Working with Autodesk Revit Structure 2010 and Section 508

Section 508 requires that federal agencies' electronic and information technology is accessible to people with disabilities. The Center for Information Technology Accommodation (CITA) in the U.S. General Services Administration's Office of Government-wide Policy has been charged with the task of educating federal employees and building the infrastructure necessary to support Section 508 implementation.

With this white paper, Autodesk offers background information to help our customers understand the accessibility features of Autodesk's Revit® Structure 2010 software, in the context of the Section 508 standards. This was done with the intent to enable agencies to be compliant with the Section 508 regulations.

The document contains subsets of the Electronic and Information Technology Accessibility Standards as published in 36 CFR Part 1194 and provides an analysis of Revit® Structure 2010 against these standards.

For the purposes of this paper, "Revit Structure" refers to Revit® Structure 2010.

The first table of the Template provides a summary view of the Section 508 Standards. The subsequent tables provide more detailed views of each applicable subsection.

There are three columns in each table. Column one of the Summary Table describes the subsections of subparts B and C of the 508 Standards. The second column describes the supporting features of the product or refers readers to the corresponding detailed table, e.g., "equivalent facilitation." The third column contains any additional remarks and explanations regarding the product. In the subsequent tables, the first column contains the lettered paragraphs of the subsections of the 508 Standards. The second column describes the supporting features of the product with regard to that paragraph. The third column contains any additional remarks and explanations regarding the product.

This document is not intended to be a certification of compliance. This template is based upon version 1.2 (5/6/2004) supplied by the U.S. Government.

More information on Section 508 can be found on the Government's website located at: http://www.section508.gov/

Summary Table		
Criteria	**Supporting Features**	**Remarks and Explanations**
Section 1194.21	Software Applications and Operating Systems	Supports with exceptions
Section 1194.22	Web-based Internet Information and Applications	Not applicable
Section 1194.23	Telecommunications Products	Not applicable
Section 1194.24	Video and Multi-media Products	Not applicable
Section 1194.25	Self-Contained, Closed Products	Not applicable
Section 1194.26	Desktop and Portable Computers	Not applicable
Section 1194.31	Functional Performance Criteria	Supports with exceptions
Section 1194.41	Information, Documentation and Support	Supports

Section 1194.21 Software Applications and Operating Systems		
Criteria	**Supporting Features**	**Remarks and explanations**
(a) When software is designed to run on a system that has a keyboard, product functions shall be executable from a keyboard where the function itself or the result of performing a function can be discerned textually.	Supports with exceptions	Keyboard shortcuts: Supports standard file shortcut keys for many functions. Supports keytips for ribbon tabs and most widgets in ribbon; MouseKeys and StickyKeys supported.
		No command line access is provided.
		When panels are minimized, keytips don't work. The Panel minimize function does not have a keyboard access method.
		Revit Structure provides inconsistent information about user interface elements via the Microsoft Accessibility Applications. For example ribbon text and tooltips are not available via JAWS or Microsoft Narrator. Tooltip equivalents of ribbon button text are provided, but audio versions are not supported. Toolbar and ribbon button images have textual equivalents.
		Not all drawing-related elements (doors, walls) provide consistent equivalent textual information.
		Some graphic list boxes (for example, the Fill Patterns dialog for Materials) do not allow screen readers to access the text that describes a fill pattern.
		The option bars in Revit Structure are not accessible to screen readers.
		Does not support moving between sections (or panes) of the application windows unless using MouseKeys.

		Labels on the SteeringWheels® and ViewCube® are not accessible through Microsoft Narrator or JAWS. SteeringWheels® and the ViewCube® where there is no direct keyboard support for these features. MouseKeys is required for keyboard access of SteeringWheels and the ViewCube. It is not possible to tab consistently through items in some of the options bars. Some keyboard navigation is provided for ribbon commands, but the keyboard navigation is not complete enough to support accessible use without a mouse-replacement application such as MouseKeys.
(b) Applications shall not disrupt or disable activated features of other products that are identified as accessibility features, where those features are developed and documented according to industry standards. Applications also shall not disrupt or disable activated features of any operating system that are identified as accessibility features where the application programming interface for those accessibility features has been documented by the manufacturer of the operating system and is available to the product developer.	Supports	A sample of common office applications was tested and no disruption of accessibility features was noted. Testing* has indicated that the Revit Structure software program does not disrupt the accessibility features of other products on the end-user's system.
(c) A well-defined on-screen indication of the current focus shall be provided that moves among interactive interface elements as the input focus changes. The focus shall be programmatically exposed so that Assistive Technology can track focus and focus changes.	Supports with exceptions	The New Features Workshop window that appears on startup is accessible through MouseKeys, but there is no way to tab through panes and items in the tree menu are not accessible to Microsoft Narrator or JAWS. Focus is programmatically exposed for navigation within some interface panes, but movement between panes in the ribbon and through all pane options and menus is not supported without the use of MouseKeys or other

		mouse- equivalent software.
(d) Sufficient information about a user interface element including the identity, operation and state of the element shall be available to Assistive Technology. When an image represents a program element, the information conveyed by the image must also be available in text.	Supports with exceptions	Revit Structure provides inconsistent information about user interface elements via the Microsoft Accessibility Applications. For example ribbon text and tooltips are not available via JAWS or Microsoft Narrator. Tooltip equivalents of ribbon buttons text are provided, but audio versions are not supported. Toolbar and menu button images generally have textual equivalents. Not all drawing-related elements (doors, walls) provide consistent equivalent textual information. Labels in the Browser tree are not accessible to Microsoft Narrator or JAWS. Some graphic list boxes (for example, the Fill Patterns dialog for Materials) do not allow screen readers to access the text that describes a fill pattern. The option bars in Revit Structure are not accessible to Narrator.
(e) When bitmap images are used to identify controls, status indicators, or other programmatic elements, the meaning assigned to those images shall be consistent throughout an application's performance.	Supports	Bitmap images and actions associated with them are generally consistent.
(f)Textual information shall be provided through operating system functions for displaying text. The minimum information that shall be made available is text content, text input caret location, and text attributes.	Supports with exceptions	Some read-only text inside dialog is not accessible to screen readers. The captions on the SteeringWheels® and ViewCube® are not accessible Revit Structure provides inconsistent information to assistive technologies. For example, ALT text is available via JAWS but not Microsoft Narrator. In addition, ALT text equivalents of toolbar button

		text are provided, but audio versions are not supported.
(g) Applications shall not override user selected contrast and color selections and other individual display attributes.	Supports with exceptions	Revit Structure performs well using Microsoft Magnifier. Also the user has the ability to change color settings. Revit Structure does not override contrast and color selections. Testing* shows that under High Contrast settings some toolbar button text is not visible. The Project Browser does not change contrast when the High Contrast setting is chosen in the Windows accessibility options. Supports resizing of text in all menus, ribbon text. Does not support resizing of icons.
(h) When animation is displayed, the information shall be displayable in at least one non-animated presentation mode at the option of the user.	Supports with exceptions	Animated displays are included within the product's Help System. The same information is documented with text and images. Animations are created within the "camera walkthrough" feature of the software. Textual equivalents are not provided.
(i) Color coding shall not be used as the only means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.	Supports with exceptions	Color-coding is not used as the only means of conveying information. The user has the ability to enter a color index or in certain cases a RGB value. Users can also use pre-defined named colors as described by PANTONE®, RAL, and DIC® color systems. Color coding is used to indicate clickable controls. There are alternate methods of achieving these tasks, but no other method of visually identifying clickable controls. The indicator color is blue and cannot be modified by the user.

(j) When a product permits a user to adjust color and contrast settings, a variety of color selections capable of producing a range of contrast levels shall be provided.	Supports	Revit Structure provides a wide variety of color selections for many elements including objects, lines, annotation symbols, materials, rooms, and phasing. The user has the ability to customize the application window. Users can also use pre-defined named colors as described by PANTONE, RAL, and DIC.
(k) Software shall not use flashing or blinking text, objects, or other elements having a flash or blink frequency greater than 2 Hz and lower than 55 Hz.	Supports	Revit Structure does not use flashing or blinking text.
(l) When electronic forms are used, the form shall allow people using Assistive Technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.	Supports with exceptions	Microsoft Active Accessibility applications like the Narrator can be used to access **some** particulars of the components of a form/dialog box. Most functions in forms/dialog boxes are accessible through MouseKeys and standard Windows tabbing and keyboard shortcuts.

Section 1194.31 Functional Performance Criterion		
Criteria	**Supporting Features**	
(a) At least one mode of operation and information retrieval that does not require user vision shall be provided, or support for Assistive Technology used by people who are blind or visually impaired shall be provided.	Supports with exceptions	Graphics in Help do not have tooltips. Revit Structure provides inconsistent information to assistive technologies. For example, ALT text is available via JAWS but not Microsoft Narrator. In addition, ALT text equivalents of toolbar button text are provided and audio versions of the buttons are supported by Microsoft Narrator.

(b) At least one mode of operation and information retrieval that does not require visual acuity greater than 20/70 shall be provided in audio and enlarged print output working together or independently, or support for Assistive Technology used by people who are visually impaired shall be provided.	Supports with exceptions	Revit Structure works well with Magnifier. No audio is available in the product. Keyboard navigation is provided for many menu commands. Microsoft Accessibility applications like Narrator can access some particulars of the components of a form/dialog box including buttons, lists, checkboxes, and text fields. JAWS can access particulars of menus, forms and dialog boxes.
(c) At least one mode of operation and information retrieval that does not require user hearing shall be provided, or support for Assistive Technology used by people who are deaf or hard of hearing shall be provided.	Supports	Revit Structure does not require user hearing to operate the system. No audio is provided by the product beyond the use of standard operating system alerts that can be displayed visually using Microsoft Accessibility settings.
(d) Where audio information is important for the use of a product, at least one mode of operation and information retrieval shall be provided in an enhanced auditory fashion, or support for assistive hearing devices shall be provided.	Does not support	Revit Structure does not require hearing to operate the system. No audio is provided by the product beyond the use of standard operating system alerts that can be displayed visually using Microsoft Accessibility settings.
(e) At least one mode of operation and information retrieval that does not require user speech shall be provided, or support for Assistive Technology used by people with disabilities shall be provided.	Supports	Revit Structure does not require user speech to operate the software.
(f) At least one mode of operation and information retrieval that does not require fine motor control or simultaneous actions and that is operable with limited reach and strength shall be provided.	Supports	Revit Structure supports use of Microsoft Accessibility applications for users with mobility concerns such as StickyKeys and FilterKeys.

Section 1194.41 Information, Documentation and Support		
Criteria	**Supporting Features**	
(a) Product support documentation provided to end-users shall be made available in alternate formats upon request, at no additional charge.	Supports	Support documentation is available within the product, as hardcopy, or as Adobe PDF.

(b) End-users shall have access to a description of the accessibility and compatibility features of products in alternate formats or alternate methods upon request, at no additional charge.	Supports	This document is posted on our website at http://www.autodesk.com. Search for "Section 508"
(c) Support services for products shall accommodate the communication needs of end-users with disabilities.	Supports	Support services options are available via webpage, e-mail, fax, or phone. Direct, in-person support is also available through resellers.

* Testing was performed by or commissioned by Autodesk and conducted over a controlled network in which accessibility consultants performed selected tasks designed to simulate day-to-day production drafting and examined the software with a variety of assistive technologies. As with all performance tests, results may vary based on machine, operating system, filters, and even source material. While every effort has been made to make the tests as fair and objective as possible, your results may differ.

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