

AS502398

# Why This Kenyan-Based Design & Build Firm Moved to Revit

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BuildX Studio

## Learning Objectives

Through this Case Study, participants will be able to;

- Improve online multidisciplinary project collaboration and data communication.
- Reduce time spent during design to maximize on design cost saving.
- Implement coordinated clash detection between various project disciplines.
- Estimate project cost from Revit Models.

## Description

BuildX Studio designs and builds spaces that promote dignity, health, and environmental comfort in Kenya. Time and cost efficiency are key to keeping up with the pace of rapid development in the region. With the introduction of Revit, the industry has experienced a digital revolution allowing for multidisciplinary work-sharing through central models hosted on an individual firm's Local Access Networks or through BIM Collaborate Pro. Recently, BuildX conducted a survey to determine whether it should migrate its entire design team from AutoCAD onto Revit. Two projects were used for comparison: through a short time-lapse video, you'll see first-hand the 2x more efficient process with Revit. A housing project in AutoCAD took 3115 hours, while a similar project in Revit took just 1478 hours. Join us to hear about the powerful outcomes BuildX experienced in migrating to Revit, how we upskilled the team, and how your firm can benefit too.

## Speaker(s)



I am a BIM Management enthusiast, Design and Build Digital Integration and Technology adoption champion, Civil/Structural Engineer, Structural/Architectural Draftsperson, with a Bachelor's Degree in Civil Engineering from the Technical University of Kenya. I have 5+ years of working experience in Civil/Structural and Architectural Projects in Africa and the Middle East. I am an Autodesk Foundation Tech Lead Development Fellow with a great appreciation for Building Information Modeling. I have worked in numerous infrastructure projects with special interests in BIM Management, construction site supervision, management of projects issues including project reporting, I am skilled in carrying out quality assurance, quality control, implementing and ensuring quality management systems are implemented on projects, Project coordination and project inter-discipline collaboration, 3D structural/architectural modelling and Detailing.

## Introduction

This Case Study is intended to serve Revit users, Managers, Business Leaders who are looking to build efficient, multidisciplinary, collaborated workflows that promote timely project delivery within budget. An attempt is made to highlight this Revit journey.

### Why I am passionate about this topic?

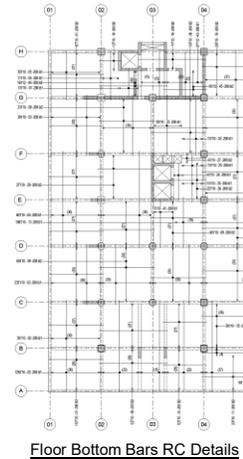
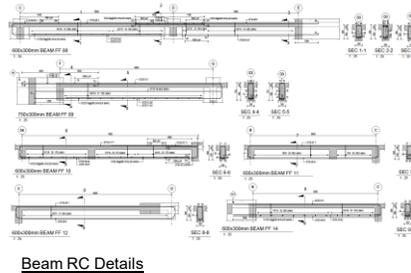
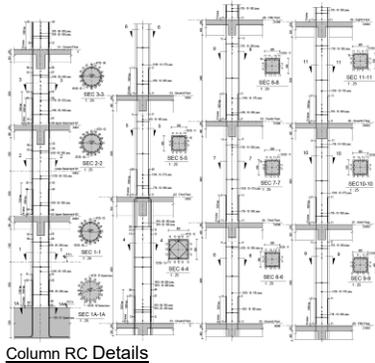
My Revit Journey began in 2017 in a company Called Howard Humphrey's East Africa Limited (HHEA), an engineering consulting firm in Nairobi Kenya as a Structural CAD Drafting intern. This is an opportunity I could have missed because back in 2016 during my 3<sup>rd</sup> year of pursuing my National Diploma in Civil Engineering at The Kenya Technical Trainers college (Gigiri) the HR Manager of HHEA called the Head of Engineering Department of my college and asked him to send names of 6 of his best engineering students for a potential internship opportunity with instructions that every applicant should have some knowledge of Revit. It was my first time hearing the name Revit since AutoCAD was the common drafting tool used in campus, I even thought Revit was the name of the company calling us for a job. My HOD asked me to send him names of 6 students from my class who I was sure had some Revit Knowledge. I did as I was instructed and left my name out since I had no knowledge of Revit. This happened in December 2016. I did my part and forgot about it.

Later in January 2017 I get a call from a lady who called me by my name and told me that I am among the students presented to HHEA by my college admin for possible internship position and I should send my resume to an email she forwarded to me. My head of department forwarded my name while sending the list of names I shared with him to be considered for the position.

I shared my resume as advised which was quite basic at that point. I was later shortlisted for an interview for potential consideration for hire. I was selected for the internship position together with another friend from my class. As the culture of HHEA was, an intern would rotate in the three engineering department to give them a chance to make an informed career choice. My first station was the structural engineering department where I was soon put in a project that had run above Workstage budget and all resources were pulled out of the project leaving the project manager as the only technical person in the project. Being a structural Engineer, He was the lead Structural Engineer of the project. Soon after, the department line manager made a strategic decision to have me support the project as a draftsperson and allow the Structural Engineer to handle the design. This was my first project with zero Revit knowledge. This was an effective move for the project budget wise, since my time was covered as overhead.

By this time I was aware that Revit was a tool and not the name of a company. The project lead was gracious enough to give me basic tutorial as I work. after a couple of days, he said that I was good to go and my first job was to produce structural column drawings and Bar Bending Schedules.

Below are some of my first detailed rebar drawings from my first Revit project.



Rebar Schedule - COLUMN C7A												
Member	Bar Mark	Type & Size	No. of Fibers	No. in Each	Total No.	Length of each bar	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
COLUMN C7A	01	T8	1	66	66	2340	51	530	530	160	160	0
COLUMN C7A	02	T32	1	2	2	3590	11	2850	830	0	0	0
COLUMN C7A	03	T20	1	12	12	3040	11	2240	850	0	0	0
COLUMN C7A	04	T8	1	13	13	3110	51	720	720	160	160	0
COLUMN C7A	05	T32	1	8	8	5200	00	5200	0	0	0	0
COLUMN C7A	06	T32	1	4	4	4250	00	4250	0	0	0	0
COLUMN C7A	07	T8	1	40	40	2650	75	720	410	0	0	0
COLUMN C7A	08	T8	1	91	91	2020	75	520	410	0	0	0
COLUMN C7A	09	T8	1	53	53	3110	51	720	720	160	160	0
COLUMN C7A	10	T25	1	4	4	2530	00	2530	0	0	0	0
COLUMN C7A	11	T20	1	12	12	4600	00	4600	0	0	0	0
COLUMN C7A	12	T20	1	12	12	4600	00	4600	0	0	0	0
COLUMN C7A	13	T20	1	12	12	4000	00	4000	0	0	0	0
COLUMN C7A	14	T20	1	84	84	5000	00	5000	0	0	0	0
COLUMN C7A	15	T20	1	12	12	4230	11	3880	390	0	0	0
COLUMN C7A	16	T25	1	14	14	5180	00	5180	0	0	0	0
COLUMN C7A	17	T8	1	124	124	1900	75	520	290	0	0	0
COLUMN C7A	18	T25	1	4	4	5100	11	260	4910	0	0	0
COLUMN C7A	19	T20	1	12	12	5060	11	200	4900	0	0	0
COLUMN C7A	20	T20	1	8	8	2350	00	2350	0	0	0	0
COLUMN C7A	21	T25	1	6	6	5260	00	5260	0	0	0	0
COLUMN C7A	22	T32	1	2	2	3380	11	2840	830	0	0	0

Bar Bending Schedule

I spent so much time studying and learning Revit that I became the best drafter and modeler in my office. Project leads would recommend to my line manager that I am put in their projects as a resource. I was later sent to the Middle East to support work there on secondment before returning to Kenya due to the onslaught of Covid 19 pandemic in 2020. I was based in Muscat Oman during my stay in the Middle East while working for Atkins who by this time had acquired HHEA.

I have great interests in BIM Management that was brought about by my interests in BIM Workflows and always found myself championing better and efficient working.

### What event caused BuildX Studio to consider moving to BIM?

Back in 2019 there was a general desire within BuildX Studio to have the design team migrate to Revit. The management had an understanding of how efficient working on Revit would be to the team and recognized great value Revit would add to the design process. To achieve this the design team was taken through Revit Essentials Training course. The training was efficiently and professionally done by UK based [SYMETRI ADDNOTE GROUP](#) Revit trainers who are highly trained professional coaches, a move that left the design team back at BuildX eager to

begin working on Revit, unfortunately this move failed to take off since no one from the team was confident enough to lead an entire project on Revit. Covid-19 pandemic hit and the team had to work remotely for the longest time ever.

During the pandemic, most firms had to let go of a number of their staff since the Build Industry was really affected. BuildX was equally affected and a big part of the team had to be declared redundant to keep the business.

In December 2020 I received a call from then BuildX Director of operations offering me an Architectural drafting role in their office, similarly I was to lead Revit Migration in the design office which comprised of Architects and Civil/Structural Engineers.

### Problems BuildX Studio had, that the design team hoped BIM might solve and opportunities the team hoped that BIM might unlock?

BuildX Studio Business model is based on developing innovative building solutions that go beyond business as usual and maximize impact: buildings that are net zero carbon, more equitably designed, and enhance quality of life and wellbeing. BuildX understands that if we design smart, centred on climate and human wellbeing, we can create towns and cities which are healthy today and for future generations. For this to be achieved comprehensively, there was a general agreement in the design office to shift from 2D drafting and adopt 3D intelligent modeling and drafting solution, Revit was at the top of their list. Working on Revit would allow the team to carry out design analysis such as;

- Thermal comfort simulation, ventilation requirements and energy efficiency targets which is made possible by CFD
- Daylighting and lighting analysis which is made possible by Insight Lighting Analysis

With Revit and well-coordinated workflow, the design team appreciated that it would be possible to obtain real time lighting, energy, thermal comfort and ventilation data that influence design decisions from a central Revit File.



2.5bn  
people will live in Africa by 2050, double today's population.



58%  
of Nairobi's buildings are unfit for human habitation (NCA, 2016).



40%  
of global carbon emissions are due to the construction industry.



>35%  
of all expected new construction by 2050 will take place in Africa



>25%  
of Kenyan youth aged 18-24 years are unemployed, with women most affected.



<6%  
of the construction workforce in Kenya are women. Nowhere in the world are women >15%.

## Could BuildX measure the effect of those problems/opportunities?



**Innovative, cost-effective, human centred design**

Our approach is rooted in innovative and cost effective designs. We work with our clients to maximise returns and impact with buildings that challenge the status quo and which are purpose-built for our clients and building users.



**All-in-one solution**

We reduce your risk by being your single point of contact – from visioning and concept design to the finished building – allowing us to deliver at the highest standards of quality while optimizing your costs and timeline.



**Impact**

We pioneer sustainable design and construction in the region. Our designs improve health and human experience in your buildings. We enable inclusive skill development for the sector and we share what we do and learn. Our work has the potential to change how others build in the future.

[BuildX Studio, the future of Building-What we do](#)

<p><b>Pre-Design</b> <span style="color: #00A69F; font-size: 24px;">➤</span></p> <p>0. Strategic Definition 1. Preparation &amp; Brief</p> <p>We start by working with you to identify the Business Case, Project Objectives, Strategic Brief and other core project requirements.</p>	<p><b>Design</b> <span style="color: #00A69F; font-size: 24px;">➤</span></p> <p>2. Concept Design 3. Developed Design</p> <p>We develop exceptional design solutions which are founded on human-centred principles and prioritise environmental performance, functionality and local resources.</p>	<p><b>Build</b></p> <p>4. Technical Design 5. Construction 6. Handover &amp; Closeout 7. In Use</p> <p>We offer a trusted service, based on transparency and strong communication, delivering an end product perfectly aligned to your objectives and vision.</p>
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[BuildX Studio, the future of Building-Process](#)

AutoCAD was the main tool used in BuildX across all the Riba Work stages from pre-design to Build. Being a Design and Build firm, AutoCAD as the main drafting tool worked but was inefficient given the scope of work the company wanted to undertake throughout the Design and Build. There was need to consider Revit adoption to realize goals of Innovative, cost effective, human centered design. Unlike working full time on AutoCAD, Revit project had instant results

of reduced personnel assigned to a single project. This improved flexibility in the team, allowing for space to do multiple projects within shorter periods of time.

With BIM Collaborate pro the office had multiple teams working on the same model at any given time, while saving, synchronizing work done instantaneously. With Revit models and the help of tally's plug in BuildX was able to measure embodied carbon in the Revit Model during the design process.

Incorporating Revit into the design brought a whole new list of possibilities to the entire workflow. The structures team would link real time Revit models onto the structural models as underlays in Revit Coordination discipline. A whole new list of possibilities came with the transition into Revit.

### **How did BuildX go about assessing Revit as a BIM tool?**

I started my job at BuildX on the 4<sup>th</sup> of December 2020 and was assigned [Zima Homes](#) as the lead draftsperson. Zima Homes is a low cost affordable housing project located in Kiambu County, Kenya. Zima is derived from Swahili word '*Uzima*' that means life. I inherited a model that had already made some progress. I was forced to remodel parts of the project since the initial model was done by a wonderful upcoming Revitor who had awesome ideas like placing topo into the model but had limited knowledge on how to go ahead with it and went a head to place floors at every contour interval. I appreciated the model and I equally understood that there was work to be done. After seeing the scope ahead and the resource I had available! I decided to build the house in modules. This way, multiple module types would change and update after updating one of the types which were distributed all the project e.g by changing one kitchen unit all other kitchens of that particular type get updated.

First task was to create the office BIM Common Data Environment complying with BS 1192:2007 with proper documentation and container naming on BIM 360.

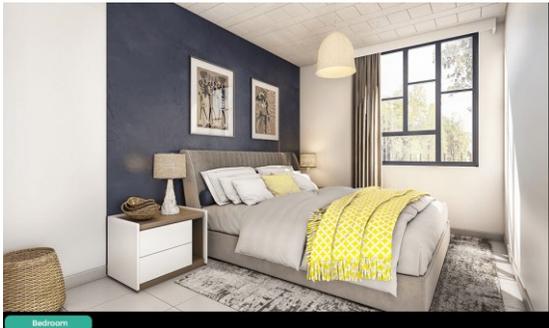
## Zima Homes



Lounge



Courtyard



Bedroom



Street View



Aerial View

I did this project with an Architectural intern who I was training as we worked. After December holiday the team came back and acknowledged that the progress made on the project by only two people was commendable. This gave Revit a good standing and I could see project leads begin having conversations of moving to Revit.

Zima Homes was the project BuildX used to assess Revit and I am glad we started with it.

### What BuildX Studio stakeholders thought of the project? (AutoCAD users, as well as non-CAD users such as company owners, project managers)

Upon seeing real time how Zima Homes Model took shape within a record time with limited resources allocation compared to counterpart CAD projects, BuildX management considered getting the rest of the design team trained on Revit to facilitate the migration.

A structural engineer who experienced working on the cloud hosted Revit Model for the first time commented as follows; *'David how have we been working all along. Working on a Cloud hosted Revit model is so efficient'*

There was a general acceptance and support for the transition to Revit from AutoCAD.

### What were the results of Revit assessment?

There was real time content to show in the form of layouts, sections, elevations, windows and door schedules, material schedules. I created Windows and door schedules from legend components that were updated every time I updated the family types.

We were able to obtain real time daylight analysis using [Autodesk Insight lighting analysis](#). This data was used to determine sizes and location for windows. From the lighting analysis data obtained, the design team even noticed that there was a region between Block C and B that had a potential of being darker than the rest of the units due to reduced daylight access. Material schedules with area and volume component came in handy during costing by the Quantity Surveying Team. Spatial coordination couldn't have been done any better because rooms on the model were well annotated showing actual room sizes that kept updating when room bounding walls and room separators were moved.



Aerial View

Revit proved itself as the tool of choice for the design team.

### What was the team surprised by?

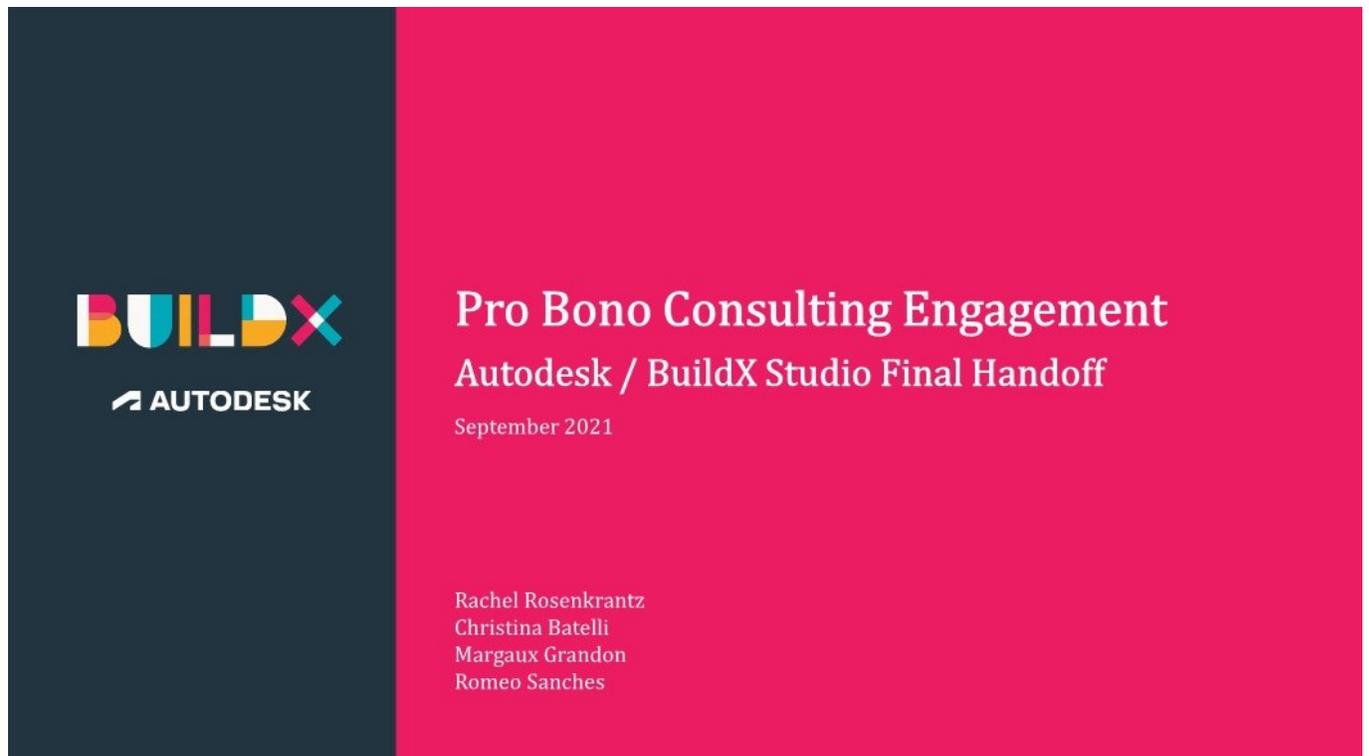
It was clearly one thing to know the power of Revit and another thing to see it happen real time in the office for the first time. The design team was particularly fascinated by BIM 360/ BIM Collaborate pro which made collaboration super-efficient. I took over BIM Management role of the office and combined this with my drafting role. A challenging mix to combine given that both scopes were equally demanding for time and attention. We however managed and a number of projects got into the collaborated BIM space.

## What did you do next, to migrate the team to Revit?

There was an urgent need to have the design team professionally trained on Revit, I was coaching individuals as we worked but as the team grew it became necessary to allocate time and resources for training.

BuildX Studio is a portfolio organization of Autodesk Foundation under The Autodesk Technology Impact Program. This program has played a commendable job in BuildX and the company can attribute its existence to this program. With the support of Autodesk Foundation, BuildX Studio have license donations including Architecture, Engineering and Construction (AEC) collection. This is how migrating to Revit became a viable option to me because the infrastructure was already available.

During 2021 pro-bono consulting engagement with Autodesk an area I was keen on, was Software training for the Design team and on top of my list was Revit training. We came with a training implementation plan that was used to train the whole design department in Revit. Below are some of the sections that were consultatively arrived at during the consulting engagement with Autodesk.





## Tech workstream deliverables

- ✓ Identify highest priority technical gaps
- ✓ Determine needed skillsets
- ✓ Establish training sessions with Autodesk authorized training partner
- ✓ Follow-up actions
  - Detailed *Training Plan* is in PDF format



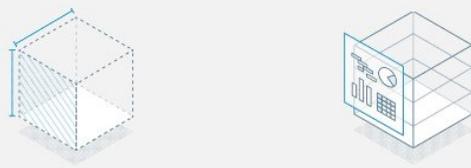
Pro Bono Consulting Engagement Autodesk / BuildX Studio Final Handoff September 2021 Technical Workstream Deliverables

TECHNICAL GAPS	SKILLSET	TRAINING PLAN	FOLLOW-UP ACTIONS
<p>Gap Assessment</p> <p><b>Focused Departments</b></p>		<p>Main Contact: <b>David Owino</b></p>	
<p>Engineering Design Drawing and Drafting</p>	<ul style="list-style-type: none"> <li>✓ 17 topics (about 5 per department)</li> <li>✓ 7 sessions to clarify/explore/define needs and solution</li> </ul>		<ul style="list-style-type: none"> <li>✓ Address gaps with:                             <ul style="list-style-type: none"> <li>• Available documentation</li> <li>• Recommended software (not only on Autodesk portfolio)</li> <li>• Training plan</li> <li>• Trial access</li> </ul> </li> </ul>

Pro Bono Consulting Engagement Autodesk / BuildX Studio Final Handoff September 2021 Technical Workstream Deliverables

Skills Covered  
**Capabilities**

- Design
- Simulate
- Coordinate
- Quantify



	DESIGN	PLAN
Capabilities	<ul style="list-style-type: none"> <li>Design Authoring</li> <li>Design Collaboration</li> <li>Simulation</li> <li>Context capture</li> </ul> <p> <b>R</b> REVIT    <b>R</b> RECAP PRO  <b>R</b> ROBOT STRUCTURAL ANALYSIS PROFESSIONAL  <b>D</b> DYNAMO    <b>S</b> SPACEMAKER                 </p>	<ul style="list-style-type: none"> <li>Coordination</li> <li>Quantification</li> </ul> <p> <b>C</b> BIM COLLABORATE  <b>T</b> AUTODESK TAKEOFF                 </p>

Pro Bono Consulting Engagement Autodesk / BuildX Studio Final Handoff September 2021 Technical Workstream Deliverables

Skills Covered  
**Outcomes**

- Sustainability
- Risk Reduction
- Operational Efficiency



Pro Bono Consulting Engagement Autodesk / BuildX Studio Final Handoff September 2021 Technical Workstream Deliverables

Revit trainings were done between May 2022 and August 2022. SYMETRI ADDNOTE GROUP coaches were the official facilitators of the program. Courses covered include;

- Revit Arch Essentials Plus
- Revit for Project Managers
- Revit Arch Beyond the Basics
- Revit Collaboration
- Revit Structure Beyond the Basic
- Reinforced Concrete Detailing

It was great seeing this come to life. In the meantime, by 2022 August 90% of the Projects were on Revit and hosted on BIM Collaborate pro.

### **How we measured success and how the benefits compared to what I thought we might achieve when we set out?**

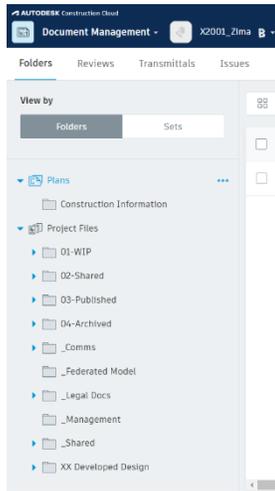
I joined BuildX Studio when a majority of the Design Team had gone for December Holiday. This gave me an opportunity to assess the available infrastructure and come up with a 4 pillar BIM Implementation plan. I was employed as a Draftsperson, remunerated as a Draftsperson but I realized that for me to deliver effectively. I had to put on two helmets which were BIM Manager/Draftsperson's helmets. I pinned my BIM implementation plan on the following 4 action points;

- Improve online multidisciplinary project collaboration and data communication.
- Reduce time spent during design to maximize on design cost saving.
- Implement coordinated clash detection between various project disciplines.
- Estimate project cost from Revit Models.

#### **Improve online multidisciplinary project collaboration and data communication**

BuildX Studio is a design and Build Architectural firm. Being the only draftsperson what this meant for me was that I was looking at working with more than the Architectural team. My first plan was to host the first project (Zima Homes) fully on BIM. I was also briefed that Zima Homes is a project that should be replicable in future: BuildX Management is envisioning future Zimas.

With this detail in mind I set up Zima Homes as the first BIM Project in accordance to BS 1192:2007 and BuildX projects folder naming convention.



I created and Published sets on the Revit files with a plan to have data consumers such as managers access sheets from BIM 360 directly. This way project managers were able to make markups on real time data sheets without printing papers. Engineers in the Structural team had a better understanding of Revit so moving them to the collaborated Common Data Environment was not a challenge. I then hosted the Structural Model on the STR sub-folder under M3 folder which is a subfolder of WIP naming container in accordance to BS 1192:2007.

Having hosted both the structural and Architectural Models successfully on BIM 360 (which later updated to BIM Collaborate pro) I then added the Architectural model as a link to the Structural Model Vis Avis. With this in place the Structural Engineers had the Architectural Central Model as an Underlay in

#### Zima Homes ACC Document management

the Structural Model which they could see under the collaboration discipline in their model. I decided to use active central models instead of SHARED models while linking models because I was trying to simplify the workflow as much as I could for a team that was now working on collaborated Common Data Environment for the first time. The result was incredible. Given that the team was still largely working remotely due to Covid 19 pandemic, cloud collaboration was the best decision for the team.

#### **Reduce time spent during design to maximize on design cost saving**

AutoCAD is a general purpose drafting software that works with vectors (lines) which are not smart geometry. Thus they don't represent real life Building elements unlike Revit which uses smart geometry, the elements created on Revit represent real life building elements. For an AutoCAD wall element for instance, an individual designer would create the boundary lines, place them on layers, place hatches then extract the areas and volumes which are then placed on excel sheets to extract overall materials required for that specific project. The engineer then needs to export this data in a version that is compatible with the structural analysis tool of choice. This leads to different files and versions of the same project that are not connected or linked up. A simple change like picking a different wall size basically means changing the information in all the other views. This entire process has a high possibility of human error. On the other hand, in Revit you create a new wall type and place all the materials that add up to the layers of the wall then define how much the materials would cost, their thermal efficiency, structural efficiency in some instances even place finishes and you are done. The best part of this is that when you make any changes to this wall type it automatically updates the rest of the wall in the project with the same wall type. With this background, AutoCAD 2D Drafting as the main drawing and documentation tool across the whole workflow was not sustainable. With AutoCAD 2D drafting every view is created independently as free forms, this meant that after creating a floor layout, time is again put in to create elevations and sections while trying to figure out how these views should look like. Introducing Revit which is a purpose built tool for creating project documentation into the Workflow was definitely going to reduce the entire project time

significantly, due to Revit's ability to create real time information and data during modeling. Through a short video by [Redcage](#), an Autodesk Authorized Reseller, you get to see how significantly one saves time and resources allocation to projects while working on Revit. Link to short video [here](#)

### Implement coordinated clash detection between various project disciplines

Navisworks was my initial tool for clash detection. Luckily a member of the engineering team had previous Navisworks knowledge. Given that Revit was a new tool in the Architectural team. I instead went for linked models option for high level detection of visible clashes of elements. With a linked Architectural model, the structural team was able to identify immediate potential clashes. I took over the responsibility of generating in-depth clashes for the team. With linked Revit files as underlays, I had very little work to do for clash detection. My main challenge was from MEP Services (Mechanical, Electrical and Plumbing), landscaping providers who were out sourced and mainly worked on AutoCAD as their main drawing and documentation tool.



### Estimate project cost from Revit Models

This was achieved by various element schedules (Walls, Windows, Doors, Floors), Material take off schedules and insight lighting analysis schedules. Insight lighting analysis schedules were a great information resource because the design team used the data to make decision on sun shading materials.

Custom Analysis Whole Building Results: -1.54, 37.26																
9/21 9am: 91% & 9/21 3pm: 85% & both: 81% of points are between 0.0-2500 lux (0.0-232 fc)																
Solar Values (W/m2): 9/21 9am GHI: 523, DNI: 728, DHI: 75 & 9/21 3pm GHI: 365, DNI: 421, DHI: 40																
A	B	C	D	E	9am threshold results			3pm threshold results			Both time results					
Name	Floor Area Included in Daylighting	Total Floor Area	within threshold			above threshold			below threshold			within threshold				
			%	Area	%	Area	%	Area	%	Area	%	Area				
L00 Ground Floor	166 m <sup>2</sup>	178 m <sup>2</sup>	91	151 m <sup>2</sup>	9	15 m <sup>2</sup>	0	0 m <sup>2</sup>	85	141 m <sup>2</sup>	15	25 m <sup>2</sup>	0	0 m <sup>2</sup>	81	134 m <sup>2</sup>

#### Insight Lighting Floor Schedule

Quantity Surveying Team scope was well supported by schedules generated directly from Revit models.

This was a lot of change and new technology all happening together but we made a lot of commendable progress.

### Pitfalls, problems, unexpected glitches where there along the way

The pitfalls were in three regions;

1. People
2. Equipment
3. External Services

### People

There was an initial low key resistance for the move to Revit by some of the players from the Architectural side of the design team with genuine reasons of cause. Being a new tool, the team faced a potential risk of initial delayed submissions, which happened. The initial dates delayed but after the project was set up and running we managed to quickly recover some of the lost time due to Revit's smart geometry. The main benefits of Revit were realized when changes could be implemented across different sheets without necessarily changing individual project view.

Unfortunately, a commendable part of the team left the firm during Covid-19 pandemic and the ones that remained did not put their acquired Revit skills to practice which hindered the transition.

### Equipment

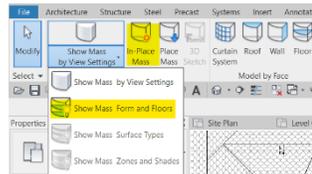
Computers that were procured for the design office were not the best for Revit use. Unfortunately, they were already present as assets to BuildX Studio and we had to utilize them anyway. As much as some were very slow, Revit still managed to functioned though quite slow.

### External Services

All the outsourced services like Mechanical, Electrical, Plumbing and landscaping were all on AutoCAD this reduced our efficiency since vector details from CAD would need further modification on Revit to be able to incorporate them on the drawings. Every time when preparing shared files, Revit Files had to be exported to DWG formats and shared with the external teams. What this meant was that they could not work with the BuildX team in real time. Gave rise to the term 'MEP Submission' which was basically working toward a deadline for drawing that would be converted to CAD then submitted to the Building Services teams.

### Lessons learned? What might we do differently next time? What advice can I give to someone else going through the same process?

AutoCAD is a general purpose drafting software that has been widely used for a considerable long time across Architecture, Engineering and Construction Industry (AEC). Most of us started using AutoCAD as a drafting tool from design school. This way we appreciate that AutoCAD has a sentimental value to the design workflow. **Migrating to Revit should not be seen as a war between AutoCAD and Revit.** Both tools are important and necessary in every design process. AutoCAD acts as a great quick concept 2D drafting tool for quick decision making. Where Revit is a singular collaborated data and 3D interface that should be used after basic Design information has been put in place unless for the case of conceptual massing which is done with an aim of converting the mass into real building elements e.g, curtail walls and floors. **Lesson learned** from this entire experience is that transition to Revit can easily be misunderstood as a silent war on AutoCAD which is not the case. Both tools can successfully be integrated into the workflow.



Revit Conceptual Massing

My sample Revit project

**What we might do differently next time** is that there is need to have a resource, fully dedicated to BIM Management and digital transition of the office. I was in charge of the entire scope. this was a bit demanding of my time and attention. I was also the unofficial Revit trainer of the office, there was always someone with a question at my desk. I wouldn't advice someone to take up all these roles. Fortunately, I delegated a lot of modeling roles with time because the team got better and better each day.

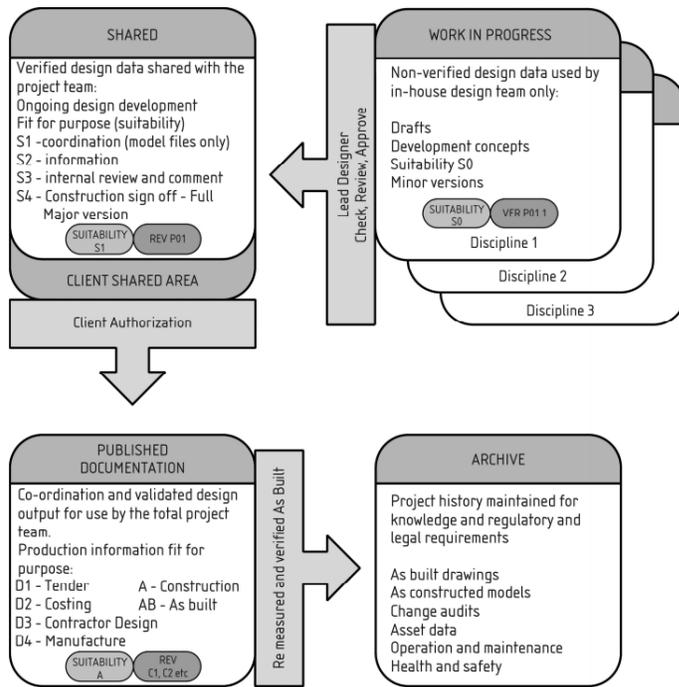
**The advice I can give to someone else going through the same process** is straight forward. Revit does not do your work for you. You don't over assign roles to an individual with a simple reason that they are working on Revit. My final Advice to any person working on Revit is this. A good drawing should look like one done on line work. Don't compromise data presentation because you are working on a 3D Model.

### What's next for BuildX?

I am very happy about the BIM transformation BuildX has gone through over the past two years. recently a sector lead commented that she was impressed that the entire office is on Revit now. It used to be only David on Revit. This kind of feedback gives me joy; I want to see a collaborated Built Environment from Mobilization to use. I have not only given BuildX drawings in a file to refer to. I have left skills, templates and standards for the design office to use now and many years to come. I am even happier because all those interns and young designers I worked with in their early careers. I got a chance to put something in them that they are using and will use to affect the AEC Industry. *One Revitor at a time for a future collaborated BIM Environment.*

### What's next for David?

David is passionate about BIM Management, I want to streamline workflows, I want to see the entire Architecture Engineering and Construction Industry players embracing a collaborated work environment to move from BIM Level 0 – Low Collaboration to BIM Level 3 – Full integration. Buildings are not only done by Architects, there are multiple users in the workflow for a project to be realized. My joy is bringing all the players to a coordinated work environment.



BS 1192:2007: Document and data management reciprocity

## BIM IS WHAT I DO

### Additional Resources

#### Recommended Reading

[Landscape modeling in Revit with Environment tools: Overview and workflows](#)

AU 2021: INSTRUCTIONAL DEMO AS500438

SPEAKER: [Nehama Shechter Baraban](#)

[The Superb Guide To Easy Revit](#)

AU2021: INSTRUCTIONAL DEMO AS500050

SPEAKERS: [Viveka Devadas](#), [Nauman Mysorewala](#), [Rina Sahay](#)

[Balkan Architect](#) : Revit and AutoCAD Content Creator

#### Tools

BS 1192:2007 Collaborative production of architectural, engineering and construction information - code of practice (+A1:2015)