TEST YOUR BIM KNOWLEDGE

BIM QUIZ

This section tests your overall knowledge of BIM and VDC. These questions are part of the BIM Practitioner Exam that was given by the Institute of Virtual Design and Construction which is now a part of TBF Academy. If you want to know more on these types of tests and find out how to become a certified BIM Practitioner, please contact TBF Academy at **learn@ivdc.org**.

Circle the correct answer.

Question 1:
What crucial document sets the tone for how BIM will be used and provide detailed information for the entire process of a particular BIM project?

- BIM Assessment Plan
- BIM Execution Plan
- BIM Adoption Plan
- BM Specification Data

Question 2:
During what phase of the project that has the most beneficial utilization of BIM?
(This is in reference to the industry TODAY)

- Design Phase
- Facility Management Phase
- Construction Phase
- Concept Design Phase

Question 3:
What are the two major factors that BIM can disrupt?

- People and Costs
- Workflows and Processes
- Time and Money
- Design and Construction

Bonus Question: (True or False)
The 3D model of various trades are coordinated without any errors or interference before construction is considered BIM.

- True
- False

Issue 3 answers:

1. Penn State and Autodesk
2. Level of Development (LOD)
3. Export Information

4D - The addition of "time" (scheduling)...
Industry Foundation Class (IFC) - Developed as "Data standard".
xD - The dimension that integrates various aspects to the model.

BIMMATCH

Draw a line in column B that connect Column A with the correct definition in column C.

Column A	Column B	Column C
Communication		This is considered as the heart of BIM and is usually the first priority of the BEP. It describes how everyone is on the same page.
Point-of-Origin of the model		A series of gathered metrics and simulations of everything that is associated with the design function of the building such as structural integrity.
Analysis		This is the first critical item of the BEP and is usually the responsibility of the BIM Manager to define.

Check out the next issue for the correct answers.

BIMWORD SEARCH

N	P	I	O	L	P	Y	C	O	R	M	F	X	A	S	D	Y	C	A	R	F	D	I	L	H
O	A	L	R	U	N	I	C	L	A	S	S	H	F	P	C	G	X	O	D	A	L	C	B	A
U	G	T	O	H	M	T	M	W	D	O	W	P	K	E	D	O	R	M	I	T	O	R	Y	I
O	I	N	T	E	R	O	P	E	R	A	B	I	N	I	T	Y	B	N	O	L	E	N	O	R
P	T	O	H	R	B	K	D	R	M	O	T	N	H	C	D	L	Y	I	T	D	X	H	X	B
E	A	M	P	W	A	P	A	U	O	K	O	A	B	T	Y	N	A	F	E	K	U	W	I	E
N	C	N	D	E	M	B	L	H	L	P	G	O	E	N	D	H	S	R	H	O	E	L	C	R
B	H	I	A	G	B	P	U	L	S	C	E	N	T	O	F	A	C	T	O	R	Y	G	A	D
I	N	C	G	L	O	I	D	T	H	L	Y	R	E	X	W	I	D	E	S	D	C	Y	O	R
M	O	L	D	E	G	P	M	Q	E	A	H	N	A	B	I	M	B	O	T	S	A	D	O	C
C	L	A	O	E	I	M	R	E	L	S	D	K	M	O	O	D	Y	Q	H	Y	O	I	D	M
K	O	S	P	V	E	R	K	N	C	H	W	O	X	Q	E	K	M	S	O	U	K	R	O	E
L	G	S	F	A	B	R	I	C	A	T	I	O	N	K	A	B	F	O	A	N	J	Y	D	B
A	Y	E	S	O	S	T	E	C	H	N	O	L	O	G	I	G	Y	S	V	E	C	S	L	J

Words can be found horizontally and vertically only.

- AIM
- AIR
- Attributes
- BIMbots
- Clash
- COBie
- ~~Data~~
- Dormitory
- EIR
- EVA
- Fabrication
- Factory
- IDM
- Interoperability
- LCA
- LOI
- Modular
- Omniclass
- OpenBIM
- PAS
- PIM
- PIP
- Team
- Technology
- Uniclass
- WIP

Upload a picture of your completed word list on our Facebook page for a chance to win an awesome TBF t-shirt !

THE BIM FACTORY

BIM & TONIC is a quarterly newsletter from THE BIM FACTORY covering important topics, stories and issues involving BIM and VDC within the AEC industry, Vietnam as well as projects and activities internally within our company. We chose the term TONIC for our newsletter because TONIC, as defined by dictionary.com is "*a medicine that invigorates or strengthens*" and "*anything invigorating physically, mentally, or morally*". We believe that our newsletter does just this and hope you feel the same way. Happy reading!!

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BIM &TONIC

ISSUE 4 | 2016

THE BIM FACTORY QUARTERLY NEWSLETTER

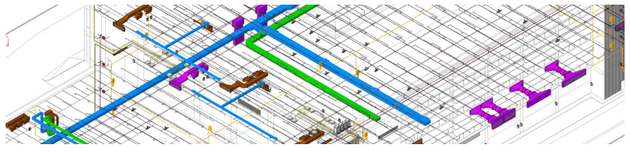
Are we truly ready for BIM?

Han Hoang | CEO

The short answer is NO. We as an industry is perhaps not ready for the real BIM. In the past 6 years, I've seen specifically in Vietnam what I called "half-ass BIM" or more appropriately stated by our BIM Manager, "hybrid-BIM"- that is using 2D CAD and 3D BIM on the same project but majority CAD as the main driver. Nevertheless, we have been using BIM inconsistently, haphazardly and inefficiently throughout the entire industry.

BIM is meant to be a game changer and I have no doubt it still is. However, I've always believed that either you use 100% BIM and maximize its potential, or use BIM sporadically and it can be even more costly. As a BIM consultant, we are certainly being held accountable for this as much as anyone else. We have been pushing for BIM but it's a well-known fact that no one is quite 100% ready.

Maybe the question should be, when will we truly be ready for BIM? There are a few factors that can help our industry track this progress. First, BIM is certainly intuitive, because it is a three-dimensional environment, it works just like how we think and how the real world really works. Therefore, BIM as an idea has been a lot easier to comprehend. Once we understand that BIM works just like our brains, we will see that BIM will be second nature. But truly understanding it is another story.



Secondly, for the majority of our clients, the idea of switching over to BIM is a mental struggle and a major hurdle. But key changes such as adding new machines, buying more expensive software, and take on costly training, are often bright signals that a company is beginning to accept this new process.

Lastly, data is now king. Our world is now a data-driven society and everything we do is either being tracked, recorded or forced in our faces through basic daily activities. But because we have known for quite some time that data and information - the "I" in BIM - is a major component in the success of BIM and until enough data and information have arrived, then we will be truly ready for BIM.

Finally, we might not know it, but if smart owners are now requiring BIM on their next project. This is another tell-tale signal that perhaps we are ready for BIM or at the very least, an absolute need to be ready for BIM.

FROM OUR COO

Thank you for reading the 4th edition of our newsletter We are looking to close off 2016 with a bang. In the last few months, we've gotten back to our original roots of creating a company culture unlike any other. We were able to host two popular talk events, held team building activities every other weekend and even started to give back to the community with the newly created Fablab Thao Dien for the local youth right inside our company. Our team has grown bigger than it ever has. Therefore, it is vital that we stay focus on continuing to create a culture and various activities that have always made us unique. TBF have always been a one-of-a-kind company, a place where we hope everyone loves and look forward to going to every day. Let's finish the year off strong and continuing forward to an even more exciting 2017 !

Maryline VO | COO

THE FUTURE HAS ARRIVED

AND IT BROUGHT ALONG INTEGRATION, COLLABORATION, FABRICATION, MASS-PRODUCTION, AND AUTOMATION.

For our building industry, the future has always been comprised of unimaginable, fantastic and out-of-this-world technologies with marvelous features which make it seems as if it will never be achievable, until now !

The world has certainly gotten smaller. So small in fact that everything seems to be within our grasp. Logistics, a factor that has always been the main impediment that slowed down the progress of the building industry is now perhaps no longer an issue. Because in the manufacturing world, order your parts or products of any scale or complexity in Shenzhen and it arrives at your door in New York City two to four days later. That in itself is inconceivable a few years ago and certainly a game-changer for almost any industry. How can we duplicate this for the building industry?

Additionally, with the arrival of IoT (Internet of Things), communication and collaboration within different time zones have now become non-issues. Furthermore, sharing information and collecting data which were all laborious hurdles in the past have now become remarkably simple.

Technology has certainly changed our world and now, we are seeing it beginning to change one of our oldest professions.

There are several factors which slowed the advancement of our building industry. The first and foremost consideration is the segregation of our trades. It used to be that Architects, Engineers, and Contractors think and act completely independent from one another. This was not only the way things work but often necessary in order to get things done and sometimes, it is also a pride factor. Architects take pride in being creative, Engineers take pride in being logical and Contractors take pride in being skeptical. The blame game was the most popular activity on any project.

But now, that is no longer the case where integration is the only way to work and all parties are required to collaborate as a single unit. Major proponents of this change in the way we work are driven by the advent of Building Information Modeling (BIM), Virtual Design and Construction (VDC) and Integrated Project Delivery (IPD). These new processes and technologies have not only changed the way our industry behave but also how we function and execute from this point onward.

A WORLD MORE CONNECTED THAN EVER.

From design to fabrication to assembly, our industry now has the ability to be just one single supply chain.

Integrated Design:
Everyone is now connected to the clouds. We share our work, ideas and thoughts virtually every day. This has given us the ability to work around the clock and keep us constantly connected. No longer is a phone called needed during working hours to clarify an issue, but rather an instant message that can be responded in any timezone. Our ability to be constantly connected and virtually integrated has allowed us to continually work side-by-side. Solving problems are no longer tedious tasks, but rather many instantaneous and interactive exercises.

BIMACRONYMS

The most commonly used BIM terminologolies in our industry.

Here are some of the BIM acronyms that are most commonly used definitions in our industry today.

IDM | "Information Delivery Manual": An Information Delivery Manual identifies the various construction processes, and the information required at each stage. ISO 29481-1 specifies a methodology for the format of the IDM. IDM also forms one part of the BuildingSMART interoperability model.

LCA | "Life-Cycle Assessment": Life-cycle assessment (LCA, also known as life-cycle analysis) is a cradle-to-grave environmental impact assessment for built assets, in terms of materials and energy. The energy and materials used, along with waste and pollutants produced as a consequence of a product or activity, are quantified over the whole life cycle; the result representing the environmental load of that asset. ISO 14040 defines LCA methodology.

AIR | "Asset Information Requirement": Refers to data and information requirements of the organization in relation to the asset(s) it is responsible for pertaining to PAS1192-3.

EIR | "Employer's Information Requirements": EIR define the information that will be required by the employer from both their own internal team and from suppliers for the development of the project and for the operation of the completed built asset.

Let us know by emailing us at **info@the-bim-factory.com** of any other acronyms you want to discover and define for our next issue.

PAS | "Publicly Available Specifications": Are fast-track standards, specifications, codes of practice or guidelines developed by sponsoring organisations to meet an immediate market need following guidelines set out by BSI (British Standards Institution). The most popular specification is the PAS 1192-2:2013 relating to information management for the capital/delivery phase of construction projects using BIM.

MIDI | "Master Information Document Index": Refers to the index specifying a detailed list of the deliverables for a project; for model, sub models, documents and data also allocating responsibility to deliver and the programme for delivery of a project supply chain.

MIDP | "Master Information Delivery Plan": Refers to the primary plan for the preparation of the project information (from the supplier's perspective) required by the employer's information requirements (EIR).

PIP | "Project or Process Implementation Plan": The objective of a PIP is to create a firm-wide general implementation approach that the entire enterprise can use and execute in order to implement BIM successfully without any confusion. A typical PIP will also describe the various stages of the projects and the ideal time to implement BIM for each team.

Digital Fabrication:
The next revolution comes down to how we connect the digital world with the physical world through the mechanism of digital fabrication. In recent years, this process has established itself as a unique and relevant practice for architecture, engineering, and construction. Mainly because it allows for an interactive loop between digital technologies, manufacturing, and construction process which have always been a linear process. The real benefits of digital fabrication are the effective use of production resources, material-specific designs, and constructive durability mainly due to its seamless integration of digital design environment with the physical manufacturing world.

The New Manufacturing Revolution:
The fourth industrial revolution is happening right now and the manufacturing industry is again in the driver seat. However, this new era of manufacturing is more or less will be a localized event. The idea of production across the globe was never truly feasible or sustainable, even with the new speed at which we can get to our commodities. Nevertheless, in order for our economies to become independent and self-sustainable, localized mass production will be needed and a must for every industry — especially the building industry.

Economy of Scale:
Nothing is more revolutionary than the act of producing for the masses in record speed. Amazon and Alibaba have proven that reaching the masses in different regions is now as simple as delivering pizzas down the street. But production and manufacturing still have its limitations. In order to make a real impact in our building industry, a scaleable process that is designed to produce for the masses is not only necessary but a must. This is where pre-manufactured parts and fabricated-ready assemblies make the biggest impact. No longer do we need to laboriously build everything on-site, but instead, we only need to assemble. In order to scale, our industry will need to be comprised of modularity, systematic design, and quality-controlled manufacturing. In this newly connected world, reaching the masses does not seem to be an issue, but rather scaling the products that the masses need and want are our biggest concerns.

Automation:
The future has always included artificial intelligence and machines that outperform human. Even when that arrives, the future will still include even more advanced form of AI and machines. As skill laborers are becoming increasingly more expensive and scarce, the manufacturing industry has turned to robotics and automation as a way to offset the mass demand and supply worldwide. This path will be the same for our building industry. In reality, it wouldn't be a "future" if it didn't include robots and machines that not only enhance our capabilities but at the same time, change the way we perceive and build our world.

This article was orignially posted THE BIM FACTORY onThe BIM Hub under the news sections. Here is the link to the full article here: https://thebimhub.com/2016/11/17/future-of-building-industry-has-arrived

Happennings at TBF

This section is dedicated to all the happennings and on-going activities at our company.

Team building event:
Project Runway | Halloween Edition 2016

On October 22nd, our office hosted the team building event called Project Runway Halloween Edition 2016. This event paired up team members into groups of 6 to compete in creating the most unique costume for the coming Halloween.

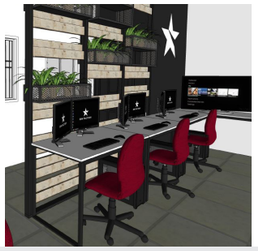
Each group picked a random topic selected by our COO and with limited materials and resources, each team were required to create the most suitable costume based on their topic.

Each team were then judged by their ability to be the closest to the topic and they way they strut down the runway. The winner(s) of this competition were **Hoai Tran**, **Tri Pham**, **Mai Dao** and **Tuyen Nguyen** for their creation of Pirate Santa.

Continuation of office upgrades and renovations.

Since moving into our new space in November, we have not stop renovating our space. We understand the importance of having a comfortable space to work in and be a part of, therefore, we held a competition amongst the teams to see what type of space each team member would like to have.

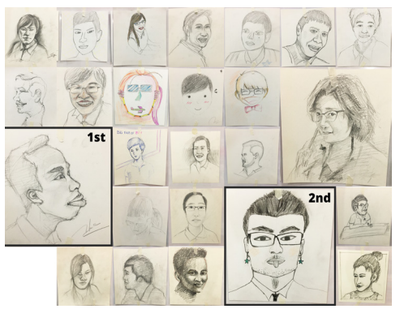
This month, we are focusing on the upper level of the BIM Production space. The redesign was able to reconfigure an additional 8 more spaces for the production team. Now with a maximum of 20 workstations, the production team is now able to be even more efficient.



English courses started at TBF.

On November 17th, 2016 we had the honor of having **Nam Nguyen** acting **CEO of Apollo English Vietnam** come to our company and started on English fundamentals to the team. Nam expressed the importance of why we need to learn English and what English can do for us. An important idea he expressed is the concept of everyone eventually needing to become a *Global Citizen*.

We are now living in a connected society where English has become the most spoken language in the world. Nam described an interesting fact that there are more English as second language speakers on our planet than there are native English speakers. This fact alone shows the importance of why we need to learn English now.



Team building event: TBF Best Artists Competition 2016

THE BIM FACTORY continues its tradition of on-going team building activities amongst team members at our office. On September 24th, we welcome a few new members to our team by hosting a TBF Best Artist Competition. The idea of the competition is to pick a name out of the box and draw that person by any style. Once the images are drawn, then the team picked the appropriate names for each image.

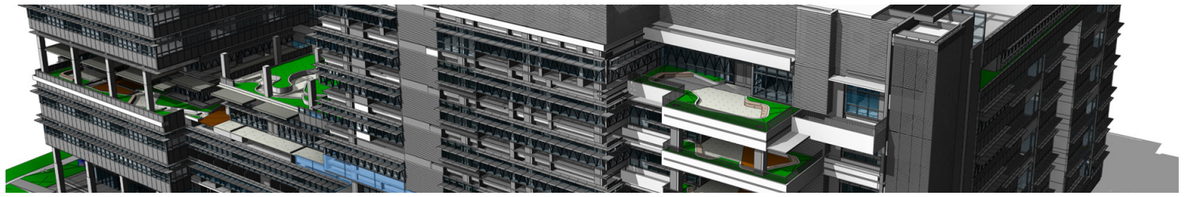
With 25 participants, the contest drew - literally - many laughs and brought hysteria to the entire team. The winner(s) were chosen by the number of votes from everyone. The winner of the competition is no other than **Tuyen Nguyen** - our BIM Modeler I who display impeccable drawing skills and details in her image.

Second place belonged to our beloved accountant **Mai Dao** - who's rendition of her colleague collected more laughs than the accuracy of the image.

For more stories like these, please check out our news section at www.the-bim-factory.com/our-news

WHAT IS LEVEL 2
BIM Maturity Requirements ?

A BREAKDOWN OF EVERYTHING YOU NEED TO KNOW ABOUT BIM MATURITY LEVEL 2



Following the UK Government target of achieving BIM maturity level 2 by 2016 on all public sector asset procurement, there has been confusion over what are the specific requirements to be met in order to achieve BIM level 2.

The requirements to achieve BIM level 2 are outlined within PAS1192-2:2013, which are summarized below:

A - Development of information models which reference, federate or exchange information with other models;

B - Provision of an Employers Information Requirements (EIR) document with clear definition and decision points;

C - Supplier & Supply chain capability assessment;

D - Provision of a BIM Execution Plan (BEP) including assigned roles, standard, methods, & procedures and a master information delivery matrix aligned with the project program;

E - Provision of a Common Data Environment;

F - Compliance with the documents and standards listed in our Level 2 Documents and Standards section;

G - Development of information models utilizing database-based software, and analysis software;

BIM Level 2 Documents and Standards
The following documents in the table below form the core BIM Level 2 documentation, along with some other useful supporting documents.

PAS 91:2013
BS 1192:2007
PAS 1192-2:2013
PAS 1192-3:2014
BS 1192-4:2014
PAS 1192-5:2015
BS 7000-4:2013
BS 8536-1:2015
BS 8541-1:2012
BS 8541-2:2011
BS 8541-3: 2012
BS 8541-4: 2012
BS 8541-5:2015
BS 8541-6:2015
BIP 2207
CIC BIM Protocol
CIC Best Practice Guide
CIC Outline Scope of Service
CPIx Protocol
EIR Core Contents and Guidance
NBS BIM Toolkit
BIM2AIM document suite

To aid the industry in achieving BIM maturity level 2 by 2016, BRE have developed a number of services:

CERTIFICATION:

Business Systems Certification (BSC): Aids by Auditing Designers, Constructors, and Suppliers, allowing businesses to demonstrate their competence in understanding and being able to achieve the above requirements;

Certification Practitioner Scheme (CPS): Aids by Educating and requiring attendees to demonstrate an understand of the above requirements;

EDUCATION:

BIM Level 2 Fundamentals: Aids by Educating attendees with BIM foundation knowledge and provides an overview of the above requirements;

Other Education Material: BRE also run awareness sessions, CPD seminars, and other education material to aid in industry in achieving BIM maturity level 2;

BIM ADVISORY SERVICES WITH BRE:

Employers Advisory Service: Aids by developing key documents with the employer, such as the EIR or BEP. In addition, this service can aid further by auditing incoming documentation.

Supply Team Services: Aids by reviewing BIM processes and business documentation to ensure that they align correctly to the above requirements to allow BIM maturity level 2 compliance.

Source: https://www.bre.co.uk

LEARN **BIM**
TBF ACADEMY

Construction Classification System | **Uniclass**

Uniclass is a voluntary classification system for the construction industry that can be used for all aspects of the design and construction process, including; organizing documents in libraries, structuring project information, cost information, specifications, and so on. It was created in 1997 by Construction Project Information committee (CPIC). Uniclass consists of 16 tables. Uniclass Online a digitized, free edition of the Uniclass was made available by The Royal Institute of British Architects (RIBA) and the CPI in 2012. Uniclass Online was funded by the Technology Strategy Board and intended to provide "…a free and integrated construction classification system to assist construction professionals, particularly those committed to Building Information Modelling (BIM) …

However, Uniclass has been criticized for not being genuinely unified, for inconsistencies between the labeling and depth of tables, for poor integration of civil engineering and building works and for being an essentially paper-based system. CPI undertook a consultation on proposed changes to address some of these issues and published a new version, Uniclass 2.

THE FAB FACTORY

NEXT GENERATION LOW-COST BUILDING METHODOLOGIES

THE FAB FACTORY IS AN INTEGRATED BUILDING COMPANY THAT IS DEDICATED TO PROVIDE ADVANCED BUILDING METHODOLOGIES TO THE MASS MARKET.

Currently, the housing development market in Vietnam and most of the developing nations are geared towards the high-income population while neglecting those who are living in sub-standard conditions specifically the working class. THE FAB FACTORY intend to change all of that and revolutionize the housing market to make housing truly affordable to everyone, especially those who are low-income earners.

A production division of THE BIM FACTORY, THE FAB FACTORY is a group of industry professionals with the sole purpose of finding the most effective strategies to reduce the cost of design, fabrication, construction, assembly and operation to the world's housing and construction market. Our main areas of focus are:

Design Methodologies
Fabrication Processes
Modular Technologies

MODULAR
FABRICATION
TECHNOLOGY

VDC
ASSEMBLY
Automation
Robotics

BUILDING
INFORMATION
MANUFACTURING
Material Technologies
Manufacturing Capabilities
Supply Chain

THE FAB FACTORY IS THE ONLY ITEGRATED BUILDING COMPANY WHO SPECIALIZES IN DESIGN, FABRICATION AND AUTOMATED ASSEMBLY TECHNOLOGY IN VIETNAM.

For more information on this process, please visit our website at **www.the-bim-factory/the-fab-factory** to find out more details.

THE **RECENT ADVANTAGES** OF MODULAR FABRICATION

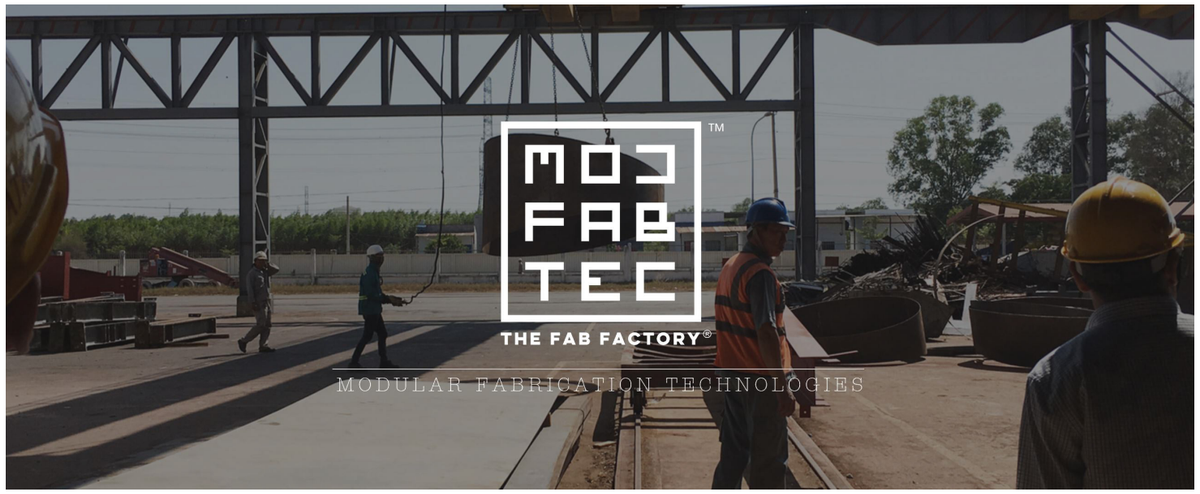
Han Hoang | CEO

Modular buildings - also known as pre-fabricated buildings, even though a prefabricated building does not need to be modular - are buildings made up of repetitive components manufactured in factories on assembly lines, assembled remotely before being installed on-site usually by the units lifted in place. Modular building reached the peak of popularity in the United States after the second world - circa 1945 - at the time when there was a drastic need for the rapid construction of buildings to accommodate thousands of returning troops. Initially, pre-fab buildings were well-received and for several years, it was believed that pre-fab was going to overtake the entire building industry and replace the traditional building process for good.

However, because of its inflexibility in design options along with the perception of lower quality applications, it fell out of favor for owners and became a very niche market for only devoted enthusiasts. Since the demand became less and less, pre-fab became undesirable and its lack of scalability made it very costly.

Why Now in 2016 ?

With the advent of a more integrated process such as BIM and VDC, design and engineer of modular units have become more flexible by allowing designers to create multiple options and variations virtually before building costly actual mock-ups. With BIM, projects are getting more intelligent while VDC's integrated planning has proven to be much more effective and allow for the control of the entire building process. Additionally, communication and collaboration between stakeholders are now easier making transportation and logistics simpler. Lastly, in order to meet the much-needed demand, modular buildings has the ability to fulfill the speed to market requirements.



For more information on the MOD-FAB-TEC process, please visit our website at **www.the-bim-factory/the-fab-factory** to find out more details.

MYTHS

BIM implementation is expensive and hurts productivity.
The technology powering BIM has become more affordable. Yes, the upfront costs to implement BIM can be somewhat higher than the traditional construction process. These include hardware and software, training fees and administrative costs. However, the benefits and cost savings from detecting issues ahead of construction—thus mitigating or reducing RFIs and change orders—generally outweigh the initial implementation costs. Additional benefits include coordination, integration, visualization, communication, constructability, consistency and "what if" scenarios.

SOURCE: http://www.weareharris.com/blog/archive/myths-and-facts-about-bim

OUR COMPANY

ONE **VISION**

Nothing is more important than having a vision that everyone in the company can relate to. From the beginning, our company's vision has always been firmed.

Our goal is to improve the design, engineering and construction process by expanding the implementation of BIM throughout Vietnam and South East Asia. We envision that BIM can empower our clients to design better, build faster and cost less combined with creative technological solutions which can beneficial for all of our clients.

We are innovators in a very traditional industry, therefore, we will always need to constantly keep progressing forward in every aspect of our services and product. We always see ourselves as first movers, and first movers are the ones that either succeed or fail in a big way.

We know that our business is driven by culture and effectiveness and this starts at the very top. It begins with our Board and trickles down to our Senior Managers and Team Leaders. This is important in order to create a workplace that foster creativity and trust among team members as well as our customers every day.

It is a proven fact that culture of any company typically mirrors the culture of the senior leadership team. We ask that every team members especially the leaders to examine how healthy their team culture is and find creative solutions to boost the effectiveness of their team. Since we work on efficiency and no matter how good and confident we are, we can only be as good as our weakest member.

We believe that everyone in this company is vital to our success and it requires for all of us to share the same vision.

OUR FUEL

IT IS PASSION AND LOVING EVERY SINGLE THING THAT WE DO EACH DAY WILL DRIVE OUR SUCCESS.

As any company, especially in Vietnam, it is always a challenge to constantly keep the team motivated and on top of their game. Nothing is more important than the camaraderie of a workforce especially when your company's primary scope of service is collaboration and team support.

Furthermore, our company drives on innovation and being at the forefront of our industry. It is also because our business is not your traditional type of services, we need to always be at the top of our game and adapt to the constant changes. There will a be time when we look as if we are confused with our work, but rest assure, it is just a part of our strategy because we know to constantly add the fuel of passion and love we need in order to drive us to the land of success.

OUR PROJECTS FOCUS

THE BIM FACTORY AND THE FAB FACTORY ARE PROVIDING INTEGRATED DESIGNS, ENGINEERING, FABRICATION AND CONSTRUCTION TO THE WORKERS AND HOSPITALITY MARKET.

THE BIM FACTORY believes that everyone deserve a well-designed habitable space. Therefore, we have developed a one-of-a-kind integrated building company dedicated to achieving this goal. We call this **THE FAB FACTORY** and we are working on integrating all the mechanism of development, design, construction, fabrication, manufacturing, and operation into a cohesive streamlined process that reduces the overall cost of dwelling developments. The following are two of our current projects focusing on modular fabrication technology.

DORMITORIES
FOR THE MASSES

PROJECT LOCATION: Cam Ranh, Nha Trang, Da Nang | Vietnam

PROJECT TEAM:

Creating low-cost luxury dormitories for the masses.

The goal for this project is to build modular units, source the most cost effective materials, utilize BIM and VDC process to maximize the design, fabrication, production, and construction of dormitories for all types of factory workders. Our primary purpose is to change the perception of what dormitories are all about.

As the developer, designer, engineer, supplier and constructor of this unique project, we look control the entire supply chain from the top down.

We believe that dormitories should not have to look like "dormitories", but rather something that workers are proud to call home with quality design and materials but at a fraction of the cost.

HOUSING
FOR WORKERS

PROJECT LOCATION: Hoi An | Vietnam

PROJECT TEAM:

Redefining the housing typologies of workers.

Our housing for workers strategy is purely focused on the design flexibility with different modular components and integrated assembly techniques. Our approach is to provide the very minimal living amenities but at the same time create a diverse and a high standard of living environment.

This housing typology is the next evolution our dormitory typologies. Again, we are also looking to change the perception of what worker's housings should be. Because the primary users of this housing type are families and upper managers, our intent is to provide more spacious units, an abundance of family-type of amenities, and much more communal activity-type of spaces.

We aim to provide qualities of a luxury complex, but at a fraction of the cost. By utilizing modular and systematic design and assembly processes, we look to provide the most efficient way possible from conception to completion.

THE MINISTRY OF CONSTRUCTION PROMOTES BIM IN VIETNAM.

Translated from **Vương Đạo Hoàng** article - 2016

Recently, Mr. Royer Somerville of Autodesk introduced the benefits of building information modeling application (BIM) to improve the efficiency of design, construction and project management in Vietnam. Autodesk, Inc. through cooperation with the Institute of Construction Economics (ICE) is currently introducing BIM to the construction industry.

Accordingly, Autodesk is committed to providing continuous support of information on the best technical strategies to the Institute of Construction Economics and at the same time, suggesting the most suitable roadmap for BIM construction industry in Vietnam.

Mr. Royer Somerville also thanked the Ministry of Construction who have supported workshops to introduce BIM to the group which took place in Hanoi on September 15th, 2016. The workshop's intent is to be more supportive and assist the construction industry to learn about BIM.

Deputy Minister Mr. Le Quang Hung expressed support the effort in conjunction with the Institute of Construction Economics and held a seminar to introduce BIM projects information and its application capabilities in Vietnam.

On behalf of the Ministry of Construction, Mr. Le welcomed the collaboration effort to introduce modern technology, transparency, new scientific and technological advances to Vietnam. Mr. Le intended that the workshop will clarify the usefulness of BIM with specific projects to confirm the benefits of adopting BIM.

Currently, various state projects have compulsory use of BIM but the Deputy Minister said, in order for specific studies to be effective, Vietnam will have to apply the roadmap. He thanked Mr. Royer Somerville who spent valuable time with the delegation and has pledged to become a long term partner for Vietnam.

Ngọc Hà (Construction News)

BIM **IN VIETNAM**

VIETNAM BIM NEWS

Image by TTG. For more information please visit **www.ttgvn.com**

Lancaster Lincoln

TTG'S premier mixed-use residential complex in District 4 of Ho Chi Minh City is set to become Vietnam's first majority BIM implemented project.

Architecturally designed by NQH Architects, this TTG developed high-end project is considered one of the most highly anticipated residential project in Vietnam. Tuck behind a nice quiet entrance along Nguyen Tat Thanh, panoramic views of the Saigon river along with lustrous landscaping and ample amenities, its residents and guests will be able to experience living in the heart of the city while still enjoy the rare privacy that of a boutique development.

Utilizing the BIM process from the early conceptual design stage, unprecedently for Vietnam, TTG understood the importance of having everyone on board right away. TTG was able to assemble a complete project team from the structural engineer to the landscape architects to the BIM consultant at the conceptual stage of the design.

When complete, the Lancaster Lincoln will be considered as one of the first building in Vietnam to be majority BIM implemented from the beginning to the end. Although many other buildings in Vietnam utilized BIM functions in their projects, however, there's always been a hybrid-type of usage where 2D CAD is still the primary tool for every project. There have never been a project in Vietnam that have utilized more than 50% of the BIM process.

The Lancaster Lincoln, on the other hand, is one of the very few projects that will be using more than 80% of the BIM process from beginning to end. Managed by an international team at TTG Group along with THE BIM FACTORY as the BIM consultant, Lancaster Lincoln is certainly a unique project to keep an eye on. Find out more about this project at: **http://lincoln.lancaster.com.vn/en**

INDUSTRY LEADERS

FOCUSING ON THE PEOPLE WHO ARE MAKING AN IMPACT IN OUR INDUSTRY.

WHEN IT COMES TO UNDERSTANDING THE TRUE DEFINITION OF THE **LOD** (Level of Development), NO OTHER AUTHORITY FIGURE IN OUR INDUSTRY CAN EXPLAIN IT BETTER THAN MR. BEDRICK.

Jim Bedrick is a registered architect, holds degrees in Architecture and Electrical Engineering, has over 35 years' experience in the AECO industry, and has worked on all three sides of the Owner / Architect / Contractor triad. After practicing architecture for ten years, he moved into the design and management of information systems for architecture firms. In 1998 he joined 3Com Corporation, directing information technology for their worldwide capital projects and facilities management division. In 2001 he joined Webcor Builders, where he led the development and implementation of Virtual Building processes and technology and the company's Integrated Project Delivery capabilities, and developed strategic alliances between Webcor and several major architectural firms. In 2011 he extended his scope to the broader AEC community, capitalizing on his industry-wide experience to found AEC Process Engineering.

Throughout his professional career, Mr. Bedrick has had a significant impact on the design and construction industry. He has maintained close ties with academia and is often invited to guest-lecture at major universities. He is currently vice-chair of the **Curriculum Board of Vietnam's Institute of Virtual Design and Construction** (IVDC Vietnam) where he is working to help Southeast Asian nations fill a critical shortage of practitioners skilled in VDC. Since his days as a graduate student he has accumulated an excellent track record in making information technology work effectively and efficiently for the people who use it, and he currently sits on the board of directors of **Building System Planning, Inc.** (www.buildingsp.com), a company that develops software for the automation and iterative optimization of building system routing and coordination. Mr. Bedrick is also **Senior Industry Advisor for Strategic Building Innovation** (www.SBI.international), where he provides expertise on collaboration techniques and AECO industry needs, processes, and contract issues.

Mr. Bedrick has developed delivery models, contracts, technology, and work processes that nurture, support, and enhance this collaboration.

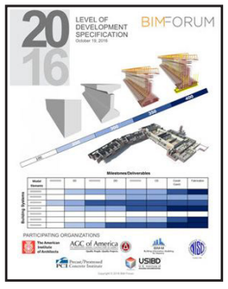
For years a strong advocate for the power of interdisciplinary collaboration to create innovative, cost-effective solutions to complex building problems, Mr. Bedrick has developed delivery models, contracts, technology, and work processes that nurture, support, and enhance this collaboration. He was at the forefront of the development of IPD, co-authoring all of the **American Institute of Architects (AIA)** initial publications on the concept. Since 2007 he has been a contributing member of the **AIA Contract Documents Committee** (www.aia.org/contractdocs), where he co-authored the initial **IPD** contracts, created the concept of **Level of Development (LOD)** and helped to build an agreement (AIA E202) around it, chaired the development of the 2013 Digital Practice Documents, and helped write both the Design-Build documents and the **A201 General Conditions for the Contract for Construction**. He is currently working with the **Associated General Contractors (AGC)** to develop and deliver workshops on collaborative VDC techniques, and since 2011 has co-chaired the **AGC/AIA BIMForum LOD Specification** working group (www.BIMForum.org/LOD). Mr. Bedrick is also a founding member of the board of directors of the **Center for Innovation in the Design and Construction Industry** (www.CIDCI.org), an organization that extends collaboration beyond the boundaries of the AEC industry.

James Bedrick | FAIA, LEED AP

Mr. Bedrick is currently the **Chief Industry Advisor at THE BIM FACTORY** and leads the BIM Implementation strategy team. Mr. Bedrick is instrumental to the development of the BIM Implementation process at TBF as well as for TBF's Client's desire to transition and adopting BIM across the globe. Currently, Mr. Bedrick is working with TBF on the BIM Implementation Strategy for Elenberg Fraser Australia.

Mr. Bedrick is the Founding Principal of **AEC Process Engineering**. Located in San Francisco, California, AEC Process Engineering is a consulting service dedicated to the design and implementation of technology, processes, and collaboration techniques that bring economy, efficiency, innovation, and added value to design and construction. We couple technologies such as Building Information Modeling and virtual teaming tools with collaboration and consensus-building techniques from the fields of negotiation and business management to create an integrated approach to harnessing the broad range of knowledge, perspectives, and thinking skills present in any design or construction firm or project.

Mr. Bedrick is fascinated with Vietnam and is looking forward to developing a long-term relationship with the country and ready to support Vietnam in the development of the BIM roadmap.



Recently, AECPE teams with AGC and the BIMForum to develop a full day workshop on the LOD Specification. The Level of Development (LOD) Specification is a reference that enables practitioners in the AEC Industry to specify and articulate with a high level of clarity the content and reliability of Building Information Models (BIMs) at various stages in the design and construction process. You can and should download a copy of the 2016 LOD specs at: http://bimforum.org/lod/

IN THE community @ TBF

FABLAB THAO DIEN

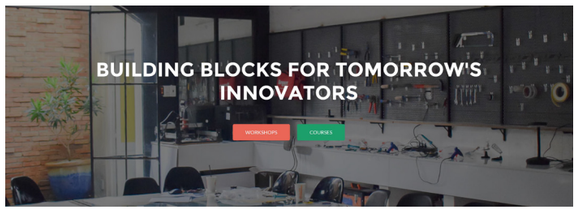
A NEW MAKER SPACE IN THE HEART OF THAO DIEN, DISTRICT 2, HCMC.

What is Fablab?

- A place where people can make anything.
- A place where makers to go learn, teach, and inspire other makers.
- A place where you can use digital fabrication tools.
- A place to go when you need to build and prototype your invention.

What is Fablab Thao Dien?

As part of the community outreach program and as a way to pay back to the youth in the community, THE BIM FACTORY along with the Fablab Saigon crew dedicated the TBF conference room and turned it into a Fablab. With various programs, workshops and events, Fablab Thao Dien is the newest location for a gathering of all makers and inventors to share ideas, thoughts and support each other.



For more information on this fablab, you can visit **www.fablabthaodien.org**

Fablab participants working together as a team in the ROverBOT workshop.

WORKSHOPS

HOW TO MAKE THINGS TALK

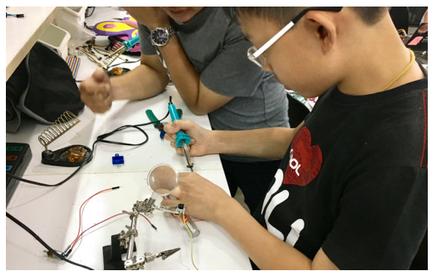
For the first ever workshop held on October 9th, 2016, Fablab Thao Dien provided the participants all the tools and materials to make it talk and take home the electronic kit that they can pull apart and reimagine. Participants had the chance to use their creativity to make a product interactive and pitch their invention to the rest of the group at the very end.

Fablab participants working on their project in the ROverBOT workshop.

LET'S MAKE A ROverBOT

The second workshop focuses on building an agile two-wheeled robot called a Roverbot that can be controlled by a smartphone (or laptop). Besides being a fun toy, participants can use to chase dogs or cats around the house. This workshop serves as a brief introduction to some exciting new technologies that will give you awesome ideas for future projects. Beneath the plastic shell, the robot is based on cutting-edge "Internet of Things" technology and a custom smartphone application. In ten years, these things will help run our factories, our offices, and even our homes.

Fablab instructor helping a student.



A participant learning how to solder electronics.

8-yr old Sophia with her ROverBOT.

BIMbots | World Cup 2016

Battles of the regions.

As part of the team building event, TBF along with **Sean Boyce** of Fablab Saigon and various generous sponsors donated their cash and efforts to build the BIMbots to compete in a world cup competition between the different regions. The teams were formed by the staff at TBF based on their associated regions of Vietnam. The teams then battled for supremacy in a form of football matches right on our large conference tables. At the conclusion of the match, TBF donated the winning bots to various kids on behalf of the sponsors. This game was broadcast live on our facebook page.

Sean Boyce teaching the staff the working parts and assembly of the bots.

BIMbots SPONSORS

We would like to acknowledge the good deeds and thank the following sponsors of our first BIMBots World Cup 2016. **Mr. Martin Giang Tran** (Restaff), **Mr. Louis Nguyen** (Urban & Glow), **Mr. Justin Cohen** (Mirum), **Mr. Andy Lam** (Zoolut), and **Mr. Prithvi Puttaraju** (Algosquare). Each of these sponsors was able to donate a few BIMbots to several privileged kids to explore.

RESTAFF

URBAN KITCHEN + BAR

GLOW SKYBAR

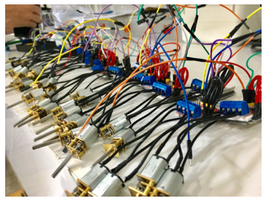
mirum

zoolut

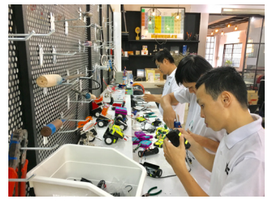
ALGOSQUARE.

MiiTV

The championship game between The North vs. The West | The West won 5-3.



The motors and electronics.



Assembly line.

The completed BIMbots.

The North vs. The Central

For more details about this event, please visit our website www.the-bim-factory.com and facebook page @thebimfactory.

Emerging BIM talent.

Our future BIM leaders in Vietnam.

The future of our industry is solely dependent on the people who are skillful and talented enough to run it. Especially in Vietnam, where BIM talents are rare and truly hard to come by.

This section is dedicated to the people who we think are emerging as stars within our BIM industry in Vietnam.

Knowledge begins with the understanding of the topic and then mastering the subject by actively performing it. Here at THE BIM FACTORY, we not only expect our team members to become the experts of the BIM topics, but also becoming an active participant within the community. Plus, doing the actual work at optimal efficiency also helps to define the future leaders of our industry.

Duc Quoc Dang

BIM Coordinator II

Detailed oriented and a natural at absorbing knowledge.

Duc started down his BIM path in 2014 as a BIM Modeler. He was mostly an observer of everything around him and completed all the tasks that were assigned to him to pinpoint accuracy. He was and still to this day, so focus on doing everything right the first time. His ability to be so detail oriented made him stand out from the rest.

In 2014, during the most difficult time of the company, Duc was able to show his determination by volunteering to do whatever it takes to make his work and the company he is associated with better. From overseeing the team of his peers to traveling by himself to Singapore for months and work with total strangers in a foreign country. This focus and perseverance were a natural progression for him and it was then that everyone realized, he is going to be a great leader.

Relentless in his pursuit of perfection, Duc created from scratch many working processes by himself in order for his team to be more efficient. Who would've thought that his entire future and happiness is tied to the company, but it happened when he met his future wife who is an accountant at THE BIM FACTORY.

Duc certainly has a bright future ahead of himself, a true leader in the BIM modeling process in Vietnam, from creating customized workflows to coming up with unique modeling matrix, Duc is a pioneer in our BIM industry in Vietnam and a force to be reckoned with in the near future.

Q & A with this month's Emerging BIM talent.

★ **What attracted you to join TBF?**

DD People! The first time I came to TBF, I saw a group of people going through the wreckage (our old factory) with their own hands and all kinds of tools, and yet at the same time, they were all smiling. I decided immediately that I have to join this group! I can imagine the amazing things that we can do with that wreckage and believed that these people saw the same things I did. Because when you build something from your own hands, you will have the responsibility to take care and respect it. Therefore, I know I can always believe in them in the long run.

★ **What is proudest achievements at TBF?**

DD My "*Most Valuable Employee*" achievement at the end of the first year of TBF mainlt because I got the opportunity to successfully complete majority of the projects from Singapore . That is also why I got the nickname "*Mr. Singapore*" that year. I aim to get that achievement every year.

★ **What do you love most about your work?**

DD The thing I love most about my work is that every time I complete a project, my company is step closer to becoming better. Each issue that comes with a project is a challenge I love to take on. At the end, I feel happy when it is solved because it makes what I do seems valuable.

Read the rest of Duc's Q&A session at **http://www.the-bimfactory.com/ebt-duc-dang**

Check out the other Emerging BIM talents currently on our website at **http://www.the-bimfactory.com/emerging-bim-talent**

Binh Truong

A true leader of the pack.

Binh started his BIM career in 2006 as a designer for a Japanese firm. In 2011, Binh became a BIM MEP Leader under the supervision of our current CEO...

Trang Nguyen

Determination and perseverance are Trang's primary traits.

Trang started as a BIM Modeler in 2011 under the supervision of our current CEO. In his first year Trang was determined that he was going to be a leader...

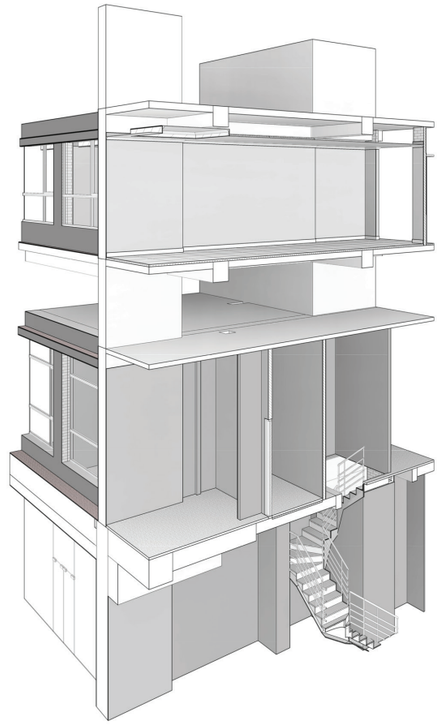
Duy Le

A jack of all trades who has the experiences to back it up.

Duy started working in the architectural design industry in 2007. In 2011, he met our current CEO at a coffee shop and started interacting with him. Describing his talents...

BIM **PRODUCTION**

WE CREATE BIM MODELS SPECIFICALLY FOR DIFFERENT TYPES OF PRODUCTION OUTPUT.



When it comes to BIM production, our goal is to assist designers, engineers and contractors make better decisions by maximizing the information and quality contained within the BIM models.

BIM Production is one of our most basic and fundamental type of services. Production is the foundation of all BIM process and sets the tone for the entire project. If there are no BIM models to start with, then there is simply no BIM.

When we build our BIM models, we minimize errors in order to meet required design criteria for our clients. Our modeling process assists our clients in the design and approval process by providing them with the ability to visualize modeling components and allows all the stakeholders to understand the design intent of the project, as well as quantify all the elements of the design before, during and after the construction of the project.

We have three basic types of BIM Production:

Documentation: Documentation is not only an important during the design process but well into the construction stages and as far as years later during the operations and renovation of the project. We have done it all from creating documentations for BCA submission process to as-built drawings.

Modeling in BIM: This is our bread and butter service. We have done an estimated of over 6,275,000 square meters of surface area since 2014 and counting. We have gotten so good at modeling in BIM that we can literally model with our eyes closed. But of course, we won't. Let us show you how good we are.

Shop Drawings: Shop drawings can be very tricky, especially with different sub-contractors requiring different types of drawings. We have provided shop drawings in Singapore, United States, Australia and Vietnam. We understand the intricacies of creating shop drawings.

For more information on BIM Production, please visit our website **www.the-bim-factory.com/bim-production** for more details.

TBF CLIENT HIGHLIGHTS

BIM PRODUCTION MODELING SUPPORT

Client: **KATERRA INC.** | UNITED STATES
Scope: BIM production | Modeling & Content Creation
Duration: 2 to 3 months

Founded in 2015 by a collective of construction industry veterans and highly successful Silicon Valley technologists, Katerra's mission is to improve the design, economics, speed-to-market, and quality of building projects & scaled master planned developments. Katerra leverages the advancements in information technology, design, sourcing, manufacturing, supply chain management, and logistics that revolutionized Silicon Valley. When these capabilities come together through vertically integrated, highly skilled team, Katerra is able to deliver projects faster, with superior quality, less waste, and lower operating costs than ever before. THE BIM FACTORY supported Katerra on multiple residential projects mostly dealing with modeling production work.

Image by Katerra Inc.