



uOttawa

## GNG 1103 – Engineering Design

### Deliverable C – Design Criteria

#### Team B05

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## Introduction

On September 25, 2020 we had the privilege of meeting with Patrick Lalonde of EllisDon and Kenny Leon of the Canadian Construction Association, to establish the problem at hand and the project we must progress with. Since that meeting, we have had several discussions about our elaboration forward. In this report, we have defined a list of prioritized design criteria, compiled a set of technical benchmarking, and determined target specifications to be used in the development of our final solution.

### C. 1: List of Prioritized Design Criteria

#	Need (by importance) 5: blue - 4: pink - 3: yellow - 2: green	Design Criteria
1	Ability to view 3D Building Information Models (BIM) in Visual Augmented Reality	App/software interface to complete BIM
2	Compatible with common Mobile Devices	Compatible with IOS and Android
3	Software application must be open source or free to use	Cost-free
4	Navigation and interface must be user friendly	Clarity and simplicity of the interface
5	Training and implementation documentation must be provided	User friendly, easy to use
6	Presented through VR or AR on a mobile device	Compatible with IOS and Android

7	Easily operated by any individual regardless of technical skill level	Clarity and simplicity of interface
8	Solution is based on existing free to use software or developed-in house	App/software
9	View the insides of walls to be able to see different electro-mechanical components.	Clarity and usability of the interface
10	Available online/offline	Available wherever the user is
11	Be on forefront of technology	Compatible with IOS and Android, easy to use, free, available wherever the user is.
12	Use Google Cardboard or similar device	Compatible with IOS and Android
13	Display markups (dimensions, annotations, etc.)	Clarity of interface
14	Take obstructions into consideration	Safety of users App/software interface
15	Ability to see site even when worker is not present (google maps)	Available wherever the user is

## C. 2: Technical Benchmarking

Need #	Metric	Importance	Revizto	PlanGrid	FieldWire
2	Operating System	5	PC, IOS, Android	Windows, IOS, Android	Web IOS, Android

4	Yes/No	3	Yes	Yes	No
7	Yes/No	5	Yes	Yes	Yes
10	Yes/No	4	Yes	Yes	Yes
11	Yes/No	4	Yes	Yes	Yes
13	Yes/No	2	No	No	No

### C. 2. 1: Advanced Benchmarking

	Competitors		
Specifications	Revizto	PlanGrid	FieldWire
Cost	\$395 / month per user	\$182 / month	\$136.54 / month per user
Clarity and simplicity of interface	<ul style="list-style-type: none"> <li>-Easy to share</li> <li>-Synchronizing clashes</li> <li>-2D and 3D overlay</li> </ul>	<ul style="list-style-type: none"> <li>- Easy to share</li> <li>- Mark up</li> <li>- Sheet compares</li> </ul>	<ul style="list-style-type: none"> <li>-Easy-to-use mobile editing</li> <li>-Collaborate with owners and contractors easily</li> </ul>
User friendly	<ul style="list-style-type: none"> <li>- Clash detector and problem solver</li> <li>- Internal communication</li> <li>-Simplified logic search function</li> <li>-Object tracker</li> </ul>	<ul style="list-style-type: none"> <li>- Submittals logs</li> <li>- RFI</li> <li>- Access BIM models from everywhere</li> <li>-Supports all file types</li> </ul>	<ul style="list-style-type: none"> <li>-Location-based work</li> <li>-Real-time communication</li> <li>-Easy to use construction scheduling software</li> <li>-Offline editing</li> </ul>
Safety of documents	<ul style="list-style-type: none"> <li>-Issue Tracker function</li> <li>-Cloud sync and sharing</li> </ul>	<ul style="list-style-type: none"> <li>- Cloud saving</li> <li>- Mark up issues</li> </ul>	<ul style="list-style-type: none"> <li>-Cloud saving</li> <li>-Servers are held in undisclosed facilities</li> </ul>

			with anti-intrusion systems
<b>Total</b>	<b>11</b>	<b>6</b>	<b>9</b>

### C. 2. 2: Functional Requirements

Design Specifications	Relation	Value	Units	Verification Method
Ability to view 3D Building Information Models (BIM) in Visual Augmented Reality	=	Yes	N/A	Test
Compatible with common Mobile Devices	=	Yes	N/A	Test/ Use IOS and/or Android
Software application must be open source or free to use	=	0	\$	Estimate/ Final Check
Navigation and interface must be user friendly	=	Yes	N/A	Test/Evaluate User
Training and implementation documentation must be provided	=	Yes	N/A	Instructional Reports
Presented through VR or AR on a mobile device	=	Yes	N/A	Test/Evaluate platform
Easily operated by any individual regardless of technical skill level	=	Yes	N/A	Test/Evaluate User

### C. 2. 3: Constraints

Design Specifications	Relation	Value	Units	Verification Method
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Available on IOS and Android	=	Yes	N/A	Report
Cost	=	0	\$	Receipts of purchases, in app purchases

### C. 2. 4: Non-functional Requirements

Design Specifications	Relation	Value	Units	Verification Method
Take obstructions into consideration	<	Yes	N/A	Test
Use Google Cardboard or similar device	>	Yes	N/A	Test
Display markups (dimensions, annotations, etc.)	=	Yes	N/A	Test

### C. 3: Target Specifications:

Specification	Ideal and Acceptable x values
Cost	Free
Clarity and simplification	Very clear
User friendly	Extremely easy to use
Safety of documents	Absolutely safe

### Conclusion

It is with great conviction that we believe we were able to successfully interpret our clients' remarks into prioritized design criteria and specifications. Upon gaining a better understanding of their information, as well as content learned in class, we believe we have produced an effective and sufficient report for this deliverable. The client meeting truly had the largest impact on the development of all aspects of this report, and by prioritizing all the facets, we were able to conclusively decide on the relative importance of the standards we wish to reach in the finalization of this product.