



CitA | **TECHLIVE** 2022

Challenge, Change, Learn

Welcome to TechLive 2022

by CitA, Ireland's premier
multidisciplinary construction
network.

JONATHAN REINHARDT

MCIAT, MSc. BIM, BSc. Arch. Tech.

Enhancing the Architecture to Construction Journey

To Support Remote Working, Site Execution & Data Analytics

JONATHAN REINHARDT

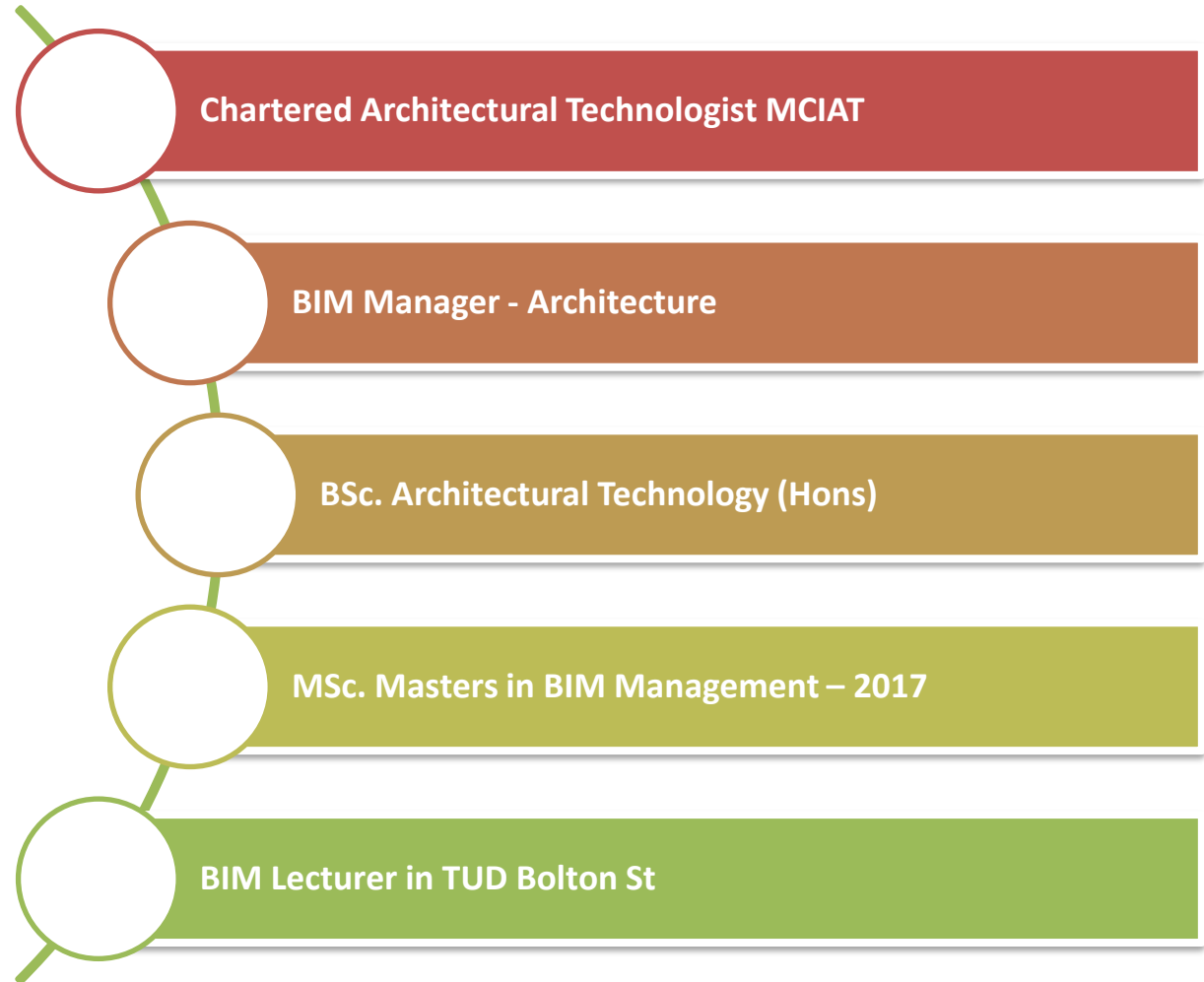
MCIAT, MSc. BIM, BSc. Arch. Tech.



JONATHAN REINHARDT

MCIAT, MSc. BIM, BSc. Arch. Tech.

Diatec Technical Consultant



Enhancing the Architecture to Construction Journey to support Remote Working, Site Safety & Data Analytics

Challenge 1 - Ameliorating the impact of the **shortage of skilled labour** in the AEC sector

Challenge 2 – Creating a platform to **attract and retain a new generation** of male and female craftspeople and professionals into construction

Challenge 3 - Creating the business case for full lifecycle use of BIM for owner-operators

Challenge 4 – Developing a collaborative procurement risk-sharing model that can accommodate fluctuating material and labour costs

Challenge 5 – Effective capture of whole-life carbon to support a net-zero future for buildings

Challenge 6 – Adopting a paperless and **remote working** ethos to drive productivity and performance of construction enterprises

Challenge 7 – Effective integration of track, trace, and accountability **to ensure the safety** of the design, works, and product quality on construction projects

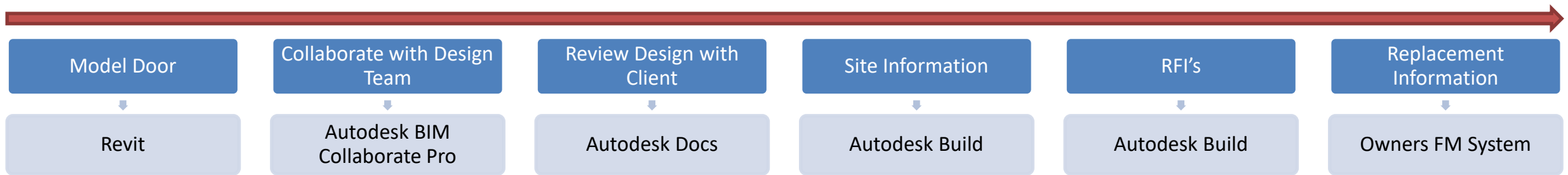
Challenge 8 – Leveraging **data analytics** for effective and responsive monitoring of productivity on construction sites

Challenge 9 – **Automating residential design** processes to facilitate and support viable off-site manufacturing pipelines

Challenge 10 – Facilitating effective compliance and transparency through effective **digital planning platforms**

As a Technologist, new technology for me is about enjoying my job to automate or do something that is uninteresting to do manually.

The journey of a door...



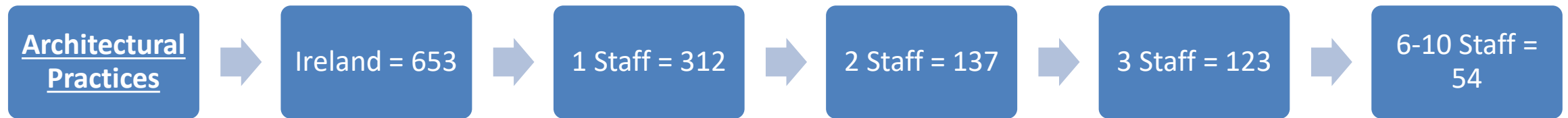
Shortage of skilled labour



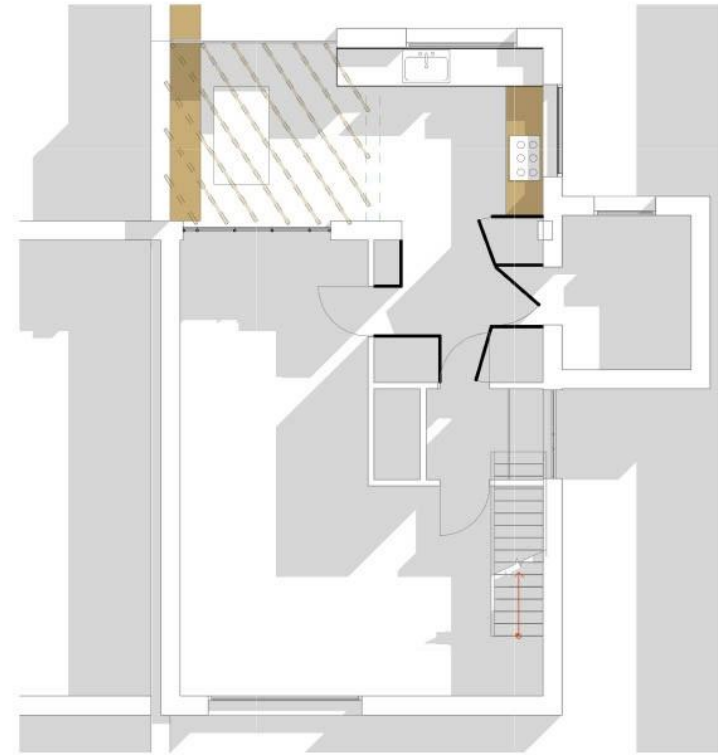
Micro & Small Architectural Firms must be supported...



Micro & Small Architectural Firms must be supported...

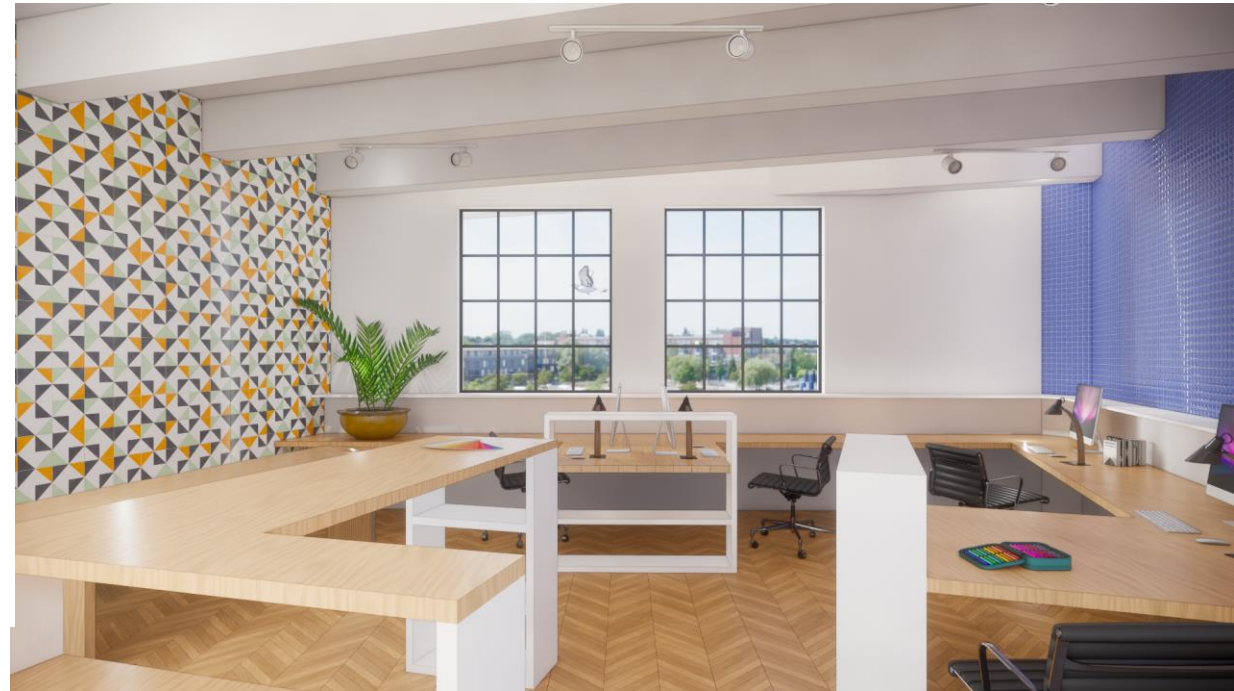


S'BIM or Small BIM!



NOTES:
This drawing is for information purposes only. Not for construction.
Do not scale drawing.
All dimensions are in millimeters only.
Any discrepancies to be decided by the designer.
All building works to comply with current building regulations.

Ground Floor GA



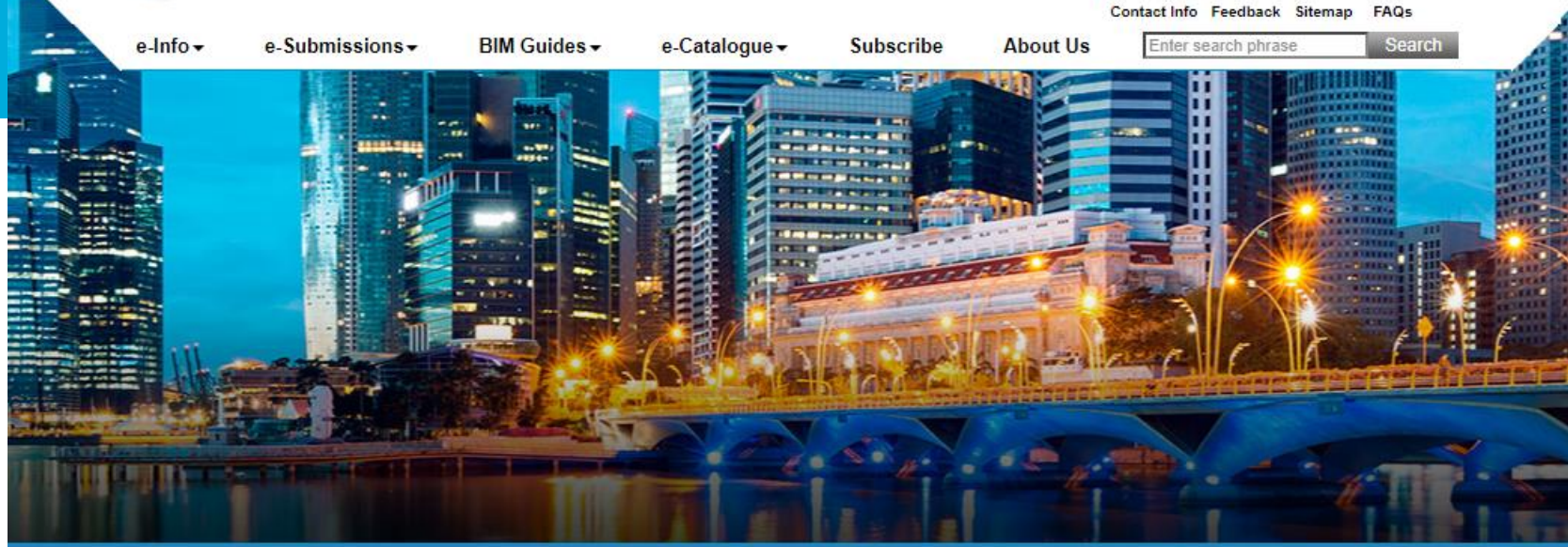
Attract and retain a new generation...

New graduates
are teaching the
industry...

Industry needs to
be ready to meet
their skills...



Digital planning platforms



[Building Information Modeling \(BIM\) e-Submission](#) >

Building Information Modeling (BIM) e-Submission

Announcement

With effect from 19 October 2016 (for architectural plans) and 01 October 2017 (for C&S/MEP Engineering plans), BCA will accept voluntary BIM e-submissions in Native BIM format. Such submissions should be prepared in accordance with the prevailing CP.

[Circular on 'Changes to Building Information Modelling \(BIM\) e-Submission Requirements for Plan Submission to BCA'](#)

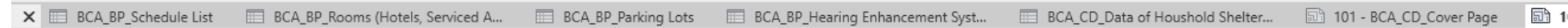
Codes of Practice for BIM e-Submission (4 parts):

- [General Requirements v1.0](#)
- [General Requirements v1.1](#)
- [Architectural Requirements v1.0](#)
- [Architectural Requirements v1.1](#)
- [Civil & Structural \(C&S\) Requirements v1.0](#)
- [Civil & Structural \(C&S\) Requirements v1.1](#)
- [Mechanical, Electrical & Plumbing \(MEP\) Requirements v1.0](#)
- [Mechanical, Electrical & Plumbing \(MEP\) Requirements v1.1](#)

If you have any comments or feedback on the Code of Practice for BIM e-Submission, please email to the respective officers.

- General & Architectural Requirements - Jannrius_lim@bca.gov.sg
- C&S Requirements - lee_xuan_yen@bca.gov.sg
- MEP Requirements - liu_ziwen@bca.gov.sg

[https://www.corenet.gov.sg/general/building-information-modeling-\(bim\)-e-submission.aspx](https://www.corenet.gov.sg/general/building-information-modeling-(bim)-e-submission.aspx)



Structural Guidelines 2.1

Revit Annex1a:Recommended Process

Revit Annex1b:Template Training Guide

Revit 2016 (NEW)

Revit 2017 Template

Revit 2018 Template

Revit 2019 Template

Revit 2020 Template

Revit 2021 Template

Revit 2022 Template



***Earlier design sign
off...***



ENSCAPE™

***Realtime
visualization***



Automating residential design

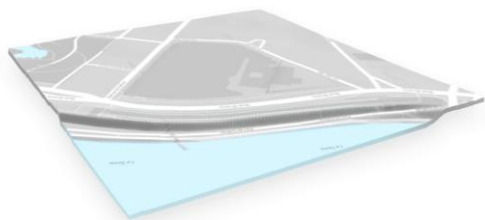
The four building blocks of Spacemaker

Early stage planning. Re-imagined.



Instant digital model

Open a project anywhere in the world and build your 3D model in minutes. Bring your own or use automatically sourced data sets*



AI-powered design

Design, explore and optimize solutions with unparalleled speed and ease of use



Real-time analysis

Perform advanced real time analysis to evaluate the performance of your design



Seamless collaboration

Work with the entire planning team in one platform, on the same digital models.



*Automatic data availability varies country by country

Automating residential design

Access to 100+ analysis on each design proposal

GEOMETRY

SURROUNDINGS

REGULATIONS

SUSTAINABILITY

...



Site



Terrain



Density



Wind



Buildings



Outdoor area



Daylight



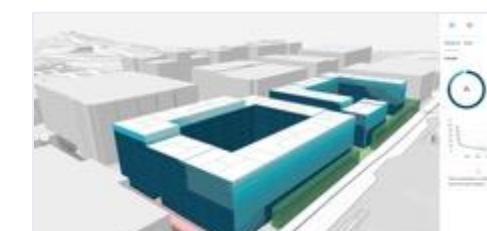
Noise



Apartments



Effects on neighbours



View



Sun

...

...

...

... Spacemaker

Remote Working





AUTODESK CONSTRUCTION CLOUD™



AUTODESK®
TAKEOFF



AUTODESK®
BUILD



AUTODESK®
DOCS



AUTODESK® **BIM COLLABORATE PRO**





AUTODESK CONSTRUCTION CLOUD™



AUTODESK BIM COLLABORATE / BIM COLLABORATE PRO*

AUTODESK TAKEOFF

AUTODESK BUILD

Capabilities	Design Collaboration	Coordination	Quantification	Project Management	Cost Management	Quality	Safety	Project Closeout
Workflows	<ul style="list-style-type: none">• Constructability Review• Change Visualization• * Collaboration for Civil 3D / Revit / Plant 3D• Issue Management	<ul style="list-style-type: none">• Model Coordination• Clash Detection• Constructability Review• Issue Management	<ul style="list-style-type: none">• Scope Analysis• 2D/3D Takeoff	<ul style="list-style-type: none">• RFIs• Submittals• Meeting Minutes• Daily Reports• Photos• Scheduling	<ul style="list-style-type: none">• Contract Creation / Administration• Change Orders• Payment Applications• Forecasting	<ul style="list-style-type: none">• Quality Planning• Quality Checking• Punchlists• Issue Management	<ul style="list-style-type: none">• Safety Planning• Safety Training• Safety Observations• Safety Inspections	<ul style="list-style-type: none">• Commissioning• Handover Documentation• Final Completion• As-Built Survey
	AUTODESK DOCS Document Management Document Control · Document Versioning · Document Approvals · Issues · Compare							
Unified Data		Models · Drawings · Documents · Cost Items · Assets · As-Built · Photos · Videos						
Insight		Dashboards · Reports · Construction IQ · Data Connector						
Admin		Admin Console · Permissions · Project Setup · Templates · Notifications						

Construction

Barcoding

Mobile Screen Mirroring – Plangrid App





Site Safety

Yes site safety might seem uninteresting, but it's important so let's make it as streamlined and effective as possible.

CHECKLISTS

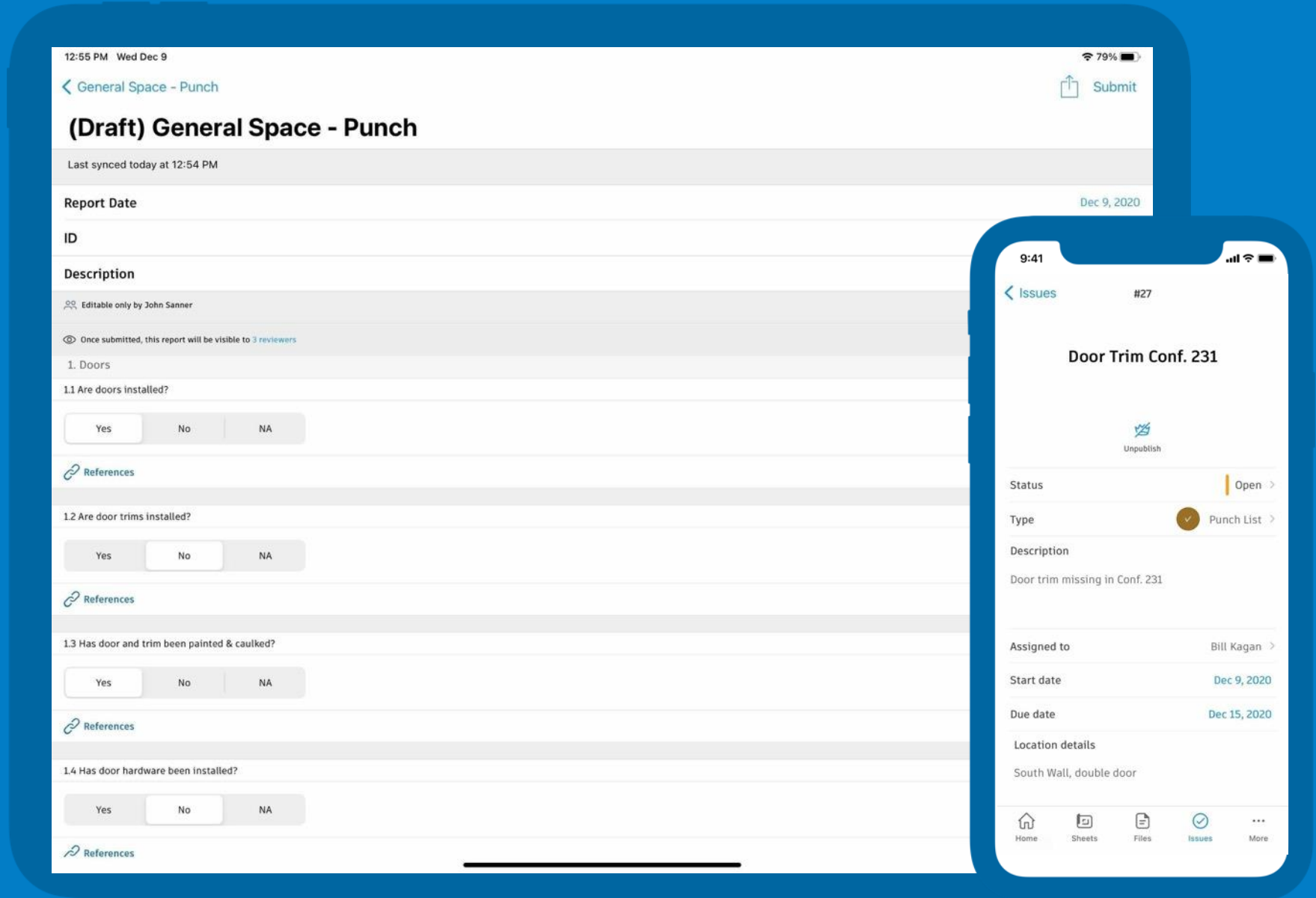
Identify and fix errors faster with mobile punchlists

Log defects from the field and add photos or comments to ensure the issue is correctly resolved

Track inspection notes using standardized templates or imported PDF forms

Share reports to all relevant stakeholders

Assign owners to punch list items and track the status through final inspection



The image displays two mobile devices showing a software interface for managing punchlists. The tablet in the background shows a form titled "(Draft) General Space - Punch" with a "Submit" button in the top right. The form includes a "Report Date" field set to "Dec 9, 2020", an "ID" field, and a "Description" section. The description contains a lock icon and the text "Editable only by John Sanner", followed by a visibility note: "Once submitted, this report will be visible to 3 reviewers". The form lists four items for inspection: "1. Doors", "1.1 Are doors installed?", "1.2 Are door trims installed?", and "1.3 Has door and trim been painted & caulked?". Each item has three radio button options: "Yes", "No", and "NA". Below each item is a "References" link. The smartphone in the foreground shows a summary card for "Door Trim Conf. 231". It includes an "Unpublish" button, a "Status" field set to "Open", a "Type" field set to "Punch List", a "Description" field with the text "Door trim missing in Conf. 231", an "Assigned to" field set to "Bill Kagan", a "Start date" field set to "Dec 9, 2020", a "Due date" field set to "Dec 15, 2020", and a "Location details" field set to "South Wall, double door". The bottom of the smartphone screen features a navigation bar with icons for "Home", "Sheets", "Files", "Issues", and "More".

SAFETY INSPECTIONS

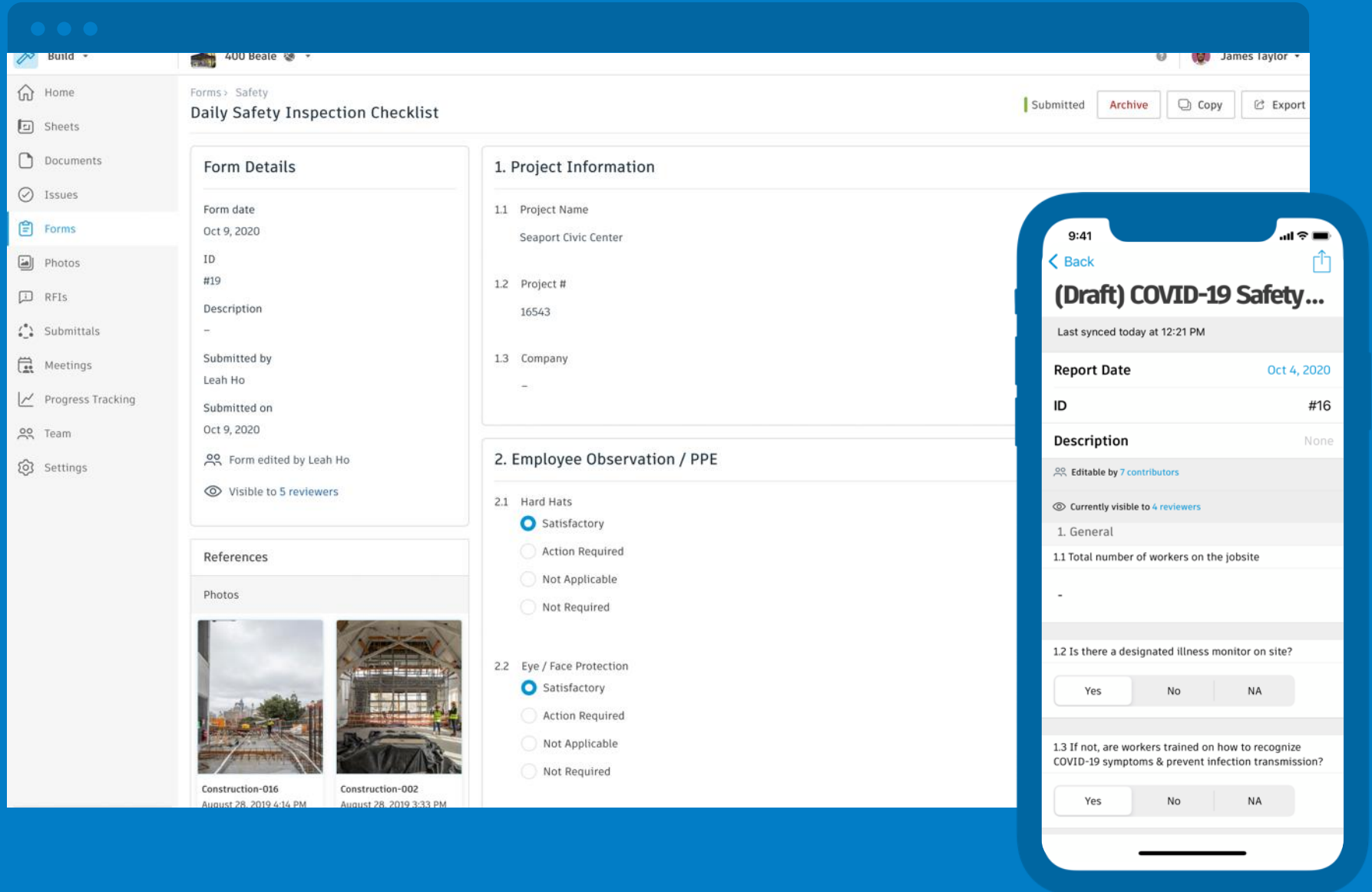
Improve safety onsite through mobile safety inspections

Create safety checklists from scratch or import PDF forms

Leverage automatic issue creation for nonconforming checklist items

Log issues and assign owners for faster safety issue resolution

Add photos or comments to identify and resolve common problems



The image displays the Diatec Safety Inspection Checklist interface, showing a web view and a mobile app view.

Web View: Daily Safety Inspection Checklist

Form Details:

- Form date: Oct 9, 2020
- ID: #19
- Description: -
- Submitted by: Leah Ho
- Submitted on: Oct 9, 2020
- Form edited by: Leah Ho
- Visible to: 5 reviewers

References:

- Photos: Two images showing construction sites. One is labeled "Construction-016" (August 28, 2019 4:14 PM) and the other is "Construction-002" (August 28, 2019 3:33 PM).

1. Project Information:

- 1.1 Project Name: Seaport Civic Center
- 1.2 Project #: 16543
- 1.3 Company: -

2. Employee Observation / PPE:

- 2.1 Hard Hats: ☒ Satisfactory, ☐ Action Required, ☐ Not Applicable, ☐ Not Required
- 2.2 Eye / Face Protection: ☒ Satisfactory, ☐ Action Required, ☐ Not Applicable, ☐ Not Required

Mobile App View: (Draft) COVID-19 Safety...

Last synced today at 12:21 PM

Report Date: Oct 4, 2020

ID: #16

Description: None

Editable by 7 contributors

Currently visible to 4 reviewers

1. General

1.1 Total number of workers on the jobsite: -

1.2 Is there a designated illness monitor on site?

Yes No NA

1.3 If not, are workers trained on how to recognize COVID-19 symptoms & prevent infection transmission?

Yes No NA

Data Analytics

Autodesk Construction Cloud to POWER BI

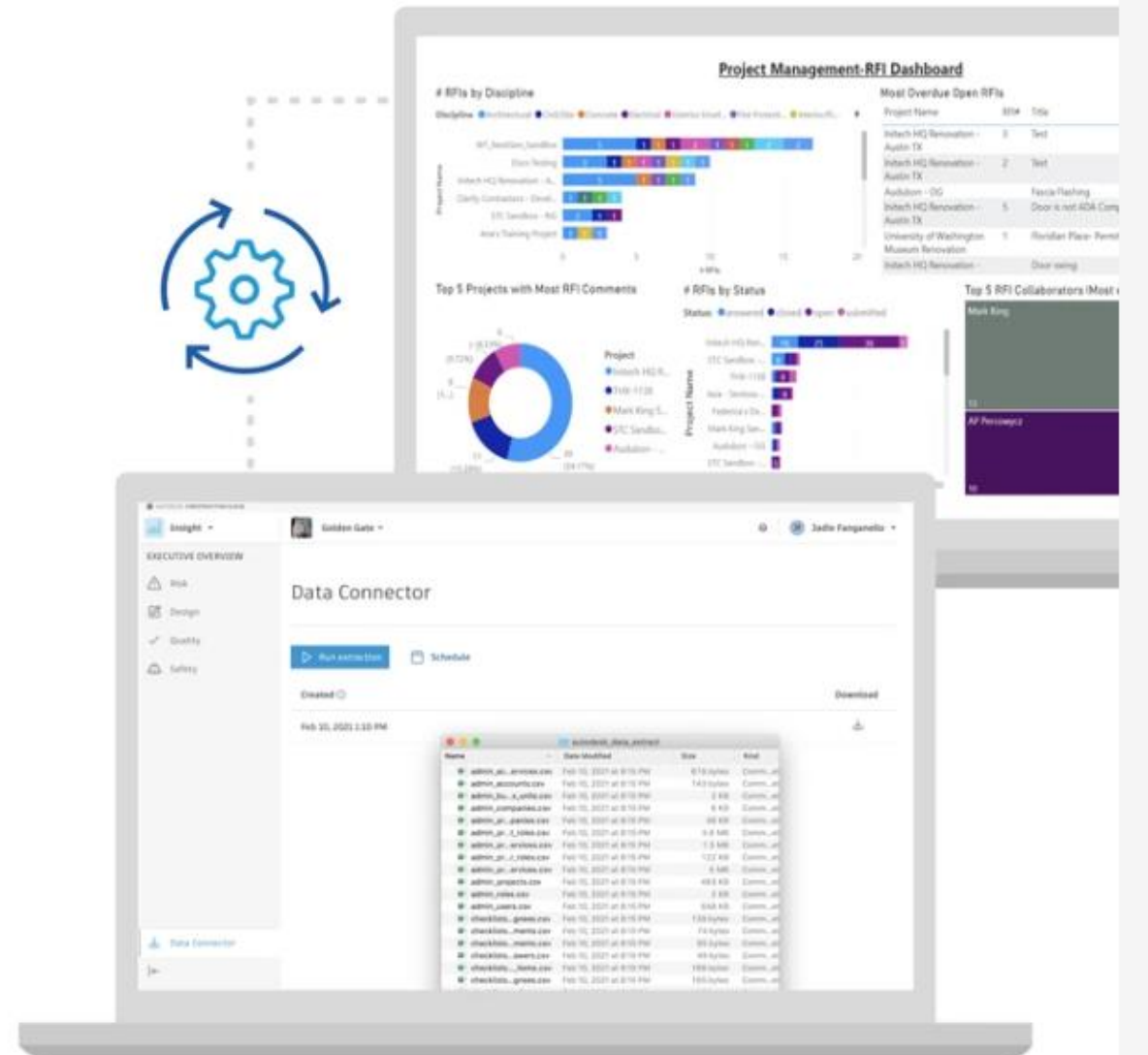
Power BI Connector allows teams to:

- Schedule data extractions from Autodesk Construction Cloud platform products or BIM 360 to have them automatically sync with Power BI
- Set up the adaptor once then simply click the 'Refresh' button from within Power BI to see updated dashboards
- Improve data visualizations to make more informed business decisions

Power BI Connector is now Microsoft certified and be used directly through the Power BI desktop app.

GET STARTED >

By downloading this I agree that my use of Power BI and Power BI Connector is governed by Microsoft's terms and conditions and the use of my personal information by Microsoft is governed by Microsoft's privacy policy.





Platinum Sponsors

ARUP



Gold Sponsors





Thank you for your participation