AUTODESK UNIVERSITY

AR17919

Perform in BIM 360 Team and Collaboration for Revit

Kal Houhou
BIM Sphere

Learning Objectives

- Learn how to determine the best approach to share data in the Cloud.
- Learn how to unify people and data and keep them connected with BIM 360 Team.
- Learn how to contribute to integrated workflow processes utilizing Communicator in Revit.
- Learn how to capitalize on the Cloud potential for small or medium-size design firms on joint-venture projects.

Description

We will explore together how to optimize a collaborative multidisciplinary platform utilizing Collaboration for Revit cloud service and the BIM 360 Team hub throughout the design process. We will discuss best approaches for joint-venture projects for small or mid-size practices. The speaker will share with you his expertise of 2 years, and the best approach to apprehend such difficult decisions in terms of technology implementation. Collaboration for Revit cloud service and BIM 360 Team help our distributed teams to collaborate efficiently without losing our sight of the project delivery or its control throughout the entire design process. Instant messaging is possible in Revit software, awareness of presence in model is possible without leaving Revit software, and more is possible in Communicator for Revit software.

Your AU Expert: Kal Houhou

Kal is a technology advocate and Building Information Modeling (BIM) evangelist. He has over 25 years in the architecture, engineering, construction, and owner-operated (AECO) industry, and over 10 years managing BIM complex projects for the private and the public sectors worldwide. His dual backgrounds in architecture and IT enable him to apprehend issues as they arise and design business strategy orientation. In his spare time, Houhou coaches' soccer in a youth league in the Washington, DC, metropolitan area. He is passionate about anything technology related, and he likes sharing his knowledge and experience with the crowd.

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Our Best approach to share data in the Cloud

Lately our firm has been heavily collaborating with other Architects firms and designers on several projects across the US and Europe.

While we used several technology platforms to work collaboratively in a unique Revit Model for the same discipline, we were looking actively for a more seamless way to establish a better collaboration workflow between all actors of the design team (Architects, Engineers, Services specialists, etc.).

Solution #1: Revit Server

We used in the past Autodesk Revit Server (since 2010); it uses heavily IT resources:

Dedicated budget, specialized IT support group, special appliances to enhance data traffic in the US and overseas (Riverbed, Panzura, Globalscape, Nasuni, Talon, etc.)

Revit Server is the foundation for server-based work-sharing for Revit Projects.

Multiple instances of Revit servers are installed at different sites and configured to perform specific roles to support optimal collaboration across a Wide Area Network or WAN.

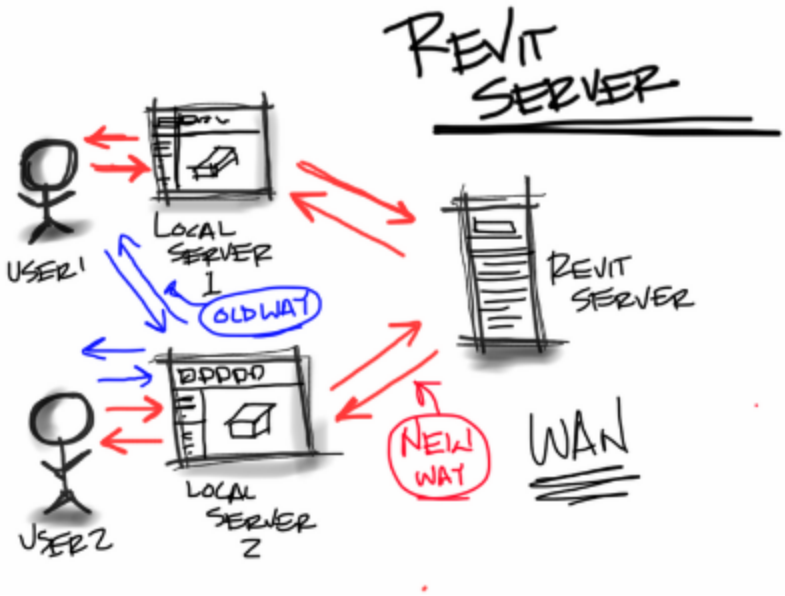


Figure #01

We faced several times data corruption across the WAN, with consequences that impact with prejudices our project teams. We also had to get a third party application to secure project access control i.e. Imaginit Clarity.

Solution #2: Private Cloud

Same as Solution#1 it relies on IT heavily although it avoids access to VPN (Virtual Private Network) that is very slow in data traffic.

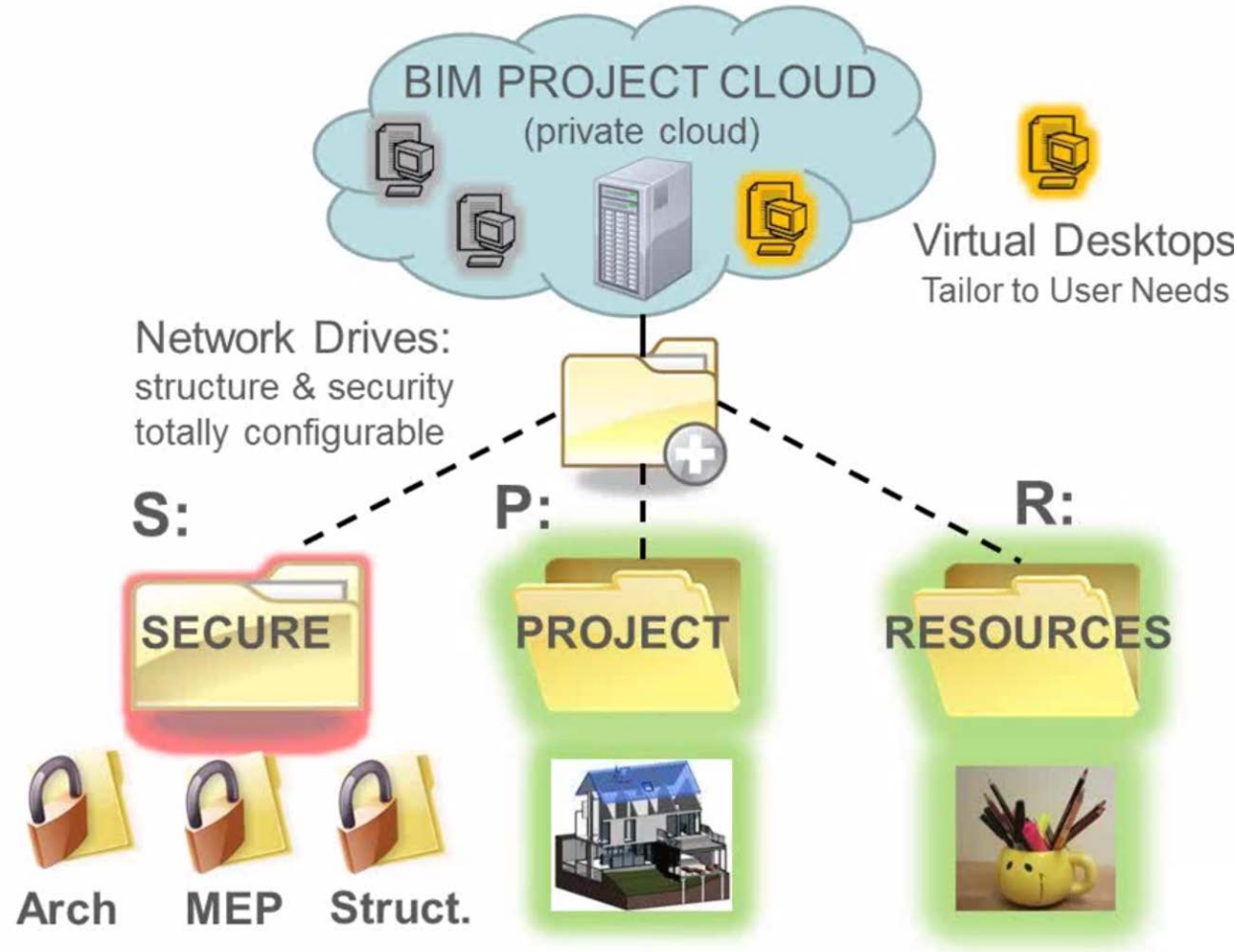


Figure #02

We have also setup remote and virtual workstations for inter-office access but working with our consultant's and partner's designers in the US and in Europe was quite challenging, it requires a lot of server space (Virtual Workstations) or physical space (Remote Workstations).

Solution #3: Public Cloud

We then looked into Public Clouds platform. We were lucky to get our hands at early stage (Summer 2014) of what became Collaboration for Revit associated with BIM 360 Team.

We were looking for a solution that is balanced financially, with minimal IT support, and oriented for a graphic collaborative framework.

A solution allowing:

- Revit Models version control,
- a user friendly platform,
- minimal training,
- quick setup,
- real-time access to Revit Models
- awareness of Revit Users presence in the models

Couple of immediate benefits:

- Setup and start a project in couple of hours
- Maintain Revit Models quality control
- Troubleshoot Revit issues and access all Revit models if necessary
- Real time publishing all models at once as often needed to collaborate on BIM 360 Team Hub.
- Digital markup and comments tracking on all digital files on the BIM 360 Team Hub
- Wiki pages shared with entire design team (allowing content edition)
- Wiki pages for the BIM Project Execution Plan (HTML)
- Company Hub on BIM 360 Team that can host multiple projects and control project access and visibility for external partners.
- Compare changes between design versions
- Interaction with mobile devices including smartphones
- Easy member's management (invite, change access role, deactivate/delete)

Unify people and data and keep them connected with BIM 360 Team

How do we setup/start a project in BIM 360 Team?

What do we need?

1. An Autodesk ID (Free registration): https://accounts.autodesk.com/register

   This account allows you to access all your Autodesk applications and Cloud services.

   Recommendation: use your company email ID to register.

2. I almost forgot you need to use a web browser that support WebGL
3. Test your internet browser: https://get.webgl.org/ if you see the spinning cube you're good to go! Best browser experience so far with Google Chrome v54+
4. Try for free BIM 360 Team: https://team.bim360.com
5. Then hit "Start your Project"
6. Enter your email address when asked, check your inbox look for "Your BIM 360 Team trial hub is now active" from notifications@autodesk360.com

   Recommendation: use your company email address so the hub web address will use your company domain name.

7. You should see in this message your hub web address:

   YouCompanyDomaine#.autodesk360.com where # can be any number. Keep the e-mail for your records.

8. So far with the trial you get 1 member (you), 5 GB of storage and unlimited projects and contributors. We will see later how to get 500 GB per user, unlimited projects, a central cloud workspace for your entire team and more features to assist your collaborative workflow.
9. Before going further, I wanted to address a common question I got a lot: "what is myhub.autodesk360.com?" It is your personal hub with limited features and you don't have administrator settings but you can have unlimited contributors.
10. Before going further into the project creation and administrating your company hub; let's explain the roles within a Project.
11. There are three roles: Project Administrator, Editor and Viewer. If you create a project, you will be by default the Project Administrator. Everyone is a project member. Then to add to the confusion you have project contributors (unpaid users) see table below for a detailed comparison of the different types of users and their permissions. I will explain further the different roles in a Project.

	Paid Users (Team Members)		Unpaid Users (Project Contributors)
	Team Administrator	Non-Admin Team Member	
Role description	Signs up for A360 Team or assigned Team Administrator role. Defines Hub settings and adds users to the Hub.	Paid user on the hub	Unpaid user (Only possible on a PC-enabled hub)
Right to assign hub-level roles to users	Yes; can change role of user to Project Contributor or Team Member	No	No
Additional Roles (on Hub or within Project)	Can be assigned a Project Administrator role	Can be assigned a Team Administrator or a Project Administrator role	Can be assigned Team Member role by Team Administrator
Create Project	Yes	Yes	No
Project Membership			
Open Projects	Yes	Yes	No
Closed Projects	Yes	Yes	Yes
Secret Projects	Yes	Yes	Yes
Working in Projects			
Invite Users	Yes	Yes	Yes*
Assign Project role to users	Yes, can assign Project Administrator role within a project to a Team Member	Yes, can assign Project Administrator role within a project to a Team Member	No
Work with content (upload, update, view, etc.)	Yes	Yes	Yes
Communicate, Review, Live Review, Comment on Content	Yes	Yes	Yes

*Project Contributors cannot invite team members to a project.

Figure #03

Note: extract from BIM 360 Help

Before getting into project creation and file management let's look into the Hub Management.

As shown below if you click on your Profile picture at the top right

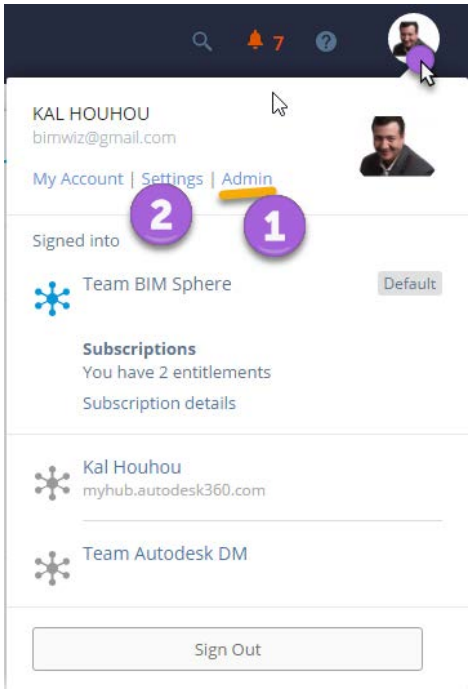


Figure #04

You can access the Admin page of the company Hub; you will see at the top 4 tabs. I divided them in three colored groups: the first two (purple) are Hub administration related, #3 is Projects specific and #4 is entitlement specific.

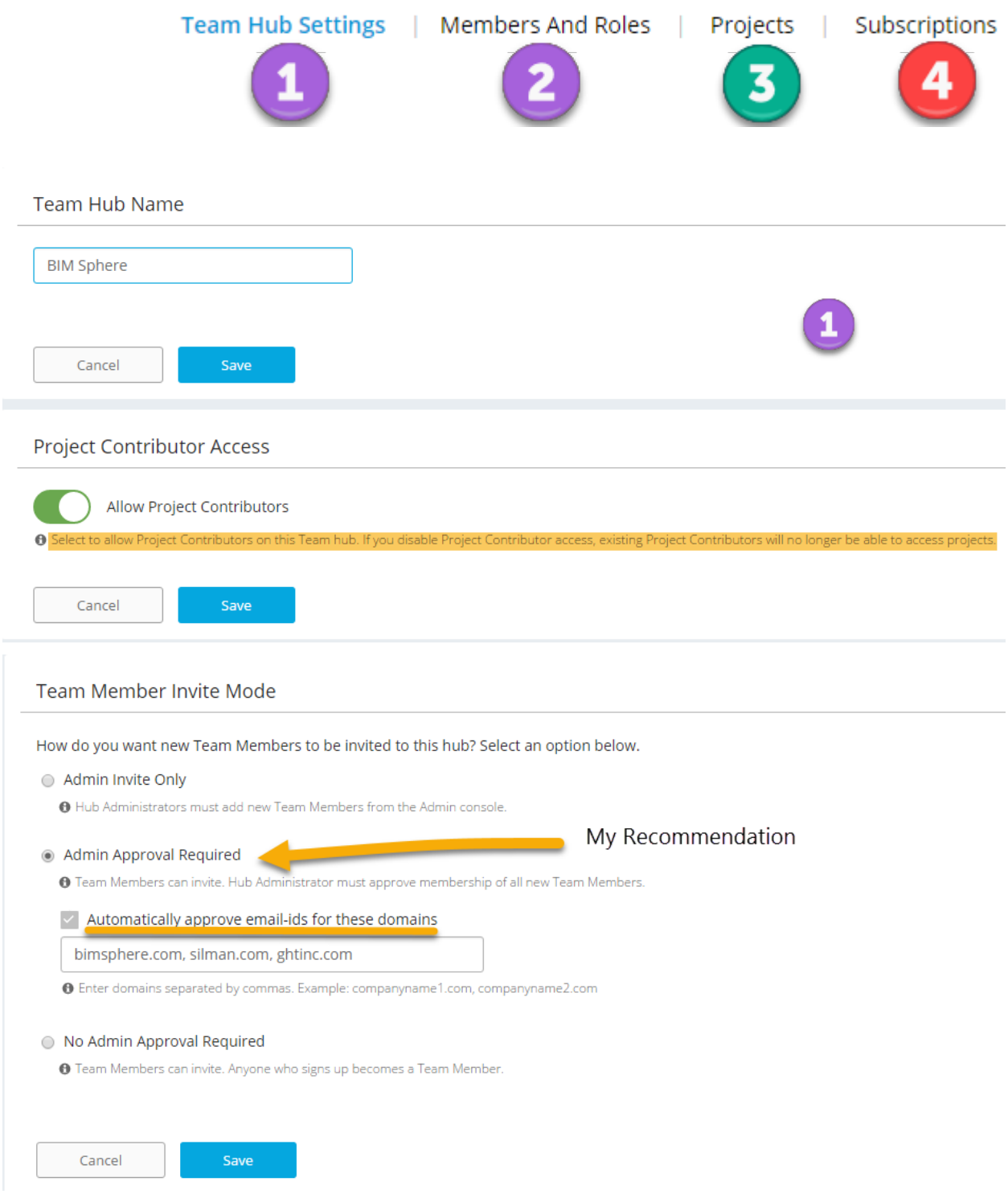

Team Hub Settings
Members And Roles
Projects
Subscriptions
1
2
3
4
Team Hub Name
BIM Sphere
Cancel
Save
1
Project Contributor Access
Allow Project Contributors
Select to allow Project Contributors on this Team hub. If you disable Project Contributor access, existing Project Contributors will no longer be able to access projects.
Cancel
Save
Team Member Invite Mode
How do you want new Team Members to be invited to this hub? Select an option below.
Admin Invite Only
Hub Administrators must add new Team Members from the Admin console.
Admin Approval Required
My Recommendation
Team Members can invite. Hub Administrator must approve membership of all new Team Members.
Automatically approve email-ids for these domains
bimsphere.com, silman.com, ghtinc.com
Enter domains separated by commas. Example: companyname1.com, companyname2.com
No Admin Approval Required
Team Members can invite. Anyone who signs up becomes a Team Member.
Cancel
Save

Figure #05

This is where you will change your Team Hub name, allow Project Contributors to access projects and setup the Member Invite Mode.

If you know the companies you are going to share data with, I highly recommend to enter their domain name “CompanyName.com” to set the approval process automatically.

Now let’s look at the 2nd Tab: Members and Roles.

As mentioned earlier you have 3 roles for the Hub

Role #1: Team Administrator (Whom ever created the hub will be automatically T.A)

Role #2: Team Member; this is a role fulfill by any member of your organization - same domain name for their email ID. They have visibility and access to all projects in the hub.

Role #3: Project Contributor have only limited access and can see a project only if they are invited into it.

Role #1 can be assigned to any Team Member

Role #2 can be assigned to any Project Contributor

Any Member of the Hub can be deactivated by any Team Administrator(s)

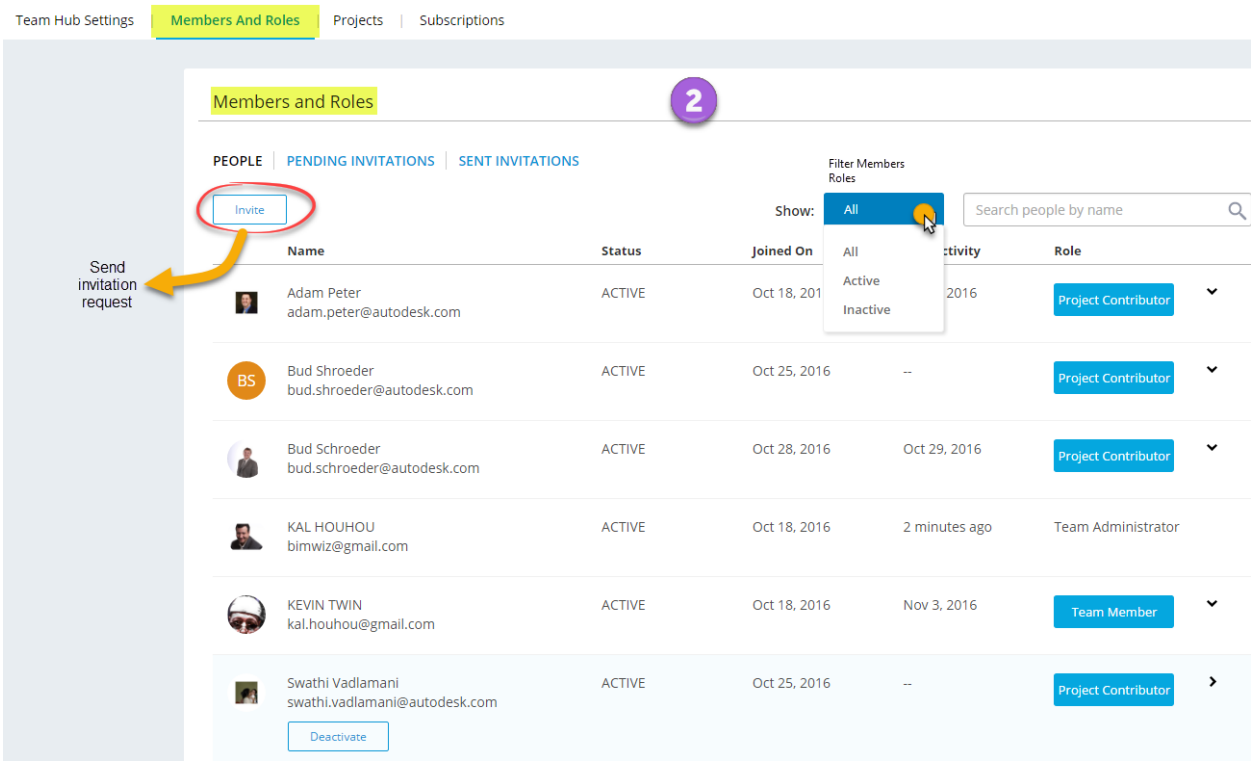


Figure #06

Let's jump right now to project creation and we will get back later to project administration (green #3).

When you launch for the first time your BIM 360 Team hub you should see 2 projects Admin Project (since you are the hub creator) that is empty and Demo Project that has 5 different format files so you can start viewing and playing with them to get you familiar with BIM 360 Team features.

Let's create our first Project!

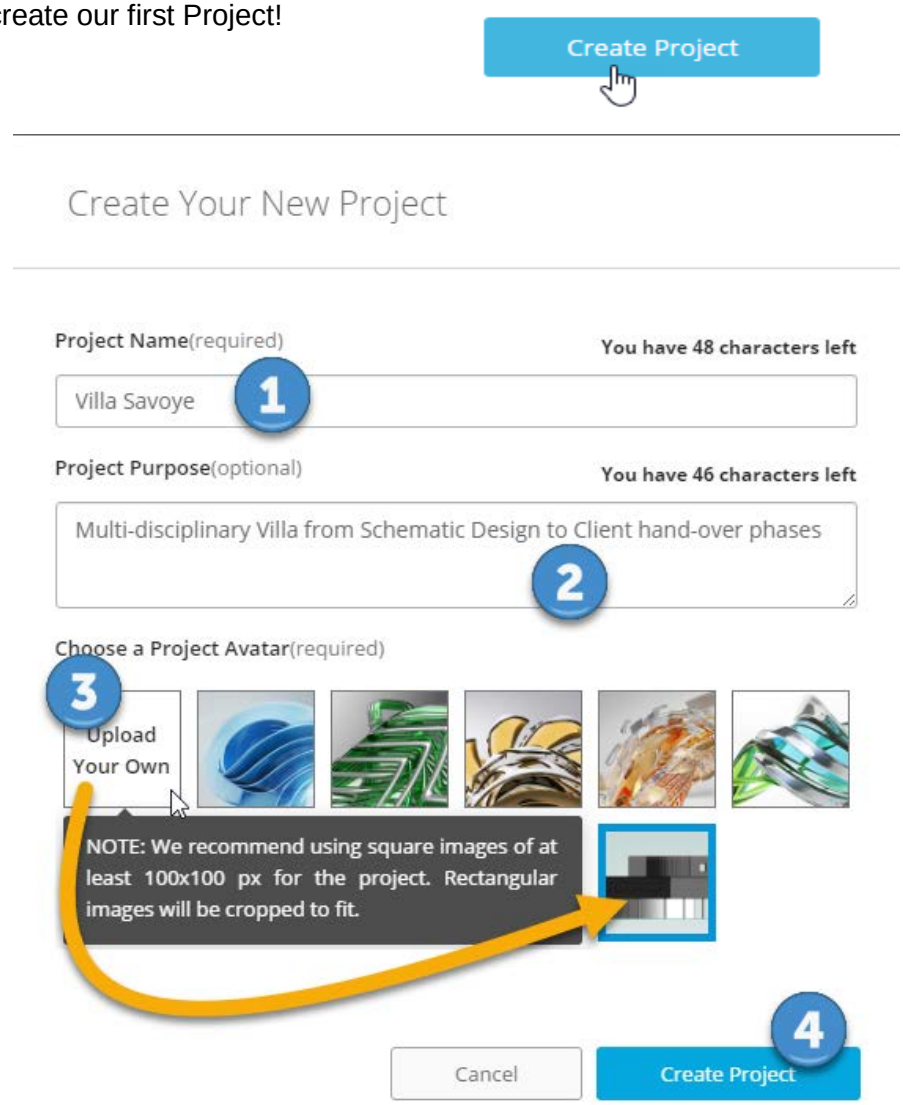


Figure #07

Any Team member can create a project in their Team Hub.

Click on your new project name (list in alphabetical order) – Don't forget to be sure about the project description since you cannot change it unless you archive/delete it then create a new project. The project name can be changed as shown below.

Any Team member who create a new project become its Project Admin.

The project page looks empty…but so many actions can be done, uploading file(s)/folder(s), edit the project name, change project type, adding new folder(s) and finally send invitation to join the project.

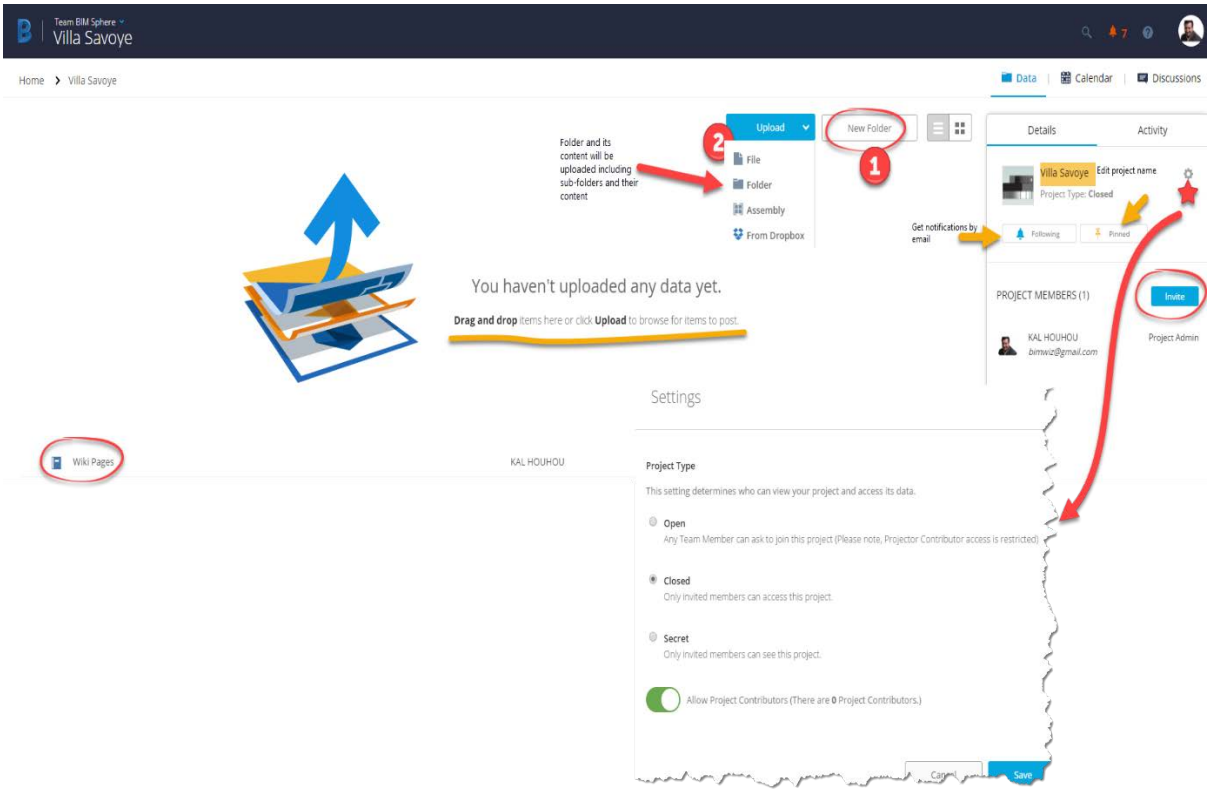


Figure #08

After uploading a folder and its content from my storage space I found that I made a mistake – I wasn't in the correct project space. No worries you can now move/copy folder/files to another project within the same hub.

You can move/copy one folder at a time to another project or by multi-selection (check the box) and use the top action icons.

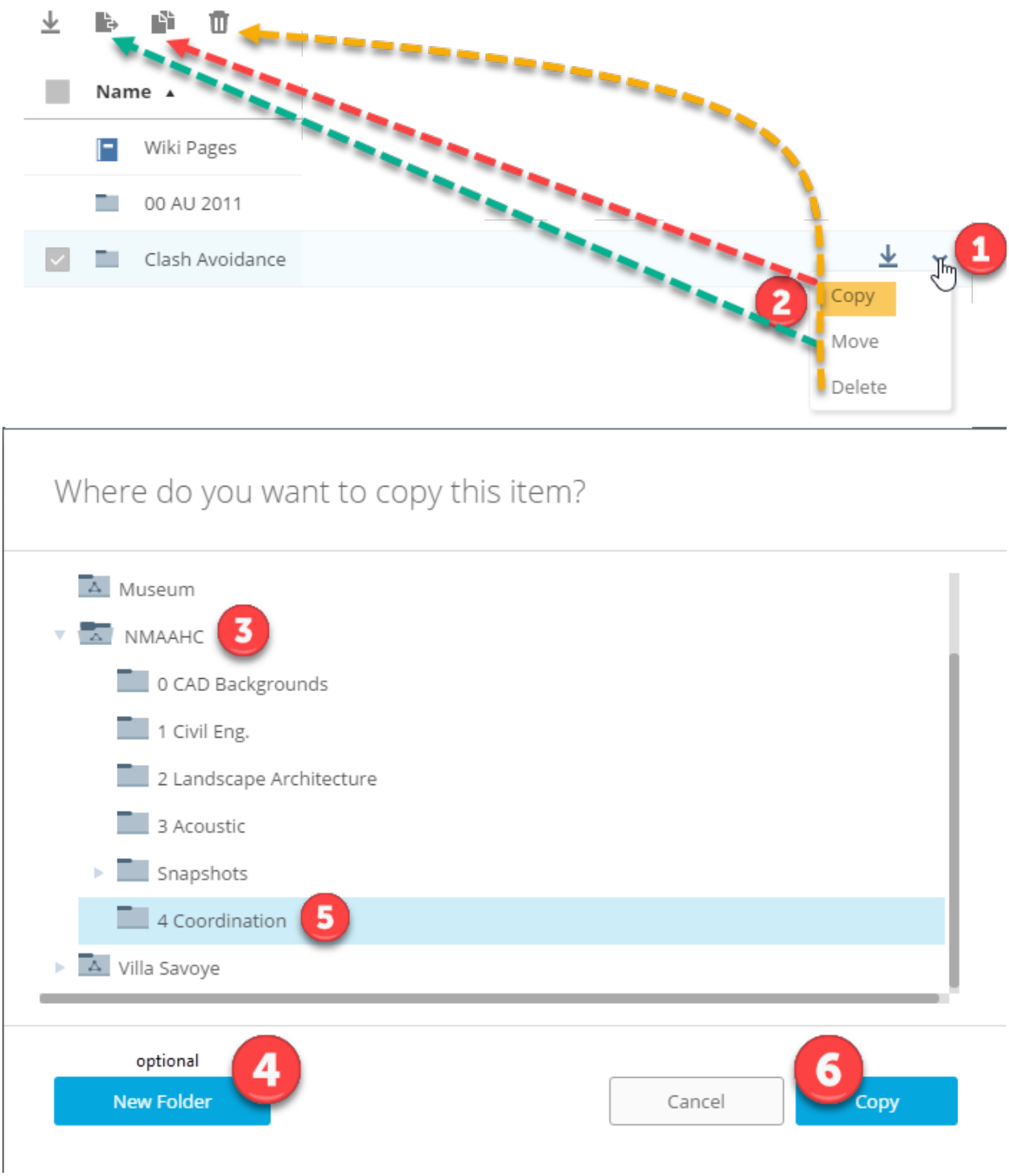

Name
Wiki Pages
00 AU 2011
Clash Avoidance
1
2
Copy
Move
Delete
Where do you want to copy this item?
Museum
NMAAHC
3
0 CAD Backgrounds
1 Civil Eng.
2 Landscape Architecture
3 Acoustic
Snapshots
4 Coordination
5
Villa Savoye
optional
4
New Folder
Cancel
6
Copy

Figure #09

Now that we created our project folders and uploaded several files we can focus on our project type:

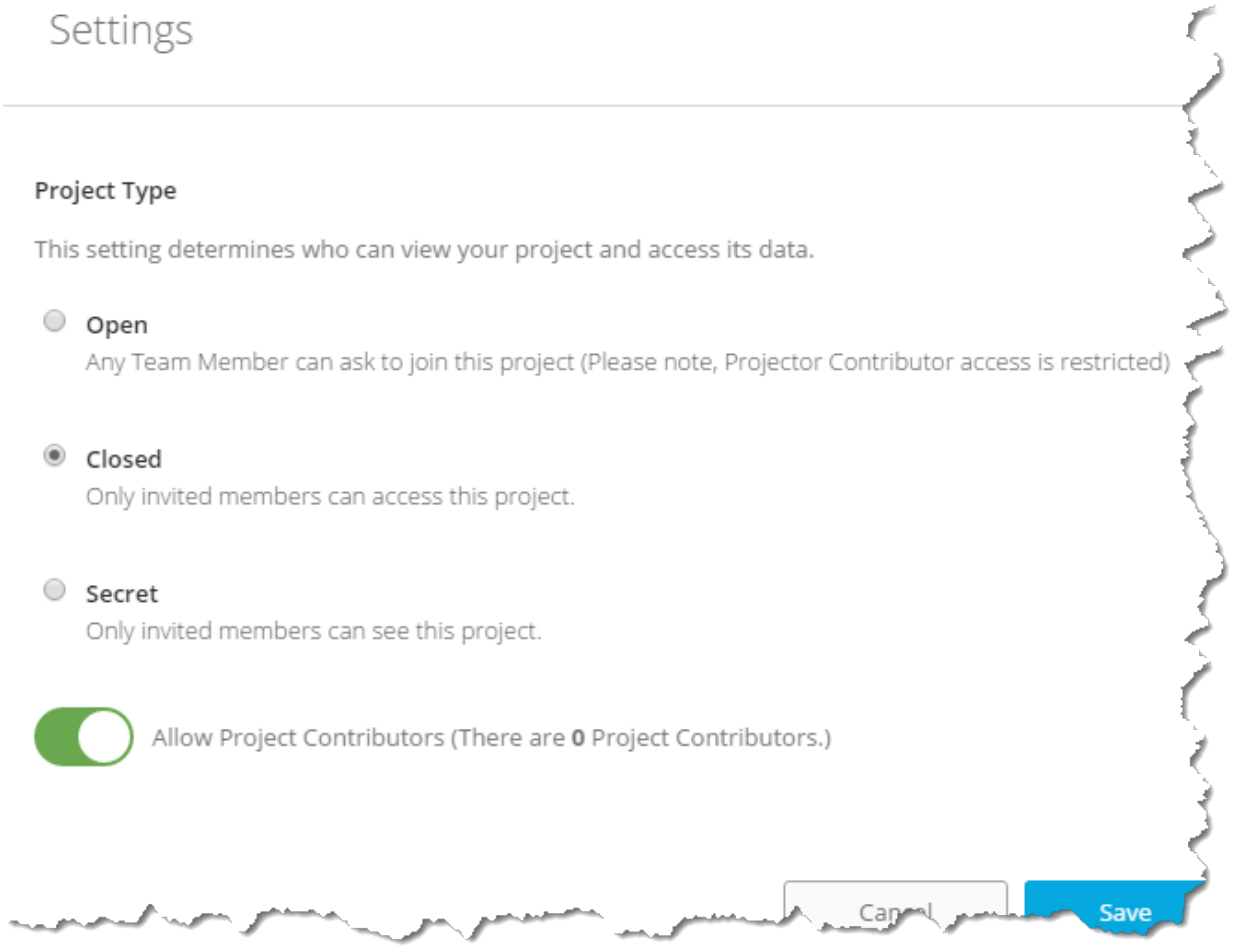


Figure #10

I generally prefer the Closed Type for general purposes, and it gives me latitude to control access of the hub upon invitation only. Although if you have a confidential project and/or a competition project, I will recommend to set it up to a Secret Project Type so this project will stay confidential and will be viewed only to invited members. So not all Team Members will see the secret project.

Also don't forget to allow Project Coordinators if you didn't set it up at the level of the Team Hub settings (see page 8) you can do it case by case for projects. And finally note that project contributors are not allowed on Open Projects.

You have two ways to invite people, either on the hub level or within the project. If you access a project, you will see the Invite blue button on the right of the page or you can access the invite dialog box from “View and Manage Members” either ways will access the invite process.

Upon invitation you will be able to set the newly invited member as a viewer or editor:

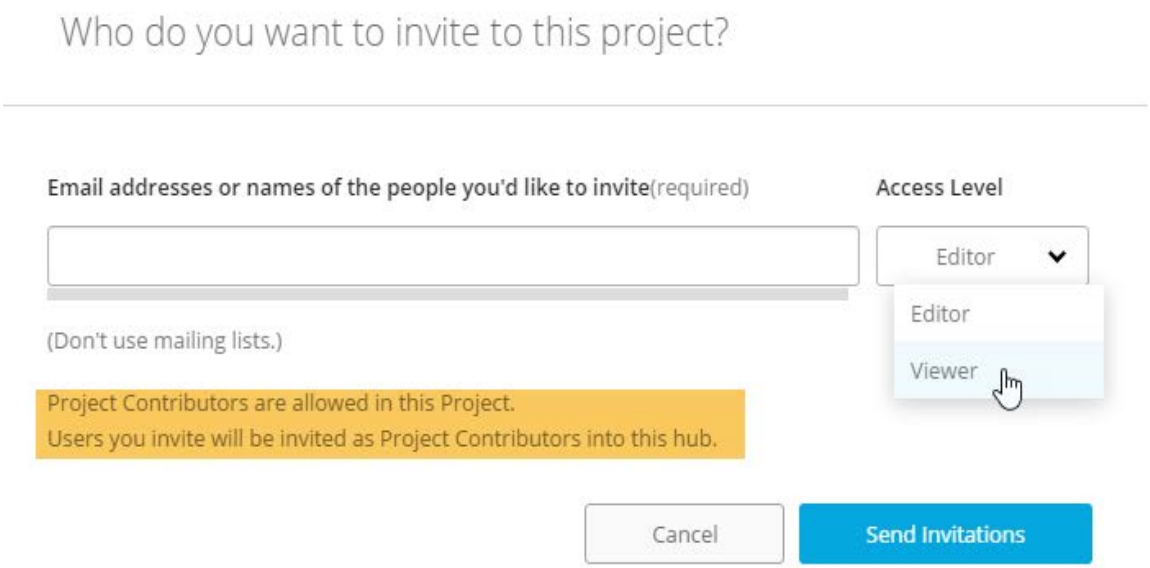


Figure #11

Viewers role allows view-only access to data and limited invite permissions. They can view files and Wiki Pages, view and post comments, delete their own comments, view markups, participate to discussions, view events on the calendar, view project members and finally invite other users as viewers only.

Editors in the other hand have additional write access; they can add any type of contents, use the action items to manage the content, view and create calendar events, share content, start and participate in discussions, start a live review and finally invite users as editors or viewers.

See figure #12 for a full picture of all roles at the project level including the Project Admin role that add from the editor role the project settings, manage the project types, delete Project Members, archive and restore projects and finally set other Team Members as Project Admins.

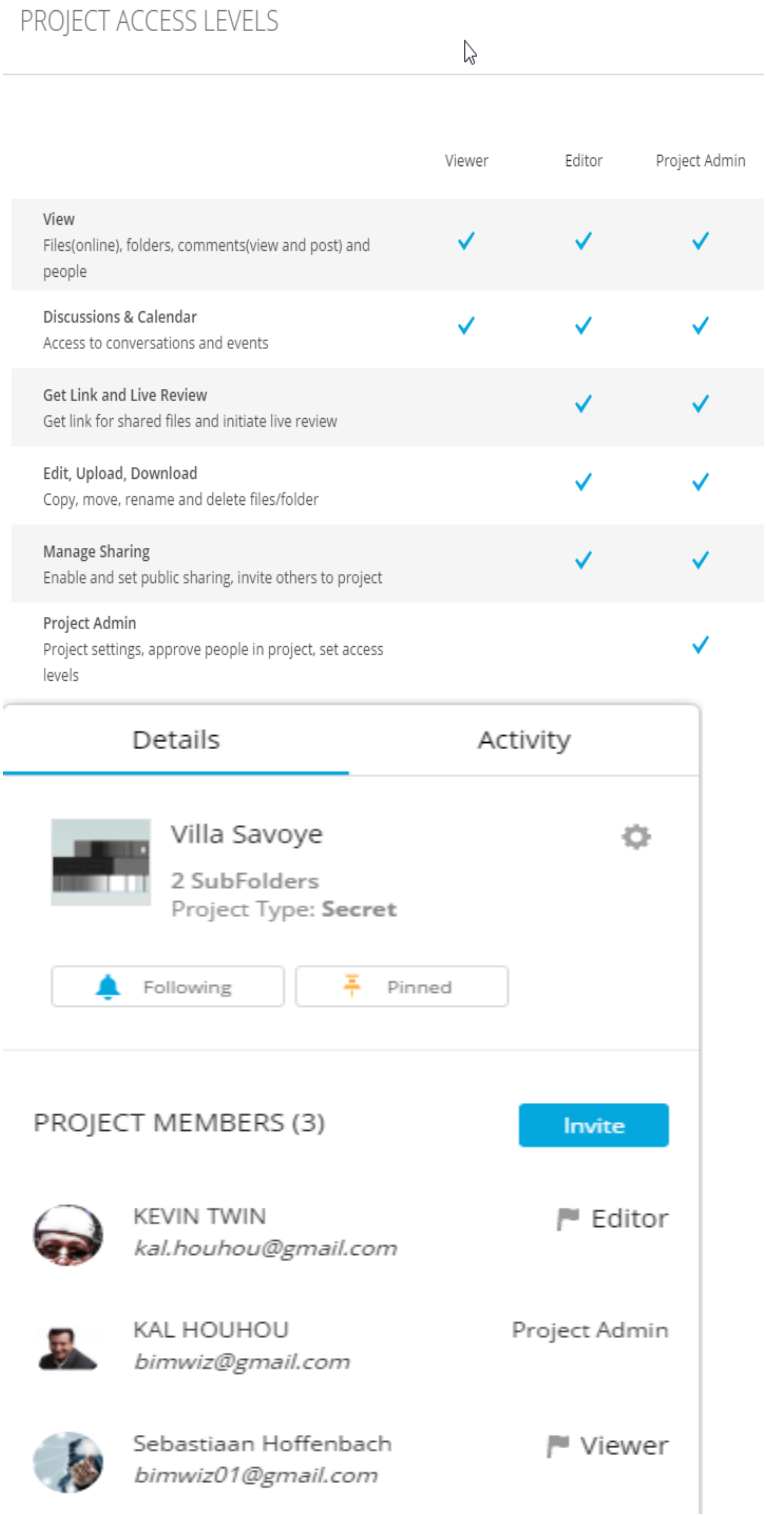

PROJECT ACCESS LEVELS
Viewer
Editor
Project Admin
View
Files(online), folders, comments(view and post) and people
Discussions & Calendar
Access to conversations and events
Get Link and Live Review
Get link for shared files and initiate live review
Edit, Upload, Download
Copy, move, rename and delete files/folder
Manage Sharing
Enable and set public sharing, invite others to project
Project Admin
Project settings, approve people in project, set access levels
Details
Activity
Villa Savoye
2 SubFolders
Project Type: Secret
Following
Pinned
PROJECT MEMBERS (3)
Invite
KEVIN TWIN
kal.houhou@gmail.com
Editor
KAL HOUHOU
bimwiz@gmail.com
Project Admin
Sebastiaan Hoffenbach
bimwiz01@gmail.com
Viewer

Figure #12

Now that we have a better comprehension of the Hub, its projects and the roles of its users, let's look into some of the sharing features I found useful while traveling away from my office or to send a link to a non-member of the project/hub. Folders or wiki pages cannot be shared only files can, the most feature we use is the "Copy Link" since it can be pasted in our email client application i.e. Outlook but you can use the Email feature as well if you want a quick way and not to leave the project.

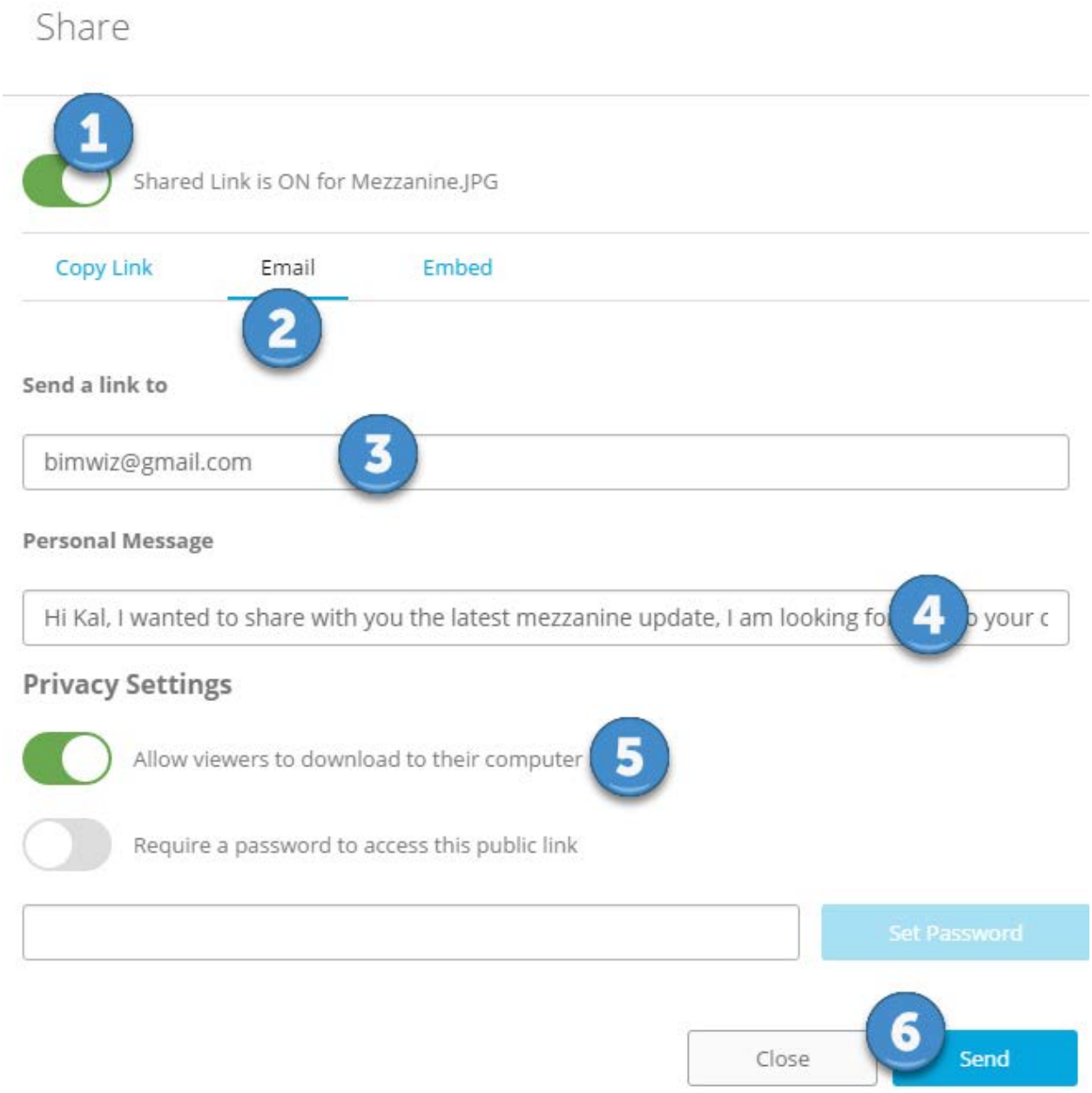
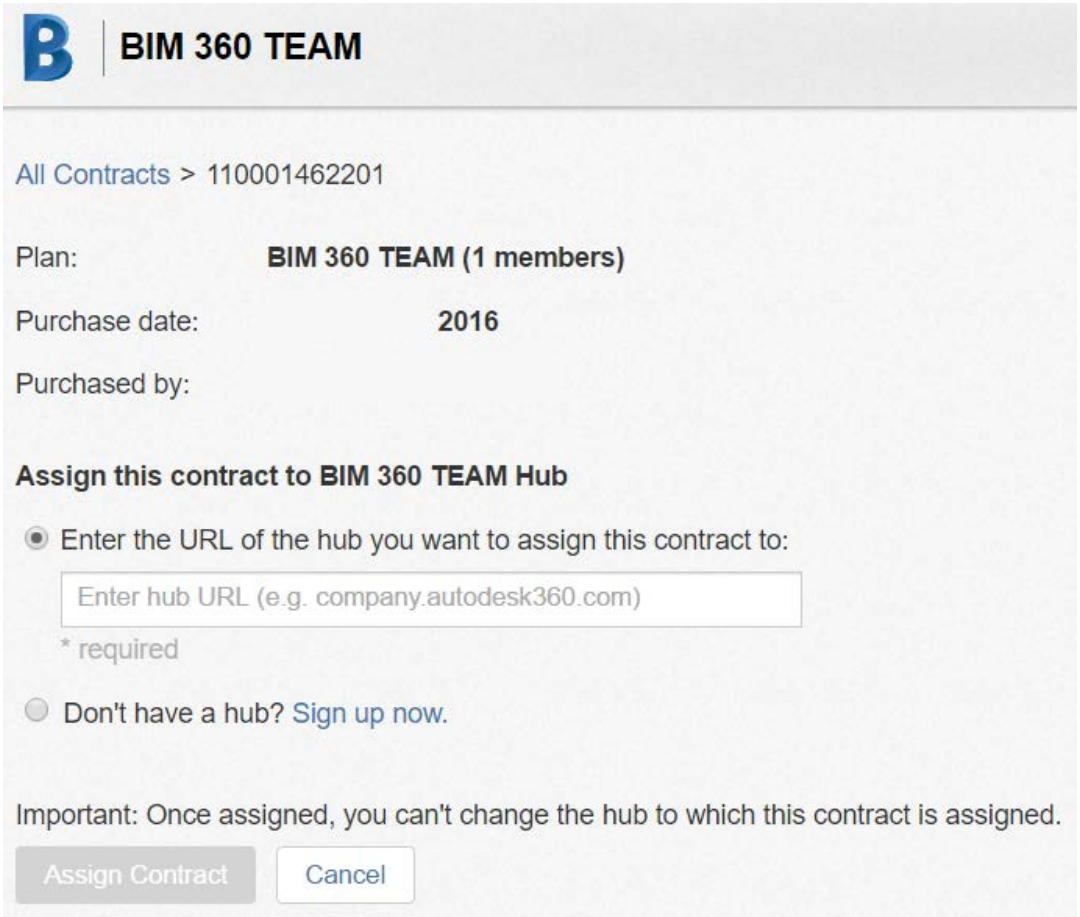


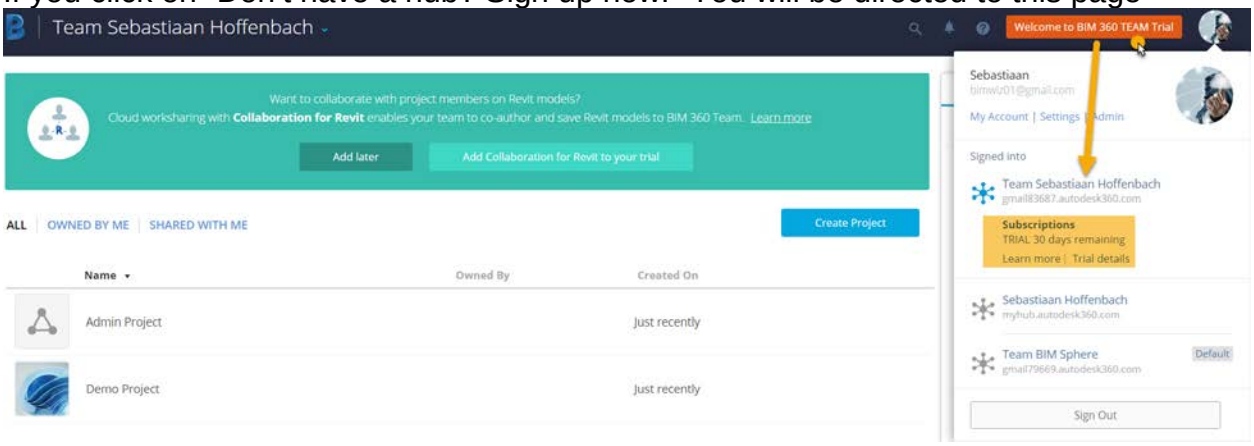
Figure #13

Let's look at the entitlements subscriptions. If your firm has a subscription contract it includes an entitlement to BIM 360 Team.
In order to use your company hub all team members (paid users) need an entitlement. Entitlements can be obtaining in two ways through BIM 360 Team subscription and through Collaboration for Revit subscription. The later allow you to have access from Revit to the Revit Models work shared in the Cloud.
In order to assign a BIM 360 Team hub to a Subscription contract you need to proceed as follow:

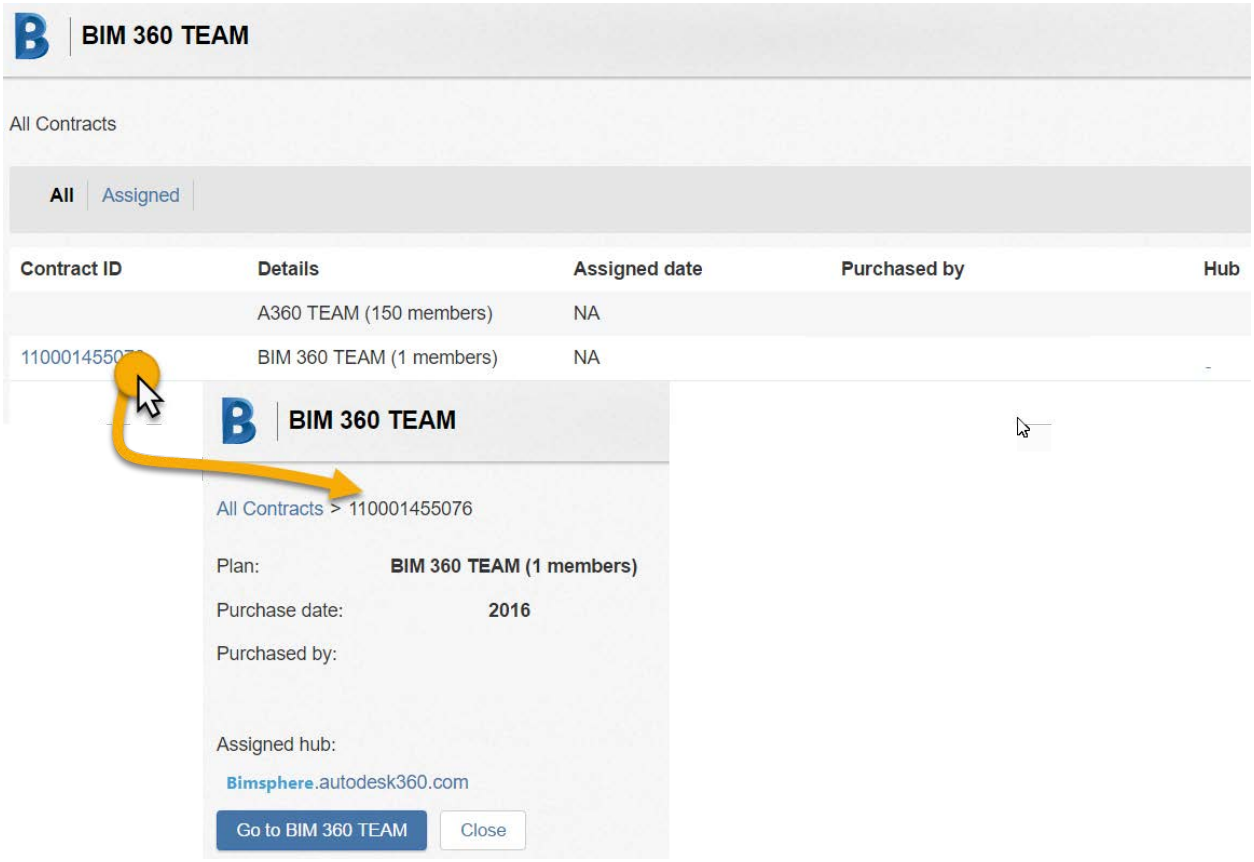
1. Login to manage.autodesk.com as the Software Coordinator on the BIM 360 Team/Collaboration for Revit contract and click on "Access now" see Figure #14. The Software Coordinator must have a seat for the product assigned to them or they won't see BIM 360 Team on their products and services page. If the seat was just assigned to them they might need to wait up to 3 hours for the purchase to reflect. Plan accordingly!
2. Access Now will direct the Software Coordinator to the BIM 360 Team Contract assignment page.



If you click on “Don’t have a hub? Sign up now.” You will be directed to this page



Once the contract is assigned to a Team hub, BIM 360 Team contract listing page shows up the details of the contract along with the Hub assigned to this contract as shown below.



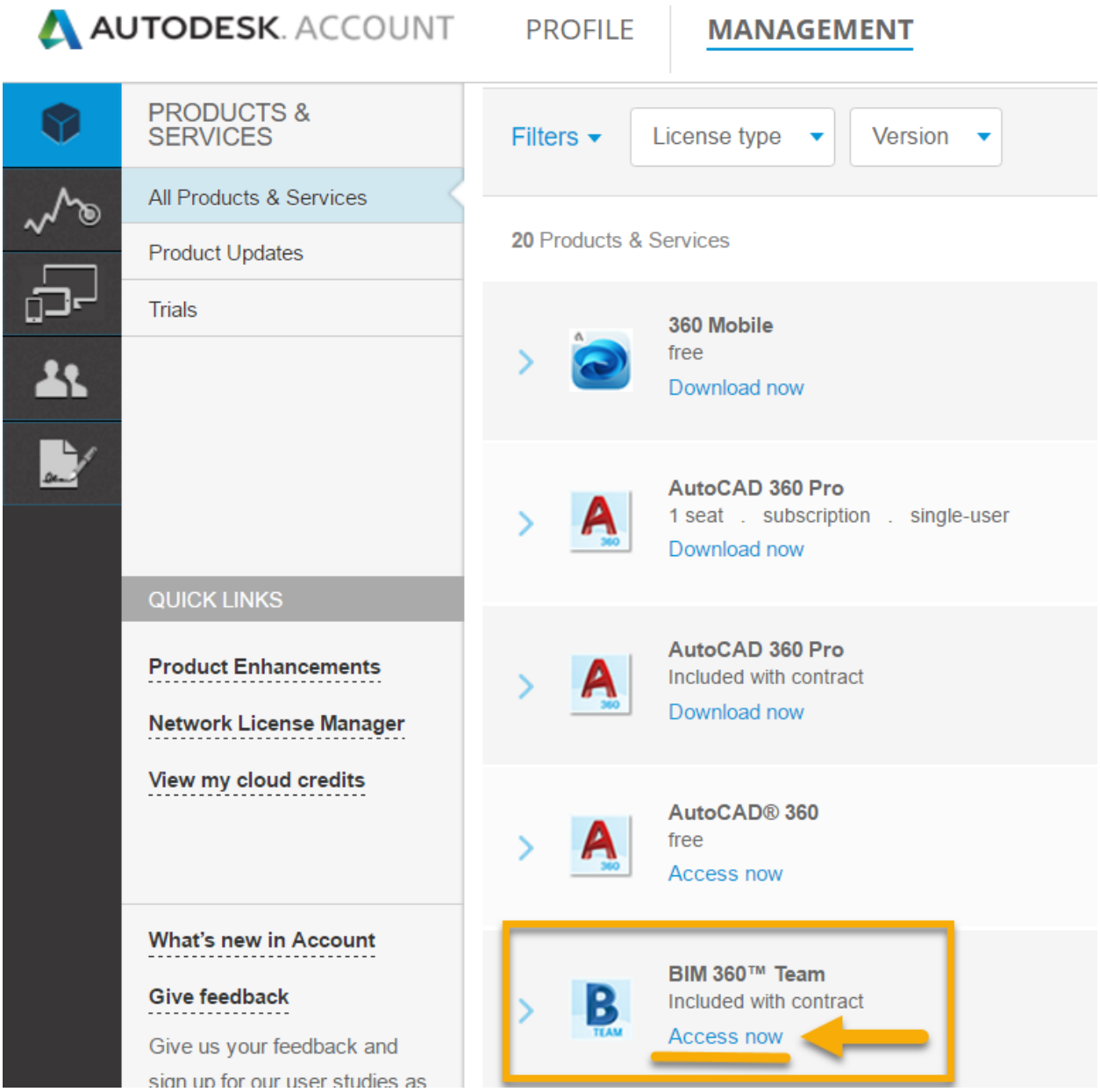


Figure #14

Once the contract is successfully assigned, the subscription details should show up in the BIM 360 Team Hub Admin section – Subscriptions Tab – Figure #15 (see page 9).

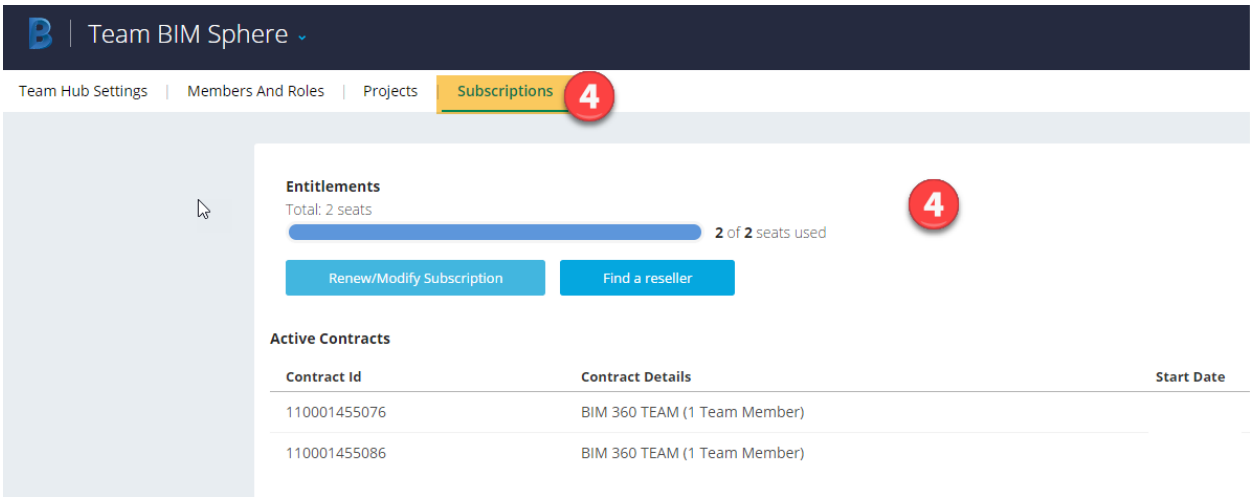
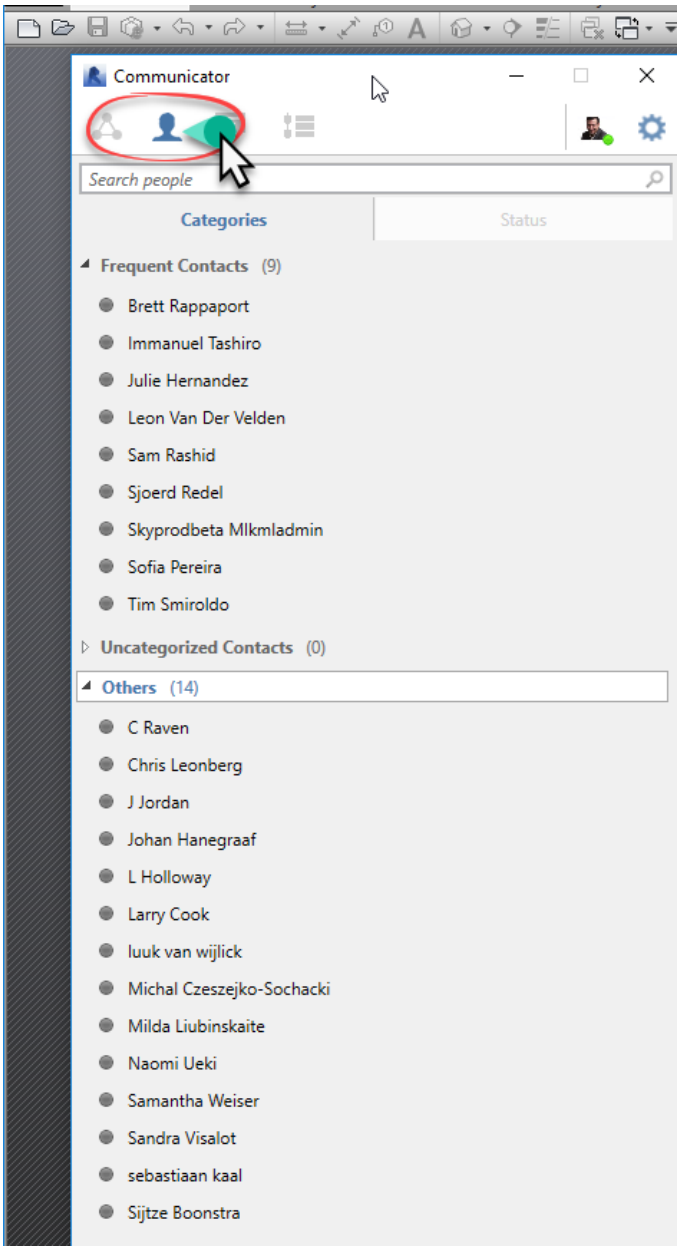

Team BIM Sphere
Team Hub Settings
Members And Roles
Projects
Subscriptions
4
Entitlements
Total: 2 seats
2 of 2 seats used
4
Renew/Modify Subscription
Find a reseller
Active Contracts
Contract Id
Contract Details
Start Date
110001455076
BIM 360 TEAM (1 Team Member)
110001455086
BIM 360 TEAM (1 Team Member)

Figure #15

How to contribute to integrated workflow processes utilizing Communicator in Revit

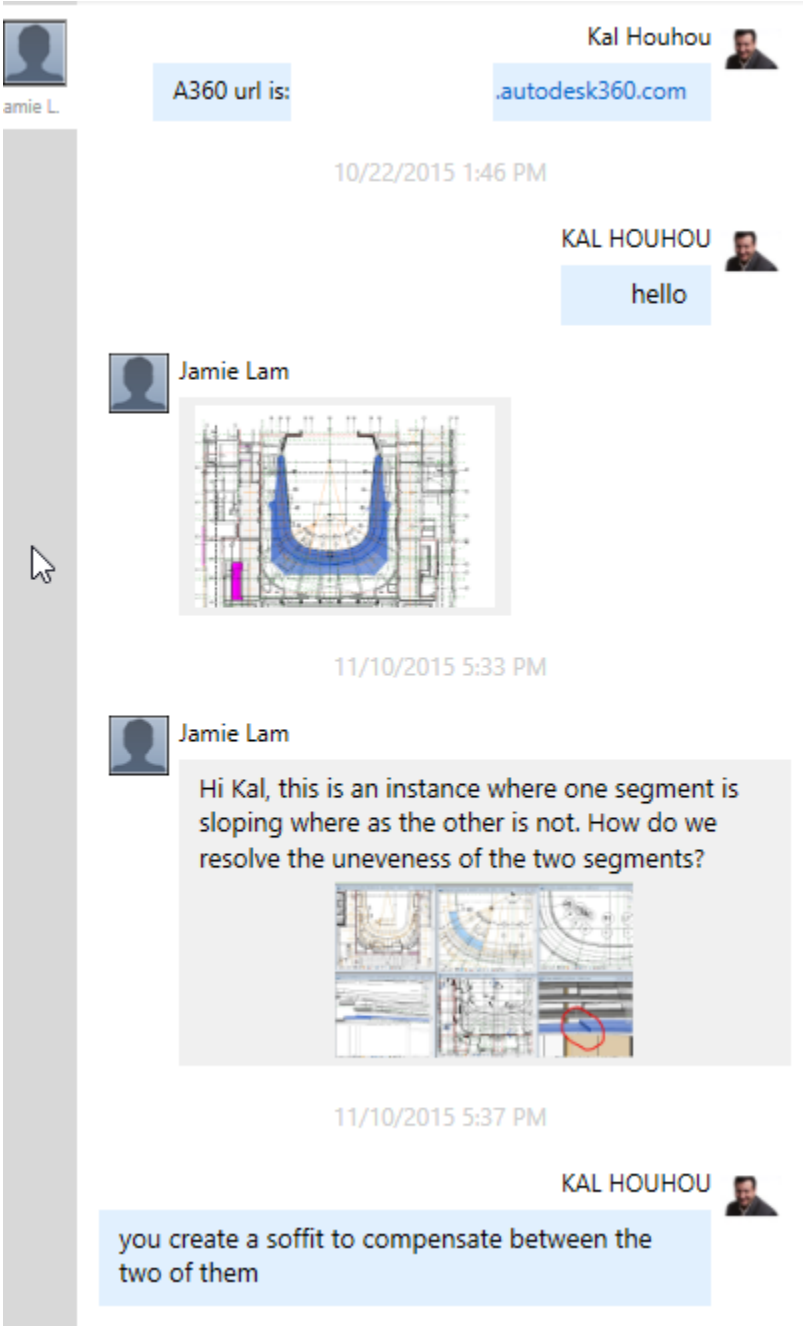
You can use Communicator even if you don't have a Collaboration for Revit Entitlement so you can communicate with the project team without the need to open a Revit Model.



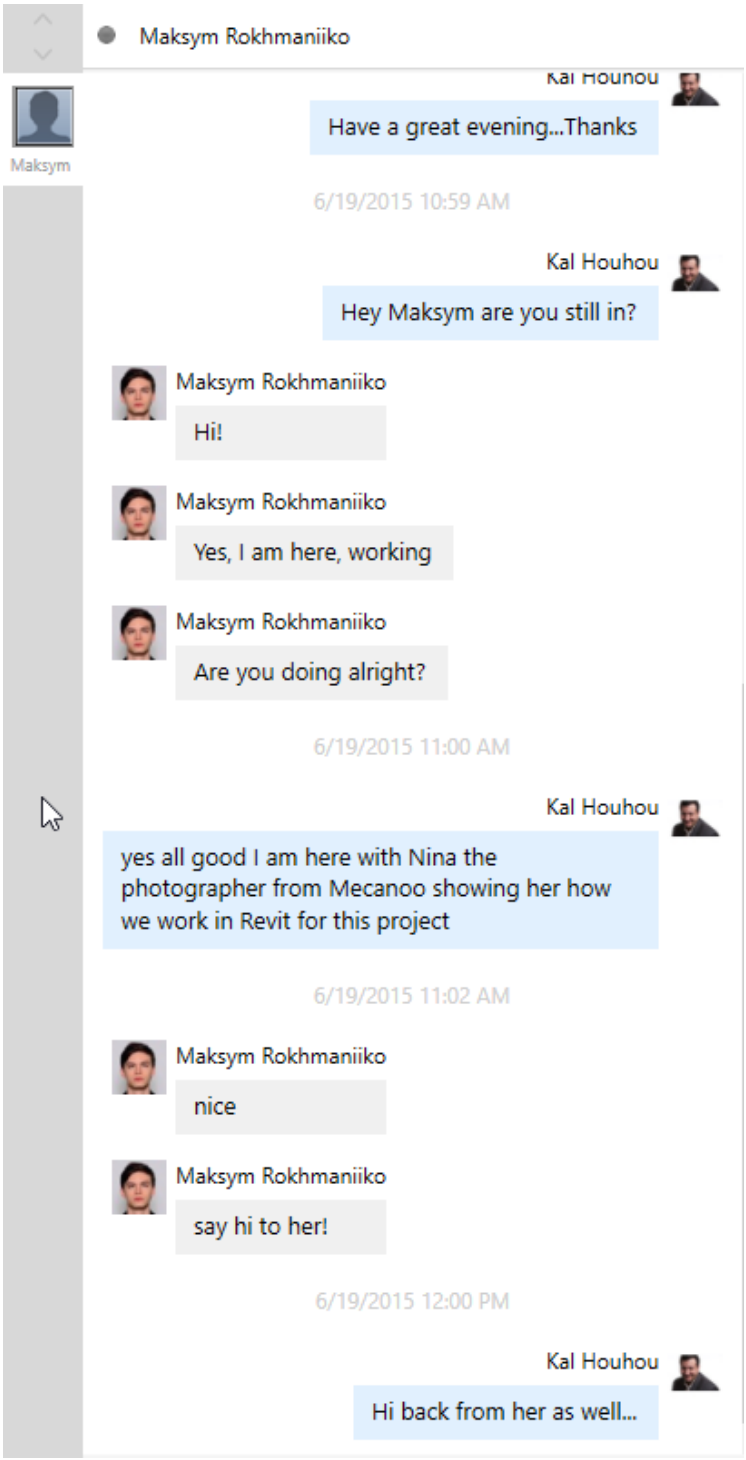
Communicator is Instant Messaging and more within Revit. Our Designer Staff found it very useful since they don't need to leave Revit to be able to chat/communicate/share content in Project Context. You can keep it always on Top of any applications and we usually have it on a

second monitor. You can chat with the entire Project Team or on one-on-one and in this capacity we used it a lot for Project Support (Troubleshooting Revit issues/ BIM 360 Team access, Collaboration for Revit issues or to simply say “Hello” to the distributed team members, they can be anywhere in the World in our case.

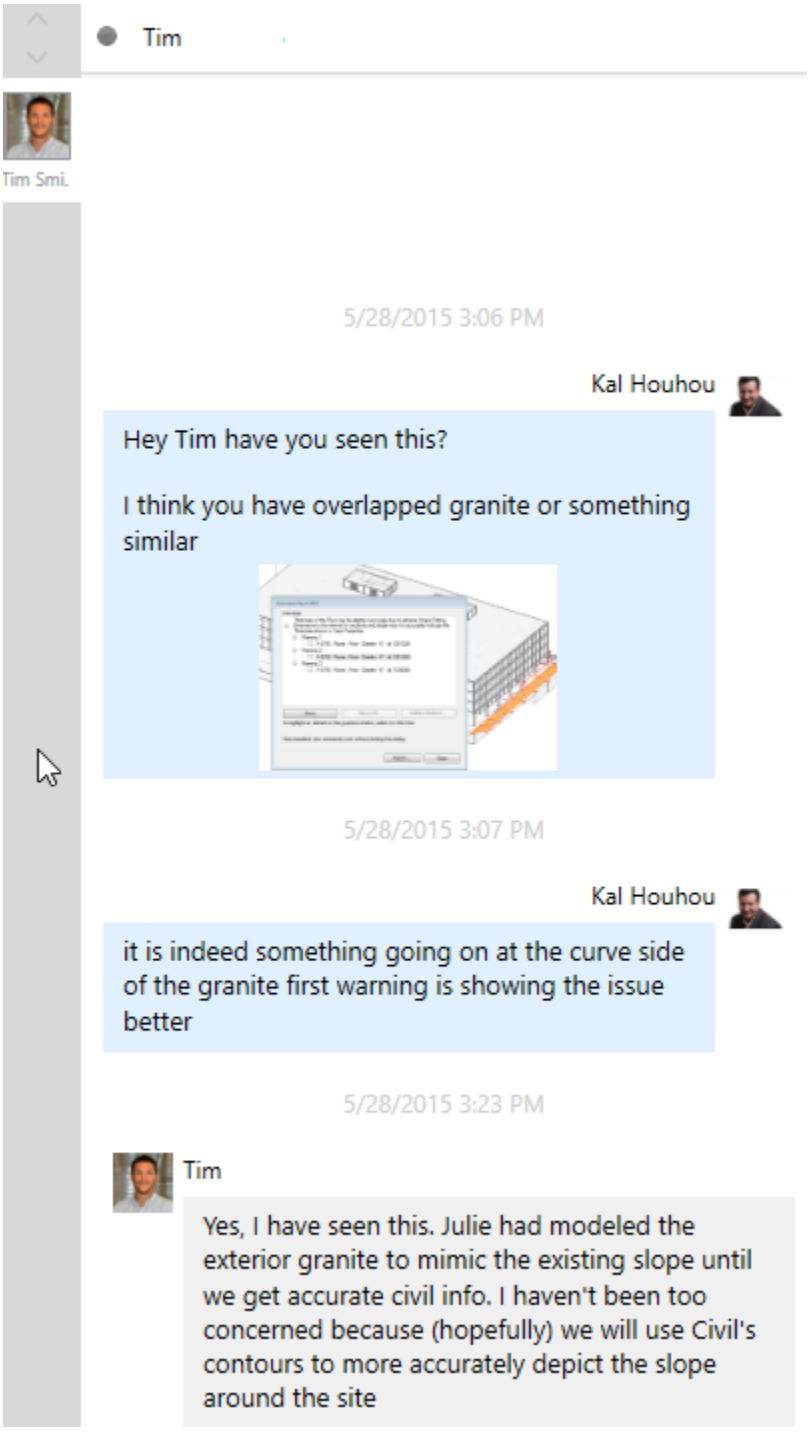
Jamie in New-York City



Maksym is in the Netherland…



And Tim in Washington, DC …sharing information about a special project task



In order to access the chat with any given project team you need to follow steps 1 to 4 – See Figure #16

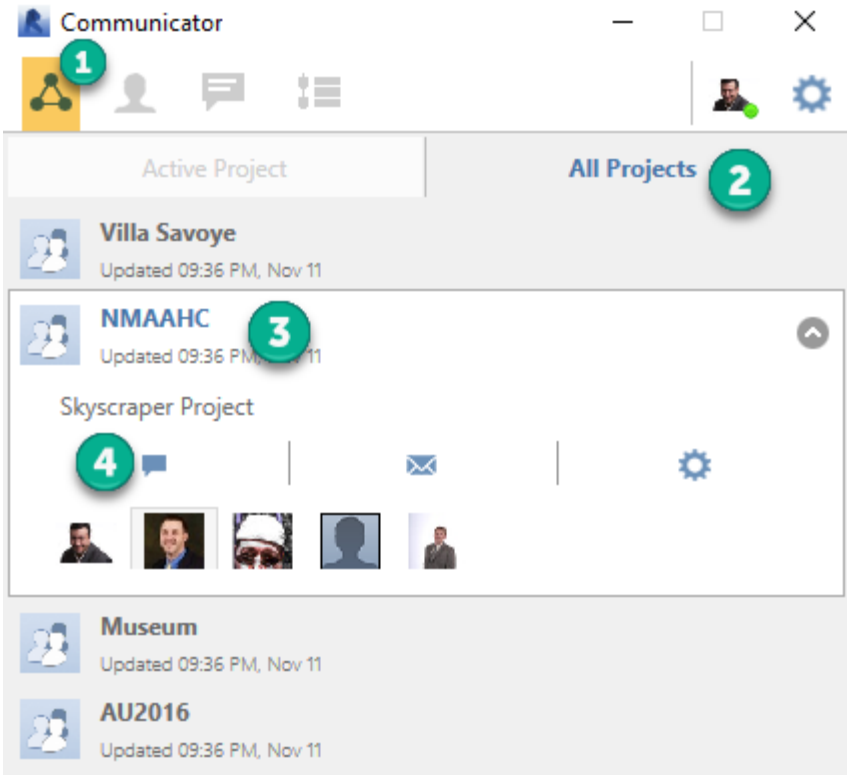
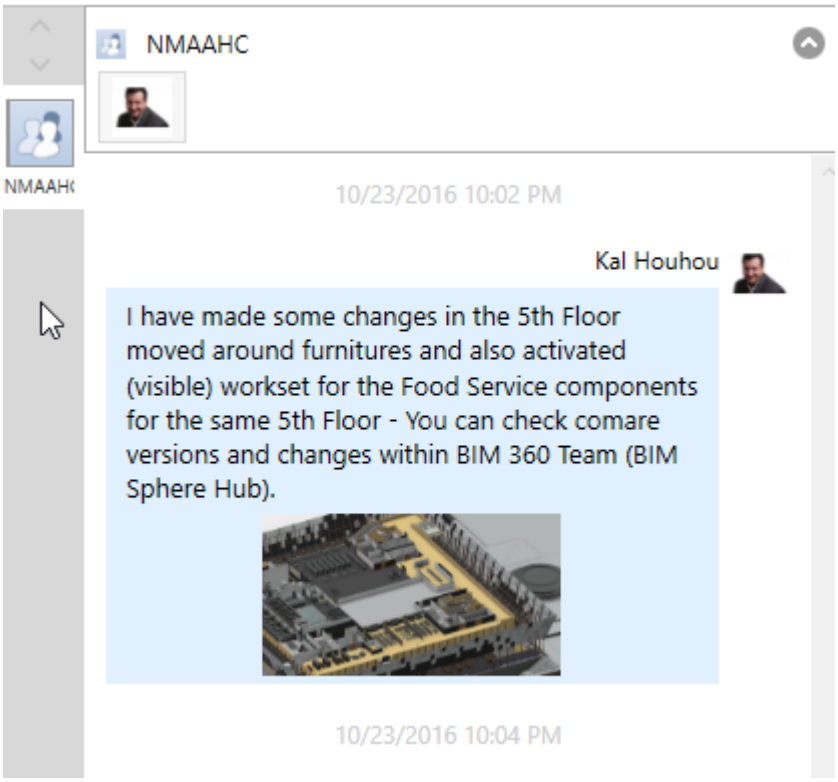
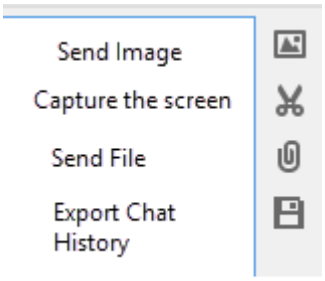
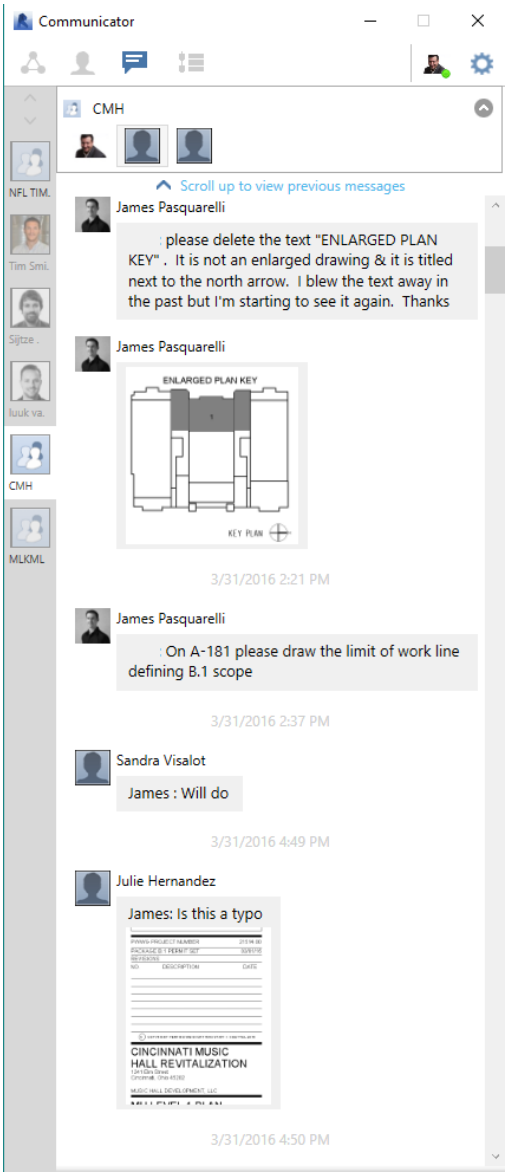

Communicator
1
Active Project
All Projects
2
Villa Savoye
Updated 09:36 PM, Nov 11
NMAAHC
3
Updated 09:36 PM, Nov 11
Skyscraper Project
4
Museum
Updated 09:36 PM, Nov 11
AU2016
Updated 09:36 PM, Nov 11

Figure #16


NMAAHC
NMAAHC
10/23/2016 10:02 PM
Kal Houhou
I have made some changes in the 5th Floor moved around furnitures and also activated (visible) workset for the Food Service components for the same 5th Floor - You can check comare versions and changes within BIM 360 Team (BIM Sphere Hub).
10/23/2016 10:04 PM

Any image can be posted in Communicator or a PDF document or an extract of the Revit Model (2D or 3D View).





How to capitalize on the Cloud potential for small or medium-size design firms on joint-venture projects.

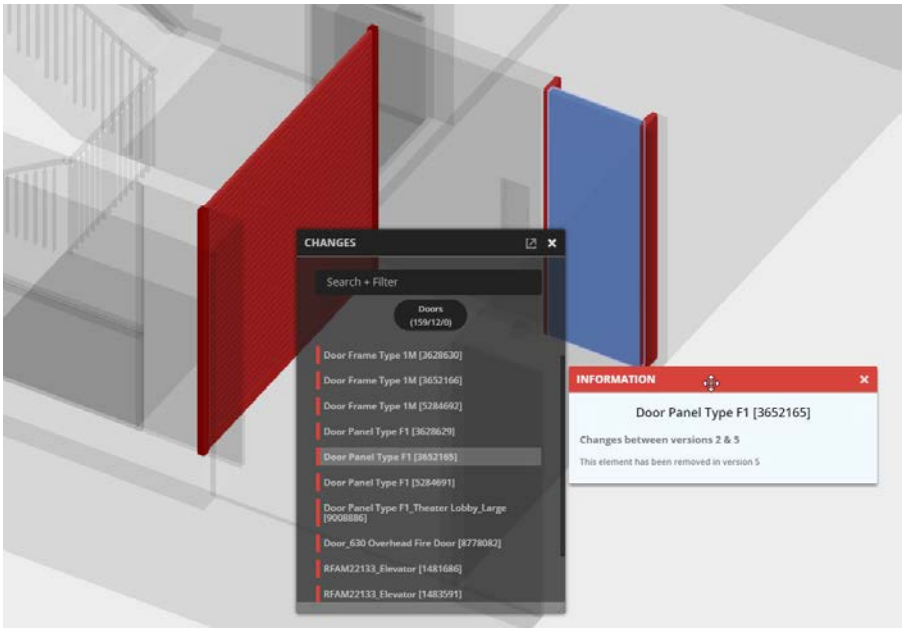
Collaboration for Revit associated with BIM 360 Team was a team winner for our organization. Most of our Projects are in joint-venture contracts with associated design firms from abroad (Europe) or from another part of the USA. Our main challenge was to work out of the same Revit Model(s) with our Design Partner(s) without sacrificing the time and effort to deliver projects.
In this capacity we started two years ago with Collaboration for Revit for a major project in Washington DC. With our Structural Engineer firm in DC as well, the Mechanical + Electrical Engineering firm in Texas, the Plumbing Designers in DC and finally the other Architectural Designer in Western Europe. Distributed teams struggling with different time zones. How to keep all designers connected and get real-time data no matter what.

Planning was key here. We were able to convince all the design firms to be present on one workspace cloud based. With the possibility to redline/markup and track changes on the Hub while accessing all Revit Models at any time independently from the device or technology platform and more importantly software independent. In this mean it was possible to convince all senior staff to get in the Hub without the need to use Autodesk flagship applications – AutoCAD and/or Revit.

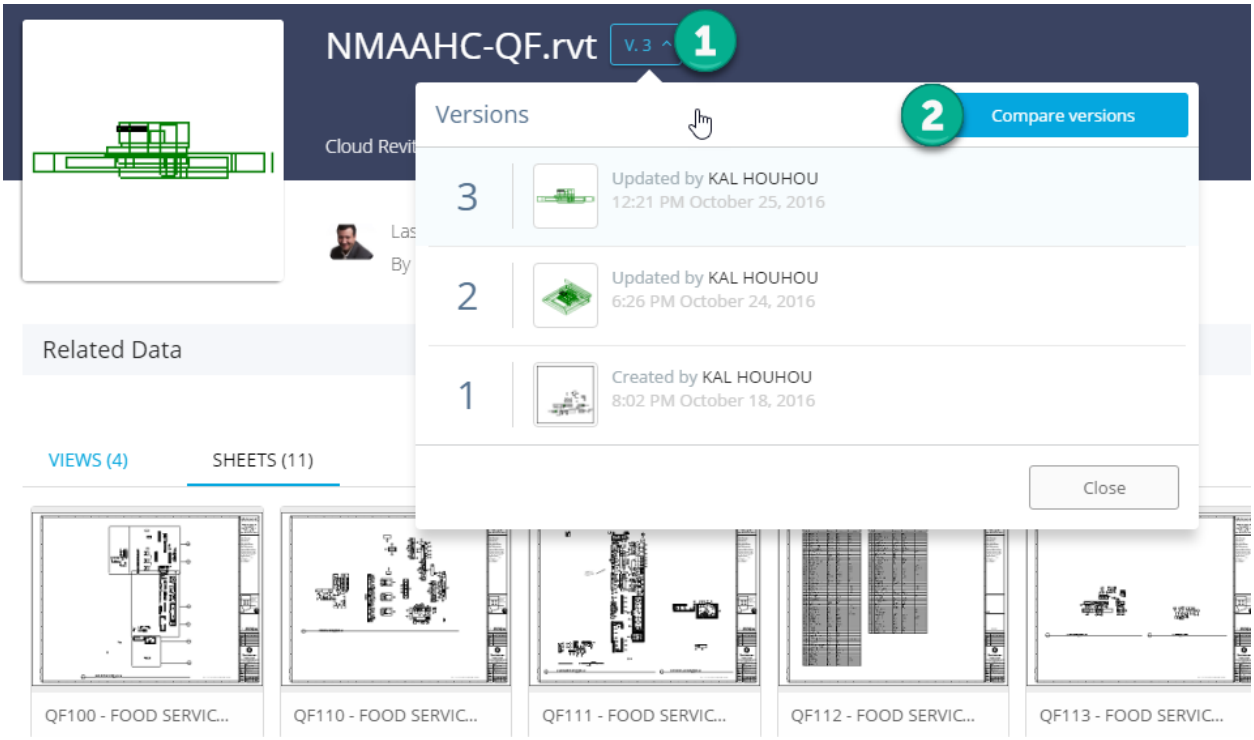
With the success of this first project while still working on the Schematic Design Package we got another partnership with a firm from the North East US Region, this time we were not the Architect of Record; although we managed to get the AR firm in line with us regarding utilizing Collaboration for Revit and hosting all models in their Hub. That was back in Summer 2015. At the start of year 2016 we decided to move all our projects to BIM 360 Team associated with Collaboration for Revit. Why is that?
I negotiated a new Dedicated Internet Access (DIA) with a major national internet provider that boost our internet bandwidth from 60 Mbps to 300 Mbps synchro for a fraction of the initial price. Since most of our operations are cloud based it made a lot more sense for our organization to also have our projects on the Cloud. Autodesk recommend for Collaboration for Revit an internet connection able to deliver a synchro 10 Mbps for each machine on burst transfers (while doing Synch with Central or publishing models to the Hub) on a Value criteria and 25 Mbps for large and complex projects on the performance criteria. Ref. Collaboration for Revit requirements
The latter was our case for our first two projects.

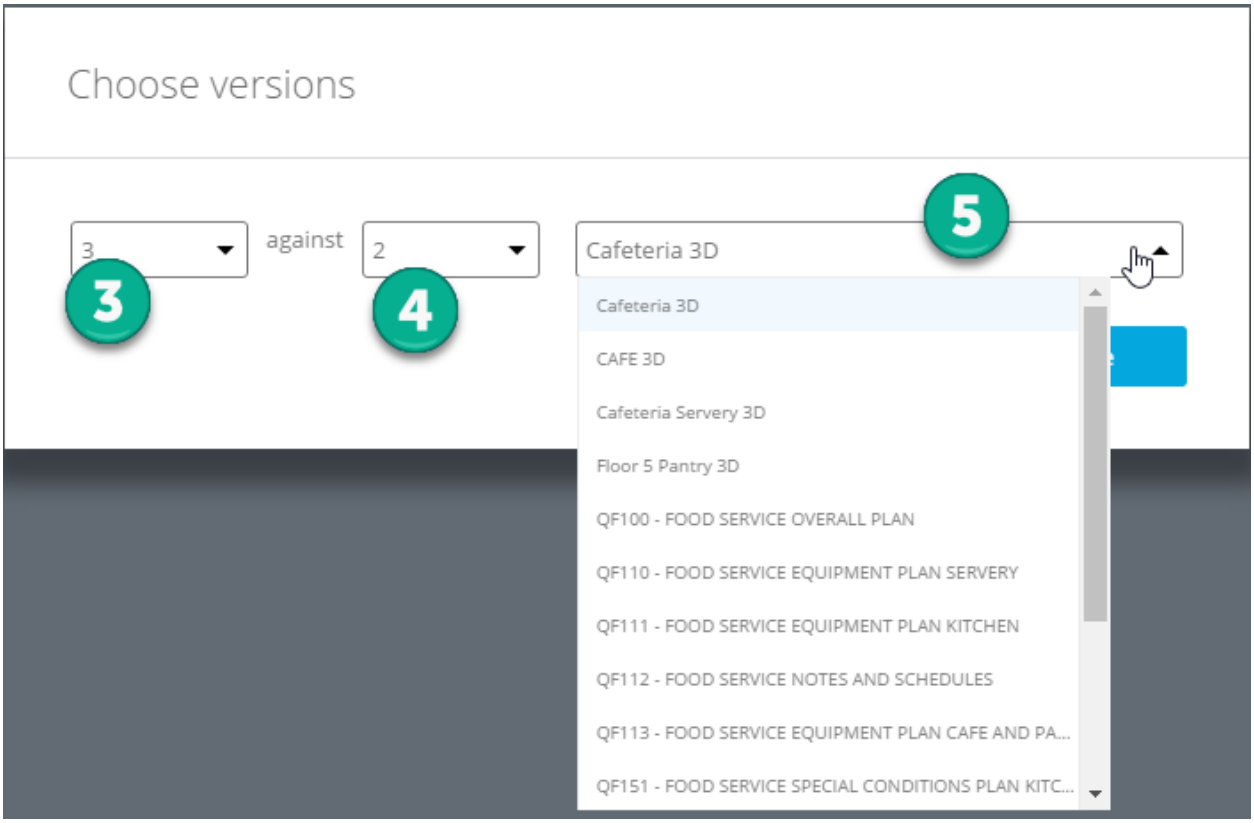
Now what's next for us? In October 2016 Autodesk introduced a new feature in BIM 360 Team; Compare Changes between Design Versions in 2D and 3D. This recent addition allows our Senior Team Lead Designers (most of them not using Revit) to review the latest project model changes in their browser. Isn't it cool? Not only for deign lead staff; we also found it very useful for Quality Control and Quality Assurance especially when working on the same Revit model with our design partners. In example we had someone from the Architectural Design Team deleted (by accident) equipment and

furniture couple of weeks before delivering 100% Design Development package by comparing versions of the Revit model we were able to catch this error and fixed it on time. Another great use of this feature was to compare side by side Sheets from Specialty Consultants between a sheet they submitted at 50% DD and the latest provided. We were able to see the addition of data from that consultant prior to deliver 100% DD and so we were able to discuss more in depth with them. Some examples below

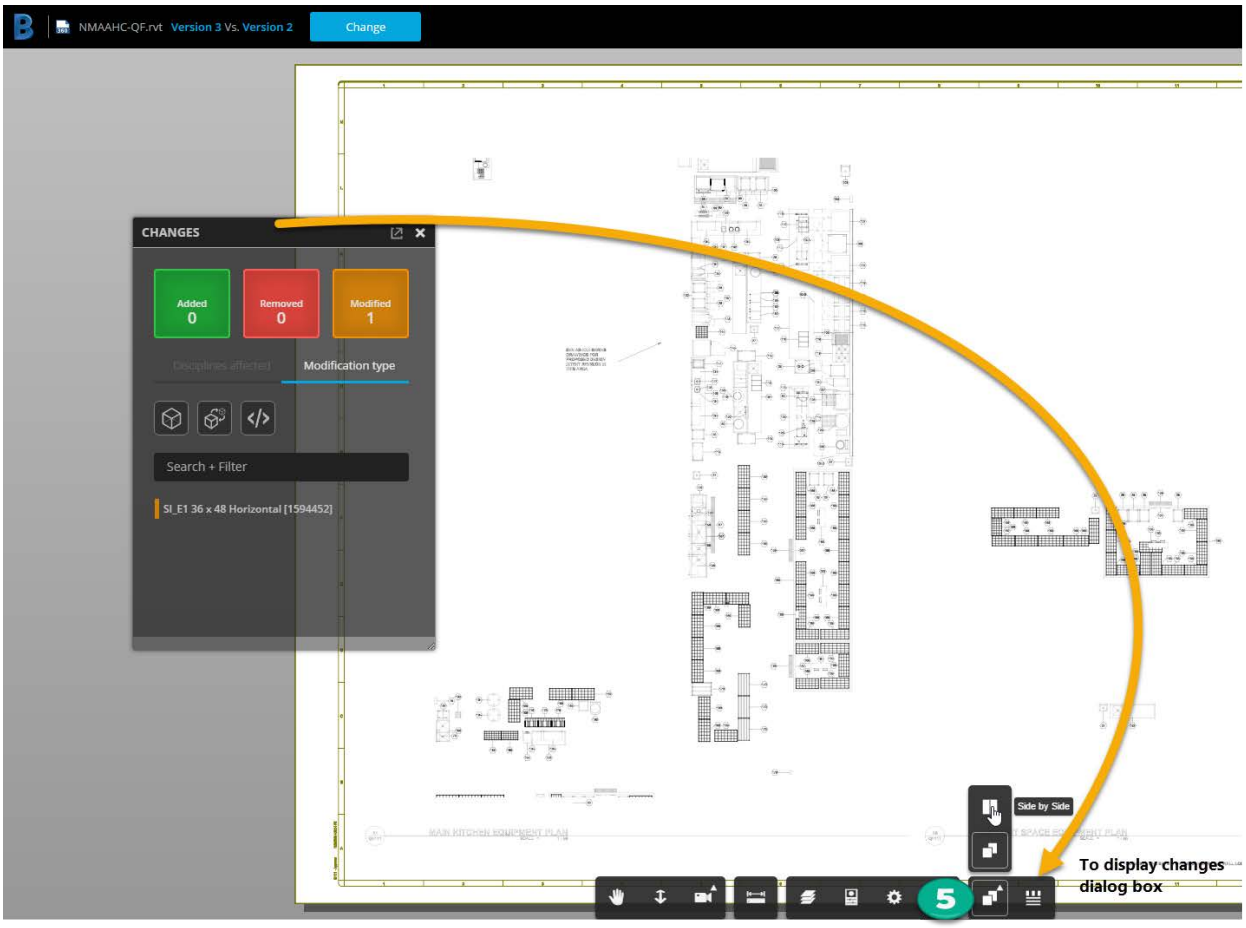


How to access Compare versions from BIM 360 Team:


NMAAHC-QF.rvt
V.3
1
Versions
2
Compare versions
3
Updated by KAL HOUHOU
12:21 PM October 25, 2016
2
Updated by KAL HOUHOU
6:26 PM October 24, 2016
1
Created by KAL HOUHOU
8:02 PM October 18, 2016
Close
Related Data
VIEWS (4)
SHEETS (11)
QF100 - FOOD SERVIC...
QF110 - FOOD SERVIC...
QF111 - FOOD SERVIC...
QF112 - FOOD SERVIC...
QF113 - FOOD SERVIC...

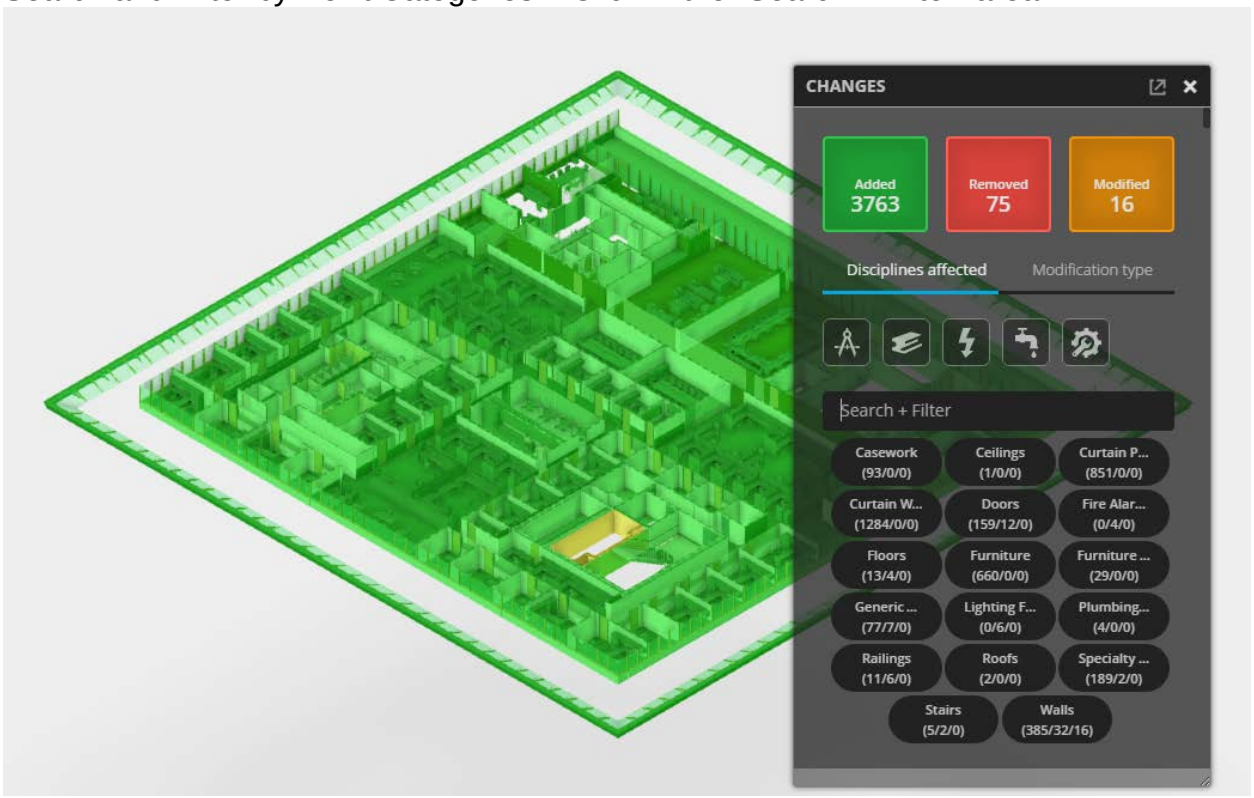

Choose versions
3
against
2
Cafeteria 3D
5
3
4
Cafeteria 3D
CAFE 3D
Cafeteria Servery 3D
Floor 5 Pantry 3D
QF100 - FOOD SERVICE OVERALL PLAN
QF110 - FOOD SERVICE EQUIPMENT PLAN SERVERY
QF111 - FOOD SERVICE EQUIPMENT PLAN KITCHEN
QF112 - FOOD SERVICE NOTES AND SCHEDULES
QF113 - FOOD SERVICE EQUIPMENT PLAN CAFE AND PA...
QF151 - FOOD SERVICE SPECIAL CONDITIONS PLAN KITC...

You can select any versions available and select the 2D View or 3D View available to both versions only. Then click on Compare.



The side by side comparison was great to have for 2D Views (sheets), you can then filter by discipline, by Revit Category or just by selecting an item in the list as shown below. This feature is at inception just a month old but looks promising. If you need more out of it I highly recommend to submit your wish list to the idea station of BIM 360 Team:

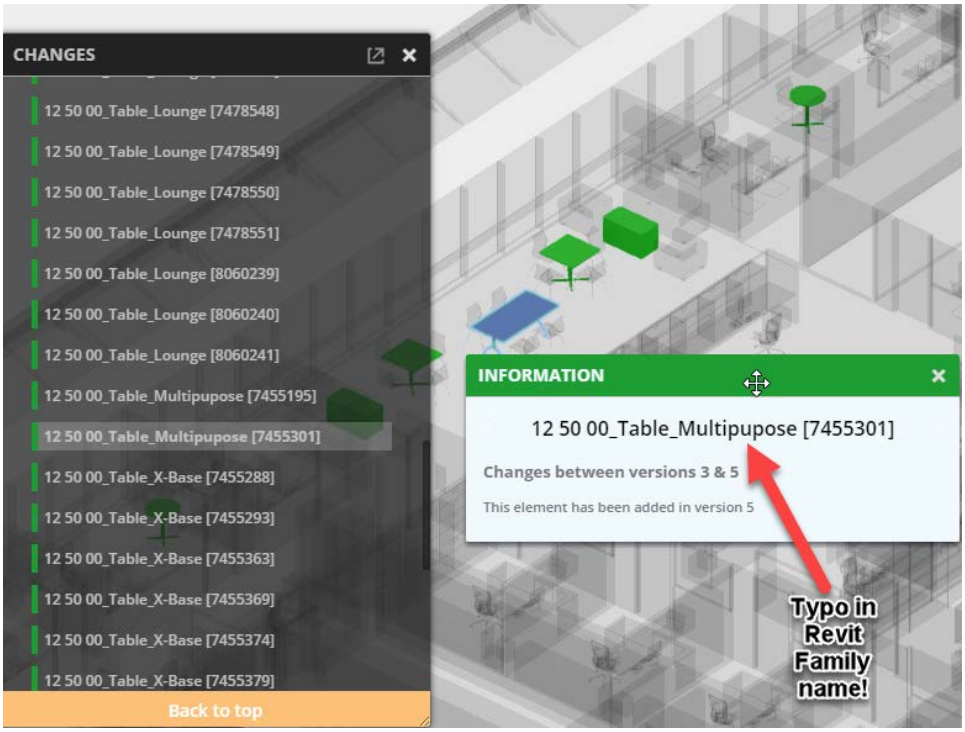
Search and Filter by Revit Categories – Click in the “Search + Filter” area:



Nothing prevent you while you are comparing changes side by side or in overlay mode to explode the model or measure anything in that view…

Explode feature:

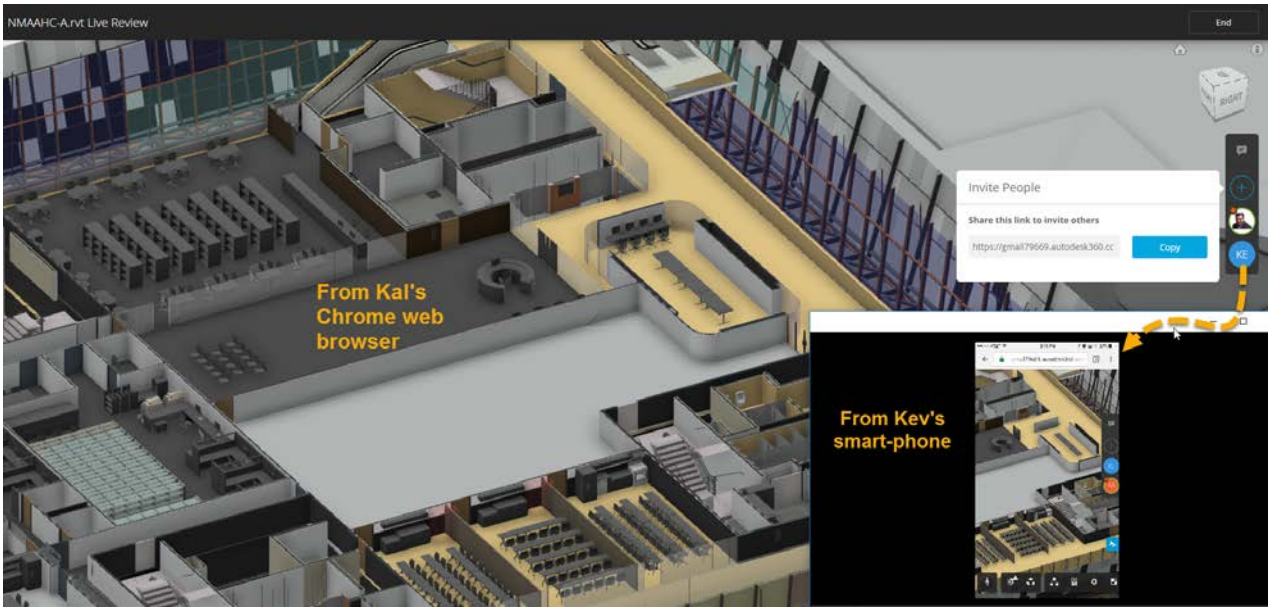
Quality Control on the family name (an “r” is missing from the Revit Family name).



Measure element in 3D:

Conclusion

I didn't have time to cover in this document the Live Review feature from BIM 360 Team I should have some time during the live presentation to demonstrate the feature with mobile devices combined just wanted to share with you a sneak pick:



Flexibility and user-friendly are the most common words we heard from our designers after using the Cloud platform for a little over two years. From a dozen users for our first project that is due next year we ended up with over 60 users and adding more as we go and as it gets popular.

The tool that is the most popular is by far Communicator. We although expect that Compare changes within BIM 360 Team will have its good share too! As we speak every month or so we are seeing new features added to BIM 360 Team and a more stable platform to share data and information across all disciplines no matter the authoring software.

Thank you.

Kal Houhou
Director of BIM and early adopter of BIM 360 Team/Collaboration for Revit.
Washington, DC - USA