নির্মাণ

(স্টীল বিল্ডিং শিল্পের মুখপত্র)

Steel Building Manufacturers Association of Bangladesh (SBMA)

House # 59 (C-5), Road # 01, Block # I, Banani, Dhaka-1213
E-mail: office@sbmabd.org, Web: www.sbmabd.org
www.facebook.com/sbmabd

DEKKO FACTORY BUILDING, Gazipur

8-Storied Steel Structure for ACI Ltd Narayanganj.

PAYRA PORT, Potuakhali

NDE STEEL STRUCTURES LTD.
Factory : Bhaluka, Mymensingh.

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Advantages of NDE Steel Structures Ltd.

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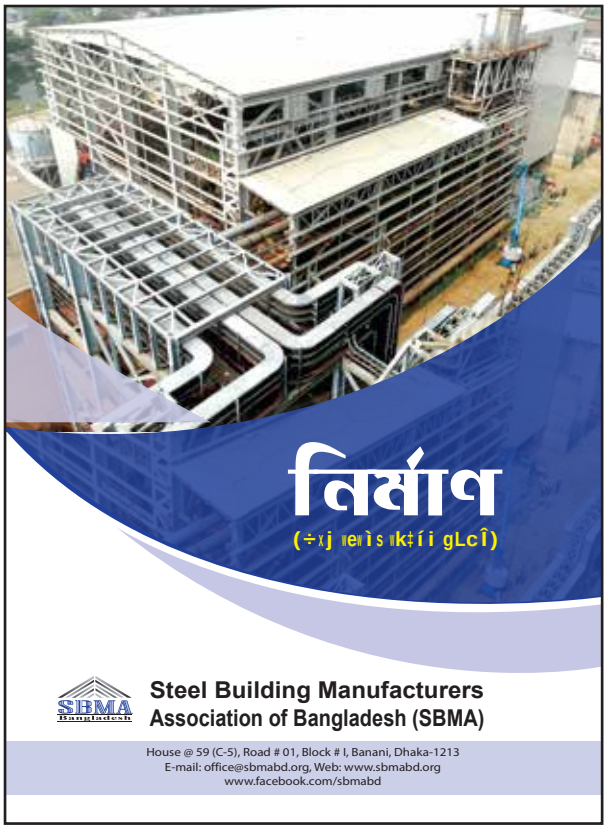
Head Office
House 10, Road 90, Gulshan -2
Dhaka -1212, Bangladesh.

Tel : +88 02 55051851-4
Fax : +88 02 55051853
Email : info.steel@ndebd.com
Website: www.steel.ndebd.com

Factory Address
Paragoan(Borochala), Bhaluka
Mymensingh-2240

নির্মাণ

(÷xj wewìs wk‡íi gLcÎ)



SBMA
Bangladesh

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Md. Mamun Hossain

Date of Publishing

28 February 2019

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Engr. Abu Noman Howlader
President
Steel Building Manufacturers
Association of Bangladesh

Massage

I am very glad to know that Steel Building Manufacturers Association of Bangladesh (SBMA) is going to publish a Magazine for the first time which is very appreciated.

Through this Magazine all our valuable customers stakeholders may know about the steel structure. They can know how a big structure and construct in short period, saving time comparing to the concrete structure and if necessary it can be removed easily, people can know it's sustainability during earthquake. Demolishing a concrete structure, a lot of waste will appear but steel structure almost zero. It has resale value and also environmental friendly.

Most of the developing countries depend on steel structure when they are going to build giant structure. In Asian countries, China, Korea, Japan, Thailand, India are the pioneer in this steel structure.

But Bangladesh the exceptency regarding steel structure is not desirable, because we are not able to reach with the benefit of this structure to the people. Publicity is the main instrument to familiar of any think. In this point of view Magazine is one of the fruitful instrument. So I believe this Magazine **"Nirman"** can play a significant role.

I welcome the publishing of this Magazine and hope that SBMA will publish this regularly. Wish them all.

Engr. Abu Noman Howlader
President

Engr. Md. Rezwanul Mamun
General Secretary
Steel Building Manufacturers
Association of Bangladesh

Massage

Publishing Magazine is definitely very much appreciable which is a part of various initialization of SBMA. It gives me immense pleasure to learn that SBMA is publishing Magazine "Nirman" every after six months.

I strongly believe that this Magazine will reach every corner of Bangladesh and people can know about the steel structure and I can sure they will come forward about the steel structure.

Every thing has been changing day by day. Changing wave also touch the construction sector. Giant construction has been not constructed with concrete, it is constructed with the steel materials. It is durable, construct easily, easy removable, cost effective, It has resale value and also environmental friendly. I hope multi beneficial message will disseminate through this Magazine "Nirman" .

This Magazine "Nirman" will make steel structure more closer to the people. I appreciate the noble initiative of publishing the Magazine and wish all success.

Engr. Md. Rezwanul Mamun
General Secretary

Few words on behalf of the Editorial Board

On behalf of Editorial Board of this magazine "Nirman" I as the Convener, i am immensely happy to hand over the magazine to all its readers. Particularly the stakeholders of the Steel Building Manufacturers Association of Bangladesh (SBMA) for the first time. I also apologies that the magazine could not publish in time. I will be happy if the readers can get any benefit through this magazine.

Now Bangladesh is steping up as a developing country. Agriculture is the main source of our income. Side by side industry is playing an important role also. To set up an industrial structure is badly needed first. We the members of SBMA could assure that to build a qualitative structure because we use world class steel that we import form abroad. No company can produce best quality steel in our country. Any pre fabricated steel company who can not achieve desire quality that company will not get the membership of SBMA. I also mention here that if any litigation occurs between the SMBA member and client and if that matter brings to the notice of SBMA then SBMA takes the matter seriously and solve it with a fruitful manner.

I am greatful to all our members. They gave their writeup to enrich this magazine and I also greatful to them for their financial support.

At the end, I again obliged to my board members and all those who involve directly and indirectly to publish this magazine. I also apologies for any mistake in the magazine. I will highly appreciate the readers and stakeholders if they pointed out the lapses of this magazine and let us informed.

Last of all, we hope that with the help of our members we want to publish the magazine half yearly. Insha Allah

Md. Rashed Khan
Convener
Magazine Committee

Table of Contents

Steel Building Manufacturers Association of Bangladesh (SBMA)

At a Glance

Date of Jurny	:	9th October 2012
Number of Members	:	27 Nos.
Location of SBMA Office	:	House # 59 (C-5), Road # 01, Block # I Banani, Dhaka-1213, Bangladesh
E-mail	:	office@sbmabd.org
Facebook	:	www.facebook.com/sbmabd www.facebook.com/sbma.org/mbox
Website	:	www.sbmabd.org

Executive Committee (2017-2019)

Engr. Abu Noman Howalader
President

Engr. Md. Rezwanul Mamun
General Secretary

Engr. M. A. Razzak
Senior Vice President

Engr. Md. Ziaur Rahman
Vice President

Engr. Muhammod Arman
Joint Secretary

Md. Rashed Khan
Organizing Secretry

Mohammad Rafiqul Islam
Treasurer

Engr. Asadul Haque
Member

Md. Shahnewaz
Member

Engr. Kazi Abid Hassan
Member

Emran Mustafiz
Member

1st President & General Secretary

Engr. Md. Akkas Ali
Passed President
(2008 - 2013)

Engr. HM Jahidul Islam
Passed General Secretry
(2008 - 2013)

2nd President & General Secretray

Engr. Md. Zakir Hossain Sarker
Passed President
(2014 - 2016)

Engr. HM Jahidul Islam
Passed General Secretry
(2014 - 2016)

List of SBMA Members

01	A A STEEL LTD.	15	Multi-Spain Steel Building Solutions Ltd
02	Akij Steel Mills Ltd.	16	Modern Structures Ltd.
03	ALM Steel Building Technology Ltd.	17	NDE Steel Structures Ltd.
04	Bangladesh Building Systems Ltd. (BBS)	18	Newaz Steel Ltd.
05	Bildtrade Engineering Ltd.	19	PEB Steel Alliance Ltd.
06	Bangladesh Machine Tools Factory Ltd.	20	Quantam Builders & Engineering Ltd.
07	Composite Steel Structures Ltd.	21	Sarker Steel Ltd.
08	Confidence Steel Building Technologies Ltd (CSBT)	22	Steel Frame Building Solution Ltd.
09	GEO Steel (BD) Ltd.	23	Steelmark Buildings Ltd.
10	Jalalabad Steel Buildig Ltd.	24	Three Dots Ltd.
11	KR Steel Structure Ltd.	25	Tootal Steel Building Products Ltd.
12	McDonald Steel Building Products Ltd.	26	SteelCraft PEB Ltd.
13	M/S. Harun Corporation	27	Masud Steel Design BD. Ltd.
14	Multi-Concept Steel Building Products Ltd.		

Formation History of Steel Building Manufacturers Association of Bangladesh (SBMA)

Engr. Md. Akkas Ali
Founder President
&
Managing Director
Multi-Concept Steel Building Products Ltd.

Steel Building Manufacturers Association of Bangladesh has started it's journey on 9th October in 2012. Engr. Md. Akkas Ali, Managing Director of Multi-Concept Steel Building Products Ltd. is the Founder President of SBMA.

In 2004, an idea came from Engr. Akkas Ali to form an association for Steel Building Manufacturers. He thought without an association Steel Building Manufacturers could not properly reach their ultimate goal. Then he made contact with Lee Tsai Steel Ltd. He got there Mr. Tofael Ahmed Tapan, General Manager of Lee Tsai Steel Ltd. and his Managing Director Mr. Shamsul Haque Mollah.

He disseminate his idea to them to form an association for the benefit of the companies involved in this business. Mr. Tofael Ahmed Tapan took a good initiative on behalf of Lee Tsai Steel Ltd. for this matter. Once they met other member companies at Golden Chimney Restaurant (ground floor of Engr. Akkis Ali's office), Sonar Tori Tower at Bangla Motor. Initially Mr. Shamsul Haque Mollah was kind enough to sponsor some meeting. After 2/3 meeting a committee has been formed to get registration for this association from Ministry of Commerce.

Engr. Akkas Ali was the convener of the committee and Engr. HM Jahidul Islam of ALM Steel Building Technology Ltd., was the member Secretary. They took an initiative to prepare the Memorandum and Articles of the Association. Regarding the preparation of document Late Mr. Seraj Ahmed Chowdhury of McDonald Steel Building Products Ltd., gave an effective an excellent affords. Advocate Mr. Mosrarrof Hossain was appointed for preparing the Memorandum and Articles. They also met several times at Arambag office, Dhaka. During preparation of the documents suddenly Advocate Mr. Mosarrof died. Due to this registration process had been disrupted. Then they met with Honorable Minister Col. Faruk Khan, Minister for Commerce. But he refused to give registration as because the member of association was only 22 and it was only Dhaka based not all over the Bangladesh like other association. After couple of month Engineer Muhammad Arman with other Member of SBMA met with former Minister GM Kader and took clearance certificate from ministry of commerce. Then they again made an approach to the present Minister. At last they were able to convince the honorable Minister about the importance of this association. Honorable Minister gave his consent to get registration as Government registered association in Bangladesh. After that the memorandum and articles of association came into focus in 9th October 2012. Initially 22 stackholders were listed in the memorandum and articles. Engr. Md. Akkas Ali acted as president and Engr. HM Jahidul Islam as Secretary from 2008 to 2014.

From 2004 to 2008 SBMA's meetings were held in Sonar Tori Tower at Bangla Motor. This place was also the office of Engr. Md. Akkas Ali.

Then the SBMA office had been shifted to Mohakhali DOHS, House No. 472, Road No. 31. The space of new office were not enough for accomoding the all members and facilities were not upto the requirement. All members decided to shift the association office at a suitable area. After that it has been shifted at present location 4 years back. The location is House no. 59, Flat No, C-5, Road No. 1, Block-I, Banani, Dhaka-1213.

To get registration those who were extended their necessary supports they are Engr. Md. Zakir Hossain Sarker, Managing Director, Sarker Steel Ltd. Mr. Tofeal Ahmed Tapan, Managing Director, AA Steel Ltd. Mohammed Rafiqul Islam, Managing Director, Quantam Builders & Engineering Ltd., Engr. Md. Rezwanul Mamun, Managing Director, Steelmark Buildings Ltd., Engr. HM Jahidul Islam, Managing Director, ALM Steel Building Technologies Ltd. Engr, Abu Noman Howdader, Managing Director, Bangladesh Building Systems Ltd., and Engr. Asadul Haque, Managing Director, Three Dots Ltd., Mr. Saidul Islam, Director, Steel Frame Solution Ltd., Managing Director, Steel Frame Solution Ltd., Mr. Majedul Islam, Managing Director, Steel Frame Solution Ltd., Mr. Shamsul Alam, Managing Director, Haque Engineering Ltd., Mr. Harun or Rashid, Proprietor, M/S. Harun Corporation and Mr. Humayum Huda, Managing Director, Benifix Steel Building Development Ltd. also extended their necessary supports.

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মুখবন্ধঃ

সারাবিশ্বেই কন্সট্রাকশন নিয়ে বিভিন্ন গবেষণা প্রতিনিয়ত হয়েই যাচ্ছে। বিশেষ করে কন্সট্রাকশন ম্যানেজমেন্ট একটা বড় বিবেচ্য বিষয় হয়ে দাড়িয়েছে। স্থান, কাল ও কন্সট্রাকশন রিসোর্স যেমনঃ দক্ষ জনবল ও ম্যাটেরিয়ালের প্রাপ্তি প্রত্যেকটা কন্সট্রাকশন কাজের মূল প্রতিপাদ্য । উদাহরণস্বরূপ চীনের কথা বলা যেতে পারে। চীন বর্তমানে কন্সট্রাকশন কাজ খুব দক্ষতার সাথে করতে পারছে। তার কারন তাদের যেমন দক্ষ জনবল আছে তেমনি বিভিন্ন ধরনের কন্সট্রাকশন ম্যানুয়াল তারা অনুসরন করে থাকে।

অন্যদিকে আমাদের দেশের সবচেয়ে বড় সমস্যা হল দক্ষ জনবলের অভাব। এটা সত্যি আমাদের বিপুল জনবল রয়েছে। কিন্তু বাস্তবতা হল আমরা তাদের দিয়ে সঠিক সময়ে সঠিক কাজটি করাতে পারছি না। একজন চাইনিজ কর্মী যতটা কাজ একদিনে করতে পারেন তা মাঝে মাঝে আমাদের কয়েকজন কর্মীর সম্মিলিত তুলনায়ও বেশী হয়ে যায়। এজন্য শুধু যে কর্মী একাই জড়িত তা নয় কর্মকর্তার সঠিক নির্দেশনার অভাবও ভীষনভাবে পরিলক্ষিত হয়। অত্যন্ত দূঃখের সাথে লক্ষ্য করা যায় যে, আমাদের প্রাতিষ্ঠানিক জ্ঞান শুধুমাত্র বই কেন্দ্রিক, প্র্যাক্টিক্যাল ফিল্ডে চর্চা ও তার পাশাপাশি ট্রেনিং এর অপ্রতুলতা আমাদের জনবলের সঠিক ব্যবহার নিশ্চিত করতে পারছে না। যার ফলে আমাদের দেশীয় বিভিন্ন নির্মাণ প্রতিষ্ঠান বাইরের প্রতিষ্ঠানের সাথে প্রতিযোগিতায় পিছিয়ে পড়ছে। দেশে বর্তমানে যেভাবে মেগা প্রজেক্ট হচ্ছে তাতে বাইরের দেশের প্রচুর প্রতিষ্ঠান কাজ করছে। ক্ষেত্র বিশেষে তারা নিজ দেশ থেকেও জনবল নিয়ে আসছে। এতে একাধারে যেমন আমাদের বৈদেশিক মুদ্রা দেশ থেকে চলে যাচ্ছে অন্যদিকে আমাদের বেকারত্ব হ্রাস করার সরকারি বা বেসরকারী উদ্যোগগুলো পুরোপুরি সফল হচ্ছে না।

উপোরোক্ত বিষয়গুলো বিবেচনায় রেখেই আমাদের দেশের বিভিন্ন প্রতিষ্ঠানগুলো স্ব উদ্যাগে দেশীয় ভাবে কন্সট্রাকশন কাজগুলোর গুনোগত মান রক্ষার জন্য বিভিন্ন ম্যানুয়াল বানিয়ে নিয়েছে তাদের প্রতি প্রথমেই আমি জানাই কৃতজ্ঞতা । তাদের ম্যানুয়ালগুলোর বিভিন্ন উপাদানগুলো যাচাই করে আমার এই ম্যানুয়ালটি বানানোর সময় ভুলভ্রান্তি থাকাটাই স্বাভাবিক। সে অর্থে, কারো উপদেশে যদি ম্যনুয়ালটি পূর্নতা পায় সেটা খুব সাদরে গ্রহন করা হবে। পাশাপাশি, আমার এ ক্ষুদ্র প্রয়াস যদি কারো কাজে আসে তাহলেই পরিশ্রম স্বার্থক হবে বলে মনে করি ।

বর্তমানে ষ্টীল বিল্ডিং এসোসিয়েশনের সংখ্যাটিতে পাতার সীমাবদ্ধতা থাকায় বিভিন্ন অংশে ভাগ করে পরবর্তী সংখ্যাগুলোতে বাকী অংশগুলো প্রকাশ পাবে বলেই আশা করছি।

নং	বিষয়	যে অংশে থাকছে বা থাকবে
০১	ইলেক্ট্রিক ওয়ার্ক্স	প্রথম অংশ
০২	ইটের কাজ	প্রথম অংশ
০৩	প্লাস্টার ওয়ার্ক	দ্বিতীয় অংশ
০৪	কাঠের কাজ	দ্বিতীয় অংশ
০৫	থাই এলুমিনিয়ামের কাজ	তৃতীয় অংশ
০৬	মেটাল ওয়ার্ক্স	তৃতীয় অংশ
০৭	টাইলস ও মার্বেল ওয়ার্ক্স	চতূর্থ অংশ
০৮	মার্বেল ওয়ার্ক্স	চতূর্থ অংশ
০৯	পেইন্ট ও পলিশের কাজ	পঞ্চম অংশ
১০	স্যানেটারী ও প্লাম্বিংয়ের কাজ	পঞ্চম অংশ
১১	ফরম ওয়ার্ক্স	ষষ্ঠ অংশ
১২	আরসিসি ওয়ার্ক্স	ষষ্ঠ অংশ

ইলেকট্রিক্যাল ওয়ার্ক্সঃ

ইলেক্ট্রিক্যাল ওয়ার্ক্সের সময় কাজের গুনগত মান ও দ্রুততা বজায় রাখার জন্য নিম্নের মত করে কাজ করলে উপকার পাওয়া যাবেঃ

ওয়ালে গ্রুভ কাটা এবং পিভিসি পাইপ ফিটিং:

১. বেশী গ্রুভ কাটার সময় অবশ্যই মেশিন ব্যবহার করতে হবে।
২. গ্রুভ মোটামুটি সোজা হতে হবে এবং প্রয়োজন ব্যতীত বেশী কাটা যাবে না।
৩. বীম এর তলায়, ব্রিক ওয়ালের শেষ প্রান্তে অথবা যেখানে জয়েন্ট পড়বে সেখানে পারতপক্ষে গ্রুভ না কাটাই ভাল।
৪. গ্রুভের ভেতরে পাইপগুলো মোটামুটি সোজা ও সারিবদ্ধভাবে রেখে পেরেক ও জি আই তারের মাধ্যমে বেধে রাখতে হবে।
৫. ২ বা ততোধিক পাইপ বসালে প্লাস্টারের পুর্বে অবশ্যই ওয়ারনেট ব্যবহার করতে হবে।
৬. প্লাস্টার করার পর যথাযথভাবে কিউরিং করতে হবে।
৭. ড্রয়িং মোতাবেক ইলেক্ট্রিক্যাল রুট অনুযায়ী পাইপ বসাতে হবে যাতে তার কম লাগে।

সুইচ বোর্ড, জয়েন্ট বোর্ড ও এমডিবি ফিটিং:

১. সুইচবোর্ড এর স্টীলবোর্ড বসানোর জন্য অবশ্যই ওয়াটার লেভেল করতে হবে।
২. সুইচ যেন বাকা না হয় সেজন্য স্টীল বোর্ডের কান দুটি অবশ্যই সোজা রাখতে হবে।
৩. ড্রয়িং এবং ডিজাইন অনুযায়ী স্টীল বোর্ড রাখতে হবে।
৪. এমডিবি বোর্ড বসানোর জন্য ব্রীক ওয়াল অন্তত ৮" হওয়া প্রয়োজন।
৫. এমডিবি বোর্ড বসানোর পর অপরপাশে ওয়ারনেট বসাতে হবে।
৬. ইন্টারনেট কানেকশনের জন্য পাইলিং এবং স্টীল বক্স বসাতে হবে।

ওয়ারিং:

১. ওয়ারিং করার পুর্বে সুইচ ও অন্যান্য বোর্ড ভালোভাবে পরিষ্কার করতে হবে।
২. স্টীল বক্সের ভিতর আর্থিং অংশে আর্থিং ওয়ার ভালভাবে লাগাতে হবে।
৩. ডিজাইন অনুযায়ী তারের সাইজ ঠিক করতে হবে।

৪. ইলেক্ট্রিক্যাল তার ছড়ানো ছিটানো অবস্থায় রাখা যাবে না, কাজ করার পর অবশ্যই গুছিয়ে রাখতে হবে।

৫. ওয়ারিং করার সময় অবশ্যই কালার কোড মানতে হবে:

- ফেইযে লাল কালারের তার
- নিউট্রাল এ কাল তার
- আর্থিং এ সবুজ তার

৬. এ ছাড়াও ইমার্জেন্সী ও জেনারেটরের তার অন্য কালারের হলে ভালো হয়।

৭. টানা তার সুইচ বোর্ডের ভিতর ৯" এর বেশী হবে না।

৮. পিভিসি পাইপ ছাড়া কোন তার টানা যাবে না, প্লাস্টারের নীচে খালি তার রেখে প্লাস্টার করা যাবে না।

৯. ওয়ারিং এর সময় পাইপ ড্রপিং এ যে বোর্ড থাকে তার ওয়ারিং করার সময় সাবধান থাকতে হবে।

১০. জি আই তার বা স্পিং এর সাহায্যে তার টানতে হবে।

১১. তার টানার সময় ইন্সুলেশন যাতে নষ্ট না হয় খেয়াল রাখতে হবে।

১২. নেকেড ওয়ার পাইপের ভিতর রাখা যাবে না, প্রয়োজনে উপরে ও নীচে প্লাস্টার করে দিতে হবে।

১৩. কানেকশনের পুর্বে কেবল চেক করে নিতে হবে, পিভিসি টেইপ সঠিকভাবে ব্যবহার করতে হবে।

১৪. তার টানার পর ভেতরে যেন কিছু খালি স্পেস থাকে।

১৫. তারের অতিরিক্ত বেন্ড করা যাবে না।

১৬. পাইপের ক্র্যাংকে তারের জোড়া দেয়া যাবে না।

১৭. তার টানার পুর্বে ক্লায়েন্ট ফাইল ভালোভাবে স্টাডি করতে হবে।

১৮. টিভি কেবলের কানেকশন ছাদের উপরে উপরে রাখা যাবে না।

সুইচ, সকেট ও লাইট ফিটিং:

১. সুইচ, সকেট ও লাইট ফিটিং বসানোর জন্য উপরিভাগ যেন সোজা ও সমান্তরাল হয় অর্থ্যাৎ লেভেল যেন মেইনটেইন করা হয়।

২. কানেকশন লুজ রাখা যাবে না।

৩. সুইচ, সকেট কানেকশনে লুজ ওয়ার রাখা যাবে না।

৪. কানেকশনের সময় লাইট, ফ্যান এর ক্রম/সিকুয়েন্স ঠিক রাখতে হবে।

৫. সুইচ, সকেট ফিটিংয়ের উপর স্ক্রু এর পজিশন ক্যাপ লাগাতে হবে।

৬. লাইট ফিটিং গুলো যেন কোন বীমে না পড়ে।

৭. এম,ডি,বি এর সার্কিট ব্রেকার ডিজাইন অনুযায়ী করতে হবে।

সাধারন সাবধানতা:

১. টেম্প্রারারী লাইট কানেকশনের জন্য এলোমেলো ভাবে লাইন নেয়া যাবে না।

২. তারের জোড়াস্থানে অবশ্যই পিভিসি টেপ ব্যবহার করতে হবে।

৩. ব্যবহৃত তারে কোন লিকেজ থাকতে পারবে না।

৪. প্রজেক্ট হ্যান্ডওভার দেয়ার আগে প্রতিটি মেইন সাপ্লাই চালিয়ে টেস্ট লাইট ও অন্যান্য ইকুইপমেন্ট চালানো দেখতে হবে।

৫. ইলেক্ট্রিক্যাল মালামালের জাস্ট ইন টাইম মেথডে করতে হবে।

৬. সুইচ ও সকেট পয়েন্ট ও তার টানার পুর্বে ক্লায়েন্ট/ওনারের ফাইল ভালোভাবে স্টাডি করতে হবে।

৭. সাটারিং খোলার পর ছাদের পয়েন্ট পরিষ্কার করে জিআই তার ভরে রাখতে হবে।

৮. সাব ষ্টেশনের পজিশন ঠিক করার আগে টয়লেট থেকে দূরে এবং এইচ টি ক্যাবল কম লাগে এমন জায়গায় ঠিক করতে হবে।

মডিফিকেশন ওয়ার্কঃ

১. ওনার/ক্লায়েন্টের চাহিদা অনুযায়ী মডিফিকেশন ওয়ার্ক করার পর অনেক সময় লোড বেড়ে যায় সে অনুযায়ী সার্কিট ব্রেকার লাগাতে হবে ও প্রয়োজনে রিডিজাইন করতে হবে।

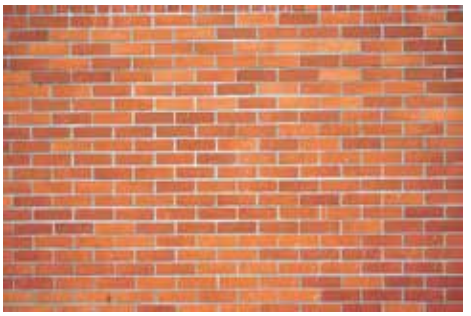
২. মার্কিটিংয়ে ওনার/ক্লায়েন্ট প্রথমে তাদের নিজস্ব পছন্দ বলবে তারপর টেকনিক্যাল ডিপার্টমেন্ট এটাকে হ্যান্ডেল করবে এবং ফাইনালি মার্কিটিং ডিপার্টমেন্ট এটার অনুমোদন দিবে।

৩. ছাদ ঢালাইয়ের পর ছাদ কেটে কোন বক্স বসানো যাবে না।

ইলেকট্রিক্যাল ফিক্সারের স্ট্যান্ডার্ড উচ্চতা (সবগুলো উচ্চতায় স্টীল বক্সের নিচ পর্যন্ত)

নং	আইটেম	উচ্চতা
১	সুইচ বোর্ড ও ইন্টারকম পয়েন্ট	ফিনিশড ফ্লোর থেকে ৪'-০"
২	টিভি/ টেলিফোন সকেট	ফিনিশড ফ্লোর থেকে ০'-৮"
৩	ওয়াল লাইট পয়েন্ট	ফিনিশড ফ্লোর থেকে ৭'-৬"
৪	২/৩ পিন সুইচ সকেট (স্কার্টিং লেভেলে)	ফিনিশড ফ্লোর থেকে ০'-৮"
৫	এসি পয়েন্ট (লিন্টেল লেভেলের নিচে এসির জন্য)	
	৩ পিন সকেট	ফিনিশড ফ্লোর থেকে ৪'-৯"
৬	এসি পয়েন্ট (লিন্টেল লেভেলের উপরে এসির জন্য)	
	৩ পিন সকেটের জন্য (কমার্শিয়াল ফ্লোরের জন্য)	ফিনিশড ফ্লোর থেকে ৭'-৩"
	ডিপি সকেটের জন্য	ফিনিশড ফ্লোর থেকে ৪'-০"
৭	ওয়াশিং মেশিনর সকেট	ফিনিশড ফ্লোর থেকে ৩'-০"
৮	কিচেন হুডের সকেট	ফিনিশড ফ্লোর থেকে ৫'-০"
৯	গিজারের সকেট (ডিপি)	ফিনিশড ফ্লোর থেকে ৪'-০"
১০	বারান্দার ২/৩ পিন সুইচ সকেট	ফিনিশড ফ্লোর থেকে ৫'-৬"
১১	ফায়ার এলার্মের সুইচ	ফিনিশড ফ্লোর থেকে ৫'-৬"
১২	ওয়ার্কটপের উপর কিচেনের সুইচ	ফিনিশড ফ্লোর থেকে ৪'-০"
১৩	স্ট্যান্ড লাম্পের সুইচ সকেট	ফিনিশড ফ্লোর থেকে ০'-৮"
১৪	ইন্টারনেটের জ্যাক	ফিনিশড ফ্লোর থেকে ০'-৮"
১৫	বাথরুমের সুইচ সকেট (শেভার সকেট সহ)	ফিনিশড ফ্লোর থেকে ৪'-০"
১৬	স্পেশাল ওয়াল লাইট	ফিনিশড ফ্লোর থেকে ৭'-০"
১৭	স্পট লাইট	ফলস্ সিলিং এ থাকবে
১৮	সিলিং ফ্যান	সিলিং এ থাকবে
১৯	শ্যান্ডেলিয়ার	সিলিং এ থাকবে
২০	ছবির জন্য প্রোজেক্টেড লাইট	ফিনিশড ফ্লোর থেকে ৭'-২"
২১	টেবিল ডিমার বিশেষত হোটেলের জন্য	ফিনিশড ফ্লোর থেকে ২'-০"
২২	ওয়াল মাউন্টেড টিভির সকেট	ফিনিশড ফ্লোর থেকে ৩'-৬"
২৩	রিডিং টেবিলের নিচে সুইচ সকেট	ফিনিশড ফ্লোর থেকে ২'-১"
২৪	জিমনেশিয়ামের জিম ইকুইপমেন্টের সুইচ সকেট	ফিনিশড ফ্লোর থেকে ০'-৮"

ইটের কাজঃ



কাজের পুর্বেঃ

১. ড্রয়িং ও ডিজাইন অনুযায়ী লে আউট দিতে হবে।

২. লে আউট দেওয়ার পুর্বে ভাল করে চিপিং করে পরিষ্কার করে নিতে হবে।

৩. পরিষ্কারকৃত জায়গা ভালো করে সিমেন্ট দিয়ে গ্রাউট করে নিতে হবে।

৪. লে আউট পর ক্লায়েন্ট ভিজিটের জন্য মার্কিটিংকে জানাতে হবে।

৫. ওনার/ক্লায়েন্ট লে আউট ফাইনাল করে স্বাক্ষর নিয়ে কাজ করতে হবে।

৬. ওনার/ক্লায়েন্ট ফাইনাল করে স্বাক্ষর দিতে ৩ দিনের বেশী দেরী করলে তাকে প্রজেক্ট দেরীর ব্যাপারে সাবধান করে দিতে হবে।

৭. ইটের কাজ শুরুর ১২ ঘন্টা পুর্বে ভিজিয়ে রাখতে হবে।

৮. কাজ শুরুর ১ ঘন্টা পুর্বে ভিজানো ইট হাউজ হতে উঠিয়ে শুকাতে হবে।

৯. ইটের আকার ৯ ১/২" X ৪ ১/২" X ২ ৩/৪" হতে হবে।

১০. ২৪ ঘন্টা পানিতে ভিজালে শুষ্ক ইট তার ওজনের ১৫-২০% অতিরিক্ত ওজন লাভ করে।

কাজ শুরুর পরেঃ

১. বালি ও সিমেন্টের মিশ্রণ কমপক্ষে তিন বার কাটতে হবে, যাতে সিমেন্ট ভালোভাবে বালির সাথে লেগে যায়।

২. বালি ও সিমেন্টের মিশ্রণ প্রজেক্ট ইঞ্জিনিয়ার ও প্রজেক্ট সুপারভাইজের এর উপস্থিতিতে করতে হবেঃ

সিমেন্ট ও বালির অনুপাতঃ

- ১০" গাথুনীঃ ১:৬
- ৮"/৫" গাথুনীঃ ১:৫
- ৩" গাথুনীঃ ১:৪

৩. একদিনে সর্বোচ্চ ৪'-৬" উচ্চতার গাথুনি করা যাবে।

৪. তিনধাপে ১০' উচ্চতার ইটের কাজ শেষ করতে হবে। প্রতিটি ধাপে অন্তত ২ বার করে ভারতিক্যাল ও হরাইজন্টাল লেভেলের এলাইন্মেন্ট যথাক্রমে ওলন ও স্পিরিট দ্বারা চেক করতে হবে।

৫. দুই ইটের গাথুনির কাজ ইংলিশ বন্ড প্যাটার্ন ফর্মেটে করতে হবে এবং ফ্রগ মার্ক উপরে থাকতে হবে।

৬. দুই ইটের মাঝখানে রেকার ডেপথ সর্বোচ্চ ১০ মিলি (৩/৮") ও মর্টার ডেপথ সর্বোচ্চ ১০মিলি (১/২") হবে।

৭. ইটের কাজের সময় নীচে পলিথিন রাখতে হবে এবং মর্টার পড়ার ১ ঘন্টার মধ্যে তা ব্যবহার করতে হবে।

৮. বালি ও সিমেন্ট মিশ্রনের পানি মিশানোর পর ১ ঘন্টা অতিক্রম করলে তা কোয়ালিটি কন্ট্রোল প্রকৌশলীকে জানাতে হবে ও পুনর্বার ব্যবহারের উপযুক্ত কিনা তা জানতে হবে।

ইটের কাজ শেষ করার পরঃ

১. ইটের কাজ শেষ করার ২৪ ঘন্টা পর প্রতিটি ধাপে অমোছনীয় কালি দ্বারা নির্মান তারিখ লিখে রাখতে হবে।

২. ২৪ ঘন্টার পর থেকে অন্তত ১০ দিন কিউরিং করতে হবে।

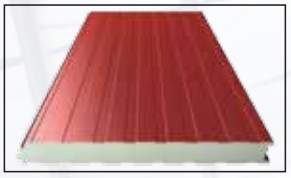
৩. উক্ত কিউরিং কাজ চলাকালে কোন ধরনের পরবর্তি কাজ যেমনঃ ইলেক্ট্রিক্যাল কাজ, গ্রুভ ওয়ার্ক, লিন্টলের কাঠ ফিটিং ইত্যাদি করা যাবে না।

Quantam Group

Quantam Sandwich Panel & Porta Cabin

www.winpenbd.com


EPS Sandwich Panel


PU Sandwich Panel


Rock Wool Sandwich Panel


Portable Cabin


Sandwich Panel Machine Production Process


Worker Dormitory

Prefabricated Sandwich Panel House (Low Cost)

Services

❖ Manufacturer and Erector:

1. EPS/Rockwool wall and Roof Sandwich Panel
2. Portable Cabin/Worker Dormitory sandwich panel
3. Low-cost prefabricated house

❖ Supplier and Erector:

1.PU wall and roof Sandwich panel

Advantages

- ❖ Economical and environmental friendly
- ❖ Heat and sound insulated
- ❖ Economical fast and easy installation
- ❖ Low maintenance and long life
- ❖ Water proof performance

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B÷ BwÛqv †Kv¤úvbxi bv‡g Bs‡iR‡`i evsjv-fvi‡Z AvMgbt

i¨vdj dxP 1591 mv‡j fviZel mdi K‡ib| Zvi Drmvn I cZ©yMxR‡`i evYwR¨K mvdj¨ Bs‡iR‡`i‡K fviZe‡l evYR¨ Ki‡Z we‡klfv‡e AvMnx K‡i Zz‡jwQj| cv‡P¨i mv‡_ evYR¨ Kivi D‡Ï‡k¨ Bs‡iRiv 1599 mv‡ji 24 †m‡Þ¤^i Ugvm ¯§B‡Wi mfvcwZ‡Z GKwU evYwR¨K msN MVb K‡i| H eQiB A_©vr 1599 mv‡j Rb wgj‡Ìb nj Bsj¨v‡Ði ivYx GwjRv‡e‡_i (kvmbKvj 1558-1603 mvj) KvQ †_‡K GKwU Abygwa cÎ wb‡q m¤vU AvKe‡ii `ievi nvwRi nb| H AbygwacÎ‡Î Bs‡iR evYK‡`i‡K cZ©yMxR evYK‡`i g‡Zv evYwR¨K myweav c`v‡bi Abygwa Rvbv‡bv nq ivYxi cÿ †_‡K| ivYx GwjRv‡e‡_i cfv‡ei d‡j GB evYwR¨K msN cieZx eQi cv‡P¨i mKj †`‡ki mv‡_ evYwR¨K m¤úK ¯vc‡bi mg_ nq| 1600 mv‡j jÛ‡b cwZwôZ G evYwR¨K msN GKB mv‡ji 31 †k wW‡m¤^i ivYx GwjRv‡e‡_i GKwU mb` †c‡q ÒweUk B÷ BwÛqv ‡Kv¤úvbxÓ bv‡g cwiwPwZ cvq| GB †Kv¤úvbxi †kqvi †nv‡ìvi wQj 218 Rb| GKRb kvmb KZv I 24 Rb ‡kqvi ‡nv‡ìvi Øviv GB ‡Kv¤úvbxi Kvh©wbevnx cwil` MwVZ n‡qwQj|

ÒB÷ BwÛqv †Kv¤cvbxÓ c_g K‡qK eQi fviZe‡li mv‡_ evYR¨ ¯vc‡bi †Póv bv K‡i mgyÎv, Rvfv, gvjv°v cfwZ.¯v‡b gkjvi e¨emv Avi¤¢ K‡i| Òw` K¨v¤úR wn‡÷vix Ae BwÛqvÓ M‡š'i fvl¨ g‡Z K¨v‡Þb DBwjqvg nwKÝ 1608 mv‡j Bsj¨v‡Ûi ivRv c_g ‡Rg‡mi myvwikcÎ wb‡q evYR¨Kyv m¤úmvi‡Yi D‡Ï‡k¨ mgvU Rvnv½x‡ii `ievi AvMgb K‡ib|K¨v‡Þb DBwjqvg nwK‡Ýi Av‡e`‡bi ‡cwÿ‡Z mgvU Rvnv½xi 1613 mv‡j fvi‡Zi cwðg DcK~‡jxq e›`i myiv‡U Bs‡iR‡`i evYR¨ Kyv wbgv‡Yi Abygw‡Z ‡`b| 1623 mv‡j gyNj mgvU Rvnv½x‡ii mv‡_ Pyw³i kZvbymv‡i Bs‡iR †Kv¤úvbx evsjvq I gyNj mgv‡R¨i meÎ web¨vï‡é evYR¨ Kivi AwaKvi jvf K‡i| fwgKv GLv‡bB ‡kl Ki‡Z PvB GB e‡j †h, miKv‡ii cZ¨¶ mn‡hvwMZv Qvov e¨emv-evwYR¨ m¤úmviY ‡Kvb fv‡eB m¤e bq|

evsjv‡`‡ki A_©bxwZK Dbœq‡bi BwZnvm t

Lªxóc~e© Øv`k kZvãx chš— evsjv‡`‡ki A_©bxwZi mgybœZ Z_¨ BwZnv‡m cvIqv hvq bv| 2400 eQi Av‡M evsjv‡`‡k †eŠ× I ˆRb a‡gi Aw¯—‡Z¡i N‡U| Gmgq evsjvq ÿz`ª ÿz`ª ¯^vaxb ivR¨ wQj| 320 mv‡j evsjvi cvjb Ask ‡eŠ× m¤ªv‡R¨i AvIZvf~³ n‡q hvq| ‡eŠ×iv 1130 mvj chš— evsjv‡`k kvmb K‡i| Gici ïiæ nq wn›`y‡`i evsjvi ivRZ¡Kvj| Zvi ci 1200 mvj chš— evsjvq kvmb Kvh cwiPvjbv K‡i| †Kvb c~e© avibv QvovB 1199 mv‡j BLwZqvi DwÏb gynv¤§v` web eLwZqvi wLjRxi b`xqv I jÿYveZx Avµg‡bi ga¨ w`‡q ïiæ n‡q hvq evsjvq gymwjg`‡`i kvm‡bi †mvbvjx hyM| 1757 mv‡ji cjvkx hy‡×i Av‡M chš— gymwjg kvmb envj _v‡K| Gici ïiæ nq Bs‡iR †ewbqv‡`i A‰ea kvmb| wn›`y‡`i mnvqZvq ïiæ nq gymwjg wbab| KyUPv‡›`i Rxeb Kvwnbx iPwqZv iwRe ‡jvPb ‡j‡Lb, Òwn›`yRwg`vi I cvjbMY wmivRD‡Ïšjv‡K wmsnvmbPy¨Z Ki‡Z Iqv‡kw wjß n‡qwQ‡jb| wmcvnx wec-‡ei e¨_©Zvq evsjvi wn›`yeyw×Rxexiv Djø‡m ‡d‡U c‡ob| gymjgvb‡`i cwZ wa°vi Rwb‡q M`M` fvlvq Zviv Bs‡iR kvmK‡`i cÖwZ Zv‡`i AvbyMZ¨ wb‡e`b K‡ib| mvwnZ¨ mgvU Fw¼g e¼¼gP›` PÆcva¨vq msev` cÖfvKi G ‡j‡Lb,

Ò‡n cÖfK, mK‡j DØvû nBqv Ckx‡K ab¨ev` w`qv RqaŸwb Kwi‡Z Kwi‡Z bZ¨ Ki| Avgv‡`i cÖvb ‡mbvcwZ gnvkq g¶g nBqv w`wj c‡ek Kwiqv‡Qb|cÖvKMY Rq Rq ewjqv bZ¨ Ki, wn›`ycRv mKj, ‡`evj‡q cRv `vI, Avgv‡`i iv‡R¨ki kÎyRqx nB‡jbÓ|

Avi Kwe Cki¸ß gymjgvb‡`i cÖwZ wa°vi Rwb‡q M`M` wP‡Ë Bs‡iR‡`i cÖwZ AvbyM‡Z¨i kxi wb‡e`b K‡i wjL‡jbt

Òhe‡bi hZ esk Gevsk Gev‡i n‡e a‡i n‡e aŸsm
mwiRqv‡Q ‡Kv¤úvbxi ‡mbv
Mi" Ri" j‡e ‡K‡o, Pvc ‡`‡o hZ ‡b‡o
GB ‡ejv mvgvj mvgvj K
Kwe Cki ¸ß wPiKv‡ji Rb¨ ewUk‡`i ivRZ Kvgbv K‡i Avi I wjL‡jbt
wPiKvj nq ‡hb ewU‡ki Rq|
ewU‡ki ivRj¶gx w¯'i ‡hb iq \
Ggb myLi ivR¨ Avi bvwn nq|
kv¯—g‡Z GB ivR¨ ivgivR¨ Kq \

gymwjg we‡Øl, ewU‡ki `vjvwj I wbKó.mv¤úª`vwqKZv ‡hb GKmv‡_ MjvMwj Ki‡Q! Cki¸‡ßi Av‡iKwU wbKó.KweZv...

G‡Kev‡i gviv hvq hZ Pvc †`‡o (Pvc `wo Iqvjv)|
Nvmdvm K‡i hZ c¨vR‡Lvi †b‡o \
we‡klZt cvKv `wo †cU †gvUv fuvo|
‡iŠ` wMqv ‡c‡U †Xv‡K †bov gv_v dvov \
KwR †Kvjv wgqv †gvjv `wocvjv awi|
KvQv †Lvjv †ZvevZvjv e‡j Avjvn gwi \

GB mv¤úª`vwqKZvi cwibvg †h fviZe‡l©i BwZnv‡m †gv‡UB cÖxZKi nqwb hv BwZnvm Abymwÿ cvVKe„›`i Rvbv Av‡Q|

gymwj‡`i mwi‡q †`qv nq ïay kvmb e¨e¯'v †_‡K bq, Zv‡`i‡K eÂZ Kiv nq mKj iwóq myhvM-myweav †_‡K, wkÿvi AwaKvi †_‡K, PvKzixi AwaKvi †_‡K, wkí-mvwnZ¨ †_‡K, m‡evcwi e¨emv-evwYR¨ I wkí cwZôvb Movi AwaKvi †_‡K|

KjKvZvq MYnZ¨v-gnvnZ¨vhÁ

A‡b‡KB 1857 mv‡ji gnwe‡`ªvn‡K Avgv‡`i c_g ¯^vaxbZv msMªvg g‡b K‡ib| G aviYv mwVK bq|Avgv‡`i ¯^vaxbZv msMªvg ïi" n‡qwQj ‡mB 1757 mv‡ji 23 Ryb ‡hw`b cjvkxi AvgKvbb evsjvi ¯^vaxbZvi mh© A¯—wgZ n‡qwQj Zvi Ae¨enwZ ci ‡_‡KB| Avi ‡mB ¯^vaxbZv msMv‡gi ‡bZZ.w`‡qwQ‡jb wekvmNvZK gxi Rvdi Avjxi RvgvZv gxi Kwkg| eû hy× weM‡ni ci Zvu‡Ki"b gZ.yn‡j I wZwb KLbI Bs‡iR‡`i mv‡_ mÜi K_v Kíbv I K‡ibwb|

wmcvnx wecet ¯vaxbZv I A_‰bwZK gw³ i Uwbs c‡q›Ut

gxi Kwk‡gi ci gRbyKv‡ni ‡bZ‡Z dwKi wece, wZZyg‡ii evtki ‡Kjvi msMvg, nvRx kixqZyjvn I `ÿvwgqvi ‡bZ‡Z div‡qRx Av‡›`vjb, `w¶Y fvi‡Zi wUcymýZv‡bi ¯vaxbZvi msMvg, ‰mq` Avng` ‡ejfxi ‡bZZvaxb wRnv` Av‡›`vjb cfwZi cvkvcwk evsjv‡`‡ki bxj we‡`vn I wewfb KIK we‡`v‡n wbhwZZ gyjgvb‡`i fwgKv wQj cavb|Gme we‡`vn I ¯vaxbZv cÖyi“×v‡ii mk¯ msMv‡gi cUfwg‡ZB msNwUZ nq 1857 mv‡ji wmcvnx wece| ‡h wece‡K HwZnwmKMY gnwe‡`vn e‡j Awfwnz K‡i‡Qb|

1857 mv‡ji gnwe‡`v‡ni KviYt

K) ivR‰bwZK KviYt

A‡hva¨v `Lj, gNvj mgv‡Ui cwZ `ye¨envi, Bs‡iR KgPvix‡`i Ryjvg-‡kvlY, AwkZ iv‡R¨ Kjvmb, DcRwZ¸‡jvi we‡¶vf, gyjgvb‡`i `ÿkv|

L) A_‰bwZK KiYt

A_‰bwZK ‡kvlY I Rwg`vi‡`i weZvob, Rwg`vi ‡kYxi ewUk we‡ivax g‡bvfve I KIK‡`i Aw_K `ye¯v, Kyjdi wk‡íi wejyß, ewnewY‡R¨ Bs‡iR‡`i GKK KZZ„ abm¤ú` we‡U‡b cvPvi, †`kxq wk‡íi wejyß, RxweKv wbev‡n e¨vNvZ, ‡Kv¤úvbxi ‡jvf-jvjmv|

M) mvgwRK KviYt

fviZevmxi cwZ Bs‡iR‡`i NYv, PvKyjxi ‡¶‡Î AeÁv, kwm‡Zi cwZ AeÁv, µgeagvb cvðvZ¨ cfve, mvgwiK KgKZv‡`i `bxwZ|

N) agxq KviYt

fviZevmxi agvšixZ nIqvi fxwZ, wL÷vb a‡g `xw¶Z Kivi ‡P÷v, cvðvZ¨ wk¶v ceZb I agxq ms¯vi, gRwn` Av‡›`vj‡bi cfve, agxq c_vq n¯‡¶c, kvn wbqvgZDjvni fwel¨r evYxi cfve|

O) mvgwiK KviYt

`i‡`‡k Mg‡b wmcvnx‡`i AvcwË, ‡eZ‡bi e¨vcv‡i ‰elg¨g‡K bxwZ, wmcvnx‡`i ‡eZ‡bi ¯íZv, Bs‡iR mvgwiK Awdmvi‡`i J×Z¨c¥ e¨envi, ‡`kxq ‰mb¨‡`i mgy cvox w`‡Z eva¨ Kiv, c‡`vbwZi e¨vcv‡i ‰elg¨g‡K bxwZ, wmcvnx‡`i msL¨vbyqv‡Z Bs‡iR ‰mwb‡Ki ¯íZv, wµwgqvi h‡×i cwZwµqv|

P) cZ¨¶ KviYt

Pwewgwk Z KvZ‡Ri e¨env‡i cwZwµqv, g‡½vj cv‡Êi we‡`vn ‡NvlYv|

Kvj gvK‡mi g‡Z, Bs‡iR ‡ewbqv ‡Kv¤úvbx kvm‡bi wei¦× ‡kvlK‡`i AZ¨vPvi AwZgvÎvq Ki I ïé Av‡ivc ‡`kxq wk‡íi webvk mvab cfwZ| wZwb e‡jb ‡kvl‡Yi I wbcxo‡bi d‡j Ggb Ae¯vi D‡`K nq ‡h, we‡`vn Awbevh n‡q D‡VwQj|

gyjg-ce evsjvq gvbyli cavb †ckv wQj Kwl.I cïcvjb Ges grm AvniY| wn›`yl †eš× kvmbvg‡j esjv‡`‡ki wewfb ¯v‡b kni M‡o I‡V| mßg kZvãx chš wn›`yw cvim¨, Avie, Pxb I AwdKv chš ewnewYR¨ we¯vi K‡iwQj| mßg †_‡K Øv`k kZvãx chš mgqKv‡j gyjgvb ewYKMY wbKU cvP¨ we‡klZt fviZxq wn›`yl †eš× ewYK‡`i wbKU †_‡K ewYR¨ `Lj K‡i †bq Ges djkwZ‡Z evsjv‡`kmn mgM fviZe‡I gyjgvb e¨emvqx‡`i cavb¨ cwZôZ nq| e¨emv-ewY‡R¨i m‡e a‡i G‡`‡k gyjgvb‡`i AvMgb NU‡jI Zviv mv‡_ K‡i wb‡q Av‡m Bmjvg a‡gi mgnvb Av`k| KviAv‡bi gva¨‡g Bmjvg cPv‡ii mgv‡` GLv‡b µgvš‡q gyjgvb‡`i ivR‰bwZK cvZcwË mycwZôZ nq| evsjvq gyjgvbMY Î‡qv`k kZvãx ‡_‡K Aóv`k kvZvãx chš kvmbKvh Pvjvq|

gyjg kvmbvg‡j Drcv`b e¨e¯v wQj mvgšZwšK I Kwlcavb| Kvbdi wkíl Pvjy wQj| G h‡M evsjv‡`‡k Kwl.Kv‡Ri cfZ Dbœ mwaZ nq| †mKv‡j Rwgi EeiZv I KwlRvZ dm‡ji ¯í g‡j¨i Rb¨ weke¨vcx evsjv‡`‡ki L¨wZ wQj| Be‡b eZZv 1345 mv‡j evsjv‡`k cwiågYKv‡j †gNbvi Dfq Zx‡i mg„× Kwl‡ÿZ I dj-djw`i evMvb †`L‡Z cvb| Pxbv cwievRK

cÂ`k kZvãx‡Z evsjv‡`‡ki Kw.l‡Z cwicÿ gvV †`‡L e‡jwQ‡jb, Ò¯M G‡`‡k ¯Y †X‡j w`‡q‡QÓ| ev`kv AvKe‡ii gšx Aveyj dRj evsjv‡`‡k `æZ eabkxj avbMvQ †`‡L we¯§q cKvk K‡iwQ‡jb| †mKv‡j evsjv‡`‡ki Drcvw`Z Pvj †`‡ki Pvwn`v wgwU‡q cwZekx `wÿY fviZ, wmsnj I gvjØx‡c ißvbx Kiv nZ| Pvj Qvov I †mmgq bvwi‡Kj, gwiP,Av`v, njy`,wcqvR I Ab¨vb¨ Kw.lRvZ cY¨ I Drcvw`Z nZ Ges cvim¨ DcmvMixq †`kmg‡n, AwdKv, Pxb I `wÿY-ce© Gwkqvi †Kvb †Kvb †`‡k ißvbx Kiv nZ| BÿzRvZ wPwb I ißvbx nZ| G mgq cv‡Ui Drcv`b I nZ, Z‡e Zv ewYwR¨K fv‡e wk‡íi KvPvgvj wn‡m‡e e¨eüZ nZ bv|

‡kikvn fvwg e¨e¯vcbvq e¨cK I hyMvšKvix cwieZb Av‡bb| m¤vU AvKe‡ii Avg‡j evsjv‡`‡ki AwaKvsk GjvKv wQj evi fBqv‡`i `L‡j| AvKe‡ii A_gšx †UvWigj ALÛ evsjv, wenvi I Dwol¨vi Ask we‡k‡l 1 †KwU 6 jÿ 93 nvRvi UvKv ivR¯ wbaviY K‡iwQ‡jb| †gvNj hyM cv‡`wkK †`Iqvb gyk©`Kzwj Lv‡bi Avg‡j evsjv‡`‡ki A_bxwZ mev‡cÿv AMMwZ jvf K‡i| wZwb fwg ivR¯ Av`vq c×wZ‡Z hyM‡cv‡hvwM I hyMvšKvix cwieZb Av‡bb| Zvui Avg‡j ivR‡¯i cwigvY GZUvB e"w× cvq †h, gNj m¤v‡R¨ evsjvi ivR¯ mev‡cÿv jvfRbK m¤ú‡` cwiYZ nq| gyk©`Kzwj Lv‡bi Avg‡j evsjvq Kw.Drcv`‡bi cvkvcvwk wk‡íVrcv`b I e"w× cvq| Gi d‡j Aóv`k kZvãxi c_g w`‡K evsjvq PvD‡ji `vg wQj gY cwZ gvÎ 25 cqmv| hv BwZnvm n‡q i‡q‡Q| miKvix bxwZ I miKv‡ii mw`"Qv †h Kw.l wk‡í KZ ¸iæZc~Y© Zv GLv‡b Abyavb Kiv hvq| gyk©`Kzwj Lvb A_bxwZ‡Z miKv‡ii fwgKv‡K cÖ‡cvlK wn‡m‡e cwZôvi D‡`¨vM MnY K‡ib| wZwb `wnfÿ cwZ‡iv‡ai Rb¨ PvD‡ji GK‡PwUqv e¨emv Ges ißvbx wbwl× K‡ib| ÒwiqvR-Dm-mvjwZbÓGi †jLK e‡j‡Qb †h, gyk©`Kzwj Lvb Lv`¨ k‡m¨i `vg m¯v ivL‡Z LyeB m‡Pó wQ‡jb| wZwb abx‡`i Lv`¨ km¨ gIRy` Ki‡Z w`‡Zb bv| cwZ mßv‡nB Lv`¨ k‡m¨i evRvi `‡ii weeiYx ˆZix nZ Ges Mixe †jv‡Kiv mwZ¨B wK `vg w`‡q Gme wRwbm cÎ wKb‡Q Zv Zzjbv K‡i †`Lv nZ|

hw` †`Lv †hZ †h, Gme Mixe †jv‡Ki KvQ †_‡K Pjw wZ evRvi `‡ii PvB‡Z GK cqmvI †ekx †bqv n‡q‡Q Zvn‡j wZwb †mB e¨emvqx, gnj`vi I IRb`vi‡K bvbv fv‡e kw¯ w`‡Zb| Zv‡`i‡K Mvavi wc‡U Pwc‡q mviv kni †Nviv‡bv nZ, wZwb miKvix KgPvix‡`i e¨emv-evwY‡R¨ GK †PwUqv AwaKvi eÜ K‡i cKZ.e¨emvqx‡`i Rb¨ Dchy³ cwi‡ek m"ó K‡ib| wZwb cKZ. e¨emvqx‡`i h_vh_ ghv`v †`b|

gyNj kvmbvg‡j ivRKxq cÖ‡cvlKZvq bvbvb ai‡bi wkí KviLvbv M‡o D‡V‡Q| evsjv‡`‡ki gmwjb cvPxb Kvj †_‡KB wekweL¨vZ| Lóxq c_g kZ‡K iwPZ Ò‡cwicvm Ae w` Gwiw\Îqvb mxÓ M‡š ißvbx c‡Y¨i ZvwjKvq evsjv‡`‡ki gmwjb e‡¯ii D‡jL Av‡Q| beg kZvãx‡Z Avie ewYK myjvqgvb wj‡L‡Qb †h, evsjv‡`k Ggb m²¨ e¯ ˆZix K‡i hv Ab¨ †`k ˆZix Ki‡Z cv‡i bv| H e¯ GZB m²¨ wQj †h GKwU †cvkvK GKwU A½yixi g‡a¨ m¤ú©fv‡e c‡ek Kiv‡bv hvq| gNj kvmKMY evsjvq Kvco c¯‡Zi Rb¨ Zvu‡`i ivRKxq cÖ‡cvlKZvq KviLvbvq KvR Kivi myeav w`‡Zb| gmwjb Qvov I †m mgq †ikgx I Kvcvm e¯ ˆZix nZ| GQvov cyiæl‡`i Rb¨ ‰Zix †mvbvi KvR Kiv Uzc Avie I cvi‡m¨ ißvbx nZ| gNj ev`kniv cwZwU gmwjb kvoxi Rb¨ ZrKv‡j 200 UvKv w`‡Zb| 1793 mv‡j e"Uk †ewbqv‡`i Avg‡j †mB gmwj‡bi `vg †b‡g Av‡m gvÎ 20 UvKvq| miKv‡ii mnvqZv Qvov †Kvb wkíB wU‡K_v‡K ivLv hvq bv, gmwjb wkíI e"Uk miKv‡ii gyjgvb we‡ØlxgÅ‡bvfv‡ei Kvi‡Y aŸsm n‡q hvq| ‡m Avg‡j miKvix mnvqZvq RvnvR ev †bŠ wk‡íi e¨vcK DbœwZ N‡UwQj| wmRvi †dWwi‡Ki g‡Z, Av‡jKRwÜ`qvq wbwgZ Rvnv‡Ri Zzjbvq PUMv‡g ˆZix Rvnv‡Ri AwaK K`i wQj| Zzi‡¯‹i myjZvb MyMZ gv‡b DbZ e‡j PÆMvg †_‡K RvnvR ˆZix Kiv‡Zb| †fwbkxq chUK wgwkiv e‡j‡Qb †h, PUMvg I m›`x‡c RvnvR wbgv‡Yi Rb¨ Dc‡hvMx DrKó.. KvV cPzi cvIqv †hZ| beve kv‡q¯v Lvb (1664-1689 mvj) I beve gxiRyqjv XvKvq iYZix wbgvY Kwi‡q Zv hy× e¨envi Ki‡Zb| beve gxiRyqjv cZyMxR I gM Rj`m¨‡`i weiæ‡× XvKvq wbwgZ iYZix‡Z ‡bŠhy× cwiPvjbv Ki‡Zb| kv‡q¯v Lvb Rj`m¨‡`i K‡Vvi n‡¯ `gb Kivi d‡j Bs‡iR ewY‡Kiv e¨vcK fv‡e Zv‡`i e¨emv-evwY‡R¨ wewb‡qvM e"× K‡i| myjZvb wMqvmDÏxb AvRgkv‡ni Avg‡j (1389-1409 mvj) evsjv‡`k ˆe‡`wkK evwY‡R¨i e¨vcK cmvi N‡U| Pxbv chUK gvû‡qb Zvui eYbvq G mgÿc‡_ evsjvq wecyj evwnewY‡R¨i K_v D‡jL K‡ib| mgvÁx bi‡Rvnv‡bi åvZv Bevnxg Lvb evsjvi kvmK wn‡m‡e XvKvq Ae¯vbKv‡j (1617-1623 mvj) †`‡ki Kw.l, wkí, I evwY‡R¨ miKvix cÖ‡cvlKZvq h‡_ô AMMwZ jvf K‡i| ‡m mgq †`‡k hyxweMn bv _vKvq A_‰bwZK KvhKjvc e"× cvq| XvKvi gmwjb I wmé gNj ivRcwiev‡ii ivRKxq †cvlv‡Ki cavb Dcv`vbi¦‡c e¨eüZ n‡Z ïiæ K‡i|

KZK fviZxq Ks‡Mm `j MVbt

wn› yRwg`vi‡`i Rwg-wbhvZ‡bi wei|‡× 1873 mv‡j cvebv ‡Rjvi wmivRMÄ gnKzgvq BDmyd kvnx ciMYvq we‡`vn msNwUZ nq| cieZx‡Z Zv e¸ov ‡Rjvq I Qwo‡q c‡o|

G NUbvq eyUk iv‡Ri UbK b‡o Ges Zviv cRv¯Z AvBb ms‡kva‡b mw¤µq nq| 1885 mv‡j ô‡e½j cRv¯Z AvBbÕ Rvix Kiv nq| G AvBb hw` I ceeZx AvBb¸‡jvi Zzjbvq DbZZi, wKš Rwg`vi I cRvi g‡a¨ weivRZ mgm¨vi ‡Kvb Pvovš mgvavb w`‡Z cv‡iwb| wn›`yRwg`viMY 1885 mv‡ji cRv¯Z AvB‡bi wei"‡× mg‡eZ nq Ges Zxe mgv‡jvPbv K‡i| Zviv Ôw` eyUk BwÛqvb G‡mvwm‡qkbÕ bv‡g GKwU msMVb MVb K‡i| G mgq evsjvq MfYi ‡Rbv‡ii‡ji cwil‡` GKgvÎ gymwjg m`m¨ m`m¨i ‰mq` Avgxi Avjx Qvov Avi ‡KD wQ‡jb bv|

wVK GB mgq eyUk fvi‡Zi ivR‰bwZK cwigÛ‡j ‡h D‡ËRbv cyÄxfZ nw"Qj Zv‡K ckwgZ ev wfb Lv‡Z cewnZ Kivi D‡Ï‡k¨ Bs‡iRiv fviZxq‡`i wb‡q GKwU msMVb M‡o ‡Zvjvi D‡`¨vM MnY K‡i| G. I. wnDg bvgK GK Bs‡iR Avgjv‡K `j MV‡bi `wqZ ‡`qv nq| Z`wbšb eyUk fvBmiq jW nwW‡Äi m‡½ wg÷vi wnDg civgk K‡i ÒfviZxq Ks‡MmÓ bv‡g GKwU `j MV‡bi e¨e¯v K‡ib| Gi djk"wZ‡Z 1885 mv‡j G `j cwZwôZ nq| fvi‡Zi wkw¶Z ga¨weË ‡kYx A_vr cavbZ wn›`yiB Ks‡M‡mi cZvKvZ‡j mg‡eZ nq| D‡jL¨, ZLb fvi‡Z we‡klZ evsjvi wkw¶Z ga¨weË ej‡Z g~jZ wn›`ym¤ú`vq ‡_‡K AvMZ ‡jvK‡`i‡KB ‡evSvZ| Z‡e G mgq wKQygymwjgI G `‡j ‡hvM ‡`b| wKš AwP‡iB evjM½vai wZjK‡Ki b¨vq KwZcq Ks‡Mm ‡bZvi DM wn›`yRvZxqZvev`x KgKvÛ gymwjgb‡`i‡K Ks‡Mm ‡_‡K `~‡i ‡V‡j ‡`q| gymwjgbiv Dcjwä Ki‡Z _v‡Kb ‡h, Ks‡M‡m ‡hvM w`‡q gymwjgbiv Zv‡`i cðvrc` Ae¯v ‡_‡K D‡V Avm‡Z m¶g n‡e bv| KviY Ks‡Mm ‡bZZ.Avm‡j wn›`y`i ¯v_‡KB fviZxq ¯v_ e‡j Pvjv‡q w`‡Z Zrci wQj| gymwjgbiv wb‡R‡`i ivR‰bwZK I A_‰bwZK Kj¨v‡Yi j‡¶¨ Bs‡iR‡`i mv‡_ `i KlvKwli Rb¨ 1906 mv‡j Ògymwjg jxMÓ bv‡g c_.K `j MVb K‡i|

bIqve Avãj jwZd I m¨vi ‰mq` Avgxi Avjxt

Dcgnv‡`‡k A‰ea eyUk mvgvR¨ev`x kw³i ‰elg¨g~jK bxwZ I ‡kvlK ‡Mvôxi wbgg AZ¨vPvi I ‡kvl‡Y AwZó n‡q gymwjgbiv wew"Qbfv‡e i"‡L `vuov‡Z ïi" K‡i| gymwjgb‡`i cwZ Bs‡iR‡`i wei|c g‡bvfve Av‡iv cejZi nq| Jcwb‡ewkK miKv‡ii `xNKvjxb ‰el‡g¨g~jK bxwZi djk"wZ‡Z fvi‡Zi Ab¨vb¨ AÂ‡ji gZ evsjvi gymwjgbiv cvq wech¯ n‡q c‡o| G Ae¯vq Evbk kZ‡Ki wØZxqv‡a evsjvi gymwjg mgv‡R bZyb ‡bZ‡Zi Avwefve N‡U| bIqve Avãyj jwZd G mgq gymwjgb‡`i ‡bZZ. `v‡b GwM‡q Av‡mb| wZwb m¨vi ‰mq` Avn‡g`‡`i gZ eyUk miKv‡ii mv‡_ ‰eiZvi cwie‡Z mn‡hvwMZvi bxwZ MnY K‡ib| cieZx‡Z m¨vi ‰mq` Avgxi Avjx Zvu mv‡_ hy³ nb| Zvu‡`i j¶¨ wQj bZyb ‡c¶vc‡U wk¶v-`x¶v, e¨emv-evwYR¨, PvKix I RxweKvi Dcvq BZ¨vw`i ‡¶‡Î gymwjgb‡`i AbMmiZv I cwZeÜKZv `yi fx Kiv| Zvu Df‡qB ‡Kšk wn‡m‡e miKv‡ii mv‡_ mn‡hvwMZv K‡i miKv‡ii cwZ Av‡e`b-wb‡e`b K‡i Ges ‡¶Î we‡k‡l c‡qvRb gZ miKv‡ii Dci Pvc mói cwZ ¸i"Zv‡ivc K‡ib| Zvu‡`i GB ‡Kšk cieZxKv‡j LyeB djcmy‡j cgwYZ n‡qwQj| 1877 mv‡j m¨vi ‰mq` Avgxi Avjx Ôb¨vkbvj gnv‡gWvb G‡mvwm‡qkbÕ MVb K‡ib| G msMV‡bi cavb D‡Ïk¨ wQj b¨vq msMZ kvmbZvšK c×wZ‡Z gymwjgb‡`i AwaKvi cwZôv Kiv| G msMVbwU cwZwôZ nevi ci wZwb gymwjgb‡`i AwaKvi Av`v‡qi Rb¨ wewfb `wê-`vIqv eyUk iv‡Ri wbKU DÌvcb K‡ib| m¨vi ‰mq` Avgxi Avjx wjwLZ Ôw` w¯úU Ae BmjvgÕ Ges ÔG wn‡÷vix Ae BmjvgÕ ZrKv‡ji wkw¶Z gn‡j LyeB RbwcqZv jvf K‡i I weagx‡`i wbKU Bmjvg GKwU hy³c~Y I D`vi‰bwZK ag wn‡m‡e cwiwPwZ jvf K‡i|

evsjv‡`‡k wkíqbt

wkíqb ej‡Z mvaviYZt Drcv`b‡K eySvb nq| G LvZ Kvh©µg‡ji i|c cwieZb K‡i| GUvi bvg dig BDwUwjwUm, D`vniY ¯i|c Zzjv n‡Z e¯ Drcv`b, cvU n‡Z e¯v ev Kv‡cU evbvb, avb n‡Z PvDj, PvDj n‡Z fvZ, Mg n‡Z AvU ‰Zix Kiv| mfZvi Drcv`‡bi Rb¨ c‡qvRb nq Kvh©µgvj I c‡qvRbxq hšcvwZ| Bbcy n‡jB ‡Kej AvDUcy cvIqv hv‡e| KviLvbvi Drcvw`Z cY¨ weµ‡qi Rb¨ Dchy³ evRvi PvB| ‡µZvi wbKU ‡cšQ w`‡Z PvB cwienY e¨e¯v| cwienY e¨e¯vi DbwZi mv‡_ mv‡_ evRvi evo.cv‡e Zvj wgwj‡q| cwienY e¨e¯vi AvIZvq GK ¯v‡bi gvby ev GK ‡`‡ki gvby Ab¨ ‡`‡ki cY¨ mvgMx ‡fvM ev e¨envi Ki‡Z cv‡i| me c‡Y¨i R‡b¨B PvB AvaybK ¸`vg e¨e¯v ev Lv`¨ c‡Y¨i Rb¨ PvB wngNi ev wngvMvi| G mg¯ ‡fšZ AeKvVv‡gv ‰Zix‡Z miKv‡ii mwVK mg‡q mwVK wm×vš wb‡Z n‡e| Ab¨_vq wkí-evwYR¨ cmvi jvf Ki‡Z cvi‡e bv|

meR KviLvbvi Mí

c‡KŠkjx KvRx Awe` nvmvb
e¨e¯vcbv cwiPvjK
Kbwd‡WÝ ÷xj wewìs †UK‡bvjwRm wjt

eZgv‡b cwi‡ek wechq GKwU eûj Av‡jwPZ welq| we‡ki m‡PZb gvbyl‡i GKwU jÿ¨ n‡"Q Zvi me wKQz‡K hZUv m¤e cwi‡ek evÜe Kiv| cwi‡ek evÜe avibv‡K Av‡iv K‡qKwU cwZkã Øviv cKvk Kiv n‡q _v‡K hvi g‡a¨ GKwU n‡"Q MxY ev meyR| GK K_vq ej‡j meyR gv‡b n‡"Q cwi‡ek evÜe, kw³ mvkqx, Avivg`vqK, ¯v¯¨Ki| Mxb wewìs ev meyR ¯vcbv eZgvb mg‡q LyeB cwiwPZ| wkí KviLvbv GKwU †`‡ki RvZxq Dbq‡bi Rb¨ Ri¤ix| GKUv mgq wQ‡jv hLb KviLvbv gv‡bB kã, a‡jv, G‡jv‡g‡jv, AveRbv GK K_vq A¯v¯¨Ki cwi‡ek e‡Sv‡Zv| Z‡e mgq e`‡j‡Q, gvbyl‡i gvbwlKZv e`‡j‡Q| wekeïvcx cPwjZ meyR Av‡›`vj‡bi dmj wn‡m‡e meyR KviLvbv GLb mviv we‡kB cwiwPZ n‡q D‡V‡Q|

wekeïvcx So †Zvjv meyR Av‡›`vj‡bi †XD G‡m‡Q evsjv‡`‡kI| we‡klZ bvbv ai‡bi Sv‡gjv †cwi‡q evsjv‡`‡ki ‡cvlvK wkí DrKlZvq GLb Abb¨Zvq mvg‡b GwM‡q Pj‡Q| ivbv cvRv aŸ‡mi †bwZevPK cwZ"Qwe cvk KwU‡q meyR KviLvbvi Dbq‡b evsjv‡`k GLb c_g mwii GKwU bvg| 2011 mv‡j Bki`x BwC‡R‡W wfb‡UR †Wwbg ÷vwVI BDGm Mxb wewìs KvDwÝ‡ji cwi‡ek evÜe m‡ev"P wjW cwUbvg mb` ARb †`‡k we‡`‡k e¨vcK Av‡jvob ˆZix K‡i| Gi c‡i Gbfq, cwg, †iwg, GmwKD mn Av‡iv A‡bK¸‡jv cwUbvg mwUdvBW KviLvbv †cvlvK wkí A½‡b D`vniY ˆZix K‡i| evsjv‡`‡k cwi‡ek evÜe KviLvbv wbgv‡bi e¨vcv‡i AvMn I D‡`¨vM ˆZix n‡q‡Q| Av‡iv †ek wKQzi wPkxj †cvlvK e¨emvqxiv GwM‡q Av‡mb cwi‡ek evÜe †cvlvK KviLvbv wbgv‡Y| KgwdU Mxb wjd GgbB GKwU KviLvbv hv BDGmMxb wewìs KvDwÝj KZK.cwi‡ek evÜe meyR KviLvbv wn‡m‡e †Mvì mwUwd‡KU ARb K‡i‡Q| evsjv‡`‡ki ¯bvgab¨ wkí †Mvôx Bqy Mªc Gi KYavi|

meyR KviLvbv gv‡b meyR is‡qi wKsev meyR MvQcvjvq †Niv †Kvb KviLvbv bq| eis GKwU ¯vcbv KZUKzcwi‡ek evÜe Zv wbb‡qi Rb¨ wb`ó wKQzc¨vivgUvi wVK K‡i †`qv nq| †ek K‡qKwU c‡q‡›U GKwU feb‡K wePvi K‡i meyR ev cwi‡ek evÜe wn‡m‡e Gi Ae¯vb ‡NvlYv Kiv nq| meyR ¯vcbv memgqB cwi‡ek Ges KvhKjv‡ci g‡a¨ GK ai‡bi fvimvg¨ eRvq †i‡L KvR K‡i| GK`g cwiKíbv †_‡K ïi¤ K‡i bKkv ˆZix, feb wbgvY, cwiPvjb, iÿYv‡eÿY, ms¯‹vi Ges GgbwK †f‡½ †djv †Kvb wKQz Gi evB‡i bq| BD Gm Mxb wewìs KvDwÝj cewZZ wjW (wjWvikxc Bb GbwR GÛ Gbfvqib‡g›Uvj wWRvBb) mwUwd‡Kkb wm‡÷gwU mviv c¦_exe¨vcx †ewk Rbwcq Ges mgv`Z| Avgv‡`i †`‡ki †cvlvK wkí gÄZ BDGmwRwewm †_‡K wjW mb` wb‡q _v‡K|

Bqy Mª‡ci cwi‡ek evÜe meyR KviLvbv wbgv‡b BD Gm Mxb wewìs KvDwÝ‡ji h_vh_ wb‡`kbv †g‡b KviLvbvi mKj wWRvBb Ges wbgvY KvR m¤úb Kiv n‡q‡Q| cv_wgK cwiKíbvq KviLvbvi ‡gvU GjvKvi wekvj RvqMv GK`g ‡Lvjv ivLv n‡q‡Q Ges cv‡q nvUvi c_ Qvov ewK RvqMv ‡X‡K ‡`qv n‡q‡Q AKwÎg meyRi Pv`‡i| jvMv‡bv n‡q‡Q ‡`kxq c"RwZi wewfb MvQ| ce© cwð‡g cj¤Z ÷xj ÷vKPv‡i wbwgZ-26,000 eMdyUi AvqZvKvi febwU K‡¤úvwRU wbU KviLvbv feb wn‡m‡e e¨eüZ n‡e| gÄ- KviLvbv feb Ggbfv‡e Kiv n‡q‡Q †hb w`‡bi Av‡jv m‡ev"P e¨envi‡iB Drcv`b Kvhµg m¤úb Kiv hvq| KviLvbvi Af¨šixY cwi‡ek ¯v¯¨Ki Ges kwgK‡`i gvbwmK weKv‡ki mnvqK| Kg¯‡j chvß Rvbvjv Ges ¯"Q KvPi †`qvj Pvi w`‡Ki meyRi mv‡_ KviLvbvi wfZ‡ii cwi‡ek‡K GKvZ K‡i †Zv‡j| we`¨yr mvkqx hš¿ e¨envi K‡i KviLvbvi ‡fZ‡i cwi"Qb gy³ evZv‡mi cevn Ges mnbxq Zvcgv‡îv wbwðZ Kiv n‡q‡Q|

cwi‡ekevÜe feb wbgv‡b GKwU ¸iæZc¥ welq n‡"Q wbgvY †KŠkj Ges wbgvY mvgMx| KviLvbv feb wbgv‡b m‡ev"P mZKZv †g‡b Kiv n‡q‡Q| wbgvY Kv‡Ri ïiy‡_‡KB GB mZKZv ïi¤| dvD‡Ûk‡bi Rb¨ gwU KvUvi mg‡q Dc‡ii ¯‡ii Dei gwU‡K Avjv`vfv‡e msiÿY Kiv n‡q‡Q| feb wbgvY †k‡l G gwU‡KB Avevi wewQ‡q †`qv n‡q‡Q evMvb Ges jb GjvKvq| wewfb wbgvY DcKiY‡K Avjv`v Avjv`v RvqMvq ¸wQ‡q ivLv n‡q‡Q| d‡j GK`‡K †hgb Av‡kcv‡ki cwi‡ek bó nqwb †Zgwb wKQz DØz Ask cÖvq e¨envi Kivi mÿgvM n‡q‡Q|

mvaviYfv‡e Avgv‡`i †`‡k wbgvY mvgMx wn‡m‡e iW, wm‡g›U, evjy Ksw¶‡Ui e¨envi n‡q Avm‡Q| wKš' eZgv‡b chy³i m‡evËg e¨envi Ges cvkvcvwk cwi‡ek evÜe wn‡m‡e mvkqx g‡j¨ wc-†dwe‡K‡UW w÷j ÷vKPv‡ii w`‡K wbgvZv‡`i AvMn evo‡Q| w÷‡ji ˆZwi AeKvVv‡gvi †ÿ‡Î GKvav‡i eR¨ †hgb Kgvq †Zgwb wbgvY mvgMx chyte¨envi Kivi Kvi‡Y GwU mvkqx| w÷j g‡Z chyte¨envi‡hvM¨ wbgvY mvgMx Ges cvq 40% w÷j †gUvj ˆZwi nq ¯'¨vc †_‡K| ZvB G‡Z cwi‡e‡ki Dci wei|c cwZw¶qv co‡e bv|

KgwdU Mxb wj‡di m¤úY© AeKvVv‡gv‡ZB i‡q‡Q GB chy³i m‡evËg e¨envi| c_gZ w÷j ÷vKPv‡ii wWRvBb| AZtci w÷j †gUv‡ji Qv`, wmwo, M¨vjfvbvBR ÷vKPv‡ii †WwKs Ges feb ˆZwi‡Z Ab¨vb¨ hv jv‡M Zv cvq meB w÷‡ji ˆZwi| Ksw¶U Kjv‡gi cwie‡Z Av‡Q w÷j Kjvg| w÷j exg¸‡jvi Dci wQ`hy³ B‡Ui †`qvj Ges 3.5 BwÂi XvjvB Qv`| AwM wbivcËvi welqUv gv_vq ‡i‡L w÷j Kjvg¸‡jv‡K †X‡K †`qv n‡q‡Q AwMmnvqK is‡qi Ave‡i‡Y|

KviLvbwU ‰Zwi Kiv n‡q‡Q, cwi‡ekevÜe DcKiY I chy³ e¨envi K‡i| wbgvY DcKi‡Yi 90 kZvskB ‡`kxq Drm †_‡K msMn Kiv n‡q‡Q| Kv‡V ‡cvov‡bv BU e¨envi Kiv nqwb| Af¨šixY ‡`qv‡j ¯v¯'¨m¤§Z ‰Re is e¨envi Kiv n‡q‡Q| ‡hme DcKiY evB‡i †_‡K msMn Kiv n‡q‡Q †m¸‡jvi h_vh_ cwi‡ek evÜe mZ¨qb cÎ hvPvB K‡i †bqv n‡q‡Q| ÔwimvBwKsÕ c×wZ‡Z Kiv n‡"Q KviLvbvi eR¨ e¨e¯'vcbv| cwb cwi‡kvab K‡i e¨envi Dc‡hvMx Kiv n‡e|

evsjv‡`‡ki †cÿvc‡U cwi‡ek evÜe meyR KviLvbv ev¯evqb Lye KwVb †Kvb KvR bq| we‡kl K‡i BDGm Mxb wewìs KvDwÝ‡ji MvBW jvBb Abyhvqx K‡i ‡cvlvK KviLvbv wbgvY †KejB D‡`¨v‡Mi e¨vcvi gvÎ| Avgv‡`i †`‡ki ZvcgvÎv mnbxq chv‡qi| Lye Aí wKQzmgq e¨ZxZ Avgv‡`i chvß mhv‡jvK Av‡Q, Avgv‡`i †`‡ki gwU AZ¨š Dei, Aí cwik‡g meyRi mgv‡iv‡n †Q‡q hvq Pviw`K| cwb GKwU myf Ges mnR cvc¨ Dcv`vb| me wgwj‡q cvKwZK m¤úú‡`i †Kvb Afve †bB| c‡qvRb ïay GB m¤úú‡`i myô e¨envi Ges cKwZ I cwi‡e‡ki GB ˆewPÎ‡K a‡i ivLv| KgwdU Mxb wjd meyR KviLvbvi D‡`¨vM wb‡q †`‡ki cwi‡ek msiÿY Av‡›`vj‡b m‡PZbZvi cwiPq w`‡q‡Q|

cwi‡ek evÜe meyR KviLvbvi ˆewkô nIqv DwPZ ‡h meyR‡K e¨envi Ki‡e Zvi KgPvix I kwgK‡`i kwiixK I gvbwmK my¯Zv Ges Drcv`bkxjZvi Kv‡R| KgwdU Mxb wjd KviLvbvq e¨envi Kvix‡`i Rb¨ Avivg`vqK Ges wbivc` Kgcwi‡ek wbwðZ Kivi †Póv Av‡Q| feb ZvcgvÎv wbqš‡Yi Rb¨ Qv‡`i Dc‡i cwj Kbw¶‡Ui Avjv`v GKwU ¯i †`qv Av‡Q| Zvi Dc‡i I Averi Zvc wbtivax is‡qi c‡jc †`qv Av‡Q| Rvbvjvi Mvm I we‡kl ai‡bi hv Av‡jv c‡e‡k mvnvh¨ Ki‡e wKš' Zvc c‡e‡k evav †`‡e| GK K_vq ejv hvq cwiKwíZ bKkv Ges wbgvY †Kškj I DcKi‡Yi e¨env‡i GKwU KvhKi cwi‡ek evÜe Kg cwi‡ek ˆZix Kivi ‡Póv ckmbxq|

Kveb wbtmiY BmÿZ cwi‡kev`x Av‡›`vjb ¶gvš‡q kw³kvjx n‡"Q A_vr mKj wkí KviLvbvi Rb¨ Kveb dzUwc›U c¯Z Kiv GK mgq eva¨ZvgyK n‡q co‡e| GLbB hv‡`i c¯wZ _vK‡e bv Zv‡`i‡K nVvr K‡iB eo ai‡bi e¨emvqK SzuwK †gvKvwejv Ki‡Z n‡e| mgvMZ ev¯eZv ej‡Q mviv c„w_exi gZ evsjv‡`‡ki wkí A½b‡KI AvR †nvK Kvj †nvK Aek¨B cwi‡ek evÜe wk‡í iƒcvšwiZ n‡Z n‡e| KgwdU Mxb wj‡di g‡Zv meyR KviLvbvi Mí ¸‡jv n‡q DVzK evsjv‡`‡ki AeKvVv‡gvMZ Dbq‡bi cwZ"Qwe|

msev` c‡Î i gLgLx

†gvt iv‡k` Lvb

‡Pqvig¨vb

gWvY ÷vKPvm wjwg‡UW

mvsMVwbK m¤úv`K

÷xj wewìs g¨vbyd¨vKPvivm G¨v‡mvwm‡qkb

Ae evsjv‡`k (GmweGgG) I cwiPvjK

evsjv‡`k B‡Ûv›Us G‡R›Um G‡mvwm‡qkb|

mvsevw`K t evsjv‡`‡ki wkí weKv‡k ÷xj wewìs wk‡íi m¤¢vebv KZUK?

‡gvt iv‡k` Lvb t Avcvbvi ckœwU evsjv‡`‡ki eZgvb weKvkgvb A_©bxwZi †cÿvc‡U LyeB Zvrchc~Y©| ‡fŠ‡MvwjK AeKvVv‡gv ‰Zix‡Z c‡qvRb †UKmB chÖy³ Avi cwi‡ek evÜe Kg‡ÿ‡Î| KviLvbwU n‡Z n‡e DbœZ³ Avi wbivcËvi Rv‡j cwi‡ewóZ| KviLvbv feb wbgv©‡Y hw` iW, BU, evjy wm‡g›U BZ¨vw` e¨envi Kiv nq Z‡e Zv eZgvb f~wgK¤ú ceb wek †cÿvc‡U LyeB SzuwKc~Y© Ges Aw_K fv‡e I mvkqx bq| G‡ÿ‡Î wc-‡dwe‡K‡UW ÷xj wewìs chÖy³ KvhKi f~wgKv ivL‡Z cv‡i| KviY f~wgK‡¤ú ÷xj wewìs mn‡RB wU‡K _vK‡Z cv‡i| ïayZvB bq ÷x‡j ˆZix fe‡b Ae¯'vbiZ gvbyl I Ab¨vb¨ m¤ú` I myiÿvZ _vK‡e| wc-‡dwe‡KW ÷xj wewìs chÖy³‡Z mgq mvkq nq d¨v±ix †k‡Wi ‡ÿ‡Î wZb fv‡Mi `yB fvM Avi eûZj fe‡bi †ÿ‡Î Qq fv‡Mi cvP fvM| Aw_K mvkq nq d¨v±ix †k‡Wi ‡ÿ‡Î wZb fv‡Mi GK fvM| Z‡e eûZj fe‡bi †ÿ‡Î LiP †ekx nq Qq fv‡Mi GK fvM Z‡e mgq wnmve Ki‡j GLv‡bI Aw_K fv‡e mvkqxB n‡e| ‡h †Kvb wkí weKv‡k miKvix mnvqZv gyL¨ f~wgKv cvjb K‡i _v‡K| wKš' Avgv‡`i ‡`‡k †Kvb miKviB wkí evÜe bxwZ Aej¤^b K‡i ev‡RU cbqb K‡i bv| Gev‡ii 2015-2016 A_ eQ‡ii ev‡RU I Zvi e¨wZµg bq| Avgv‡`i GB wk‡í GwM‡q Avm‡Q GK`j Zi“b D‡`¨v³v hviv †`‡ki †miv wekwe`¨vj n‡Z chÖy³ we`¨vq wWwMavix A_ev D"P wkÿvq wkwÿZ| Zviv miKvix myweav evÂZ n‡jI †gav, mZZv Avi mvnm wb‡q GwM‡q P‡j‡Q `ei MwZ‡Z| G‡ÿ‡Î mvsevw`K fv‡qiv ¸iæZc~Y© f~wgKv cvjb Ki‡Z cv‡ib| evsjv‡`‡k cPzi MYgva¨g i‡q‡Q| MYgva¨‡g MVbgyjK †jLbxi gva¨‡g ÷xj wewìs wk‡íi cPvi I cmvi NUv‡bv m¤¢e e‡j Avwg g‡b Kwi|

mvsevw`K t Av_-mvgwRK Dbqb, ‡eKviZ nvm Ges cwi‡ek i¶vq G wkí KZUK f~wgKv cvjb Ki‡Q ev m¤¢vebv KZUK?

‡gvt iv‡k` Lvb t GB wkíwU kg Nb nIqvq Av_-mvgwRK Dbqb I †eKviZ nv‡m LyeB Zvrchc~Y© f~wgKv ivL‡Z cvi‡e| eZgv‡b GB wk‡í (cZ¨ÿ I c‡ivÿ) `ÿ-A`ÿ wg‡j cvq 3.5 jÿ gvbyl KgiZ Av‡Q| wKš' miKvix myweav I Rbm‡PZbZv ev„× Ki‡Z cvi‡j GB wk‡í b¨bZg 30 jÿ Rbkw³ Kv‡R jvMv‡bv m¤¢e| cwi"Qbœ Kg-cwi‡ek I meRy evsjv‡`k Mo‡Z n‡j Avgv‡`i‡K wc-‡dwe‡K‡UW ÷xj wewìs chÖy³i gva¨‡g me ai‡bi feb wbgv©‡Yi w`‡K GwM‡q Avm‡Z n‡e| we‡k Ges evsjv‡`‡k AwaKvsk MxY c‡R± GLb GB chÖy³i gva¨‡g wbwgZ n‡"Q| Lye Kg mg‡q wbgvY KvR m¤úbœ Kiv hvq weavq Kgms¯'vbI `ªæZ myó nq| wc-‡dwe‡K‡UW ÷xj wewìs Øviv wbwgZ ‡fŠZ AeKvVv‡gv mgn~ †ekxi fvMB Kjvg gy³ nIqvq gj~abx hšcwZ emv‡Z myweav nq Ges Kg cwimi I wmwfj wewìs Gi Zzjbvq AwaK cvIqv hvq| hv GKRb wkí D‡`¨v³vi Rb¨ mnvqK wn‡m‡e KvR K‡i|

mvsewU`K t AeKvVv‡gv Dbqb, we‡kl K‡i ‡hvMv‡hvM e¨e¯vi Dbq‡b wc-‡dwe‡K‡UW ÷xj wewìs wk‡íi m¤vebv evsjv‡`‡k KZUv?

‡gvt iv‡k` Lvb t Avgv‡`i †`‡k ¯Uxj wewìs wkíwU bZzb nIqvq miKvix I ‡emiKvix AeKvVv‡gv Dbq‡b †Zgb ¸iæZ cv‡"Q bv| A_Q GB wk‡íi gva¨‡g Avgv‡`i †`‡kB kZ el c‡e epr epr AeKvVv‡gv wbwgZ n‡q‡Q| iv¯v-Nv‡U Avgv‡`i miKvix KggZvMY hLb Pjv‡div K‡ib ZLb Zviv m¤eZ Nyg‡qB cvi K‡i †`b| c‡KŠkj wekwe`¨vjq ¸‡jvI wVK ‡Zgwb, Zv‡`i cvV¨ mP¤x‡ZI wc-‡dwe‡K‡UW (evsjv‡`k c‡KŠkj wekwe`¨vjq †_‡K wmwfj BwÄwbqwis G GB RyjvB 2015 †mk‡b hviv †ei n‡e Zviv c_g cwZôvwbK fv‡e ÷xj wWRvBb wk‡L †ei n‡e) ÷xj ÷vKPvi cov‡bv nq bv| evsjv‡`‡ki meepr †ij weR (Kzóqvi nwWÄ weR) Kzóqvi MovB b`xi Dc‡i Kqv †ij weR, ^fi‡ei ^fie b`xi Dci ‡ij weR meB wc-‡dwe‡K‡UW ÷xj wewìs chy³‡Z wbwgZ| GB ‡ij ‡mZz¸‡jv meB wewUk kvmbvg‡j GLb †_‡K kZ el c‡e wbwgZ n‡q‡Q hv AvRI Î¤wUnxb I †Kvb i¦c ‡givgZ ev ms¯vi QvovB mPj i‡q‡Q| wKš †mBwU wbwgZ hgybv †mZ‡ZZ (eZgv‡bi e½eÜz‡mZ¨ dvUj †`Lv w`‡qwQ‡jv hv †givgZ Kiv n‡q‡Q| Avgv‡`i †`‡ki AvBb c‡YZvMYI Zv ‡`‡Lb wKbv AvjvnB Rv‡bb!

eZgvb †cÿvc‡U cÙv †mZ¨ g‡Zv eo †mZzwU Aek¨B wc-‡dwe‡K‡UW ÷x‡ji gva¨‡g wbgvY Kiv DwPr KviY wmwfj Kb÷vKk‡bi Z¨bvq ÷x‡ji gva¨‡g ‡fŠZ AeKvVv‡gv AwaK Î¤wUg~³ Kiv m¤e| ïayZvB bq ÷x‡j wbwgZ n‡j †mZzdvi IRb K‡g Avm‡e AšZ 30 fvM hv †mZzd‡K `xNRxeb `vb Ki‡e| dvUj aivi m¤ebv ï‡b¨i ‡KvUvq †b‡g Avm‡e| wbgvY e¨q Kg‡e Ges wbgv‡Y mgq Kg jvM‡e| ÷x‡ji gva¨‡g GB †mZzdv wbwgZ n‡j †mLvb †_‡K †h A_ I mgq mvkq n‡e Zv w`‡q ‡`Šjvw`qv-cvUzqv c‡q‡›U wØZxq cÙv †mZ¨vbgvY Kiv hv‡e|

evsjv‡`k GKwU b`xgvZK.‡`k| mviv †`‡k b`x-bvjv, Lvj wej I †K‡bj Qwo‡q wQwU‡q i‡q‡Q hv ‡`‡ki †hvMv‡hvM e¨e¯vq ¯weiZv m¤ó K‡i †i‡L‡Q| GB mKj b`x-bvjv, Lvj wej I †K‡bj ¸‡jvi Dci w`‡q hw` wc-‡dwe‡K‡UW ÷x‡ji gva‡g ‡mZz wbgvY K‡i †`qv hvq Zvn‡j Kg mg‡q I wmwfj Kb÷vKk‡bi Z¨bvq gvÎ 30 kZvsk Li‡PB †m¸‡jv wbgvY K‡i RbM‡Yi Pjv‡P‡ji Rb¨ Db¥y³ K‡i †`qv m¤e| GRb¨ `iKvi miKv‡ii wm×vš Avi c‡KŠkjx‡`i c‡qvRbxq `ÿZv I Ávb| `ÿZv e¨×i Rb¨ ÷xj wewìs g¨vbyqvwi¨vKPvivm G¨v‡mwm‡qkb Ae evsjv‡`k KZ©ÿ c‡KŠkjxM‡Yi Rb¨ we‡kl Kgkvjv I cwkÿY c`v‡bi Rb¨ c‡qvRbxq e¨e¯v MnY Ki‡Z cv‡i|



mvsew`K t ÷xj wewìs Avevmb wn‡m‡e KZUv Dch³? Avevmb msKU ‡gvKv‡ejvq Avcbvi KZUK Avkvev`x? Px‡b ‡hgb AwZ Aí mg‡q wgwb ¯’vB wmwUi gZMMbPw¤ feb wbgvb K‡i ZvK jvwM‡q w`‡”Q, Avgv‡`i ‡`‡k Zv wK m¤e n‡Z cv‡i bv?

‡gvt iv‡k` Lvb t kZfvM Dchy³| fwgK‡¤úi K\_v wPšv Ki‡j Avgv‡`i g‡Zv wb¤ Av‡qi I NbemwZ cY© kn‡ii Rb¨ wmwfj Kb÷vKk‡bi gva¨‡g feb wbgvY Kiv DwPZ-B bq| Rbm‡PZbZv mw„ó Ki‡Z cvi‡j Avgiv LyeB Avkvev`x| Avgiv g‡b Kwi cÿvb XvKv Ges AcwiKwíZ bMivqb ¸‡jv‡K cwiZ³ †NvIYv K‡i GLbB miKv‡ii DwPZ chvß iv¯vNvU †i‡L AvaybK nvDwRs G‡÷‡Ui AvIZvq G‡b wc-‡dwe‡K‡UW ÷xj wewìs Gi gva¨‡g 60 †\_‡K 80 Zjv feb wbgvY K‡i MvnK‡`i g‡a¨ e›Ub K‡i †`qv| bq‡Zv Avjvn bv Ki‡b †Kvb eo ai‡bi fwgK¤ú AvNvZ nvb‡j Avgv‡`i dvqvi mvwfm I wmwfj wW‡dÝ Ges †mbvewnbxi ‡h `kv Zv‡Z 1000 gvby‡KI D×vi Kiv m¤e n‡e bv| Pxbvivl †hgb gvby Avgvivl evsjv‡`kxivl wVK †Zgwb gvby| Iiv cvi‡j Avgivl cvie| cvi‡Z Avgv‡`i n‡eB KviY 55 nvRvi eMgvB‡ji GB †QvÆ GKwU †`‡k Avgiv 16 †KwU gvby emevm KwiQ| Avgv‡`i †h mg¯ fvB‡qiv we‡`‡ki gwU‡Z KvR K‡i (kwgK wn‡m‡e Ges kwš cwZôvq) mby AvRb Ki‡Z cv‡i Zviv †`‡ki gwU‡Z KvR K‡il ‡`‡ki fvegwZ I A_bwZ‡K GwM‡q wb‡Z cvi‡e|

5| fwgK¤ú ‡gvKv‡ejv wKsev ivbvcvRv, ‡¯úKUvg Mv‡g›U‡mi gZ feb a‡mi gZ Aviwmwm wbwgZ feb wbgvb Î“wURbZ `yUbvi nvZ ‡\_‡K i¶v ‡c‡Zwc-‡dwe‡K‡UW ÷xj wewìs KZUv mnvqK n‡Z cv‡i e‡j Avcwb g‡b K‡ib? we‡kI K‡i ivbvcvRv I ‡¯úKUvg Mv‡g›Um feb `yUbvi Kvib‡Y ewnwe‡kAvgv‡`i Mv‡g›Um wkí m¤ú‡K ‡h ‡bwZevPK avivYv ‰Zwi n‡q‡Q Zv KwU‡q DV‡Z Avcbvi Kx Ki‡Z cv‡ib?

‡gvt iv‡k` Lvb t ivbv cvRvq ïay†h wbgvY ÎæwU wQ‡jv Zv wKš bq| †mLv‡b Kv‡Ri †Zgb ‡Kvb cwi‡ek ivLv nqwb| Aí RvqMvq AcwiKwíZ hšcwZ ¯vcb Kiv n‡qwQ‡jv| we‡kI K‡i Zviv fe‡bi wewfb ‡dv‡i D”P gvÎvi fvB‡ekb mw„óKvix †Rbv‡iUi ¯vcb K‡iwQ‡jv hv LyeB Ab¨vq| Rjvkq ev †Wvev fivU K‡i LiP Kgv‡bvi Rb¨ h_vh_ cvBwjs bv K‡iB febwU wbgvY Kiv wQ‡jv eo ai‡bi Aciva hv ÿgvi A‡hvM¨| Avgiv gvbyli Rxeb I m¤ú` wb‡q wQwbwgwb †Lj‡Z cwibv| A_ DcvRbB †hb e¨emvq ewY‡R¨i GKgvÎ jÿ¨ D‡Ïk¨ bv n‡q hvq ‡mw`‡K mK‡ji †Lqvj ivLv `iKvi|

÷xj wewìs G ivbv cvRv ev ‡¯úKUvg Mv‡g‡›U‡mi g‡Zv †Kvb g¨wmf `NUbvi m¤ebv †bB| KiY GB ai‡bi fe‡b †g¤vi ¸‡jv Avjv`v-Avjv`v fv‡e bvU-‡ev‡ëi gva¨‡g hy³ Kiv \_v‡K Ges Qv` wbwgZ nq mve-ex‡gi Dci †gvUv cwi‡Zi mxU fvR K‡i wewQ‡q w`‡q Zvi Dc‡i A‡cÿvKZ.cvZjv XvjvB Kiv nq hvi IRb A‡bK Kg \_v‡K| bvU-‡ev‡ëi gva¨‡g hy³ \_vKvi Kvi‡Y ÷xj wewìs G h‡\_ó †`vjbv¼ _v‡K e‡j mvB‡Kvb ev fwgK‡¤úi g‡Zv g¨wmf `NUbvq mn‡RB `y‡Z cv‡i|

Mv‡g›Um ev †h †Kvb feb hw` wc-‡dwe‡K‡UW ÷xj chy³‡Z wbwgZ nq Z‡e Kv‡Ri cwi‡ek Ges wbivcËv `yB-B wbwðZ Kiv hv‡e Avi we‡`‡kI Avgv‡`i nvivbv †MŠie Avgiv wd‡i cv‡ev|

mvsewU`K t evsjv‡`‡k wc-‡dwe‡K‡UW ÷xj wewìs wk‡íi mPbv ‡Zv nq 2003 mv‡j, Gici ‡Zv GK hM cvi n‡q ‡Mj| ‡m Zjbvq G wkí cZ¨vkv Abhvqxweâ wkZ n‡q‡Q Kx? we‡kl K‡i wkcwewìs wk‡íi Zjbvq? G`‡Uv wkíB ‡Zv GKB mg‡q hvÎv ïi“ K‡i‡Q?

‡gvt iv‡k` Lvb t bv| Avm‡j GB wk‡í hvÎv ïi“ n‡qwQ‡jv 1999 mv‡j| ZLb g‡Z we‡`k ‡_‡K ÷xj ÷vKPvm wewìs Avg`vbx K‡i d¨v±ix ‡mW ¸‡jv wbgvY Kiv n‡Zv| ZLb Avgiv hviv GB †U‡W KvR ïi“ Kwi ZLb wkí D‡`¨v³vM‡Yi Øv‡i Øv‡i ‡h‡q eSvZvg †h, Avcbvi d¨v±ix †mW wc-‡dwe‡K‡UW ÷xj ÷vKPv‡ii gva¨‡g ˆZix Ki‡Z| ZLb Zv‡`i wbKU Avgv‡`i GB wewìs chy³i avibv bZzb g‡b n‡Zv| d‡j ZLb GKwU †mW wewìs weµq Kiv LvBB `i“n e¨vcvi wQ‡jv| wKš GLb Avi KvD‡KB GB chy³i K_v eS‡q ejv c‡qvRb c‡o bv| d‡j Avgv‡`i cZ¨vkv Abyhvqx Avgiv mvaviY wkí D‡`¨v³vM‡Yi wbKU chy³wUi mnRjf¨Zv I MnY‡hvM¨Zv my›i `ÿZvi mv‡_ †cŠQ w`‡Z †c‡iwQ| weKwkZ Kivi †ÿ‡Î miKvix I †emiKvix chv‡qi mn‡hvwMZv c‡qvRb| †mLv‡bI Avgiv wKQzu n‡j I mdj n‡qwQ| wc-‡dwe‡K‡UW ÷xj ÷vKPvi wewìs GLb GKwU wkí LvZ wn‡m‡e miKvix ¯xKvZ. jvf K‡i‡Q, GUv Avgv‡`i GKwU weivU ARb| wkc wewìs Gi †ÿ‡Î miKvi †h mKj mgvhvM-mycav c`vb K‡i‡Q Zv Avgv‡`i‡K †`qv n‡”Qbv| †hgb e‡ÛW Iq¨vi nvDR mycav| wkc wewìs wkí e‡ÛW Iq¨vi nvDR mycavi gva¨‡g †hLv‡b ïiY¨ ï‡é KvPv gvj Avg`vbx Ki‡Z cvi‡Q †mLv‡b miKvi Avgv‡`i mv‡_ wegvZv mÿf AvPiY Ki‡Q Ges †Kvb †Kvb †ÿ‡Î m¤úbœqZ wewìs Avgv`vbxi Dci 1% ev ïiY¨ fvM Kiv‡ivc K‡i Avgv‡`i wkí weKv‡ki †ÿ‡Î Aš—vq mgó K‡i †i‡L‡Q| Avevi B‡j±bK I wc›U wgwWqv‡Z Avgv‡`i wkí wb‡q †Zgb †Kvb Av‡jvPbv †bB wKš wkc wewìs wb‡q e¨vcK Av‡jvPbv I cPvibv we`¨gvb|

mvsewU`K t GB wk‡í wewb‡qvM KZUv jvfRbK I wbivc`?

‡gvt iv‡k` Lvb t mKj e¨emv‡ZB jvf-‡jvKmvb Av‡Q| Z‡e GB wk‡íi D‡`¨v³vMY‡K Aek¨B KwiMix Áv‡bi AwaKvix n‡Z n‡e| Ab¨_vq †jvKmvb Kivi m¤ebv †ekx| wewb‡qvM wbivcËvnxb ZLbB nq hLb bv eSS wewb‡qvM Kiv nq A_ev AwZ Drmvnx n‡q †h †Kvb e¨emv‡q cyR wewb‡qvM Kiv nq| Avcwb †h e¨emvi 100 fvM bv eS‡eb †m e¨emv hZB jvfRbK †nvKbv †K‡bv †mLv‡b wewb‡qvM Ki‡eb bv| Avcwb wb‡R †ev‡Sb bv wKš Avcbvi cvUbvi †ev‡S †m e¨emv‡ZI cyR wewb‡qvM Ki‡eb bv Ki‡j Avcbvi cyR nvwi‡q hvIqvi m¤ebv 80 fvM| Avcbv‡K Aek¨B mswkó e¨emv m¤ú‡K 100 fvM Rvb‡Z n‡e| Z‡e Awg g‡b Kwi Avgv‡`i GB wk‡íi fwel¨Z LvBB fv‡jv KviY ÷xj ÷vKPv‡i wbwgZ feb me we‡ePbvq wbivc` I `ªZ ev¯evqb †hvM¨ I c‡qvR‡b `ªZ mwi‡q †djv ev Lyj †dj v‡bv m¤e| fwel¨‡Z G‡`‡ki gvby Zv‡`i emev‡mi Rb¨I ÷xj ÷vKPv‡ii gva¨‡g Nievox wbgvY Ki‡e| †mw`b Avi †ekx `‡i bq|

mvsew`K t eZgv‡b G wk‡íi weKv‡ki ‡¶‡Î ‡Kvb Ašivq i‡q‡Q wK? Ge¨vcv‡i miKv‡ii c¶ ‡_‡K Avcbviv Kx ai‡Yi mn‡hvwMZv cZ¨vkv K‡ib?

‡gvt iv‡k` Lvb t Avgv‡`i GB wk‡íi cavb Ašivq n‡jv miKv‡ii fyj wkí bxwZ| wk‡íi Rb¨ KvPvgv‡ji Dci †hgb ïé Kgv‡bv `iKvi †Zgwb Avevi H wkí‡K iÿv Kivi Rb¨ m¤úbœwqZ H c‡Y¨i Avg`vbxi Dci m‡ev©”P Kiv‡ivc Kiv I miKv‡ii `wqZ| miKv‡ii DwPZ Avgv‡`i GB wk‡í e‡ÛW Iq¨vi nvDR myweav †`qv, †`‡ki ¯v‡_, wkívq‡bi ¯v‡_| Ges mKj ‡ÿ‡Î m¤úbœwqZ ÷xj wewì s‡qi Dci m‡ev©”P Kiv‡ivc K‡i GB wkí‡K wbivcËv `vb Kiv| miKvi wb‡R wb‡R †Kvb Dbqb gj K KvR Ki‡Z cv‡i bv| miKvi‡K Aek¨B ‡emiKvix D‡`¨v³v‡`i Kv‡Ri cwi‡ek K‡i w`‡Z n‡e| Zvn‡jB ‡Kej †`‡ki cKZ. Dbqb Kiv m¤¢e n‡e|

mvsew`K t G chš Avcbv‡`i ‡Kv¤úvbx KZwU cKí ev¯evqb Ki‡Z ‡c‡i‡Q ev Avcbviv KZUK mdjZv ARb Ki‡Z ‡c‡i‡Qb e‡j g‡b K‡ib?

‡gvt iv‡k` Lvb t gWvY ÷vKPvm wjwg‡UW G chš †QvU-eo Qq kZwaK d¨v±ix wewì s mdjZvi mv‡_ Zvi MvnKM‡Yi wbKU n¯vši K‡i‡Q| †Kv¤úvbxi †hvM¨Zv Abyhvqx GB msL¨v Ly †ekx bq| gWvY msL¨vi Zzjbvq ¸YMZ gv‡bi w`‡K ‡ekx ¸i‡Z †`q| AwaKš gWvY ÷vKPvm wjwg‡UW wbawiZ mg‡qi g‡a¨ c‡R± n¯vši K‡i mby‡gi mv‡_ e¨emvq Kvh µg cwiPvjbv K‡i Avm‡Q| †Kvb †Kvb †ÿ‡Î gWvY †`‡ki eo Ëg c‡R±I AZ¨š `ÿZv I mdjZvi mv‡_ m¤úb K‡i evRv‡i mbyg ARb K‡i‡Q|

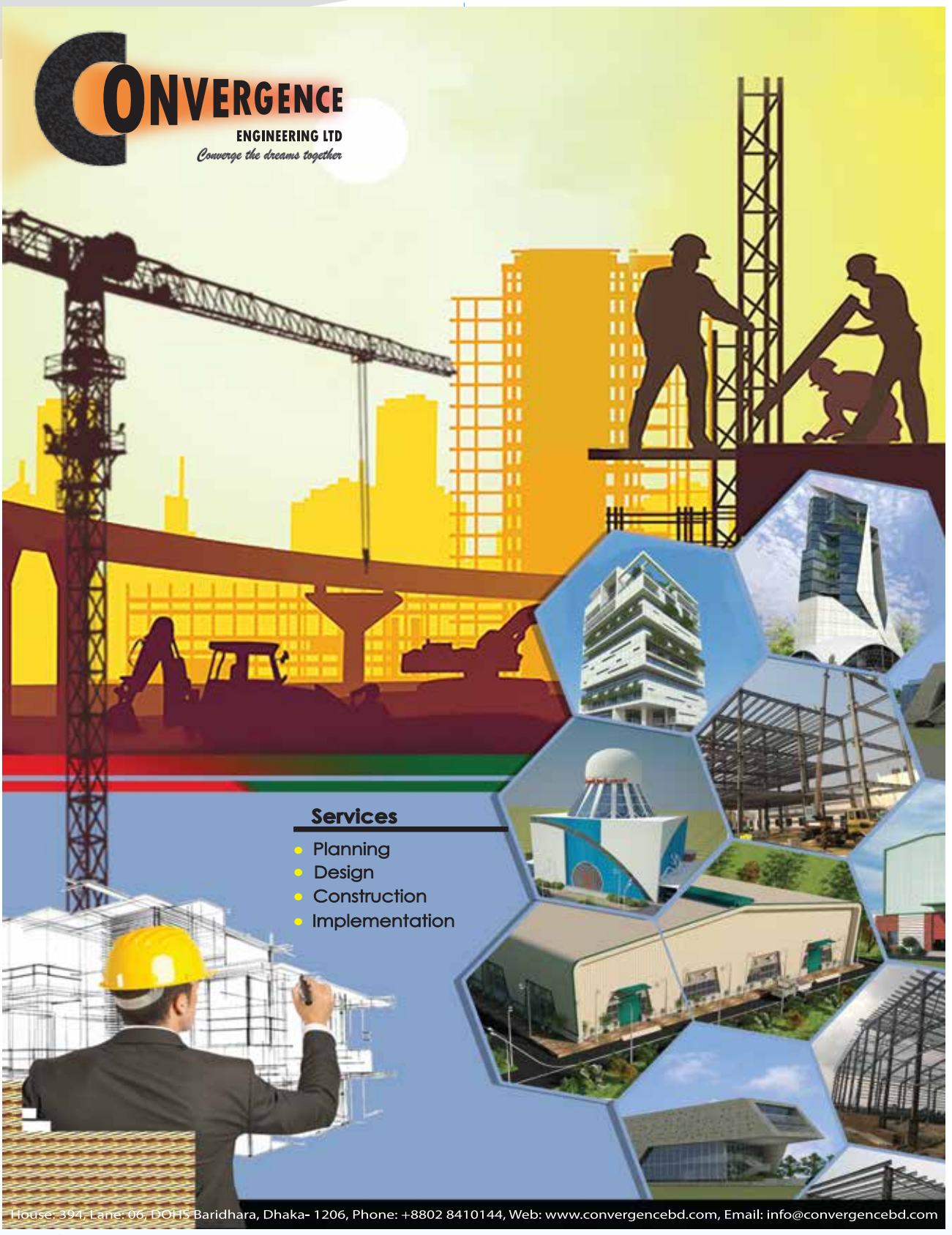
mvsew`K t cieZx‡Z Avcbv‡`i we‡kl cwiKíbv Kx? we‡kl K‡i Avevmb, chUb, Kgwkqvj feb wbgvY ev AeKvVv‡gv Dbq‡b Avcbvi we‡kl ‡Kvb D‡`¨vM wb‡”Qb?

‡gvt iv‡k` Lvb t Avgv‡`i jÿ¨ I D‡Ïk¨ n‡”Q †`‡ki †UKmB Dbq‡b mivmwi fwgKv ivLv| wk‡íi AeKvVv‡gv hw` ‡UKmB Ges Kgcwi‡ek evÜe bv nq Zvn‡j cKZ.c¯v‡e `xN †gqv`x Dbqb m¤¢e n‡e bv| wkí D‡`¨v³v Ges miKvi‡K Avgiv eySv‡bvi †Póv KiwQ, mKj ‡fŠwZK AeKvVv‡gv wc-‡dwe‡K‡UW ÷xj wewì s chy³i gva¨‡g Kivi Rb¨| †mB AeKvVv‡gv n‡Z cv‡i d¨v±ix wewì s, Avevmb cKí, chUb †K›`, cvU ev mvZ Zviv AvavybK ‡nv‡Uj, evwYwR¨K feb, moK †mZz†ij †mZz BZ¨vw`|

Avgv‡`i D‡`¨vM wb‡jB me n‡q hv‡e bv| †m‡ÿ‡Î mswkó KZve¨w³‡`i GwM‡q Avm‡Z n‡e| ej‡Z cv‡ib KZv e¨w³ †K? DËi n‡”Q, mKj `wqZkxj e¨w³| †hgb, gvbbxq cavbgšx, mKj gšYvj‡qi gvbbxq gšxMY, mwPeMY, mKj `ßi Awa`ß‡ii cavbMY, c‡KŠkjxMY AwaKš m‡ev©”P Av`vj‡Zi wePvi iKMYI ‡fŠZ AeKvVv‡gv Dbq‡b wc-‡dwe‡K‡UW ÷xj wewì s chy³ e¨envi‡ii e¨vcv‡i Zv‡`i wm×vš c`vb Ki‡Z cv‡ib| ivbv cvRv ev Ab¨vb¨ ¯vcbv aŸ‡mi ci c‡Z¨‡KiB DwPZ wc-‡dwe‡K‡UW ÷xj wewì s chy³ e¨envi‡ii gva¨‡g Zv‡`i ¯vcbv wbgvY Kiv| Avgiv Avgv‡`i GB chy³i c‡ÿ cPvi cPvibv Pvjv‡bvi Rb¨ †ek wKQzD‡`¨vM wb‡qwQ| †hgb, c‡KŠkjx‡`i wb‡q wewfb mfv, †mwgbvi, wm‡¤úvwRqvg| c‡KŠkj wekwe`¨vj‡qi wkÿKMY‡K Avgv‡`i d¨v±ix cwi`kb Kiv‡bv, Zv‡`i †_‡K civgk MnY I cvV¨mPx‡Z wc-‡dwe‡K‡UW ÷xj wewì s chy³ wkÿv`v‡bi Rb¨ DØy× KiY| c‡KŠkj wekwe`¨vjq n‡Z cvm Kiv QvÎ-QvÎx‡`i‡K Avgv‡`i cwZôv‡b B›Uvbx Kiv‡bv n‡”Q| †fŠZ AeKvVv‡gv %Zix‡Z hviv KÝv‡ë›U wn‡m‡e KvR K‡ib Zv‡`i‡K wb‡q wc-‡dwe‡K‡UW ÷xj wewì s chy³ e¨envi‡ii †hŠ³KZv Zz‡j a‡i ‡mwgbvi-wm‡¤úvwRqvg Kiv| mxwgZ AvK‡i B‡j±wbK I wc›U wgwWqv‡Z weÁvcb †`qv n‡”Q Ges Zv Av‡iv †Rvi`vi Kiv| Kjvg÷ I wdPvi †jLKMY‡K AvKó.Kiv n‡”Q hv‡Z Zviv Avgv‡`i wc-‡dwe‡K‡UW ÷xj wewì s chy³ e¨envi‡ii Dc‡hvwMZv I DcKvixZv mvavi‡Yi g‡a¨ Zz‡j ai‡Z cv‡ib| GKv‡R Avgiv †ek ïf jÿY †`L‡Z cviwQ|

mvsewª`K t MvRxc‡i ÷xj †d‡g ˆZwi wWMwbwU Mv‡g›Um fe‡b Av¸b wbqš‡Y h‡_ó †eM †c‡Z nq| AwMwbevcK Kgxiv Rwb‡q‡Qb, ÷xj wewìs‡q Av¸b †bfv‡bv mnR bq| G e¨vcv‡i Avcbvi gše¨ Kx?

‡gvt iv‡k` Lvb t Avcbvi G ckwU h_v_| Z‡e AwMwbevcK Kwgiv Avcbv‡K mwVK Z_¨wU w`‡Z cv‡iwb| KviY wWMwbwU Mv‡g›Um wewìswU Av¨vKW-G¨vjv‡qÝ I Kgcv‡qÝ †g‡b wbwgZ nqwb e‡j Avgiv Rvb‡Z ‡c‡iwQ| Av¸b a‡i 19/20 N›Uv Rj‡j †Kvb wewìs B wU‡K _vK‡e bv, †mUv ÷x‡j wbwgZ †nvK ev Avi wm wm †Z wbwgZ ‡nvK| †h‡Kvb fe‡b ev ¯vcbvq Av¸b RvZxq `ÑUbvi wkKvi n‡Z cv‡i| Avgv‡`i‡K chvß AwMwbevcK e¨e¯vcbv gIRy ivL‡Z n‡e Ges feb ev ¯vcbvq hv‡Z mn‡R AwMwbevcK KgxMY c‡ek K‡i cwb, evjyl M¨vm e¨envi Ki‡Z cv‡ib Zv wbwðZ Ki‡Z n‡e|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Òwemwgjwnii iwngvwbi iwngÓ

Òmevi Av‡M c‡qvRb ÷xj m¤ú‡K ÁvbÓ

c‡KŠkjxG Gm Gg AwZKzi ingvb (wg_y)
e¨e¯'vcbv cwiPvjK
Kbfv‡RÝ BwÄwbqvwis wjwg‡UW

‡de"qvix gvm| fvlv Av‡›`vj‡bi gvm| k×v Ávcb Kiwl ‡mB mKj gvbyl‡`i hv‡`i AvZ¥Z¨v‡Mi wewbg‡q AvRZ n‡q‡Q GB evsjv fvlv| hv‡`i Rxeb DrmM©i Rb¨ GB ‡jLwU AvR evsjvq ‡jLv m¤¢e n‡"Q| fvlv knx`‡`i ¯§wZi Pi‡Y iBj nvRv‡iv mvjvg|

c_‡g ab¨ev` RvbvB ÷xj wewìs g¨vbydv¨vKPvivm© A¨v‡mvwm‡qkb‡K GiKg GKwU myÜi D‡`¨vM ‡bIqvq Ges ‡mB m‡½ KZÁZv RvbvB GLv‡b Avgv‡K wKQy‡jLvi my‡hvM K‡i ‡`Iqvi Rb¨|

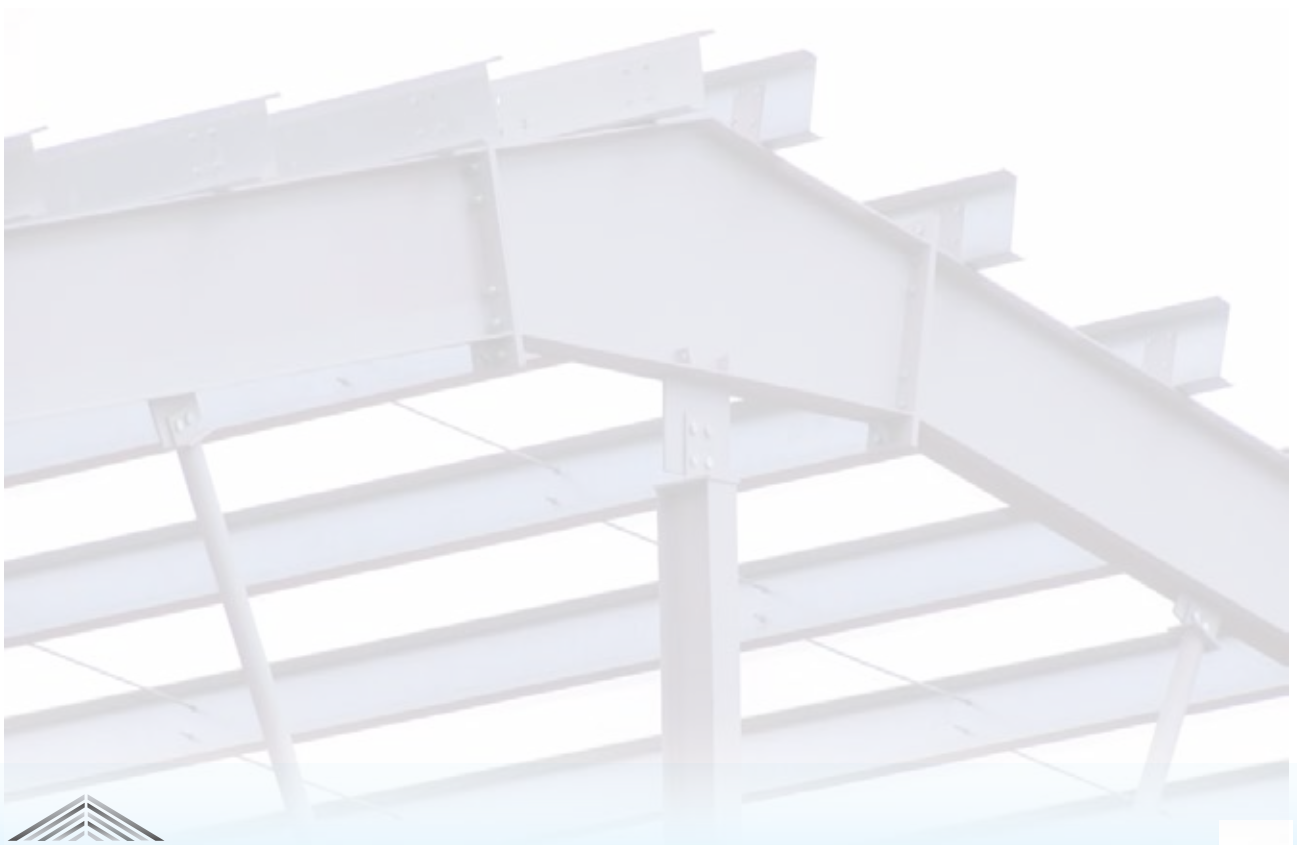
Avgv‡`i ‡`‡k Kw÷ªv±ki Rbwcq‡Zv A‡bK ‡ewk _vKvq wc‡dwe‡K‡UW ÷xj GB cwZ‡hwMZvq Avkvbyiƒc GwM‡q ‡h‡Z cv‡iwb| Aek¨ wewfbœ K‡qKeQ‡i wc‡dwe‡K‡UW ÷xj feb wbgvY cwZôv‡bi msL¨v ew×. cvIqvq mevB GLb G m¤ú‡K Rvb‡Z cvi‡Q| GKUv mgq wkí I KjKviLvbv¸wj Qvov ÷x‡ji feb cvq ‡`LvB ‡h‡Zv bv| Z‡e eZgv‡b kni GjvKvq evwYwR¨K Ges AvevwmK feb wbgv‡Yi ‡¶‡Î I gvbyl wc‡dwe‡K‡UW ÷x‡ji w`‡K Sy‡K‡Q| GwU Aek¨B Avkve¨ÄK|

÷x‡ji ‰Zwi AeKvVv‡gvi cwZ AvM‡ni Ab¨Zg cavb KviY nj GwU wbgv‡Y LiP Ges mgq `ywUB A‡bK Kg jv‡M| ZvQvov ÷x‡ji fe‡bi IRb Kw÷ªv±‡Ui Zyjbvq A‡bK Kg nIqvq Gi dvD‡Ûk‡bi LiPI A‡bK K‡g hvq| ‡hgb-GKwU Qq Zjv feb Kw÷ªv±U Ki‡j ‡h LiP nq, Zvi Zyjbvq óx‡j wbgvY Ki‡j cvq 20 ‡_‡K 25 kZvsk LiPKg nq| Kw÷ªv±‡Ui ‡ejvq IB feb‡U ‰Zwi Ki‡Z cvq `yB eQi mgq jv‡M, A_P óx‡j Ki‡j Qq ‡_‡K AvU gv‡mi g‡a¨B m¤úbœ Kiv m¤¢e|G‡¶‡Î cvq `yB ZZxqvsk mgq mvkq nq| G¸wji cvkvcvwk ÷x‡ji cybe¨envi‡hvM¨Zvi ‰ewkó¨I G‡K mvaviY gvbyl‡i Kv‡Q Avi I MnY‡hvM¨ K‡i Zy‡jZ mnqZv Ki‡Q|

Kw÷ªv±‡Ui ¯'vcbvi m‡½ Avgiv A‡bK ‡ewk cwiwPZ _vKvq Gi Dcv`vb Ges Zvi ¸Yv¸Y m¤ú‡K I mevB h‡_ó cwiwPZ| ‡hgb-Kw÷ªv±‡Ui gš¿ ‡h wZbwU Dcv`vb A_vr wm‡g›U, evjyGes cv_i- G m¤ú‡K mevB Kg‡ewk Rv‡b| Ggb wK eZgv‡b iW c¯ÍyZKvix cwZôvb¸wji weÁvc‡bi ‡mŠR‡b¨wU Gg wU evi ev 500W kw³m¤úbœ i‡Wi mv‡_ I mevB cwiwPZ| wKš' ÷x‡ji KvVv‡gvi ‡ejvq ‡ewki fvM ‡¶‡Î mvaviY gvbyl‡i gv‡S GK ai‡bi ‡avqvkv ‡`L‡Z cvIqv hvq|hZ¶Y chš GB ‡avqvkviRvqMwU cwi¯‹vi bv n‡e, ZZ¶Y chš GB ‡¶ÎwU Avkvbyiƒc Dbœqb n‡e bv| Avi GB cwi¯wZi cwieZb Kivi Rb¨ wbgvY cwZôvb ‡_‡K ïiæ K‡i bxwZwbaviK Ges cPvi gva¨g mKj‡KB KZ¸wj my`wbw`ó cwµqvi ga¨ w`‡q fwgKv ivL‡Z n‡e|

A‡bK ‡¶‡Î ej‡Z ‡kvbv hvq, ÷x‡ji ‰Zix KvVv‡gvi fvi enb ¶gZv (Load bearing capacity) Kw÷ªv±‡Ui Zyjbvq Kg| GUv m¤úY© åvš aviYv| cÖK…Zc‡¶ cvq me mgŠ"P feb ev ¯'vcbvi gš¿ KvVv‡gv ÷x‡ji ‰Zix| we‡klZ fwgKµú mnbxq Kivi Rb¨B Af¨šixY K¼vj KvVv‡gvwU ÷xj w`‡q ‰Zwi Kiv nq| GQvov Kw÷ªv±‡Ui ‡¶‡Î wWRvBb Abyhvqx Gi kw³ (Strength) wbwðZ Kivi Rb¨ ¸bMZ gvb wbqšY (Quality control) Ges wbgvY Kv‡Ri mwVK cwµqv (Construction workmanship) eRvq ivLvUv Lye Ri"ix| ‡`Lv hv‡"Q ‡h, `¶ c‡KŠkjx Øviv wWRvBb Kwi‡q Ges fvj gv‡bi wbgvY mvgMx (iW, evjycv_i, Ges wm‡g›U) e¨envi Kivi ciI ïay gvÎ wbgvY ms¯ivš cÖwZ¸wj mwVKfv‡e Abymi‡Y bv Kivi d‡j m¤úY© weìqwU GKwU Awbðq‡Zvi g‡a¨ c‡o hvq|

÷x‡j i ‡¶‡Î G ai‡Yi mgm¨v Zvjbvgvjv K Kg| ‡Kbbv ‡hme Avbyl½K Dcv`vb w`‡q ÷x‡j i feb wbwgZ nq, ‡m¸wj i ¸Yv¸Y wbwðš Ki‡Z cvi‡jB AwbðqZvi e¨vcvi¸wj A‡bKvs‡k K‡g Av‡m| Gici wWRvBb Abyhvqx mwVK fv‡e ‡dwe‡Kkb Kiv Ges R‡q‡›Ui RvqMv¸wj‡Z ‡KvW Abyhvqx SvjvB (Welding) Kiv ‡M‡j Avi ‡Kvb AwbðqZv _v‡Kbv| B‡iKkb Gi ‡¶‡Î me ‡_‡K ¸i“Zc¥ e¨vcvi nj ‡mdwU| KviY ÷x‡j i eo eo Kjvg ev exg ¸wj hLb ‡µb w`‡q Dc‡i DwV‡q ‡Rvov jvMv‡bv nq ZLb `yUbvi Avk¼v _v‡K| Kv‡RB B‡iKkb PjvKvjxb mg‡q wbivcËvi e¨vcvi ¸wj wbwðZ Ki‡Z cvi‡jB m¤ú¥ cwµqvi g‡a¨ GKwU wbiew”Qb wbðqZvi Aven eRvq _v‡K|Avgv‡`i ‡`‡k eZgv‡b ÷xj ÷vKPvi wWRvBb Ki‡Z Rvbv c‡Kŝkjx‡`i msL¨v Lye mxwgZ| Gi cavb KviY Aek¨ c‡Kŝkj wekwe`¨vjq ¸wj‡Z mvZK chv‡qi cvV¨µg| ÷xj m¤ú‡K mvZK chv‡qi ‡k‡li w`‡K ‡h mvgvb¨ GKUyaviYv ‡`Iqv n‡q _v‡K Zv ‡gv‡Ul ev¯e‡¶‡Î wWRvBb Kivi Rb¨ h‡_ó bq| G‡¶‡Î cvV¨mPv‡Z Avil wek`fv‡e GwU‡K Aš—f³ Kiv‡bv Lye Ri“ix| cvkvcwkAvB B we‡Z mdUIq¨vi Ges ev¯weK Ávb `v‡bi Rb¨ hw` wKQy‡Kvm PvjyKiv‡bv hvq Zvn‡j m`¨ wWRvBbvi wnmv‡e KgRxeb ïi“ Ki‡Z hvIqv c‡Kŝkjx‡`i Rb¨ Lye mnvqK n‡e| ‡h‡nZy wkíKviLvbvi cvkvcwk AvewmK Ges ewYR¨K feb wbgv‡Yi ‡¶‡ÎI ÷xj AeKvVv‡gv `“Z cmvi jvf Ki‡Q, Kv‡RB G‡¶‡Î ‡ckv`vi wWRvBbvi‡`i Kv‡Ri cwimiI evo‡Q| ÷xj AeKvVv‡gv wbgvY cwZôv‡bi msL¨v ew×. cvIqvq G mKj cwZôv‡b wWRvBbvi wnmv‡e KvR K‡i wb‡Ri ‡ckv`vix `¶Zv‡K AviI weKwkZ Kivi mÿhvM _vK‡Q|



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Òwemwgjwni ivngwbi iwngÓ

ÒAeKvVv‡gvMZ Dbq‡b ÷xj ÷vKPv‡ii wecj m¤¢vebvÓ

Aa¨vcK Wt Gg kvgxg ‡RW emyybqv
G‡gwiUvm Aa¨vcK
cyi‡KŠkj wefvM, BDwbfvwmwU Ae Gwkqv c¨vwmwdK
mv‡eK Aa¨vcK
cyi‡KŠkj wefvM, evsjv‡`k c‡KŠkj wekwe`¨vjq (eyy‡qU)
mv‡eK mfvcwZ
BwÄwbqvmBÝwUwUDkb, evsjv‡`k (AvB B we)

AvmmvjvgyAvjvBKyg|

ïi"‡Z k×vf‡i ¯§iY KiwQ ‡mB me gvbyl‡`i hviv evqvbi GKyk ‡de"qvix‡Z kwn` n‡qwQ‡jb gvZf.v.lv evsjvi `vex‡Z|

ab¨ev` RvbvB ÷xj wewìs g¨vbyd¨vKPvivm A¨v‡mvwm‡qkb‡K GiKg GKwU myỳi Av‡qvR‡bi Rb¨|

weMZ GK`k‡K evsjv‡`k AeKvVv‡gvMZ Dbqb Ges c‡KŠkjMZ `¶Zvi ‡¶‡Î wekevmxi mvg‡b j¶Yxq `óvš Dc¯vcb Ki‡Z m¶g n‡q‡Q| we‡kl K‡i cÙv eûgyLx ‡mZycK‡íi ‡¶‡Î mg¯ weZK, m‡›`n, Avk¼v Ges AwbðqZv‡K ‡cQ‡b ‡d‡j evsjv‡`k AvR we‡ki mvg‡b ¯wbfikxjZvi GK D¾j D`vniY| Avi Gi cyivUvB m¤e n‡q‡Q MYcRvZšx evsjv‡`k miKv‡ii gvbbxq cavbgšx ‡kL nwmbvi ewjô ‡bZZ" mg‡qwPZ wm×vš Ges Acwimxg mvnwmKZvi g‡bvfv‡ei Kvi‡Y| hvi djk"wZ‡Z cÙv ‡mZyi wØZxq ¯ú¨vbl AvR Avgv‡`i mvg‡b `k¨gvb| Rb ‡bÎxi GB B¯úvZ`p.gvbwmKZv G‡K G‡K iƒccyi cvigvYweK we`¨yr cKí, cvqiv Mfxi mgỳe›`i, ‡g‡Uv‡ij cfwZ.mgnr.cKí¸wj‡Kl ev¯evq‡bi Øvic‡Š GwM‡q wb‡q P‡j‡Q|

c‡KŠkj Ges KwiMwi w`K ‡_‡K evsjv‡`k GLb A‡bKUvB ¯wbfi| GKUv mgq wQj hLb mKj KgKv‡Ê %e‡`wkK civgkK cwZôv‡bi cvkvcwk %e‡`wkK wbgvY cwZôv‡bil c‡qvRb nZ| eZgv‡b G Ae¯vi A‡bK cwieZb n‡q‡Q| GLb ‡`kxq cwZôvb¸wjI AeKvVv‡gv Dbq‡b Ae`vb ivL‡Z m¶g n‡"Q| we‡kl K‡i MZ K‡qK eQ‡i wc‡dwe‡K‡UW ÷xj wbgvY cwZôvb¸wj wkí‡¶‡Î feb ev ‡kW wbgv‡Yi ‡ejvq Afvebxq mvdj¨ ARb K‡i‡Q| KvRUgvj wn‡m‡e ÷xj ‡cÖAvg`vbx K‡i wbR¯ ‡dwe‡Kkb c-v‡›U KvVv‡gvi wewfb Ask %Zix Kiv‡Z wbgvY e¨q A‡bK K‡g ‡M‡Q| ¯í Li‡P Ges ¯í mg‡q wbgvY Kiv hvq e‡j B`vbxs ewYwR¨K ¯vcbv wbgv‡Yi ‡¶‡Î I G e¨vcv‡i e¨vcK AvMn j¶¨ Kiv hv‡"Q|

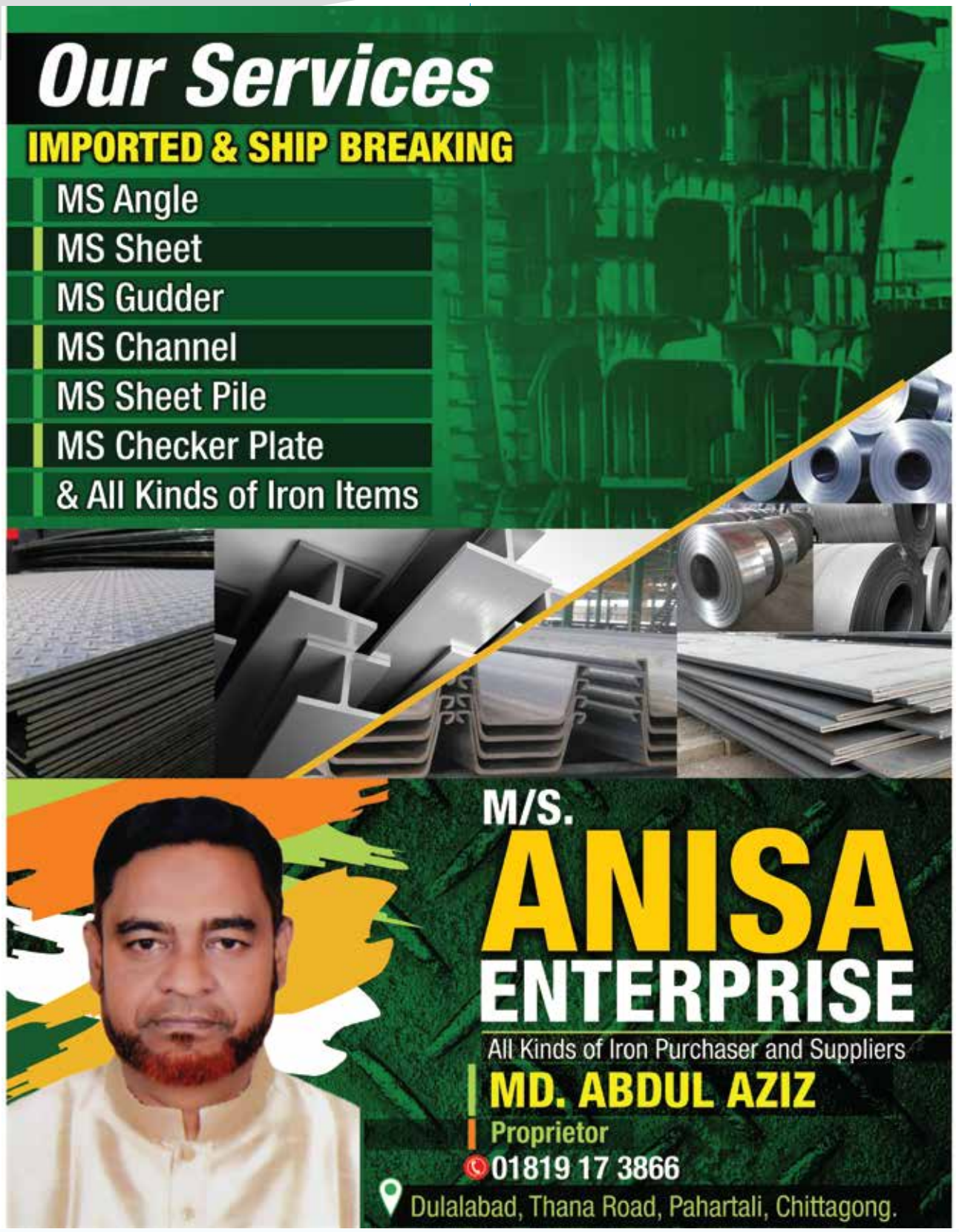
cÙv eûgyLx ‡mZyi e¨vcv‡i gvbyl¸wji Av‡eM Ges AvM‡ni KgwZ ‡bB| eûj Av‡jwPZ Ges cZxw¶Z ¯‡ci GB cÙv ‡mZyi gj KvVv‡gv ‡_‡K ïi" K‡i AvilI A‡bK wKQyZB ÷x‡ji e¨envi n‡"Q| c_‡gB aiv hvK cvB‡ji K_v| GB ‡mZyi cwZwU ¯‡¤¢i wb‡P cvq 10 dyU e¨vm Ges AvovB BwÂ cyi"Z¡wewkó B¯úv‡Zi dvucv cvBc w`‡q %Zix 6 wU K‡i cvBj Av‡Q hvi cwZwUi %`N¨ cvq 400 dyU| ‡mB wn‡m‡e m¤úY© ‡mZyi 240 wU cvBj %Zix Ki‡Z cvq ‡`o j¶ ‡gwUK Ub ÷xj e¨eüZ n‡q‡Q| GB cvB‡ji Dci Ksw«µ‡Ui ¯¤¢ K‡i Zvi Ici ÷x‡ji %Zwi cvq 500 dyU `xN ¯ú¨vb emv‡bv n‡"Q| GB ¯ú¨vb¸wji G‡KKwUi IRb cvq 3200 ‡gwUK Ub| GiKg ‡gvU 41 wU ¯ú¨vb w`‡q m¤úY© ‡mZyU wbwgZ n‡e hvi ‡gvU %`N¨ n‡e 6.15 wK‡jwgUvi| ¯ú¨vb¯vc‡bi ci Gi Ici mv‡o 6 dyU PIov Ges 72 dyU `xN wcKv÷ Ksw«µU ¯-¨ve ¯ú¨vb Gi AvovAwofv‡e cvkvcwk emv‡bv n‡e| Gici GB wcKv÷ ¯-¨ve¸wji g‡a¨ wc‡÷m K‡i GKwUi m‡½ Av‡iKwU ‡Rvov ‡`Iqv n‡e hvi Ici w`‡q Pvi ‡jb wewkó iv¯v n‡e| ÷x‡jiIB ¯ú¨vb¸wji ‡fZi w`‡q GK ‡jbwewkó ‡ij jvBb ¯vcb Kiv n‡e hv w`‡q eW‡MR Ges wgUvi‡MR `yB ai‡bi ‡Ub PjvPj Ki‡Z cvi‡e| Kv‡RB ‡`Lv hv‡"Q, ‡`‡ki BwZnv‡mi Ab¨Zg enËg GB cK‡í Ksw«µ‡Ui cvkvcwk ÷xjI eûj fv‡e e¨eüZ n‡"Q|

Avgv‡`i ‡`‡k ó‡ji ‰Zwi wewìs Gi cPjb GKUv‡`i‡Z ïi“ n‡jI Aí mg‡qi g‡a¨ GwU gvbyl i MnY‡hvM¨Zv ARb Ki‡Z m¶g n‡q‡Q| Avi G ‡¶‡Î ÷xj wewìs g¨vbyd¨vKPvivm G‡mvwm‡qk‡bi fwgKv Ab¨xKvh|Z‡e ‡h‡nZy÷xj ÷vKPvi wWRvBb Kivi gZ `¶ c‡KŠkjx GLbI Avgv‡`i ‡`‡k AcZy¥, Kv‡RB G‡¶‡Î wbgvYcwZôvb¸wj‡K bZyb c‡KŠkjx‡`i KvR Kivi Rb¨ AviI ‡ewk mfvhvM mwó.K‡i w`‡Z n‡e| mwVK wbqg I ‡KvW ‡g‡b wWRvBb KivGes ‡mB Abyhvqx wbgvYmvgMxi ¸YMZ gvb wbwðZKiY ‡_‡K ïi“ K‡i wbgvYKv‡Ri cwZwU ¯‡i mwVK Ges mybw`óc×wZ¸wji w`‡K Lye mZKfv‡e j¶¨ ivL‡Z n‡e| we‡kl K‡i ‡dwe‡Kkb Gi mgq Svjv‡B ev I‡qwìs Gi e¨vcv‡i Lye mZK n‡Z n‡e| ‡ckv`vi ‡jvK w`‡q I‡qwìs Kiv‡Z n‡e| Avgvi Rvbv g‡Z Avgv‡`i ‡`‡kB AvšRwZKfv‡e cwk¶Z Ges wbewÜZ A‡bK ‡ckv`vi I‡qìvi i‡q‡Q|I‡qwìs Gi e¨vcv‡i ‡Kv‡W we¯wiZ ejv Av‡Q| G¸wj ‡Lqvj ivL‡Z n‡e| c‡qvR‡b I‡qwìs Gi gvÎv mwVKfv‡e wbi¦c‡Yi Rb¨ G·-‡i cix¶v K‡i ‡`L‡Z n‡e|

gvbyl‡K ÷xj ÷vKPv‡ii mydj Ges Gi mÿY¨cmvix w`K¸wj m¤ú‡K AeMZ Kiv‡Z n‡e| DbZ we‡k cvq me mP¨P feb wbgv‡Y ÷xj e¨eüZ n‡”Q| Avgv‡`i ‡`‡kI A‡b‡KB GLb ¯vcbv wbgv‡Y ó‡ji w`‡K Sy‡Q| A`¨ fwel¨‡Z wbgvY mvgMx wn‡m‡e ÷xjI Kswµ‡Ui gZ RbwcqZv ARb Ki‡e G e¨vcv‡i ‡KvbI m‡›`n ‡bB|wbgvY cwZôvb¸wj hw` mvgwRK `vqe×Zvi RvqMwU gv_vq ‡i‡L mwVK I ¸YMZ gvb wbwðZ Ki‡Z cv‡i, Zvn‡j Av¯v Ges AvM‡ni RvqMwUI wbwðZ Kiv m¤e n‡e|

G‡`k Avgv‡`i mK‡ji| Avgiv hw` c‡Z¨‡K wbR wbR Ae¯vb ‡_‡K ‡`‡ki Rb¨ KvR K‡i ‡h‡Z cwi, Zvn‡j evsjv‡`k Lye kxNB m¤ú¥i¦c ¯wbfi n‡Z cvi‡e| ïaycÙv ‡mZybq, fwel¨‡Z AviI ‡h me eo eo cKí MnY Kiv n‡e ‡m¸wji A_vqb ‡_‡K ïi“ K‡i c‡KŠkj Ges KwiMwi w`K¸wji ‡¶‡ÎI Avgv‡`i ‡hb Ab¨ KviI Øvi¯ n‡Z bv nq| GB Avkvev` ‡i‡L Awg ÷xj wewìs g¨vbyd¨vKPvivm G‡mvwm‡qkb Gi m‡½ RwoZ mKj cwZôvb Ges m‡evcix ÷xj÷vKPv‡ii GB wecyj m¤vebvgqx wk‡íi fwel¨r mgv×.Kvgbv Kiv‡Q|

ab¨ev`|
Gg kvgxg ‡RW emybqv


Our Services
IMPORTED & SHIP BREAKING
MS Angle
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MS Gudder
MS Channel
MS Sheet Pile
MS Checker Plate
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Pre-Engineered Building (PEB) Sector of Bangladesh: Challenges & Opportunities

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Executive Summary:

More than three-quarters of Bangladesh's export earnings come from the garments and textile industries. However, other industries like shipbuilding, pharmaceuticals, jute etc. are rapidly playing major roles in total export volume. Another industry - the pre-engineered building industry has shown remarkable performance by gradually increasing the annual turnover, profit, workforces and export volume. To continue this performance sustainably, this is only possible for organized players with big capital. That is why many think that pre-engineered market will gradually go to the hands of organized players who only control 40 percent market share currently. So, proper guidance is being needed for expansion of existing production facilities, import of heavy machineries, incorporation of modern technologies and advanced training.

This challenges & opportunities study project was carried out during the internship period of the incumbent in Steel Building Manufacturers Association of Bangladesh (SBMA), a reputed construction firms association of pre-engineered building sector. Since its inception in 2001, the motto of SBMA members are to provide one stop solution to the client. That's why the pool of experts includes people from diverse sectors which provide the capability to complete multidisciplinary tasks of this sector. It picks the right ideas, methods and plan for the client and support with its expertise. The pool of experts includes professionals from the field of engineering, management, social and economic studies.

The challenges & opportunities of an industry is a very complex thing to find. Primarily quantitative research techniques have been applied to find the existing and remaining challenges & opportunities. Secondary research has also been done to find it broadly. For analysis, since the forecasts/projections relate to the future, actual results are likely to be different because events and circumstances frequently do not occur as expected and the differences may be material. Whilst due care and attention have been taken in performing the exercise, no liability can be inferred for any inaccuracies or omissions reported from the result.

1. Introduction

A pre-engineered building (PEB) is designed by a PEB supplier or PEB manufacturer, to be fabricated using best suited inventory of raw materials available from all sources and manufacturing methods that can efficiently satisfy a wide range of structural and aesthetic design requirements. Within some geographic industry sectors these buildings are also called Pre-Engineered Metal Buildings (PEMB) or, as is becoming increasingly common due to the reduced amount of pre-engineering involved in custom computer-aided designs, simply Engineered Metal Buildings (EMB).

Being one of the fastest growing sectors of Bangladesh, the Pre-engineered building (PEB) industry could well be the next economy booster. The total PEB market size in Bangladesh is estimated to be approximately BDT 25,000 million per year.

PEB sector of Bangladesh is primarily an industrial oriented division. There are around 26 enlisted and 44 non-listed PEB enterprises. There are around 15 large and organized firms and rest are small & medium. Some large firms have already established themselves as strong regional player. Many firms are also trying to get a foothold in local market. So, recently expansion of existing production facilities has become a common and well expected reality. There are also some strong foreign players in our local market like Zamil Steel, Kirby Building Systems Ltd., Buildtrade Engineering Ltd., Modern Structures Ltd., SteelMark Buildings Ltd., Sarker Steel Ltd., NDE Steel Structures Ltd., PEB Steel Alliance Ltd., Mammut Building Systems FZC, and Tiger Steel Engineering LLC. Actually foreign players introduced this system in our country first.

2. Background

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 and less time, and provides high safety. A pre-fabricated steel structure is now being used for different purposes such as setting up factories, multi-storied buildings, power plants and bridges. A higher resale value of the steel structure is another reason it has gained popularity. Owners will be able to get four times the value if they sell the steel structure of the building as scrap even after 50 years, which is not possible for conventional buildings. The country has immense potential in steel infrastructure as steel consumption per capita is still very low against global standards. Currently, steel consumption per person hovers around 12 kilograms in Bangladesh, while it is nearly 459 kg in Germany and 506 kg in Japan and 477 kg in China, according to World Steel Association 2013. Many companies are setting up factories with pre-fabricated steel structure as it gives the flexibility to relocate at any time and makes maximum use of floor space. Setting up such steel-structure buildings began in Bangladesh in 1985. Initially, the structures and components were being imported. In 2001, local entrepreneurs first took the initiative to set up steel buildings locally, according to industry insiders. More than 100 companies are now involved in such businesses; some 24 companies are members of the Steel Building Manufacturers Association of Bangladesh (SBMA). The sector has so far invested more than Tk 1,000 crore, employing around two lakh people directly and indirectly, including 3,000 engineers. Presently, the annual demand for prefabricated steel buildings in Bangladesh is around Tk 2,500 crore, growing at more than 35 percent for the last several years. Local companies meet around 85-90 percent of the demand and the rest is imported. Pre-Fabricated 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 Tk 250-Tk 350 a square feet, 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 only two months. Hot rolled MS plate, CR coil, Nuts-Bolts and color coil are the key raw materials of the steel buildings and these are mainly imported from Korea, Japan, India and China. In the last five years, the country exported pre-Fabricated building materials worth around $50 million, mainly to Sudan, Pakistan, India and the UAE.

3. Objective of the Report

The main objective of the report is to assess the challenges & opportunities in the Pre Engineered Building (PEB) sector of Bangladesh. A thorough understanding of the Bangladeshi PEB industry and

the companies themselves is being required. The existing PEB market scenario, annual growth rate of the industry, industry and company turnover, demographics of workforce, export potential etc. should be analyzed to set the objectives. The specific objectives of this internship report will be:

1. To overview the PEB Sector of Bangladesh
2. To analyze the challenges & opportunities related raw materials in PEB Sector of Bangladesh
3. To analyze the manufacturing challenges & opportunities in PEB Sector of Bangladesh

4. Scope of the Report

This study will cover few local companies and one foreign company.

- Bangladesh Building Systems Ltd.
- McDonald Steel Building Products Ltd.
- Modern Structures Ltd.
- PEB Steel Alliance Ltd.
- Sarker Steel Ltd.
- Buildtrade Engineering Ltd.
- PEB Steel Alliance Ltd.
- Quantam Builders & Engineering Ltd.
- SteelMarks Buildings Ltd.
- Composite Steel Structures Ltd.
- Zamil Steel, KSA

5. Rationale of the Report :

The growth of Bangladesh PEB sector is evident both in local and in international market. PEB industry is very highly correlated with macro-economic performance. When the disposable income increases, the demand for steel building grows as well. This has been manifested through the industrial sector booming in Bangladesh as well as the increasing number of new entrants in the PEB production.

The micro and small firms are less efficient and need to upgrade skills and production techniques and technology. The medium are quite efficient by industry standards. However, they have less diversified product range and have to sell at lower margins. The larger firms are clearly the trendsetters of industry production and production processes, they have the capacity to export and respond quickly to changes in taste of domestic customers. Further analysis of the drivers of profitability indicates that diversity in the product variant mix and the input-mix are key factors.

Therefore, a broader marketing strategy, import of new steel processing machinery, financial feasibility analysis and matching production strategy should be drafted for individual companies. These initiatives will ultimately be effective in driving sales, providing value-added services and profitability performances.

6. Methodology of the Report

Some systematic steps will be followed for the completion of this report. Proposed methodology of this report is given below:

Step 1 : Identification and definition of the problem

Step 2 : Literature review

Step 3 : Data collection

The paper will be written on the basis of information collected from primary and secondary sources.

(i) Primary Data:

Primary data will be collected by surveying of the companies and in depth interview with the organizations' officials and top management.

(ii) Secondary Data:

For the completion of the present study, secondary data will be collected. The main sources of secondary data will be:

- Brochures, manuals and publications of the organization
- Websites and journal
- Data from published reports of various organizations
- Different Books, Journals, Periodicals, News Papers etc.

Step 4 : Data preparation and analysis

There will be both quantitative and qualitative data analysis. The quantitative data will be analyzed through Microsoft excel software and other statistical software if deemed to be necessary. The qualitative data analysis will be performed through thematic technique.

Step 5 : Draft report preparation

Step 6 : Final report and defense

Two reports will be submitted on this research work: Draft report and Final report. Draft report will contain all the necessary data analysis and finding on the research. After having feedback from the course instructor, the edited final report with conclusion will be submitted within few days of draft report.

7. Limitations of the Report

1. The companies are mainly private limited companies. The information provided by them cannot be verified by a third party.
2. Lack of Human Resource.
3. The forecasted growth pattern and turnovers may deviate significantly due to future domestic and global economic conditions.

8. Industry Overview:

Popularity of pre-engineered or prefabricated building is increasing in our country gradually. Different industrial organizations are involved in developing prefabricated building. Even the hospital authorities are using this type of steel building. Eventually steel building is becoming a new industrial sector commercially. The development of steel building has been started in our country since 1985. In the very beginning different structures and materials of such building were imported separately and assembled here in our country to make the buildings. However from 2001 local entrepreneurs have started making steel buildings in our country and in addition to that these buildings are exported these days. Nevertheless import or export of such building refers to the import or export of the structures and the materials of the building.

Per capita use of steel is a vital factor to understand the progress of a countries economy just the way per capita income is a significant indicator of a countries economic condition. In the developed countries for instance in America, in Canada, in Japan, in Germany and in Korea, per capita steel use rate is 500~700 Kg while in the rapid development countries like in India it is 59 kg, in China it is 460

kg and 123 kg in Brazil. The per capita steel use in the world is 215 kg where it is 240 kg in Asia and 40 kg in Bangladesh. From the evidence it is noticeable that Bangladesh has a poor per capita use of steel in comparison to the developed, developing and even neighbor country India.

The ratio of steel use in different sectors in a country is usually like as given below:

- Construction industry 27%,
- Structural Steel work 11%,
- Mechanical engineering 14%,
- Automotive 16%,
- Domestic appliances 4%,
- Ship building 1%,
- Tubes product 12%,
- Metal product 12% and
- Others 3%.

Basically because of ship building construction and prefabricated steel building industry the use of steel in Bangladesh has risen to a limit in last 10 years. Both of the industries are new in Bangladesh which started to flourish since 2001. By nature both the industries require good labor and as a result Bangladesh is in an advantageous position in comparison to other countries. Both of the industries are raw materials dependent and 70% of the raw materials are produced by India, Korea, Japan and China. All of the mentioned countries are geographically in neighborhood to Bangladesh which provides some additional facilities.

In the industrialization infrastructure and communication sector of our country steel buildings has added a new dimension. In our country prefabricated steel structure is being used in different kind of structural establishment. For instance this structure or building is in use in 98% industrial organization, multi-storied garments building, commercial building, office building, residential building, power station, flyover, and bailey bridge.

Apart from rapid industrialization there is no other alternative of rapid progress in an over populated country like ours which has agriculture based economy. Rapid industrialization requires sustainable establishment within the shortest possible time. In the prefabricated steel structure construction, the pillars (columns), beam and steel plate and sheets are produced which later on is assembled in the site to establish a building. Use of prefabricated steel structure/ building can only help construct establishment with the use of least money and time maintaining the best quality. Moreover prefabricated steel structure/ building can be replaced and renovated easily, it has very good resell value and most importantly is has less probability of collapsing due to earthquake or other accident.

Nevertheless thousands of people lost life because of RCC made establishment like Rana Plaza, Spectrum Garments etc getting collapsed due to construction errors. There is hardly any chance of collapse in the case of prefabricated steel structure/ building. Buildings constructed with prefabricated steel structure can be damaged or bended because of the ductility of steel material, earthquake or any other accident and reason like construction errors but they never collapse suddenly like those RCC constructed ones. As a result there is a chance to rescue life and asset meanwhile and thus no life is at stake. Only the use of prefabricated steel structure to establish building can be a safe and permanent solution to the problem that rose in the field of RMG industry, the biggest export sector of our country, after Rana Plaza being collapsed back in 2013. There has been an image crisis in the national and international market which is the result of lack in safe and sustainable establishment in garments sector and prefabricated steel structure/ building is a good remedy to overcome the crisis. Again it takes only one fourth of the construction time of

the regular RCC ones. There is no need to place columns that blockade the space, closely to support the load and thus there is enough space to situate the heavy machineries. The scrap that is the structure can be later on sold if not needed anymore.

In our country prefabricated steel structure/ building used to be imported before 2003. For the first time in 2003 industries that can manufacture prefabricated steel structure/ building developed and eventually in last 12 years the number of such industry raised up to 70. Now 3,000 engineers, 100,000 direct laborer and 100,000 indirect laborer is engaged in this sector. Factories that manufacture prefabricated steel structure/ building are mostly situated in Gazipur, Narayanganj, Cumilla, Pabna, Kushtia, Bogura, Chattagram, Manikganj and Savar. A very special aspect of this sector is that it has a high demand of skilled human resource like engineers, welder, fitter, fabricator and skilled and trained human resources from this sector can get high salary job facility in abroad. The amount of investment in this sector has reached 1000 thousand crore Bangladeshi taka. Against the demand of Pre-Fabricated Steel Structure/Building of a value of 2500 crore taka, the production rate is of a value of 3000 crore Bangladeshi taka which subsequently leading the sector opening the door of Export after fulfilling the local demand. In last 5 years there has been successful export of Pre-Fabricated Steel Structure/Building of 5 million dollar to India, Pakistan, Myanmar, Abu Dhabi, Sudan, Rumania etc. Being a labor oriented industry the easy to get skilled human resources like engineers, welder, fitter, fabricator has established Bangladesh as a strong competitor in the export of pre-fabricated steel structure/ building. Internationally the value of the raw material of prefabricated steel structure/ building is 600-700 us dollar per ton whereas the manufactured product costs 2000-2500 us dollar per ton. So value addition of this sector is much higher than to those of the garments and ship manufacturing industries and thus this industry has a good future from the perspective of Bangladesh.

Steel hot rolled coil, steel color coated coil, galvanized coil etc are the main ingredients of prefabricated steel structure/ building industry and the raw materials of this sector is mainly import dependent.

Pre-Fabricated Steel Structure/Building industry are facing a dual problem now. According to the import agendas of Bangladesh the raw material import of an industrial organization should at minimum tax that is 5 %. However the raw materials of this sector is imported at 10% tax as semi finished product and 25% tax as finished goods. On the other hand even though there is extra production of Pre-Fabricated Steel Structure/Building against the local demand still finished Pre-Fabricated Steel Structure/Building are imported under HS code 9406 at a tax rate of 2% which is contradictory to the import regulation. As a result the country is being deprived of import revenue of hundred crores of taka and again the local industries are getting in competition despite of being equal.

9. Association's Overview:

Steel Building Manufacturers Association of Bangladesh (SBMA) members started its formal operation with most experienced and self-recognized professionals by each member of its top management. SBMA is having more than 07 Years of Quality Metal Construction Experience. SBMA is being backed up by a team of quality Professionals working for last many years in the Metal Roofing, Cladding and Pre-Engineering Metal Building Industry.

SBMA is pleased to introduce itself as one of the organization doing complete solutions of design, manufacture, supply and installation of Modern color coated steel Roofing, Wall Cladding and Pre-Engineered total Building Systems.

Steel Building Manufacturers Association of Bangladesh (SBMA) members have the ability to fabricate small, medium and large scale orders for steel building products. It serves in the following fields of industries: Ceramics, Warehouse, Garments, Knit Dyeing, Chemicals, Textiles, Spinning, Poultry, and Feed mills, Food and Beverage, Furniture's, Parking sheds and multistoried commercial buildings and many more.

Mission:

- Steel Building Manufacturers Association of Bangladesh (SBMA) members shall be committed to total customer satisfaction by under promising and over delivering.
- SBMA shall give cost-effective solutions by the use of latest software and technologies.
- SBMA will be a Leading Globally Competitive Company in the field of Pre-Engineered Steel Structures and Buildings.
- SBMA shall adhere to the highest ethical business practices.
- SBMA shall encourage continuous learning of the latest technology and systems.
- SBMA shall continuously invest in upgrading machines and design process for maximizing safety and material utilization and minimizing defects.
- SBMA shall never compromise on quality and safety.

Vision:

- Steel Building Manufacturers Association of Bangladesh (SBMA) members shall foster an innovative environment constantly creating value and attaining benchmarks in the steel building Industry.
- This will be accomplished through product Perfection, engineering Excellence, the Best customer Services and Best relationship with customers in the industry.

Why SBMA ??

Consistent Product Quality
ZINCALUME & COLORBOND steel as ingredient material for roofing and wall cladding application.

Comprehensive Material Package
Complete building shell Accessories
Cost Competitiveness
Single source responsibility
Reduced manpower and requirement needs

Design Flexibility
Less time-consuming

Flexibility
Design layout based upon process requirements

Architectural flexibility
highly adaptable for future expansion (during specification and erection)

Engineering Capabilities
From concept to final design
fully staffed engineering team

Manufacturing Capabilities
Product flexibility
Reduced Time frame

Erection Capabilities
Builder network including fully trained erectors.
Knowledge of local codes
Knowledge of local construction methods

Transportation Capabilities
Dedicated transportation specialist for timely delivery.

Strength of SBMA:

Professional Sales & Customer Service:

Customer oriented Sales Engineers are always at hand to attend to any queries with the utmost attention to details. The highly professional Customer Service Department minutely looks into each project to offer the most economical solution to clients' need. Proposals generated by SBMA member's Sales & Customer Service Team fulfill customer requirements, as a truly professional offer is generated that not only contains competitive pricing but also includes detailed drawings so that customers get a true picture of the proposal for assessment at their end.

Expertise in Engineering:

SBMA members have a lot of qualified and professional engineers who have had years of experience in the construction business of the country.

Excellence in Co-ordination and Team work:

The Project Department ensures that smooth co-ordination is achieved between Sales, Engineering, Production Departments and customers. The co-ordination is done on a daily basis and starts from the point of sales till conclusion of building erection. This coordinated effort helps in smooth running of projects and keeping customers updated on the progress of their construction work.

10. Analysis and Findings:

10.1 Opportunities and Challenges related to raw materials:

According to the overview of the PEB Sector of Bangladesh and the response from the representatives of the companies as participants of the questionnaire there are several significant opportunities accompanied by many challenges related to import, raw materials, manufacturing and other issues.

10.1.a : Import Related opportunities and Challenges:

To begin with there are some Import Challenges which includes high customs duty that results in Industrial Benefit Loosing. In addition to that the representatives of the companies say that there is no business friendly policy of industrialization. Industrial Market Challenges like foreign players getting huge discount of customs duty at EPZ area & bonded warehouse area and in case of purchasing direct building from abroad, clients getting almost fully free customs duty have also been found in the analysis.

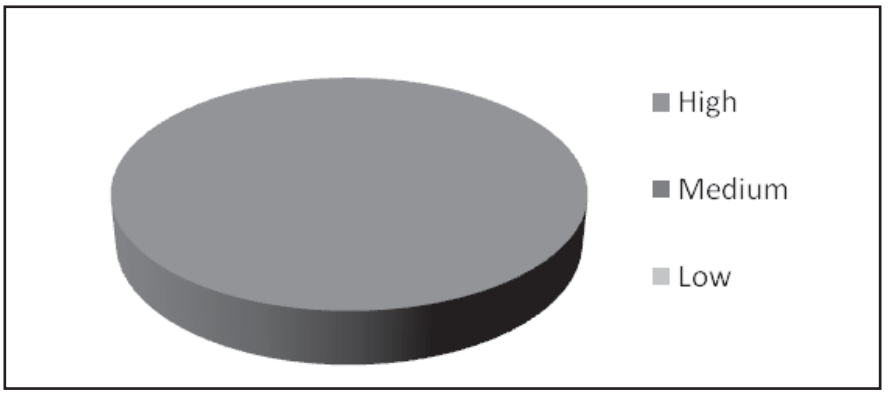
The respondents also pointed at some customs Hassle like Huge Speed Money and Delaying of time (time value loss). They have also mentioned that there is High Trade license fee and long lag time. Again because of third world country foreign suppliers are cheating with us to some extent. I addition to that for Pre shipment inspection (psi) importers have to pay 1% of total contract value for it and there is usually a long lag time and the supplier's power moderate is another challenge in import.

On the contrary there are some opportunities in this sector and the first and foremost opportunity is wide market all over the world. Moreover it is easy to communicate because of technological advances and as well as easy to compare the prices between different suppliers

A brief analysis of the data collected from both primary and secondary sources is given below.

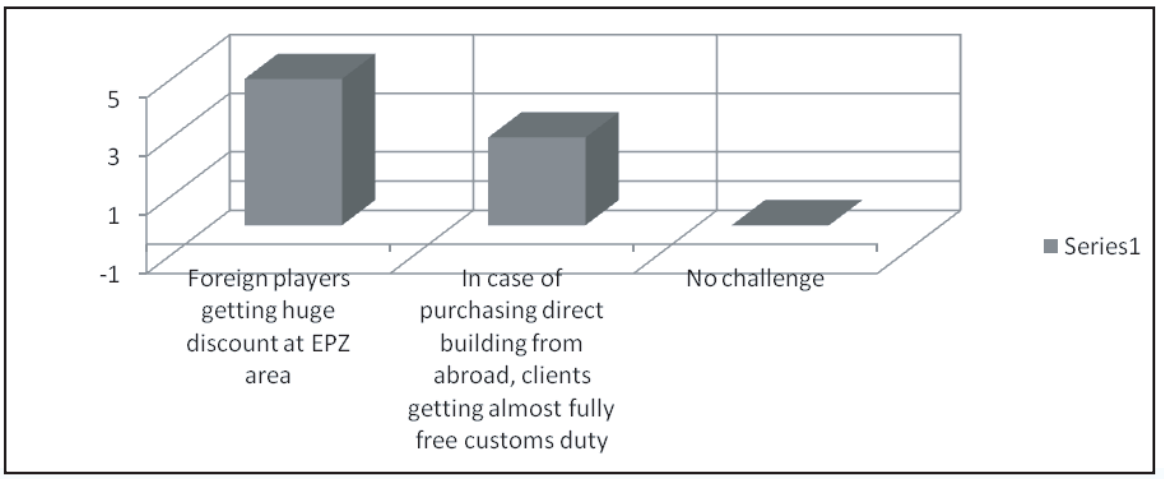
Custom Duty:

Customs Duty is high in importing raw materials for prefabricated steel structure/ building. All of the companies' representatives have common response in this regard.



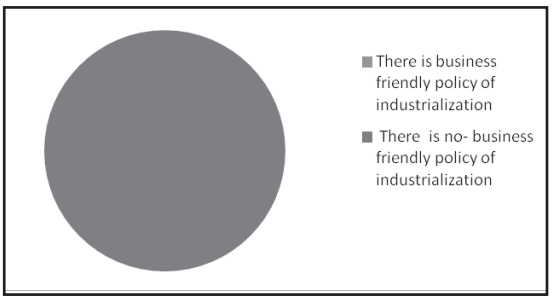
Industrial Market Challenges:

None of the company representatives said that there is no Industrial Market Challenges. The Industrial Market Challenges includes foreign players are getting huge discount of customs duty at EPZ area and in case of purchasing direct building from abroad, clients are getting almost fully free customs duty. The response of the company representatives are as showed in the graph.



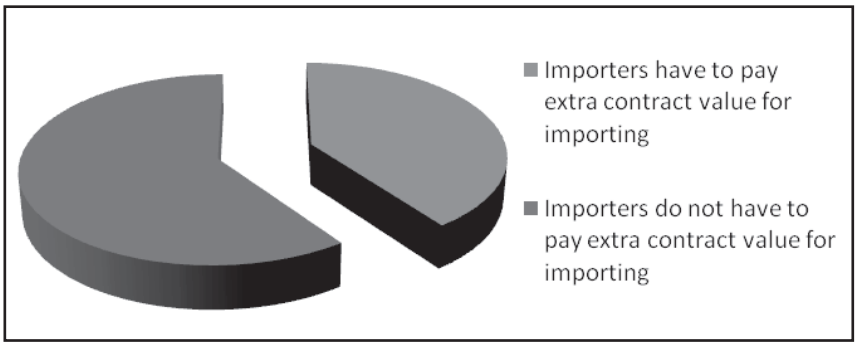
Availability of business friendly policy of industrialization:

None of the companies' response shows that there is business friendly policy of industrialization



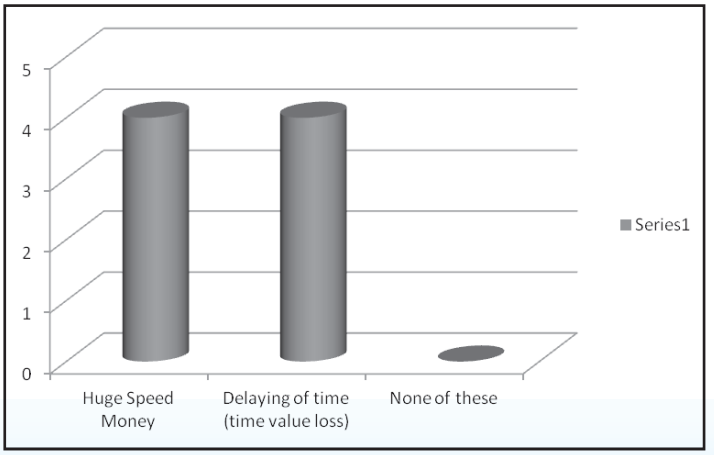
Extra contract value for importing:

Paying extra contract value for importing in pre shipment inspection (psi) is another challenge found from the overview of prefabricated steel structure/ building industry. The company representatives were asked whether they have to pay extra contract value for importing in pre shipment inspection (psi) or not and he response is as below.



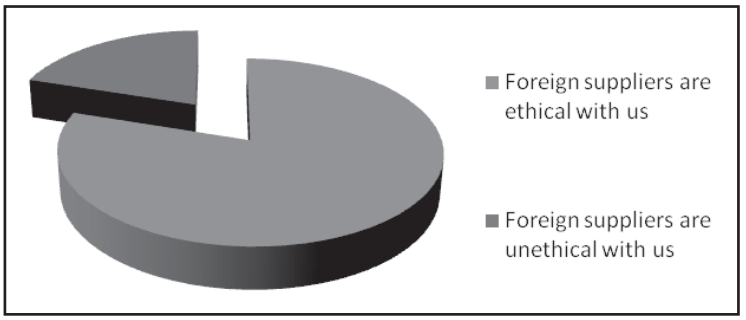
Custom Hassel Faced by Companies:

According to the overview of the industry the customs hassles available in prefabricated steel structure/ building industry are Huge Speed Money and Delaying of time which results in time value loss. The response from the company representative shows there is no chance of not having such hassles. The graph shows the response:



Attitude of Foreign Suppliers towards Bangladesh as a third world country:

Because of being a third world country foreign suppliers are to some extent unethical with us as found from both the overview and collected data. The data analysis shows:

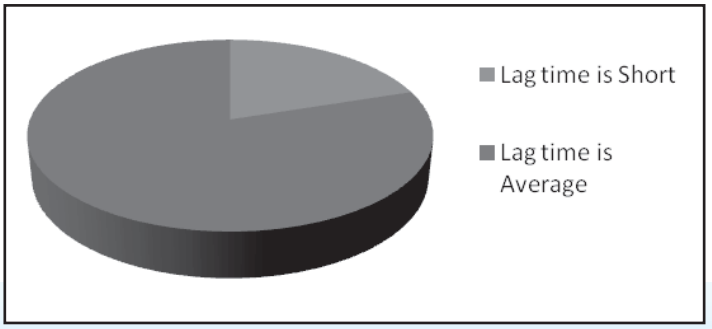


Supplier's power issues:

Analysis of the collected data from the company representative shows that 20% of the companies have perceived the supplier's power to be high while rest of them says that it is medium and in contrary none of them has a belief that the supplier's power is low. Thus supplier's power issue is neither a vital challenge nor an opportunity for this sector since supplier's power is moderate.

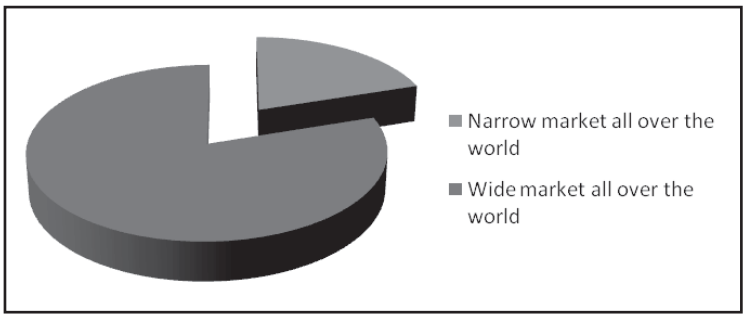
Lag Time:

Lag time is considered as to be one of the vital challenges in import of raw materials in prefabricated steel structure/ building industry. The overview says that lag time is considerably longer than expectation and the analysis of collected data shows that it is not long rather it is average and 20% of the sample companies say that it is short.



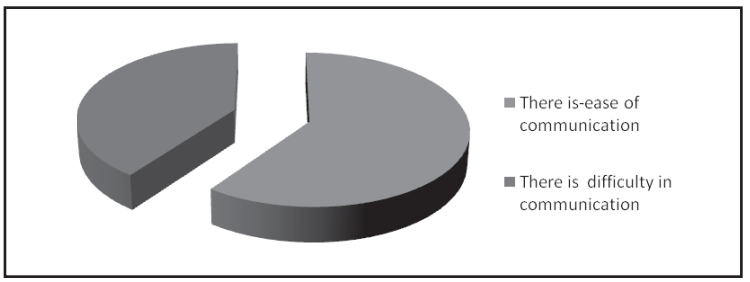
World Wide Range of Market :

Considering the international market the pre fabricated steel structure/ building industry is having a wide market all over the world and it has been found from both the overview and company responses though 20% of the sample company representative refers this to have a narrow market. It is undoubtedly the strongest to be industry in the upcoming decade and thus Bangladesh as a good future in this sector having plenty of raw materials and skilled human resource as capital.



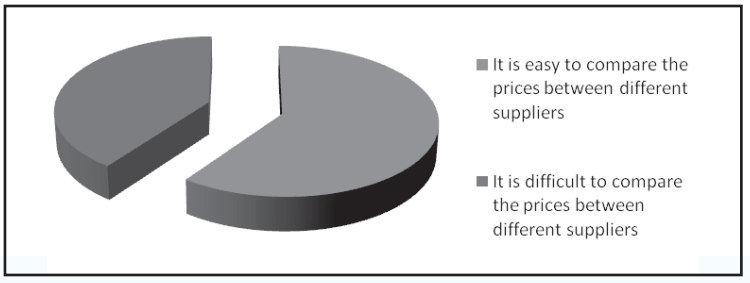
Communication with Suppliers :

Because of technological advancement it is expected that there is ease of communication comparing the status when the pre fabricated steel structure/ building industry started flourishing back in 2001. However there is still difficulty in communication with suppliers may be because of language or medium barriers. The collected data shows that 2/5th of the company says that there is no ease of communication.



Facilities to compare the prices between different suppliers :

Again bearing in mind the advancement of technology towards making the world a global village it is assumed that it is easy to compare the prices between different suppliers even though 2/5th of the company says that there is a difficulty to compare the prices between different suppliers.

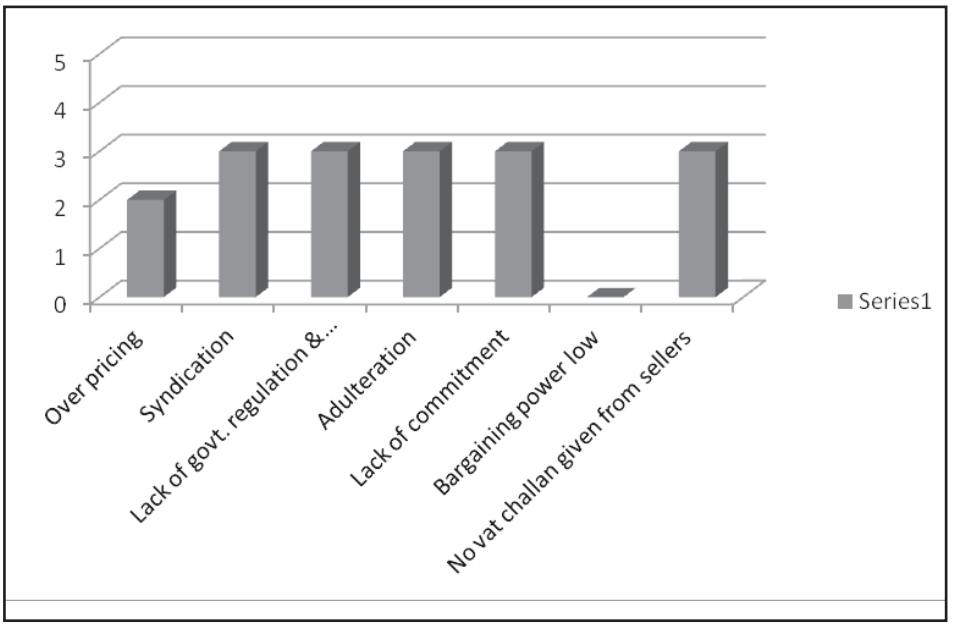


11.1.b : Local purchase challenges:

Compared to other types of structures, steel buildings are versatile and economical. However, steel buildings can be a difficult purchase because of the many styles and variations. While steel buildings being mostly used in commercial and industrial areas today steel buildings offer cost-effective and versatile solutions to storage and even work requirements. There are unlimited choices to create innovative designs to meet the aesthetic and practical requirements.

In spite of the Pre-Fabricated Steel Structure/Building industry of Bangladesh being partially dependent on the local raw material there are issues related to local purchase. Some of the variables are opportunities for the industry itself whereas some are considered to be challenges. From the industry overview it has been found that there are challenges like-Over pricing, Syndication, Lack of govt. regulation & monitoring in this sector. In addition to that there are other barriers like adulteration being very high which includes both Adulteration in weight and Adulteration in packing. There is also lack of commitment from the sellers and again there is another issue that no VAT Challan given from them which results in hassle by police/Customs Intelligence personnel in the transportation time and eventually time loss. Moreover the buyers have low bargaining power though there are some opportunities available in this sector identified and recognized from the overview. For instance there are opportunities like available credit facilities availability of materials is high and local purchase is time saving compared to import.

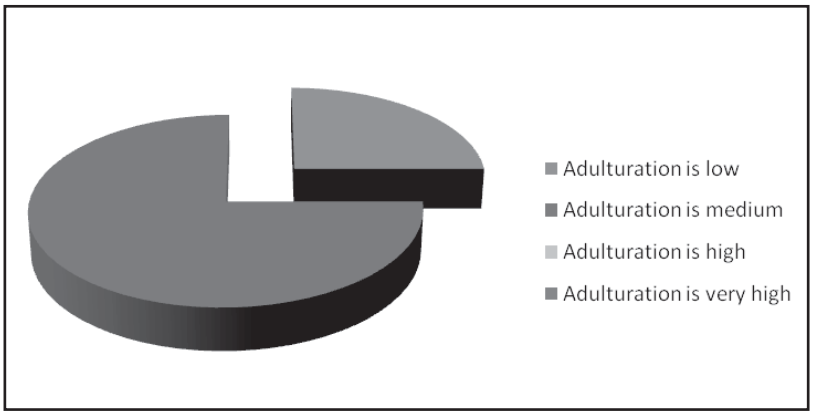
The Local purchase related challenges and opportunities identified by the companies in the collected are showed in the graph.



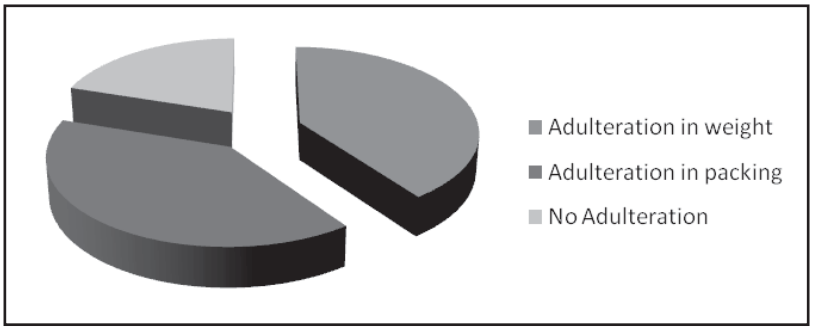
One of the sample company representatives identified some other challenges like unethical practice with the purchase people (buyers) and higher price in local purchase in comparison to importing materials.

Adulteration :

There is adulteration in local purchase claims 80% of the 4/5th of the company representatives. Adulteration is low according to 1/5th of the company representatives and it is medium says 3/5th of the company representatives while 1/5th of the company representatives claims that there is no adulteration.

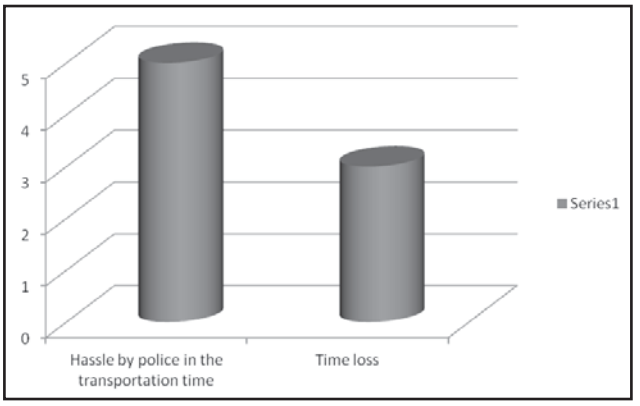


When the company representatives were asked to give opinion about what kind of adulteration is (if there is any) there, their response was as showed in the graph:



No VAT Challan is given from the sellers :

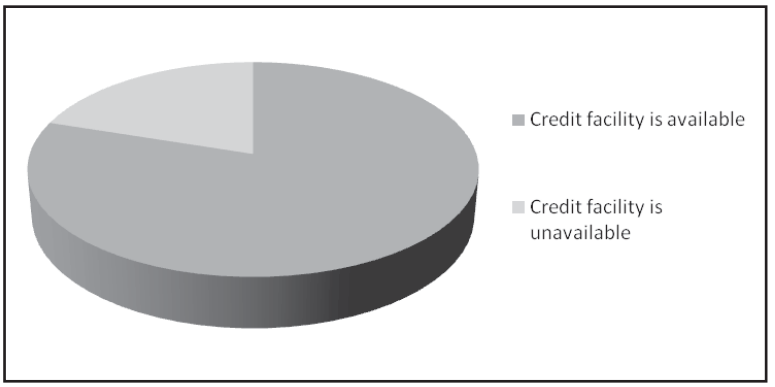
The companies' representatives responded to the query that if No VAT Challan is given from the sellers what kind of problems do arises and their response was as shown in the graph:



One of the company representatives identified other two challenges as hassles which includes Vat Rivet Gain Loss and low availability of size and grade.

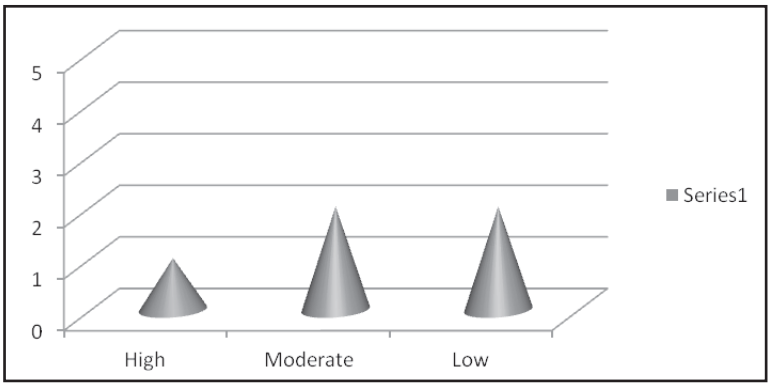
Credit facilities

Credit facilities in local purchase is available as found from the overview but in the collected primary data it has been found that 1/5th of the sample says that credit facility is unavailable.



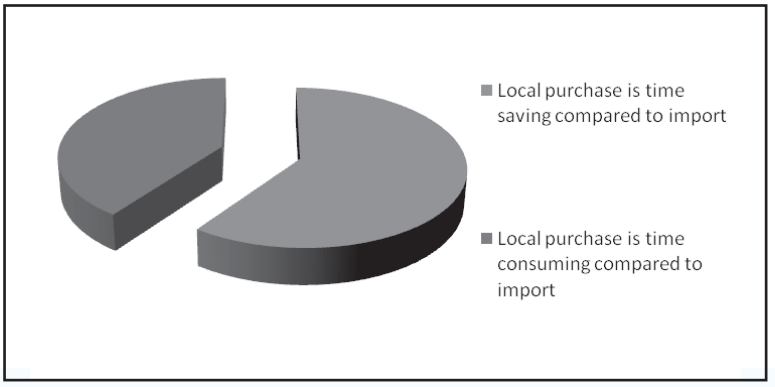
Availability of raw materials in local purchase:

Availability of raw materials in local purchase is high as found from the overview. However the primary data shows something different as given below:



Time Consumption

Local purchase is time saving compared to import as found in the overview as well as in the primary data though 2/5th of the sample company representative opted this to be more time consuming.



10.2 Challenges related to manufacturing:

For the first time in 2001 industries that can manufacture Pre-Fabricated Steel Structure/Building developed and eventually in last 12 years the number of such industry raised up to 70. Now 3000 engineers, 10000 direct laborer and 100000 indirect laborer is engaged in this sector. Factories that manufacture Pre-Fabricated Steel Structure/Building are mostly situated in Gazipur, Narayanganj, Cumilla, Chattagram, Manikganj, Kushtia, Pabna, Narshindi, and Savar.

A steel building is a metal structure fabricated with steel for the internal support and for exterior cladding, as opposed to steel framed buildings which generally use other materials for floors, walls, and external envelope. Steel buildings are used for a variety of purposes including storage, work spaces and living accommodation. They are classified into specific types depending on how they are used. Steel provides several advantages over other building materials, such as wood as Steel is a "green" product; it is structurally sound and manufactured to strict specifications and tolerances. It is also energy efficient. Any excess material is 100% recyclable. Steel does not easily warp, buckle, twist or bend, and is therefore easy to modify and offers design flexibility. Steel is also easy to install, cost effective and rarely fluctuates in price. Moreover steel allows for improved quality of construction and less maintenance, while offering improved safety and resistance. With the propagation of mold and mildew in residential buildings, using steel minimizes these infestations. Mold needs moist, porous material to grow. Steel studs do not have those problems. However there is nothing completely free from drawback.

There are some challenges and opportunities regarding the manufacturing of pre fabricated steel structure/ building industry of Bangladesh as found from the overview. There is a utility challenge that includes challenges with Electricity, Gas, Carbon dioxide, Argon Gas, LP Gas, Oxygen, Diesel, and Octane. In addition to that there is Lack of govt. support, supply shortage and challenges possessed by high price. Moreover there are other issues like lack of supply chain management and problems like the pre fabricated steel structure/ building industry of Bangladesh being mainly mechanical based (crane) and there is lack of technical person.

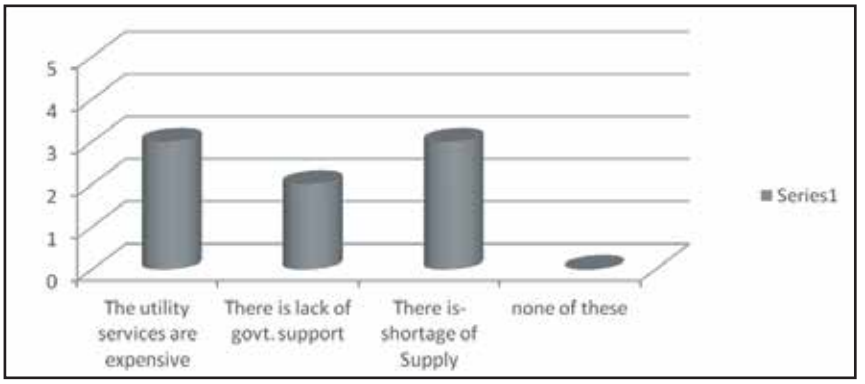
Apart from the mentioned issues there are other challenges like insufficient fund and Insufficient Bank Support which is creating heavy impact on cost of production and thus cost of production is increasing. Again the maintenance is costly & tough and there is local extortion and also time killing due to political turmoil.

In contrast to that there are several opportunities including huge Market Size, availability of good number of labors who are skilled and trained to some extent. Again more than 90% industrial buildings are done by steel structures and it is a rising economy (highly related to GDP growth). Moreover the raw materials needed for pre fabricated steel structure/ building industry of Bangladesh is available both in local & international market.

The chart and the graphs which are given below shows the findings from the primary data collected from the sample company representatives.

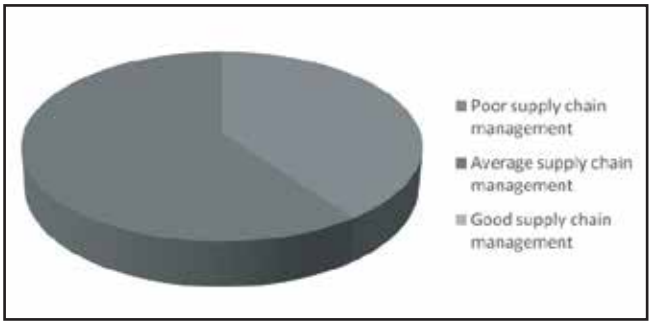
Utility service related in Manufacturing

There are challenges like the utility services are of- high price, There is lack of govt. support in manufacturing and there is-shortage of supply in manufacturing prefabricated steel structure/ building industry of Bangladesh.



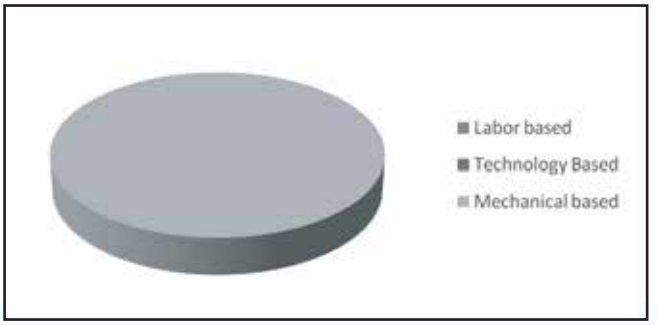
Supply chain management in Manufacturing:

As found from the primary data there is no good supply management in manufacturing in prefabricated steel structure/ building industry of Bangladesh.



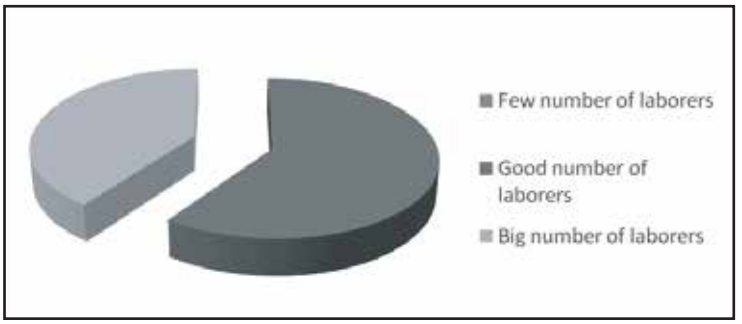
Manufacturing is mainly Labor based/ Technology based/Mechanical based

Now 3000 engineers, 100000 direct laborer and 100000 indirect laborer is engaged in factories that manufacture prefabricated steel structure/ building. Because of the availability of good number of human resource in this sector it is expected to be more dependent on labor. However the sector is highly mechanical based as shown in the chart:



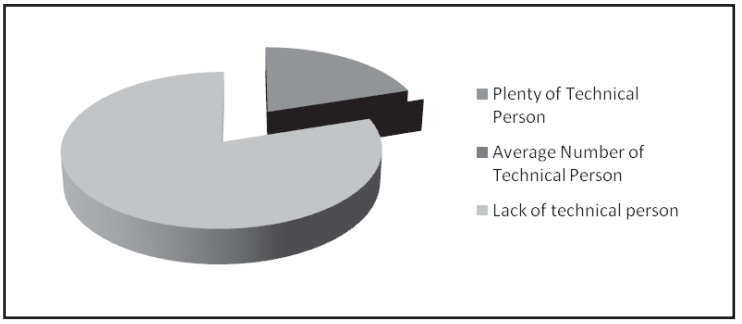
Number of laborers involved in manufacturing:

There is good number of laborers involved in manufacturing in Pre-Fabricated Steel Structure/Building industry of Bangladesh.



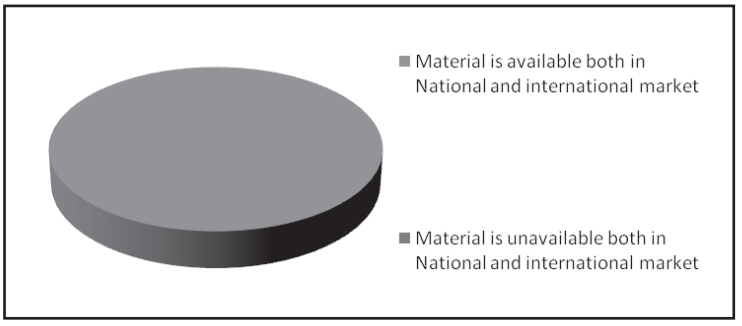
Technical person in manufacturing

There is lack of technical person in manufacturing in Pre-Fabricated Steel Structure/Building industry of Bangladesh as found from the primary data.



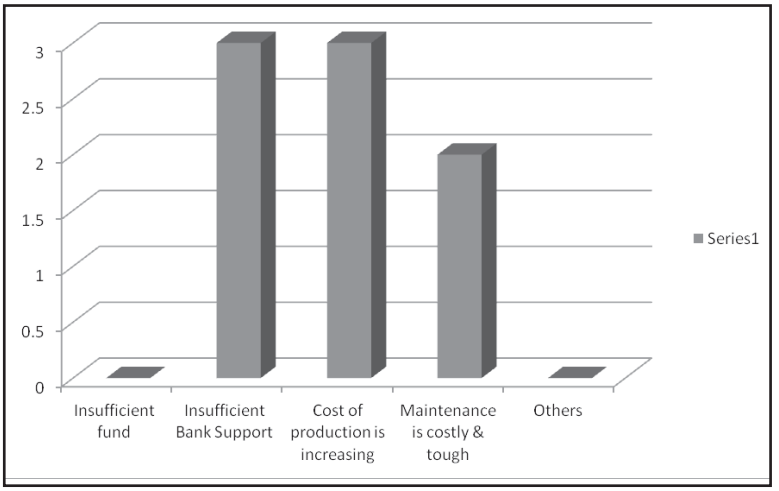
Availability of Materials

Material is available both in local & international market for manufacturing in Pre-Fabricated Steel Structure/Building industry as chosen by all the sample company representatives.



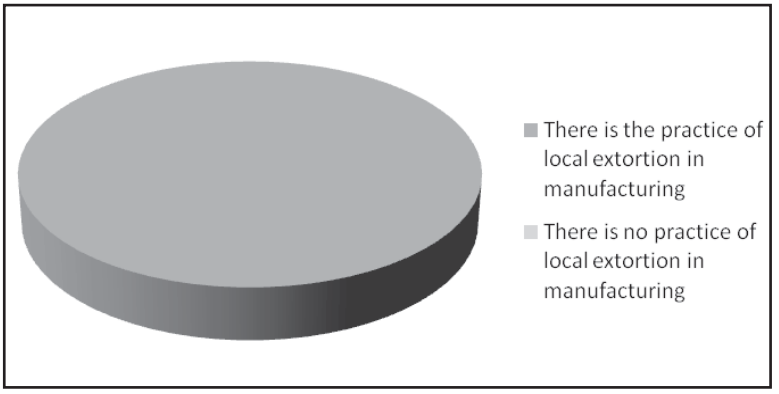
Financial Challenges in Manufacturing

The following financial challenges are there in manufacturing as picked by the representatives of companies in Pre-Fabricated Steel Structure/Building industry of Bangladesh: insufficient fund, insufficient bank support, increasing cost of production and costly & tough maintenance. The graph shows the data collected from the company representatives:



Local Extortion in Manufacturing

There is the practice of local extortion in manufacturing in Pre-Fabricated Steel Structure/Building industry of Bangladesh as found from the primary data.



10.3 Other Challenges and Opportunities:

Apart from the opportunities and challenges related to import and local purchase of raw material, manufacturing there are some other opportunities and challenges existing in the PEB sector or industry of Bangladesh. There have been local challenges like land acquisition challenge, construction challenge, practice of extortion etc. There have also been issues related to finance for instance low market price like sometimes below cost of goods is sold and as a result companies have to go for the tax evasion policy. Again interest rate is high and there is also collection delay and interest loss.

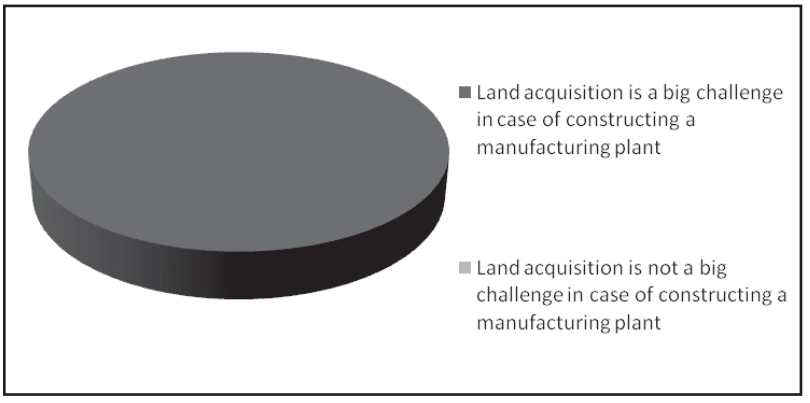
Even though steel components may not be low in price, building houses or buildings with steel significantly decreases overall construction costs. As steel is prefabricated, there is no wastage onsite. Erecting steel buildings requires fewer laborers. This results in decreased labor costs. There are no hidden costs and constructional delays. Both the construction process and maintenance are easy with steel.

Another advantage of steel buildings is the speed at which the construction of PEB industries is completed faster. Unlike traditional construction materials which require months to build, steel components are pre-engineered and pre-fabricated with pre-punched holes and anchor-bolts in place. Fixing and erecting a steel building is quick and easy for an experienced contractor. Assembly drawings and step-by-step erection guides enable you to understand the process and complete it easily.

Moreover when compared with other building construction materials, steel has a larger heaviness ratio. Still, it weighs less than timber, making it easier to carry. Steel can withstand hurricanes, earthquakes, and strong winds, owing to its high ductility. Steel doesn't rotate, buckle, distort or divide. Thus, it is extremely durable and provides more value for construction.

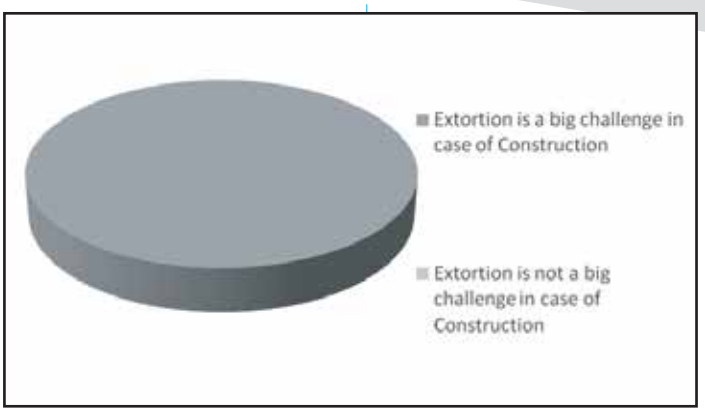
Land acquisition:

Land acquisition is a big challenge in case of constructing a manufacturing plant as found from the overview of the industry. All the company representatives of PEB industry, Bangladesh have opted that it is a big challenge.



Extortion in case of Construction

Extortion is a big challenge in case of Construction as found from both the overview and collected primary data. Corruption in the construction sector has major consequences on urbanization patterns, as shown by a 2007 report by Transparency International exposing corrupt practices in RAJUK, the authority in charge of preparing land use plan and implementation, of controlling the development and managing the growth of Dhaka city. The report shows that corruption is present from the planning permission stage all the way to the final construction, through bribery or abuse of power. As a result, the report indicates that Dhaka has become an overcrowded, unplanned, polluted mega city (Transparency International Bangladesh, 2007). In 2012, Bangladesh witnessed a major corruption scandal in the construction industry. However extortion has been a vital barrier in the progress of the PEB Industry in Bangladesh.



The Necessity of Bonded Warehouse:

A bonded warehouse, or bond, is building or other secured areas in which dutiable goods may be stored, manipulated, or undergo manufacturing operations without payment of duty. It may be managed by the state or by private enterprise. In the latter case a custom bond must be posted with the government. This system exists in all developed countries of the world.

Upon entry of goods into the warehouse, the importer and warehouse proprietor incur liability under a bond. This liability is generally cancelled when the goods are:

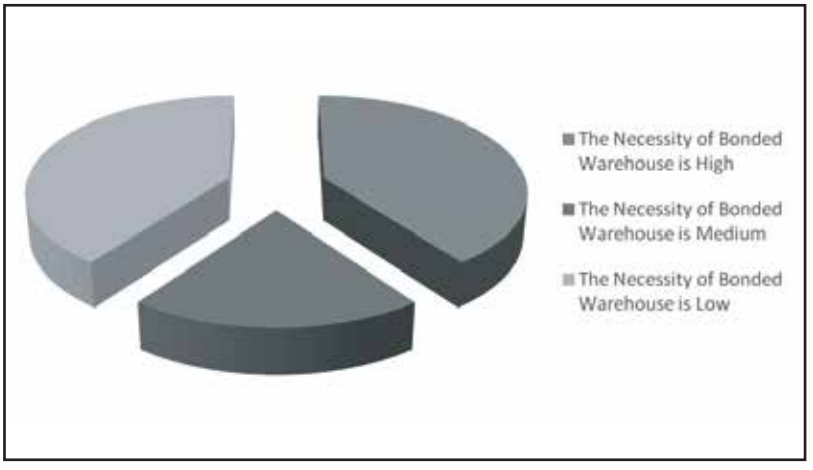
" Exported or deemed exported

" Withdrawn for supplies to a vessel or aircraft in international traffic

" Destroyed under Customs supervision; or

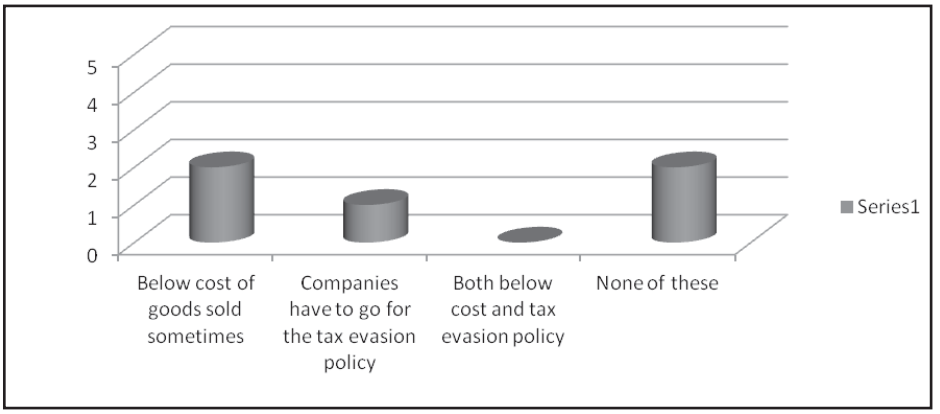
" Withdrawn for consumption domestically after payment of duty.

The necessity of bonded warehouse for this sector has been realized from the industry overview. Though raw materials are imported from abroad for PEB industry there should be Bonded Warehouse so that there is an appropriate transition of the imported product with proper vat, tax clearance. However the primary data analysis shows something different as given below:



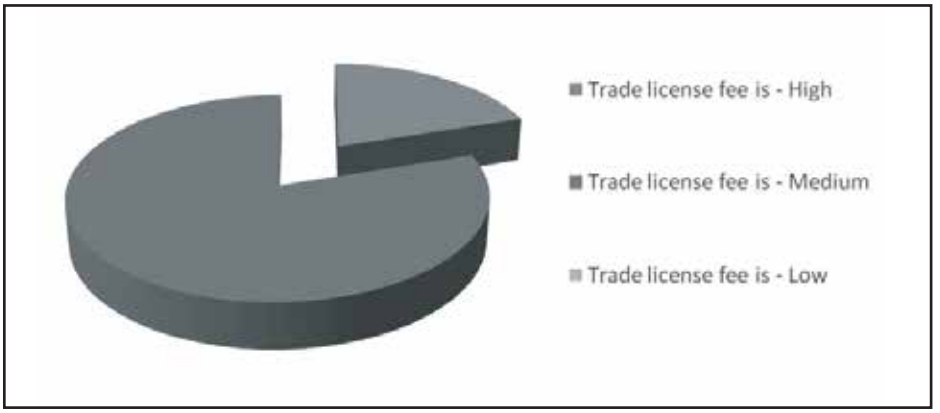
Effects of Low Market Price

Because of the Low market price sometimes there is below cost of goods sold and again companies have to go for the tax evasion policy. Though it has been found from the overview and 60% of the company representatives that there are such challenges in PEB industry of Bangladesh however 40% of the sample company representatives say that there are no such issues.



Trade License Fee

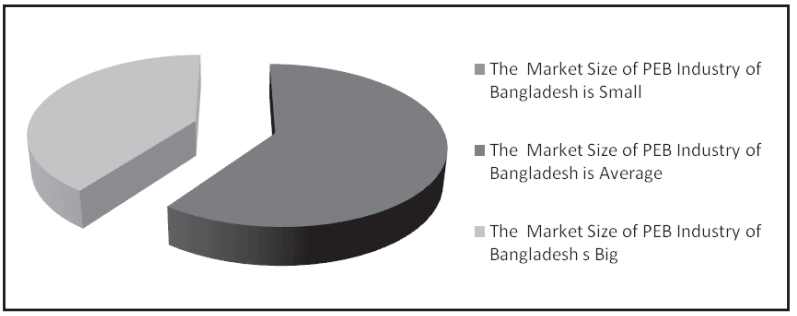
Trade license fee is another vital issue in the PEB industry of Bangladesh. None of the respondents of the sample company representatives says that there is no such challenge.



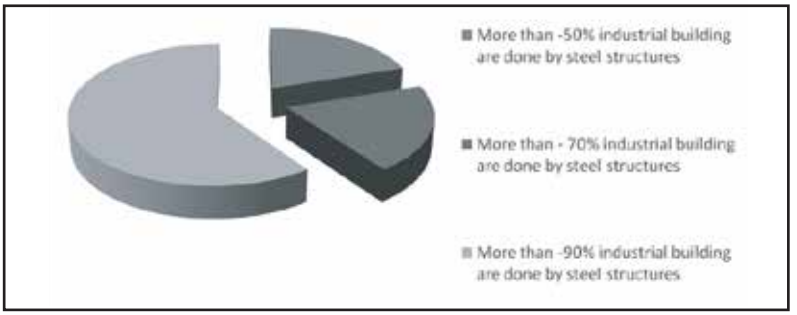
The Market Size of PEB Industry of Bangladesh

In structural engineering, a pre-engineered building (PEB) is designed by a PEB supplier or PEB manufacturer, to be fabricated using best suited inventory of raw materials available from all sources and manufacturing methods that can efficiently satisfy a wide range of structural and aesthetic design requirements. Within some geographic industry sectors these buildings are also called Pre-Engineered Metal Buildings (PEMB) or, as is becoming increasingly common due to the reduced amount of pre-engineering involved in custom computer-aided designs, simply Engineered Metal Buildings (EMB). This is one of the leading and most profitable industries of current world. In our country prefabricated steel structure/ building used to be imported before 2003. For the first time in 2003 industries that can manufacture prefabricated steel structure/

building developed and eventually in last 12 years the number of such industry raised up to 70 The market size of PEB industry of Bangladesh is quite large. The primary data analysis shows the result like:



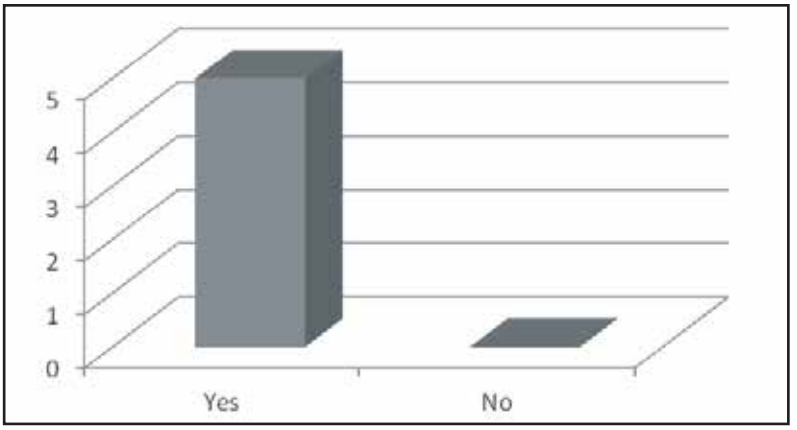
The data analysis also shows that at least more than 50%-70% and preferably more than 90% industrial building are done by steel structures.



Time Killing due to Political Turmoil in Manufacturing

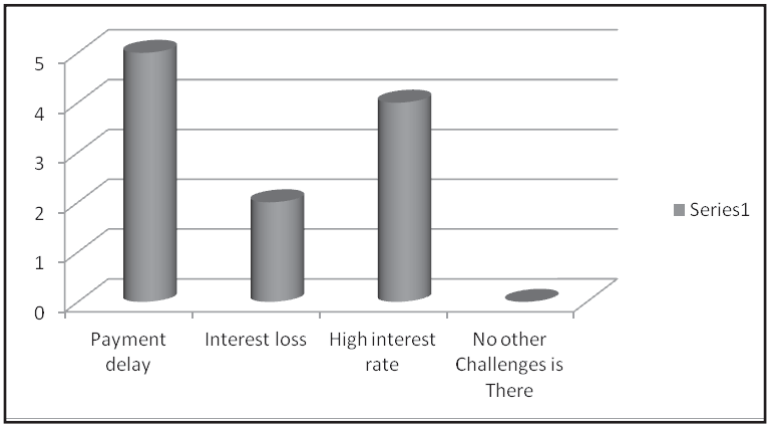
There is frequent incident of time killing due to political turmoil in manufacturing as found both from the primary and secondary data collected from different source.

The respondents were asked whether there is time killing due to political turmoil in manufacturing or not and their response is as given below:



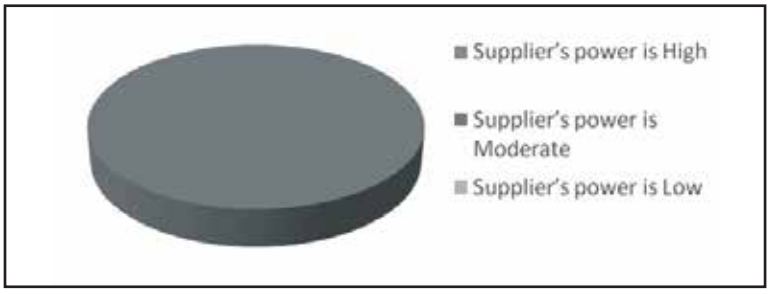
Other challenges

The respondents have also identified other challenges in the PEB industry of Bangladesh and their concern includes: Payment delay, Interest loss and High interest rate. Among the issues identified the latter one is considered to be the biggest challenge by some of the respondents and there is a suggestion that the interest rate is reduced down to single digit for the growth of PEB sector of Bangladesh.



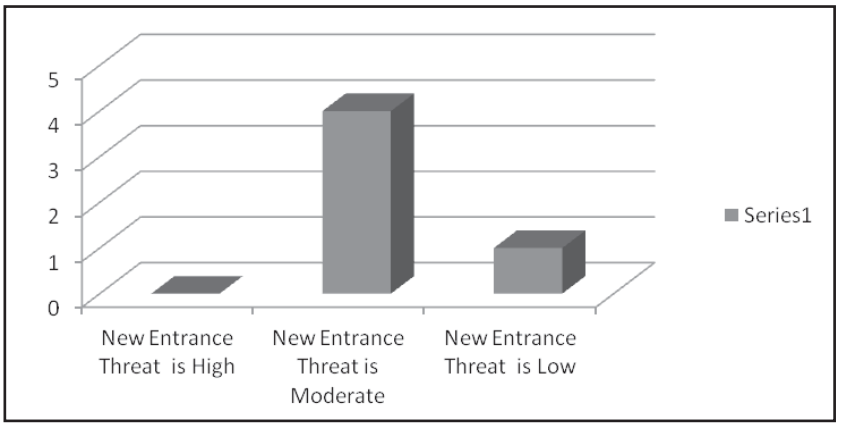
Buyer's Power and Supplier's Power

Buyer's power of this sector is either high or moderate but not low as selected by the respondents and it has been found to be mostly high in the overview. On the other hand the supplier's power is moderate as all the respondents opined that.



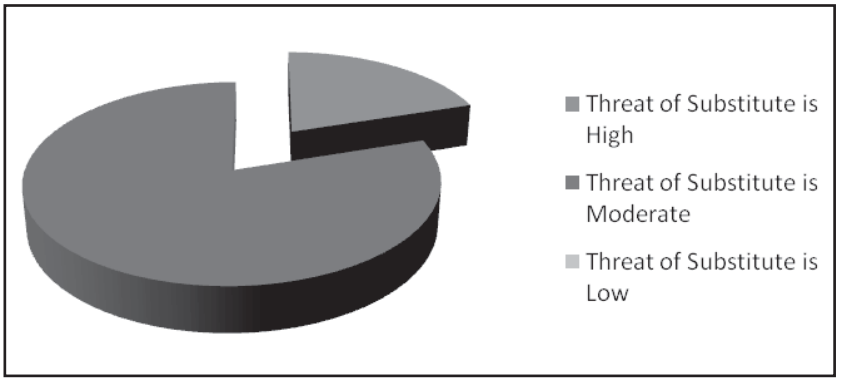
New Entrant and the substitute of the steel structure

Though the threat of New Entrant of this sector is not high but the primary data says that there is a moderate threat of new entrance.

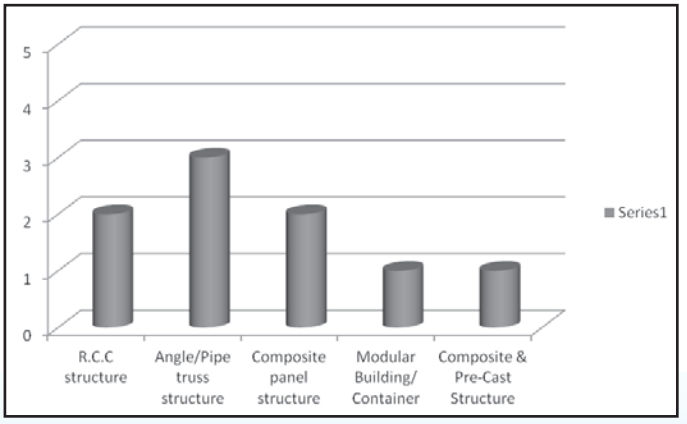


The substitute of the steel structure

The threat of substitute is mostly moderate though 20% of the sample company representative says that is high.

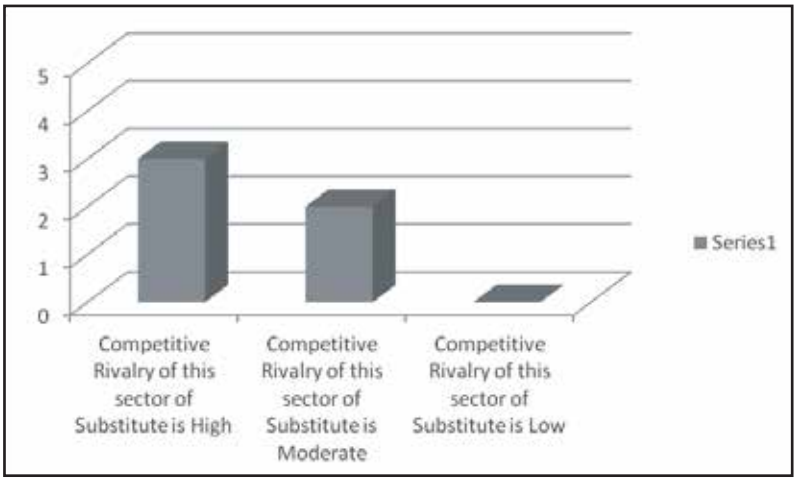


The substitutes of the steel structure are R.C.C structure, Angle/Pipe truss structure and Composite panel structure as discovered from the industry overview. In addition to that it has been found from the primary data that Modular Building/ Container and Composite & Pre-Cast Structure are the two other possible substitutes.



Competitive Rivalry of this sector

There exists competitive rivalry as found from the primary data and the level of this rivalry is not low rather it is more often high.



11. Recommendations:

- Both Government and private firms should work together for the reduction of taxes & duties on imported raw materials
- Implementing proper regulations by Govt. to keep an eye on the sellers practice of adulteration and escaping vat-challan in the local raw materials market of the pre-engineered building sector
- Establishing bonded warehouse for this sector
- Introducing special incentive package for the export of the finished Pre-Fabricated Steel Structure/Building
- Combining the import tax policy on the finished goods of Pre-Fabricated Steel Structure/Building (under HS code 9406)
- Revision and introduction of appropriate govt. rules & regulations for this sector are needed
- Reduction of bank interest rates
- Both govt. and private sector should work together to reach the steel consume rate of Bangladesh to 300 kg
- Arranging domestic & international investment for this sector
- Removing double taxation policy in case of imported raw materials
- Establishing a friendly business policy for this sector so that everyone can be benefited from the growth of this sector
- Law enforcement authorities should work properly to remove the practice of local extortion so that companies can work properly in different locations and can set up their factories smoothly.

12. Conclusions

Within the time period of twelve years this sector has gone through a long journey which started from complete dependence on import and reached a position where it becomes a strong export sector. It has been developed as an export sector only after fulfilling the local demand. Proper support from the government is the demand of time by this sector and the services expected from government stems from reduction of duty on raw materials, establishing bonded warehouse, and combining the import revenue on the finished goods of prefabricated steel building is the time demand. Eventually these will help this sector to reach the highest pick. So both companies & government should work jointly to overcome the challenges and pick the opportunities with a speedy pace. Thus this sector will contribute greatly to the overall economy and also to the rapid growth of our GDP.

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Appendix

Questionnaire

Information of the participant:

Name of the participant:

.....

Designation of the participant:

.....

Information of the Organization:

Name of the organization:

.....

Establishment year:

.....

Total no. of employee:

Head office: ..... Site: ..... Production: .....

No. of Directors: No. of Engineers:

Challenges and opportunities related to raw materials:

Import related opportunities and Challenges:

1. Customs Duty is - High/ Medium/Low
2. What Industrial Market Challenges are there:
   a. Foreign players are getting huge discount of customs duty at EPZ area
   b. In case of purchasing direct building from abroad, clients are getting almost fully free customs duty
   c. both a and b
   d. there is no challenge
3. There is/ there is no- business friendly policy of industrialization
4. In pre shipment inspection (psi)- importers-have to/ do not have to pay extra contract value for importing
5. What Customs Hassles are there:
   a. Huge Speed Money
   b. Delaying of time (time value loss)
   c. both a and b
   d. none of these
6. Because of third world country Foreign suppliers are ethical/unethical with us
7. Supplier's power is-High/ Medium/Low
8. Lag time is-short/ average/long
9. There is a -Narrow market/ Wide market all over the world
10. There is-ease of communication / difficulty in communication with suppliers
11. It is-easy/difficult to compare the prices between different suppliers

Local purchase related challenges and opportunities:

1. Which of the following problems are there in Local purchase (you can choose more than one option):
    a) Over pricing
    b) Syndication
    c) Lack of govt. regulation & monitoring
    d) Adulteration
    e) Lack of commitment
    f) Bargaining power low
    g) No vat challan given from sellers
    h) Others.....
2. Adulteration is (if there is any)- low/ medium/ high/ very high
3. What kind of adulteration is (if there is any) there:
    a) Adulteration in weight
    b) Adulteration in packing
    c) both a and b
4. If No vat challan is given from the sellers what kind of problems do arise:
    a) Hassle by police in the transportation time
    b) Time loss
    c) both a and b
    d) Others.....
5. Credit facilities in local purchase is-available/ unavailable
6. Availability of raw materials in local purchase is- high/ moderate/ low
7. Local purchase is-time saving/ time consuming compared to import

Challenges and opportunities related to manufacturing:

1. Which of the following Utility service (Electricity, Gas, Diesel, Octane) related challenges are there (you can choose more than one option):
    a) The utility services are of- high price
    b) There is lack of govt. support in manufacturing
    c) There is-shortage of Supply in manufacturing
    d) none of these
2. There is – poor/average/good supply chain management.
3. Manufacturing is mainly human/ technology/mechanical based.
4. There is- few/ good/big number of labors involved in manufacturing.
5. There is -plenty/ average number/Lack of technical person in manufacturing.
6. Material is-available/ unavailable both in local & international market.
7. Which of the following financial challenges are there in manufacturing (you can choose more than one option):
    a) Insufficient fund
    b) Insufficient Bank Support
    c) Cost of production is increasing
    d) Maintenance is costly & tough
    e) Others.....
    e) None of these

1. Is there the practice of local extortion in manufacturing? a) Yes b) No

Other challenges and opportunities:

1. Do you think that Land acquisition is a big challenge in case of constructing a manufacturing plant?
   a) Yes b) No
2. Is extortion a big challenge in case of Construction? a) Yes b) No
3. The necessity of bonded warehouse for this sector is- High/ Medium/Low
4. Because of the Low market price there is-
   a) below cost of goods sold sometimes
   b) companies have to go for the tax evasion policy
   c) Both a and b
   d) None of these
5. Trade license fee is - High/ Medium/Low
6. The market size is- small/average/big
7. More than -50%/ 70%/90% industrial building are done by steel structures
8. Is there any frequent incident of time killing due to political turmoil in manufacturing? a) Yes b) No
9. What are the other challenges (you can choose more than one option):
   a) Payment delay
   b) Interest loss
   c) High interest rate
   d) Others.....
   e) None of these
10. What do you think about Buyer's power of this sector
    a. High b. Moderate c. Low
11. What do you think about threat of New Entrant of this sector
    a. High b. Moderate c. Low
12. What are the substitute of the steel structure (you can choose more than one option)
    a. R.C.C structure
    b. Angle/Pipe truss structure
    c. Composite panel structure
    d. Others.....
    e. None of these
13. Threat of Substitute is High/ Moderate/Low of this sector
14. What do you think about Competitive Rivalry of this sector
    a. High b. Moderate c. Low
15. Supplier's power is High/ Moderate/Low of this sec

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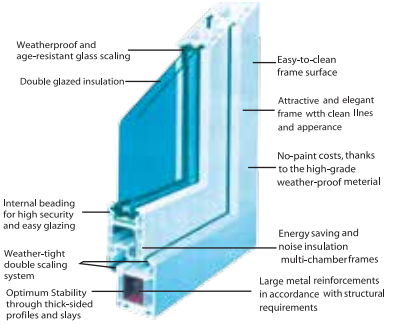

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Overview on Steel Structures

Mohammad Rafiqul Islam
Managing Director
Quantam Builders & Engineering Ltd.

Steel is the most preferred metal for the construction of large structures such as bridges, space frame structure, multistoried buildings, industrialbuildings and residential buildings. There are three main types of steel construction - conventional steel fabrication, bolted steel structure construction and light gauge steel structure construction. Steel structure construction has numerous advantages over concrete construction.

The steel has incredibleversatility. From the ability for structural steel to be molded into virtually any shape to its exterior ability to yield shingle-sequel roofing patterns and wood-like siding, steel's versatility is part of what is making it such an attractive option for the residential construction market.

Architects and designers like steel's ability to let their artistic imaginations run wild, while still having the ability to design and construct a building that is both safe and resilient. This also allows for the versatile design of large, clear span buildings such as airplane hangars, warehouses, agricultural buildings and indoor arenas. It also permits for the construction of skyscrapers, the tallest of which stands in Dubai at 2722.4 feet (829.8 m) tall. The commercial sector no longer corners the market on steel buildings, either.

This design versatility and flexibility is now being touted in the residential sector as well. Consider a family who wants to knock out a wall for a remodel or renovation, only to find that a load-bearing wood pillar is an essential component. Now, they have the option of running a steel beam across the ceiling, opening the space up and negating the need for a structural beam below the ceiling line. Additionally, steel and metal are used for siding and roofing materials that far outlast their wood counterparts.

There are multiple reasons why steel makes an attractive building option from start to finish, not the least of which are:

- Sustainability
- Affordability
- Durability

From full-throttle metal building projects, to hybrid construction projects that leverage the attributes of both wood/Concrete and steel, the modern builder has a wealth of options to choose from.

Steel is a versatile building material, which has led to its inclusion in nearly every stage of the construction process from framing and floor joists, to roofing materials. Here are some of the main benefits that make structural steel such a reliable choice.

Steel is lighter than concrete

This may seem surprising at first, because if you weigh a 2x4 of wood and a 2x4 of steel, the steel will weigh more as the result of its density. When it comes to framing, however, the design of a steel I-beam will almost always cause it to be lighter than the lightest in comparison to structurally sound wood beam design. A steel I-beam weighs less than Glulams, LVL, and Parallam beams.

The total dead load of concrete conventional buildings is much higher than steel structure buildings. So Steel structure building foundation are lighter than RCC buildings foundation. It will be at least 20% saver cost than RCC building foundation.

In addition to decreasing the labor required to build with steel, the lighter-weight advantage reduces materials shipping costs, and can also simplify the design of a building's foundation and other structural support systems, which can further reduce project budgets.

Build faster with Steel

Time has always equaled money, but it seems like this high-tech era of ours has made it so that every client wants their building to come in within budget and ahead of schedule. Fast-tracked projects can be a nightmare for architects and construction crews -mainly because taking shortcuts can lead to unsafe building practices.It saves project duration 1/3 than RCC concrete buildings, which means saving of 2/3 project duration time.

Steel parts are pre-engineered to a specific design in the manufacturing plant and are shipped out, ready to be erected. This speeds up construction time significantly, making it possible to complete large-scale projects in a matter of weeks.

Because the fabrication process is highly quality-controlled, Project Managers can place their attention on other issues and the pre-cut, ready to assemble parts eliminate the need for measuring and cutting on site. This also takes the element of human error out of the equation, reducing the amount of time spent assembling something only to find out it needs to be re-measured, cut and installed again.

In addition to project time and budget issues, a faster construction timeline also reduces the amount of time your construction project impedes traffic, affects the flow into and out of surrounding businesses and any water or utility disruptions to nearby buildings.

Save money with steel

Much of the cost savings you'll gain can be inferred from the labor and cost benefits of decreased construction time. However, building with steel also saves money via other first time and lifetime savings.

"Steel can be recycled: Rather than paying landfill fees for non-recyclable construction waste, you will be able to recycle steel and metal building components. Due to public interest in decreasing unnecessary construction waste, most waste removal companies have subsidized programs allowing them to pick up your steel and metal building waste at no cost to you.

- Because steel is so durable: and requires so little maintenance, it is a more economic choice for building owners. Maintenance fees, repairs and replacements are minimal - even over the course of 50 years or more - saving building owners tens of thousands of dollars over the course of the building's lifetime.

  It can withstand extreme forces or harsh weather conditions, such as strong winds, earthquakes, hurricanes and heavy snow. They are also unreceptive to rust and, unlike wood frames, they are not affected by termites, bugs, mildew, mould and fungi. Additionally, they are more fire-resistant compared to wooden frames.

  Utilising steel supplies in building residential, commercial or industrial structures is definitely a worthy investment.

- Innovation in steel production: combined with greater competition to meet rising steel demands, has brought steel prices lower than they've been in twenty years. According to the American Institute of Steel Construction, "In 1980, 10 man-hours were required to produce a single ton of steel. Today that same ton of structural steel requires substantially less than a single man-hour." Thus, these cost savings can be being passed on to the consumer.

- Sustain ability against seismic: Due to a steel structures' almost unrivaled ability to withstand high winds, heavy snow loads, fire and seismic activities, combined with their resistance to pests and decay, insurance companies often offer lower premiums on policies underwritten for metal buildings.

- Faster construction times: means fewer interest payments to the lender, who typically requires that interest-payments are made through the duration of the construction process.

- Cost-effectivity: It is light-weight compared to timber, which makes it easier to transport and thus, reduces fuel costs and accelerates project schedules. Aside from this, it is also energy efficient and can be recycled, creating minimal raw material wastes.When bundled together, these cost-saving benefits make steel one of the most affordable building products on the market.

It's environmental friendly

Steel is made from recycled materials and can be recycled at the end of its lifespan, one of the many reasons why it can earn builders points toward major green building certification programs. According to the Steel Recycling Institute:

- 80 million tons of steel are recycled each year, making it the world's most recycled product.
- Since 1990, the steel industry has reduced energy intensity per ton of steel produced by 28% and CO2 emissions by 35% per ton of steel shipped.
- Reductions in energy use and CO2 emissions are rapidly reaching the limits defined by the laws of physics.

When combined with other design enhancements, steel buildings are incredibly energy efficient. The connections between high-quality, prefabricated steel parts are so exact that with the addition of adequate insulation, they are air-tight and comfortable, ensuring the building has a completely sealed envelope. Roof panels are primed and ready to host a solar array and cool metal roofing products dramatically decrease solar heat gain, further increasing energy savings.

Adaptability

Steel can be adjusted or changed according to the owner's requirement. For instance, wall frames made from this type of material can be repositioned or altered easily in order to widen the space or create a new interior building layout. This ability to adapt to changes allows for easier expansions, at the same time helps extend the lifespan of the structure.

Versatility and Beauty

It offers a stylish way of creating large, column-free interiors, thereby giving the building a sense of openness. It's also malleable, giving structural designers the freedom to explore ideas in terms of creating stylish shapes and textures in order to make the building distinct. Steel can be cut and shaped into an incredible variety of shapes and sizes, and the steel will not buckle, warp, distort, or splinter. You may notice, if you ever go to a contemporary art museum, how many sculptures are made out of steel, thanks to its ability to shape practically any way the designer wishes.

Buildings with steel structural components can be eye-catching and unique with an extra artistic flair. Steel can also be designed to mimic other materials and textures such as shingles and wood siding so you don't need to sacrifice certain visual appeal.

Constructability

" The strength, stiffness, toughness, and ductile properties of structural steel allow it to be fabricated into an endless variety of shapes.

" Steel structures are assembled by bolting or welding the pieces together on site as soon as they are delivered as opposed to concrete, which takes weeks to cure before construction can continue.

" Distribution of a building's compression and tension stress among steel beams allows architects more freedom with design space and the ability to make last minute alterations.

Safety

- Even though steel is a noncombustible material, the International Building Code requires that it be completely coated in a fire-resistant material as its strength and integrity become significantly compromised in the instance of a fire.
- Water resistant coatings are also advisable to prevent structural steel from corroding. Fire-resistant coatings are typically also water resistant.
- Structural steel lacks the porosity necessary for mold and mildew growth, making it an ideal choice for residential buildings.
- Off site fabrication and fast component assembly makes structural steel inherently safer to manage at the construction site.
- Steel is endlessly recyclable, making it also safe for the environment.

1. Maintenance cost - steel structures are susceptible to corrosion when exposed to air, water and humidity. They must be painted periodically.
2. Steel has very small resistance against fire as compared to concrete. There has fire resistance paint. We can do fire resistance design accordingly and install firefighting system.
3. Fireproofing cost' Steel is incombustible material however its strength is reduced tremendously at high temperatures due to common fires. Need push to the government for duty free for fireproofing materials and Machine.
4. Susceptibility to buckling' as the length and slenderness of a compressive column is increase its danger of bucking increases.
5. Fatigue -The strength of structural steel member if this member is subjected to cyclic loading. Need to do perfect design.
6. Brittle - Under certain conditions steel may lose its ductility, and brittle fracture may occur at places of stress concentration. Need used quality ensured materials.
7. Steel cannot be mold in any direction you want. It can only be used in forms in which sections originally exists. But can do design and fabricated in factory.
8. Has a high expansion rate in changing temperatures. This problem can control

BANGLADESH PERSPECTIVE

Present scenario of Steel structured building in Bangladesh

Bangladesh is one of Asia's leading emerging steel markets and has a growing need for raw materials and steelmaking technologies. Steel structured buildings started in 1984 with the inception in 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 etc.

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 story 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 2,500.00 per square feet whereas, steel buildings cost only BDT 250.00 - BDT 1,000.00 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 (Sucre: Engineering Credit Rating Ltd.)

Market Size and Share at present in Bangladesh

The Pre-engineered steel industry of Bangladesh has shown remarkable success in the construction sector. There are approximately 130 more big and small PEB companies doing their business in local market, 30 companies of them are Steel Building Manufacturer Association of Bangladesh (SBMA) members. The mission of this industry is to encourage overall development and making a contribution to National Exchanger to work economic development of the country. The steel Structure Manufacturing Association of Bangladesh (SBMA) are leading the steel construction market, and 95% market shear owned bytheir members.

Production

The Bangladeshis company has enough production capacity to meet there market demand. Most of them are well-equipped by modern machinery and technology. The Pre-engineered steel Industry is mostly involved in buildings: High rises, Multi-story 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

Import

Bangladesh imports about 250,000 tons of hot-rolled coils, HR steel plates, steel coils, special steel, pipes etc. Materials are imported from a variety of countries that includes Australia, Japan, China, India, Korea, Vietnam,Canadaetc. (Sucre- The Daily Star, 2015)

Export

In the last five years, the country exported prefabricated building materials worth around $50 million, mainly to Sudan, KSA, Pakistan, India, Nepal and the UAE African Countries. 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 (Sucre-Department of Research | Emerging Credit Rating Limited).

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, Narayangonj, Comilla, Chittagong, Manikganj and Savar.

The Top 10 Steel Producing Countries In The World

Serial	Country/Region	Crude steel production (million metric tons, data 2015)
1	People's Republic of China	803.83
2	Japan	105.15
3	India	89.58
4	United States	78.92
5	Russia	71.11
6	South Korea	69.73
7	Germany	42.68
8	Brazil	33.25
9	Turkey	31.52
10	Ukraine	24.8

SUSPENDED, SELF-SUPPORTED & RE-USABLE SHUTTER TECHNOLOGY FOR CASTING OF REINFORCED CONCRETE SLAB SUPPORTED ON STEEL FRAMING SYSTEMS

Technology first developed by: Tarique Nazmus Sadat, M.Engg.(Civil & Structure, BUET), B.Sc.Engg.(Civil, CUET). Structural consultant since 1994. Steel, Composite & RC Structural Expert & Researcher. Chairman & Chief Structural Designer, Structural Design Department,

ABSTRACT

Steel framing supporting cast-in-place reinforced concrete slab was historically being constructed using props-supported replaceable shutter system. Later, most commonly, concrete slab is cast upon permanent cold formed steel deck which itself is supported on steel I-shaped sections. This system makes construction easy and saves construction time by eliminating props-supported replaceable shutter system. Permanent metal deck serves as shutter system and sometimes designers consider it as bottom reinforcement providing re-bar for top reinforcement only. But metal deck is vulnerable to fire which requires expensive fire protective measures whether it is considered as bottom reinforcement or not. Metal deck itself bear full construction load as shutter during casting of concrete slab on it. For this reason, I-beams are spaced closely to support metal deck and virtually cost of steel frame increases. So, research and study is required to develop alternate solution against props-supported replaceable shutter and permanent metal deck system. After long practice, study and research; a new design idea and construction technology has been developed by us first time to convert the metal deck to shutter. This new shutter is self-supported, suspended and continuously re-usable without any props. Weight of steel frame reduces by increasing spacing of I-beams. No fixed metal deck is required and fare face finishing of ceiling is achieved. No prop is required under ceiling to support shutter. So, other construction works also progress simultaneously under ceiling which saves construction time. Additionally ceiling plaster, paint, costly fire proof spray and false ceiling can be avoided. So, significant cost and time saving is possible without any significant construction difficulties. Steel I-beam supported reinforced slab may be designed as composite beam using shear connectors to make floor I-beam further economic. Already, first time, this technology has been successfully used conforming all advantages mentioned above in a four storied steel framed building for a garments factory in Bangladesh having 4500 square meter slab per floor. Net financial benefit was minimum US$ 49 and maximum US$ 52 per square meter of building floor. There is lot of options for further development of this construction technology. Initially production cost is two to three times more than metal deck cost, but it may be used minimum fifty times after production. So it is highly cost effective. It is obviously innovative and advanced construction technology for single and multistory steel buildings, steel framed bridges, flyovers, dooms etc. to construct floor and deck slabs. Specially, bridges and flyovers may be constructed without obstructing traffic or navigation as no prop is required. It may be highly advantageous for dense traffic as in Dhaka city. It may be incorporated for any other types of structures successfully to take advantages. Research is required to

incorporate it with RC structures.

(a) At ground level

(b) At overhead floor level

Figure 1 Field experiment of model (Courtesy: Composite Steel Structure Ltd.)

(a) After opening SSRS

(b) Using SSRS under RC slab

Figure 2 Building using SSRST first time (Courtesy: Composite Steel Structure Ltd.)

FINDINGS

Comparative study, analysis, design and discussion have been performed based on model test and practical case study of SSRST. Important findings and results are achieved from this research and study considering practical construction project. The findings are as follows:

- Net financial benefit is minimum US$ 46 and maximum US$ 49 per square meter of building floor area when SSRST is applied.
- Advanced technology is developed to minimize use of costly permanent metal deck or props supported re-usable shutter under RC floor slab on steel framed system for buildings.
- Metal surface is minimized in steel framed structure which is vulnerable to fire.

- Costly permanent metal deck is converted to re-useable metal shutter which imparts financial benefits.
- Reduces use of costly fire proof spray at metal buildings.
- Ensure obstruction free space under ceiling and deck during construction period.
- All other construction works can be performed simultaneously under ceiling and deck.
- Avoids props under metal shutter to reduce cost of shutter system.
- Save cost and time of construction significantly.
- Avoid costly plaster and painting of ceiling by ensuring fare face look of concrete under ceiling.
- Avoid use of costly false ceiling.
- Facilitate conceal electric wearing within slab and smooth plumbing works under ceiling which is required.
- Ensure aesthetically impressive look of natural concrete color under ceiling. It is highly desired by architects for green buildings.
- Reduce structural cost by increasing steel beam spacing.
- Skilled man power is required for faster erection and accuracy of production is very much important for smooth erection to ensure speed of construction.

CONCLUTIONS AND RECOMMENDATIONS

Based on these findings, final conclusions and recommendations are drawn and presented in the following sections.

Conclusions: It is proved and distinctly established that SSRST is highly advantageous for steel framed buildings. It makes significant financial, aesthetical and construction time benefits. It facilitates other construction works directly. It makes working space to progress all other works simultaneously. It reduces fire proofing requirements. Net financial benefit is minimum US$ 46 and maximum US$ 49 per square meter of building floor area when SSRST is applied at steel framed buildings.

Recommendations: Further research and study is required for development of SSRST for smooth construction without any difficulties and delay. It may be incorporated with all types of RC and other structures by further research and development. SSRST may be used for flyovers, bridges, domes etc. with significant advantages like steel framed buildings. To make obstruction free for traffic and navigation/drainage for flyovers and bridges this innovative technology may be very much advantageous. Comprehensive research and development is required to take maximum advantage of SSRST.

Album

Kvh©bevnx cwil‡`i wØ-ewlK mvavi Y wbevPb-2017-wØZxq †cwm‡W›U GKvsk|

Kvh©bevnx cwil‡`i wØ-ewlK mvavi Y wbevPb-2017-19 Gi wbevPb K©gkbvi e„w`|

Kvh©bevnx cwil‡`i wØ-ewlK mvavi Y wbevPb-2017-19 Gi GKvsk

Kvh©bevnx cwil‡`i wØ-ewlK mvavi Y wbevPb-2017-19 Gi be wbewPZ‡`i dzj w`‡q ei Y|

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016|

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 -‡Z AskMnYKvix Gmwe GgG †g¤i‡`i ÷j mgn¨|

Album

AvBBwe, XvKv‡Z Abyôû Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim bD Giv Bb †W‡fjc‡g›U -2016 Gi cavb AwZw_ BwÄ. †gvkviid †nv‡mb, gvbbxq gš¿x, MÖvqY I MYc~Z© gš¿Yvjq, MYcÖRvZš¿x evsjv‡`k miKvi|

AvBBwe, XvKv‡Z Abyôû Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim bD Giv Bb †W‡fjc‡g›U -2016 ‡Z e³Zv w`‡"Qb †mjvgx ¸‡ij, óxj ÷vKPvim G·cvU (Zzi¯‹)

AvBBwe, XvKv‡Z Abyôû Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim bD Giv Bb †W‡fjc‡g›U -2016 ‡Z Dcw¯’Z we‡kl AwZw_ Rbve gvZjyeAvn‡g`, †cwm‡W›U GdweumwmAvB (Wv‡b w'Zxq)|

AvBBwe, XvKv‡Z Abyôû Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim bD Giv Bb †W‡fjc‡g›U -2016 ‡Z Dcw¯’Z AwZw_‡`i GKvsk|

AvBBwe, XvKv‡Z Abyôû Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim bD Giv Bb †W‡fjc‡g›U -2016 Gi cavb AwZw_ BwÄ. L›`Kvi †gvkviid †nv‡mb, gvbbxq gš¿x, ¯’vbxq miKvi, cjx Dbqb I mgevq gš¿Yvjq, MYcÖRvZš¿x evsjv‡`k miKvi|

AvBBwe, XvKv‡Z Abyôû Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim bD Giv Bb †W‡fjc‡g›U -2016 Gi ‡fby¨

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AvBBwe, XvKv‡Z Abyôx‡Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 Gi weiwfb ój cwi`kb Ki‡Qb cavb AwZw_ BwÄ. †gvkvi id †nv‡mb, gvbbxq gš¿x, M„nvqY I MYc~Z© gšbvjq, MYcRvZš¿x evsjv‡`k miKvi|

AvBBwe, XvKv‡Z Abyôx‡Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 Gi weiwfb ój cwi`kb Ki‡Qb cavb AwZw_ BwÄ. †gvkvi id †nv‡mb, gvbbxq gš¿x, M„nvqY I MYc~Z© gšbvjq, MYcRvZš¿x evsjv‡`k miKvi|

AvBBwe, XvKv‡Z Abyôx‡Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 Gi weiwfb ój cwi`kb Ki‡Qb cavb AwZw_ BwÄ. †gvkvi id †nv‡mb, gvbbxq gš¿x, M„nvqY I MYc~Z© gšbvjq, MYcRvZš¿x evsjv‡`k miKvi|

AvBBwe, XvKv‡Z Abyôx‡Z B›Uvib¨vkbvj Kbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 Gi weiwfb ój cwi`kb Ki‡Qb cavb AwZw_ BwÄ. †gvkvi id †nv‡mb, gvbbxq gš¿x, M„nvqY I MYc~Z© gšbvjq, MYcRvZš¿x evsjv‡`k miKvi Ges GmweGgG Gi DaŸZb KgKZve„›`|

GmweGgG KZ…K Av‡qwRZ f¨vU c¯'wZ msµvš— cwkÿY-2017 Gi D‡×vabx e³Zv. w`‡"Qb c‡Kškjx Aveyj †bvgvb nvI jv`vi, †cwm‡W›U, GmweGgG|

GmweGgG KZ…K Av‡qwRZ f¨vU c¯'wZ msµvš— cwkÿY-2017 †Z AskMnYKvix GmweGgG Gi m`m¨ cwZôv‡bi cavbMb Ges KgKZve„›`|

Album

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 †Z AskMnYKvix GmwGgG Gi m`m¨ cwZôv‡bi ój|

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 †Z AskMnYKvix GmwGgG Gi m`m¨ cwZôv‡bi ój|

Rbe †Zvdv‡qj Avn‡g, ewbR¨ gš¿x, MYcRvZš¿x evsjv‡`k miKvix Gi mv‡_ GmwGgG Gi wbevnx KwgwUi m`m¨‡`i mvÿvr|

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 †Z AskMnYKvix GmwGgG Gi m`m¨ cwZôv‡bi ój cwi`kb Ki‡Qb cavb AwZwi_ BwÄ. Rbve †gvkviid †nv‡mb, gvbbxq gš¿x, Mp,vqY I MYcZ gšbvjq, MYcRvZš¿x evsjv‡`k miKvi|

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 †Z AskMnYKvix GmwGgG Gi m`m¨ cwZôv‡bi ój|

AvBBwe, XvKv‡Z AbyôZ B›Uvib¨vkbvj Kvbdv‡iÝ Ab ÷xj ÷vKPvim wbD Giv Bb †W‡fjc‡g›U -2016 ‡Z Dcw¯Z AvBBwe XvKv †m›Uvi Ges GmwGgG Gi KgKZve¡`|

Album

c‡Kŝkjx Aveyj †bvgvb nvIjv`vi, ‡cwim‡W›U, GmwieGgG eµrwkí K¨vUvMix‡Z MYcRvZš¿x evsjv‡`k miKv‡ii cÿ †_‡K wmAvBwc-2016 ghv©v`v c`vb Kiv n‡q‡Q wevq Zv‡K G‡mvwm‡qk‡bi cÿ †_‡K AvbyôvwbK ï‡f”Qv Rvbv‡bv nq|

GmwieGgG Gi cÿ †_‡K Av‡qwRZ ï‡f”Qv c`vb Abyôv‡b Dcwieó GmwieGgG Gi m¤§vbxZ cwZwbwae„›`|

GmwieGgG Gi cÿ †_‡K Av‡qwRZ ï‡f”Qv Abyôv‡b e³e¨ ivL‡Qb c‡Kŝkjx Aveyj†bvgvb nvIjv`vi, †cwim‡W›U, GmwieGgG|

GmwieGgG Gi cÿ †_‡K Av‡qwRZ ï‡f”Qv c`vb Abyôv‡b g‡bvÁ mvs¯‹…wZK Abyôv‡b msMxZ cwi‡ekb Ki‡Qb ¯vbxq wkíxe„›`|

GmwieGgG Gi gvwmK mvaviY mfv

GmwieGgG Gi gvwmK mvaviY mfv

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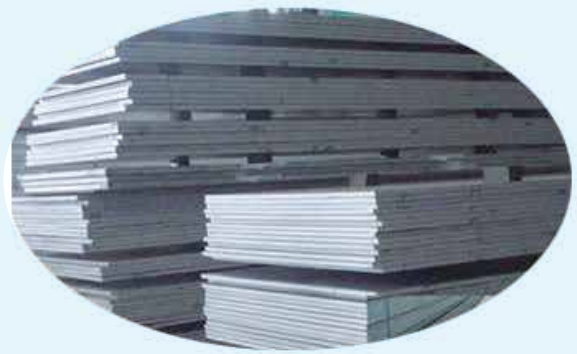

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