEB) a structure is to be pre-designed and pre-fabricated using best-suited materials from different sources and manufacturing methods that are combined together and assembled to satisfy a wide range of structural visual design requirements. The PEB system idea was first implemented in the USA after the World War II, as one of the solutions to the demand of fast economic growth (Major Steel Building Technology Ltd, 2015). In 1952, H Akber Ali Group of Industries established the very first steel industry "Bangladesh Steel Re-rolling Mills" (BSRM) in Nasirabad, Chittagong (Steel Group, 2016). From then, this sector has gradually developed the growth of steel industry in Bangladesh was mainly induced by the expansion of the country's other potential sectors like shipbuilding, construction and real estate. With the sector registering 15 percent growth last year steel industry is riding on large infrastructure projects (Chowdhury, 2016).

The steel industry is one of fastest growing industrial sector in Bangladesh. The industry has emerged as a major contributor to the national economy meeting total local requirements and manufacturers are saving billions of dollars in foreign exchange. Not only that, the industry has also been providing employment. The sector has created direct jobs for about 10 lakh people. According to local steel manufacturers, Bangladesh consumes 4 million tons of steel per year

¹ Research Associate, Research Department, Emerging Credit Rating Limited, Email: nabiha@emergingrating.com

and per capita steel consumption is 25 kilograms, which is less than half of per capita steel consumption in India (Islam, 2015).

The local sector grew from producing a mere 47,000 tons in 1971 to four million tons in 2015. The growth is predicted to continue in the future because of the government's increasing spending on bridges and other major projects that will require the key construction material. Bangladesh is investing heavily in infrastructure development, especially in power generation, highways, bridges, buildings and telecom. So, all of this is creating a solid foundation for the emergence of a strong steel sector (The Daily Star, 2015).

Present scenario of Steel structured building

Steel structured buildings started in 1984 with the inception of Chittagong Export Processing Zone, and are now a favorite amongst industrialists. Steel structured buildings now have a strong hold in Bangladesh's construction sector. Steel buildings are metal structure fabricated with steel with the internal support along with exterior cladding, as opposed to steel framed complexes which generally work with other materials with regard to floors, walls, along with the external envelope. A pre-fabricated steel structure is now being used for different purposes such as setting up factories, multi-storied buildings, power plants and bridges (Craftex Builders, 2016).

According to industry insiders, the segment produces an annual turnover of over BDT 10.00 billion. The main competitive advantage of this industry over the more traditional RCC building construction is the amount of time it saves. A typical 5 storey RCC building takes 2 years to complete, whereas, the same building can be made in 6 to seven months of time. Moreover, most of the work is finished in the builders' premises, while the only assembly is done on-site. This technique of construction also offers a significant cost advantage, compared to RCC buildings which cost BDT 500.00 per square feet whereas, steel buildings cost only BDT 250.00 – BDT 300.00 per square feet. This cost increases in case of high rise buildings, but the main target of steel buildings is of medium height with a large area (Khan, 2009).

Local steel-building makers are expecting a bright future for the pre-fabricated building sector as an increasing number of conglomerates, including foreign companies, are setting up such

structures for industrial use. The demand for steel buildings is increasing in the country as it needs low investment, less time, and provides high safety (Saha, 2013).

Market Size and Share

At present, the Pre-engineered steel industry of Bangladesh has shown remarkable success in the construction sector. The mission of this industry is to encourage overall development and making a contribution to National Exchanger to work economic development of the country. Magnum Engineering and Construction Limited (MECL) is the largest company in Bangladesh for the supply and erection of pre-engineered steel buildings, currently holding over 50% market share. It is at the forefront of civil construction with over 25% market share in industrial buildings. It is also the leader in supply and installation of fire alarms, fire detection and firefighting equipment including hydrants/sprinklers and gas based products (Halon, CO₂) (Magnum Engineering & Construction Ltd, 2016). Another Company named Bangladesh Building System Limited (BBS) holds Market Capital of BDT 4101.58 million and turnover is BDT 52.60 million. Other Market Players are Quantum Builders & Engineering Limited, Build trade Engineering Limited, PEB Steel Alliance Ltd, ALM Steel Building Technology Ltd, Tiger Steel Bangladesh Ltd, Newaz Steel Limited etc. with large area.

Production

The Pre-engineered steel Industry is mostly involved in building: High rises, Multi-storey Buildings, industries, Workshop, Warehouse Housing, Training Center, Gymnasium, Basketball Court, Swimming pools, Markets Shopping center, Bus Station, Police station Border Posts, Grain storage, steel framed commercial buildings and waste/recycling facilities, commercial showrooms, distribution centers, restaurants, CNG stations, Fruit and vegetable Storage, Cold Storage, Equipment storage, Military Applications, Aircraft Hanger etc (ALM Steel Building Technology, 2015).

Import

Bangladesh imports about 250,000 tons of hot-rolled coils, steel structures, steel coils, special steel, pipes, but it still has the potential to export steel (The Daily Star, 2015)The imported plates are subjected to a quality test before fabrication under the supervision of the QC Dept of PEBSAL at the Factory end (PEBSAL, 2014). Firms had imported machinery of billet plant

investing US\$130 million (Ahmed, 2011). Materials are imported from a variety of countries that includes Australia, Japan, China, India, Korea, Vietnam, etc (PEBSAL, 2014).

Export

In the last five years, the country exported prefabricated building materials worth around \$50 million, mainly to Sudan, Pakistan, India, and the UAE. Local steel-building makers, however, said they are now facing an uneven tax policy as they have to pay more than 60 percent duty for the import of raw materials. They urged the government to reduce the tax rate for the development of the sector (Saha, 2013).

Cost

The cost of Steel structured building depends on the types of infrastructure. For example, the cost of high rise steel structured building will be USD 45-100 per square meter, Pre-Engineered steel structured building will be USD 1150-1650 per metric ton, Prefabricated steel building will be USD 6 per square foot.

Demand and location

Presently, the annual demand for prefabricated steel buildings in Bangladesh is around BDT 20,000 million, growing at more than 35% for the last several years. Local companies meet around 85%-90% of the demand and the rest is imported. Prefabricated buildings consist of several factory-built components or units that are assembled on-site to complete the unit. The factories made of prefabricated buildings are now mainly located in Gazipur, Narayanganj, Comilla, Chittagong, Manikganj and Savar. The construction cost of such a building is BDT 250.00 to BDT 350.00 a square foot, which is 20-30 percent lower than a conventional building. Generally, it requires a year to build a 60,000-70,000 square feet building, while a steel building can be made in around three to four months time (Saha, 2013).

Tax facilities

It was proposed by the government to replace tax holiday with low-tax from 2014. Import duty of 7.5% is payable for import of capital machinery and spare parts, whereas 15% advanced VAT is also applicable for import of steel, their prime raw material. Steel constructions are also

subject to Bangladesh National Building Code, 1993 and Low Rise Building System Manual for load calculations (Dhaka Chamber of Commerce & Industry, 2016).

Benefits

Steel buildings have become popular not only in the commercial and industrial sector; steel buildings are nowadays being used in the community for building houses as well. Steel buildings offer many benefits and advantages. It maintains Standard Frame Models like Gable Symmetrical, Gable Unsymmetrical and Multiple Spans. Available colors are possible to apply. The many options it offers the customers are so enticing that most construction builders nowadays prefer them; steel building offers strength and affordability that one cannot get from traditional building construction methods (infocus, 2016). Use of steel buildings includes Airplane hangars, Steel School Buildings, Self-Storage Buildings, Steel Warehouse Buildings, Steel Sport Arenas, Steel Strip-Malls, Retail Steel buildings, Gymnasiums, Church buildings, Garden sheds etc. The general benefits of steel structured buildings are that it is quick and easy to erect, versatile, strong, cost effective, environment friendly (Steel Building, 2016).

Bangladesh has not yet faced catastrophes like Japan, New Zealand, Haiti, Indonesia or Philippines have, where they suffered severe earthquakes and tsunamis causing not only losses of billions of dollars but also millions of lives. They have learnt their lesson from the consecutive disasters. It is interesting to know that, owing to the latest Japanese construction standard, material quality assurance and their extensive experience, not a single building was damaged due to the severe earthquake in Japan, 2011 (Richter scale reading was 9.0). Now, Bangladesh is also capable of producing world standard cement and reinforcing steel (deformed bar).

Conclusion

The steel structured industry is emerging because of cost-effectiveness, less time-consuming for construction, light weight, resale value and less vulnerability than RCC (Reinforced Cement Concrete) buildings and also some others advantages of steel buildings. Thus we can expect that the demand of MS rod will continue to grow at an increasing rate we hope steel industry in Bangladesh will grow with quality products for the next generation.

Bibliography

- Ahmed, M. (2011, March 19). *Ctg-based large mills move fast on long-steel*. Retrieved from <https://bangladesheconomy.wordpress.com/2011/03/19/ctg-based-large-mills-move-fast-on-long-steel/>
- ALM Steel Building Technology. (2015). *ALM Steel Building Technology*. Retrieved from <http://www.alm.com.bd/index.php/our-product/pre-engineered-buildings>
- Chowdhury, S. A. (2016, December 18). *Better days ahead for the construction sector*. Retrieved from <http://www.thedailystar.net/supplements/better-days-ahead-the-construction-sector-1331377>
- Craftex Builders. (2016). *Craftex Builders*. Retrieved from <http://craftexbuilders.com/services/steel-buildings/>
- Dhaka Chamber of Commerce & Industry. (2016). *Dhaka Chamber of Commerce & Industry*. Retrieved from https://www.dhakachamber.com/home/investment_duty
- infocus. (2016). *Benefits of Steel Buildings*. Retrieved from http://www.streetdirectory.com/travel_guide/print_article.php?articleId=32610
- Islam, M. A. (2015, March 8). *Steel market providing a solid foundation for national growth*. Retrieved from The Daily Star: <http://www.thedailystar.net/steel-market-providing-a-solid-foundation-for-national-growth-50114>
- Khan, K. (2009, June 19). *Steel buildings gaining ground*. Retrieved from The Daily Star: <http://www.thedailystar.net/news-detail-93183>
- Magnum Engineering & Construction Ltd. (2016). *Zoom Info*. Retrieved from <http://www.zoominfo.com/s/#!search/profile/company?companyId=347633658&targetid=profile>
- Major Steel Building Technology Ltd. (2015). *Major Steel Building Technology Ltd*. Retrieved May 25, 2017, from http://www.majorsteelbd.com/peb_is.php
- PEBSAL. (2014). *PEB Steel Alliance Ltd*. Retrieved from <http://pebsteelalliance.com/pebsal/quality/>
- Saha, S. (2013, November 25). *Steel buildings to redraw industrial landscape*. Retrieved from The Daily Star: <http://www.thedailystar.net/news/steel-buildings-to-redraw-industrial-landscape>
- Steel Building. (2016). *SteelBuildingHQ*. Retrieved from <http://www.steelbuildinghq.com/>
- Steel Group. (2016). *Steel Group*. Retrieved from <https://steelgroup.co.in/blog/2016/04/09/steel-market-in-bangladesh/>

The Daily Star. (2015, December 13). *Bangladesh's steel sector beating global market.*
Retrieved from The Daily Star: <http://www.thedailystar.net/business/bangladeshs-steel-sector-beating-global-market-186499>

About ECRL

Emerging Credit Rating Limited (hereinafter referred to as ECRL) began its journey in the year 2009 with the motive to deliver credible superior & quality credit rating opinion in various industry segments around Bangladesh. ECRL obtained credit rating license from Bangladesh Securities and Exchange Commission (BSEC) in June 2010 as per Credit Rating Companies Rules 1996 and also received Bangladesh Bank Recognition as an External Credit Assessment Institutions (ECAI) in October 2010.

Emerging Credit Rating Limited's team is oriented towards the continuous improvement of processes, striving for an important role in the leadership of the business world. Every individual in ECRL is committed to providing topmost ingenious Credit Rating Services and Comprehensive Research Services in Bangladesh. ECRL's rating services and solutions reflect independence, professional, transparency and impartial opinions, which assist businesses in enhancing the quality of their decisions and helping issuers access a broader investor base and even smaller known companies approach the money and capital markets. The Credit Rating process is an informed, well-researched and intended opinion of rating agencies on the creditworthiness of issuers or issues in terms of their/ its ability and willingness of discharging its financial obligations in a timely manner. Issuers, lenders, fixed-income investors use these risk assessments for the purpose of lending to or investment in a corporation (such as a financial institution, an insurance company, a non-banking corporation or a corporate entity) as well as evaluating the risk of default of an organization's financial obligations in terms of loan or debt.

Dr. Jamaluddin Ahmed
FCA, PhD
Chairman

NKA Mobin
FCA, FCS, CFC
MD and CEO

Arifur Rahman
FCCA
Chief Rating Officer

Editorial Overview

ECRL Research provides insights, opinions and analysis on Bangladesh and International Economies. ECRL Research conducts surveys and produces working papers and reports on Bangladesh's different socio-economic issues, industries, and capital market. It also provides training programs to professionals from financial and economic sectors on a wide array of technical issues.

Research Team

Al Mamun
Senior Research Associate
Email: al.mamun@emergingrating.com

Subrata Howlader
Research Associate
Email: subrata@emergingrating.com

Nabihatul Afrooz
Research Associate
Email: nabiha@emergingrating.com

A.B.M. Qudrot-E-Khuda
JR. Research Associate
Email: qudrot@emergingrating.com

Emerging Credit Rating Ltd.

Shams Rangs, House 104, Park Road
Level-A1, A2 & A5
Baridhara, Dhaka-1212
Tel: +880 2 986 0911, +880 2 986 0897
Fax: +880 2 986 0828
Email: info@emergingrating.com
Web: www.emergingrating.com