**The Testing Profile of the Export/Import Tool**

1. Testing Objective

The export/import tool is a plugin used to export the building data of “Revit” model files to the SQL Server database and import the building data in the database back to corresponding model files.

For the reason that the whole project may take a relative long time to execute the export and import tasks, a simple error can influence and interrupt the whole process and the whole process has to be performed again. Therefore, it is essential to test the software before applying it in the real workplace.

1. Testing Profile

There are five aspects which should be tested in order to ensure the stability and the usability of the tool. First, the usability testing which checks whether the plugin can be successfully invoked after the configuration of the software according to the instructions in the document. Second, the UI testing which checks whether the appearance of the software is friendly to the users. Third, the function testing which examine whether all the functions in the software work normally. Fourth, the performance testing which checks the performance of the software such as the required time to export a complete project. Fifth, the security testing which inspects whether there are some operations may affect the security of the operation system and the databases.

1. Testing Environment

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| Hardware Environment |
| CPU: Intel Xeon processor, 2.80GHz  RAM: 64GB |
| Software Environment |
| Operation System: Windows 10  Software: Revit 2018, SQL Server 2017, various “Revit” model files |

1. Testing Plan
   1. The Plugin Testing

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| Testing Objective | Ensure the plugin can be invoked successfully in the real workplace. |
| Testing Scope | “Export\_Import\_Tool.addin”, “Export\_Import\_Tool\_2.addin”, “Export\_Import\_Tool.dll” |
| Testing Method | Following the document instruction to configure the required files correctly and checking whether the plugin can be successfully invoked in the “Revit” software. |
| Completion Criteria | The plugin can be invoked and the function selection page can be shown by pressing the icon in the tool bar or clicking the plugin object under the external tools drop list in the “Revit” software. |

* 1. The UI Testing

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| Testing Objective | Ensure all the UI are friendly to the users and the UI can work normally under various situations. In addition, ensure that the restriction mechanism on the UI components works normally according to the document. |
| Testing Scope | 1. The function selection page 2. The manage link function UI 3. The export function UI (complete project export version) 4. The export function UI (partial project export version) 5. The import function UI |
| Testing Method | Following the instruction of the documentation to open corresponding UI on various screens with diverse sizes and resolutions and checking whether all the UI work well and are friendly to users under all the situations. In addition, it is necessary to examine the restriction mechanism of the UI components according to the documentation. |
| Completion Criteria | The UI are able to work and display normally under all the possible display situations. And all the components on UI work well and the restriction mechanism work normally. |

* 1. The Function Testing

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| Testing Objective | Ensure all the functions of the tool can work normally. |
| Testing Scope | 1. Database connection 2. The manage link function 3. The complete project export function   - Initial Project Export, Project Update Export   1. The partial project export function   - Model Update Export, Table Update Export   1. Database structure 2. The export time selection function 3. The export process simplification function 4. The import function 5. The log file generation function |
| Testing Method | The database connection can be tested through the steps of the import process. If database connection is normal, desired content that exists in the database can be viewed successfully.  The database structure can be checked through the SQL Server Studio. If the database structure is the same to the structure mentioned in the document, it passes the inspection.  Testing scope 2-4, 6-9 can be tested by following the instruction of the documentation of the tool. |
| Completion Criteria | All the functions work normally without errors. |

* 1. The Performance Testing

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| Testing Objective | Ensure the performance of the tool is acceptable. |
| Testing Scope | 1. The manage link function 2. The complete project export function   - Initial Project Export, Project Update Export   1. The partial project export function   - Model Update Export, Table Update Export   1. The import Function |
| Testing Method | Following the instruction of the tool documentation to execute each process and recording the time required on diverse projects and model files. |
| Completion Criteria | The time required to execute the manage link function, various export functions, and the import function is relatively acceptable by the users. |

* 1. The Security Testing

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| Testing Objective | Ensure the operation performed by the tool will not harm the computer and the database under every situation especially the enter of the project database name. |
| Testing Scope | The whole tool |
| Testing Method | Performing every possible operation in the tool and checking whether it is possible to harm the system or the database when the machine is connected to the public network. |
| Completion Criteria | Everything work normally and there is no operations can harm the system and the database. |