



## California Open Online Library for Education & Accessibility

COOL4Ed (the California Open Online Library for Education) was created so that faculty can easily find, adopt, utilize, review and/or modify free and open etextbooks for little or no cost. The COOL4Ed accessibility open textbook evaluations can inform faculty, staff, and students how the free and open etextbooks meet 15 accessibility “checkpoints” that could impact the learning of learners with a range of disabilities.

### SUMMARY OF ACCESSIBILITY EVALUATION:

**Textbook:** Business Fundamentals  
**Format of Textbook:** HTML

<b>Assistive Technology (AT) Evaluation Score: Overall</b>	<b>5.3 (Maximum score = 10)</b>
<p><b>Assistive Technologies (AT) Evaluations</b> applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, see list below, are typically not used or available by the general public into the accessibility evaluation process.</p> <ul style="list-style-type: none"> <li>• Accessibility features of desktop operating systems (e.g. high-contrast display themes, settings from the Keyboard and Mouse control panels)</li> <li>• Accessibility-related software included with desktop operating systems (e.g. VoiceOver, Microsoft Narrator)</li> <li>• Third-party accessibility software and hardware:</li> <li>• Screen readers (e.g. JAWS, Window Eyes)</li> <li>• Magnification software (e.g. ZoomText Magnifier/Reader, MAGIC Pro with Speech)</li> <li>• Reading software for users with learning disabilities (e.g. Read and Write Gold, Kurzweil 3000)</li> <li>• Refreshable Braille displays</li> </ul>	
<b>Non- Assistive Technology (NAT) Evaluation Score: Overall</b>	<b>7.3 (Maximum score =10)</b>
<p><b>Non-Assistive Technologies (NAT) Evaluations</b> applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.</p>	



## **COOL4Ed Accessibility Evaluation Methods:**

The California State University [Accessible Technology Initiative](#) and [MERLOT](#) (Multimedia Educational Resources for Learning and Online Teaching) developed the rubric or “checkpoints” for the accessibility evaluation. [CAST](#), a nationally recognized organization with expertise in accessibility and UDL, reviewed and affirmed the appropriateness and value of the accessibility evaluation rubric and contributed the references and support resources to help people learn how best to design, evaluate, and remediate the learning materials to maximize the accessibility of the learning resources for all. The “checkpoints” have been built upon the Section 508 technical standards and has been organized and tailored to the typical characteristics of digital resources used in higher education courses.

The accessibility evaluations were performed by the [Center for Usability in Design and Accessibility](#) at California State University, Long Beach; faculty and graduate students with expertise in human factors, usability, and accessibility performed the evaluations of over 150 free and open etextbooks. COOL4ed.org has published the accessibility evaluation rubric and provides a detailed description of the methodology used to evaluate the accessibility of the etextbooks in COOL4ed.

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## **LOOKING FOR DETAILED ACCESSIBILITY REPORTS?**

[See Detailed Accessibility Evaluation Report using Assistive Technologies](#)

[See Detailed Accessibility Evaluation Report using Non-Assistive Technologies](#)



## DETAILED ACCESSIBILITY EVALUATION REPORT using Assistive Technologies

**Assistive Technologies (AT) Evaluations** applies specialized tools and software in the accessibility evaluation process. These specialized assistive technologies, such as Kurzweil and NVDA, are typically not used or available by the general public into the accessibility evaluation process.

### 1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	<b>Fail</b>
Additional Information:	<b>Did not find any formal accessibility policy.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>Did not find accessibility statement.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>Did not find accessibility evaluation report.</b>

### 2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	<b>Fail</b>
Additional Information:	<b>0/2 chapters passed. Chapters 8 and 9 were checked. NVDA only read the headings and when it came to the content it read it as "unknown."</b>

### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>2/2 chapters were easily zoomed in and out without any disruptions up until 250%. Chapters 1 and 2 were checked.</b>
B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser,	<b>Pass</b>



media player, or reader) that offers this functionality).	
Additional Information:	<b>2/2 chapters passed. ch. 3 and 4 were checked. Font and background color changed.</b>

#### **4. Reading Layout**

A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Pass</b>
Additional Information:	<b>30/30 pages passed. Each paged reflowed up until 300%. Ch. 5 (14/14), ch. 6 (8/8) and ch.7 (8/8) passed.</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>Fail</b>
Additional Information:	<b>0/30 web pages passed. No page numbers were included in the html version to compare to the pdf version. The html version had different font and different headings colors. Also figure markups were named differently in the html version.</b>

#### **5. Reading Order**

A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.	<b>Fail</b>
Additional Information:	<b>0/5 pages passed. NVDA was unabl to fully read the content. There was some content that was skipped such as titles, list titles, and information in boxes.</b>



## 6. Structural Markup/Navigation

<p>A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>2/2 chapters passed. Was able to navigate through the text using nvda quick keys.</b></p>
<p>B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Fail</b></p>
<p>Additional Information:</p>	<p><b>4/10 list passed. You are able to navigate to the list using NVDA. The information in the list was read with NVDA, but the list title names were skipped. Ch. 8.2 (1/1), ch. 8.4 (0/1), ch. 8.5 (1/5), ch.9.3 (0/1), ch.9.4 (2/2).</b></p>
<p>C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>Not using eReader application.</b></p>

## 7. Tables

<p>A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Fail</b></p>
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Additional Information:	<b>0/10 tables passed. Tables were read as tables by nvda using the ctrl + alt and arrow keys. Although, there were no table markups found to specify whether a table was a table in the book. Ch. 8.3 (0/1), ch. 9.5 (0/2), ch.9.6 (0/1), ch.9.8 (0/2), ch. 11.6 (0/1), ch. 13.3 (0/2), ch. 13.4 (0/1) were checked.</b>
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## 8. Hyperlinks

A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.	<b>N/A</b>
Additional Information:	
B. Live hyperlinks take you to any website or webpages external to the book.	<b>Fail</b>
Additional Information:	<b>Averaged score</b>
C. Live links take you to the correct webpage that is functioning properly.	<b>Fail</b>
Additional Information:	<b>14/51 links passed. Ch. 1.1. (1/3), ch.1.3 (0/4), ch.1.4 (2/7), ch.1.5 (3/3), ch.1.6 (6/11), ch.1.7 (0/5), ch.1.8 (1/5), ch.1.9 (0/1), ch.10 (1/2), 1.11 (0/5), ch.1.12 (0/5) passed.</b>
D. Live links are descriptive enough for the users to know where it should take them.	<b>Fail</b>
Additional Information:	<b>0/51 links passed. There were 13 links that were described as a "link" and 38 links that were urls. Ch. 1.1 (0/3), ch.1.3 (0/4), ch.1.4 (0/7), ch.1.5 (0/3), ch.1.6 (0/11), ch.1.7 (0/5), ch.1.8 (0/5), ch.1.9 (0/1), ch.10 (0/2), 1.11 (0/5), ch.1.12 (0/5) passed.</b>

## 9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do	<b>Pass</b>
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not perceive color, and information conveyed by color is also conveyed in other ways.	
Additional Information:	<b>2/2 chapters passed. Headings were indicated by blue and larger font. Also all hyperlinks were underlined. Chapters 2 and 3 were checked.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>2/2 chapters passed. Chapters 6 and 7 were checked and passed AA and AAA requirements.</b>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>
Additional Information:	<b>4/4 chapters passed. Chapters 20-23 were checked and passed AA and AAA requirements.</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>4/4 chapters passed. Chapters 20-23 were checked and passed AA and AAA requirements.</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>N/A</b>
Additional Information:	<b>No simple images found.</b>

### **10.Language**

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>"Lang=en-US" found in code.</b>
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	<b>N/A</b>
Additional Information:	<b>No foreign language found.</b>



## 11.Images

<p>A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>2/2 chapters passed. NVDA was able to read the text inside the "img alt" and there were descriptions to convey what the image meant. Ch. 13.4 (1/1) and ch. 14.1 (1/1), ch. 14.2 (1/1), ch. 14.3 (1/2), ch. 14.6 (1/1) were checked.</b></p>
<p>B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>1/1 chapters passed. All decorative images had descriptions in the "img alt" and nvda was able to read it fully. Ch. 1 (4/4). Chapter 1 was the only chapter that had decorative images.</b></p>
<p>C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).</p>	<p><b>Pass</b></p>
<p>Additional Information:</p>	<p><b>2/2 chapters passed. NVDA was able to read the text inside the "img alt" and there were descriptions to convey what the image meant. Ch. 1.2 (1/1), ch. 1.3 (1/1), ch.1.4 (1/1), ch.1.7 (1/1), ch.1.10 (1/1) and ch.4.3 (2/2), ch.4.4 (3/3), ch.4.5 (2/2) passed.</b></p>

## 12.Multimedia

<p>A. A synchronized text track (e.g. open or closed captions) is provided with all video content.</p>	<p><b>N/A</b></p>
<p>Additional Information:</p>	<p><b>No multimedia found.</b></p>



B. A transcript is provided with all audio content.	N/A
Additional Information:	No multimedia found.
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No multimedia found.

### 13.Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	No flickering found. Ch.1-15 were checked.

### 14.Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	N/A
Additional Information:	No stem content found.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	No stem content found.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	No stem content found.
D. STEM tables have appropriate markup that indicates the image is a table.	N/A
Additional Information:	No stem content found.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No stem content found.



F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No stem content found.
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	N/A
Additional Information:	No stem content found.
H. Assistive technology used can access the content from the STEM tables.	N/A
Additional Information:	No stem content found.

### *15. Interactive Elements*

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	N/A
Additional Information:	No interactive keyboard elements found in book.
B. Each interactive element conveys information to assistive technology regarding the element's name, type, and status (e.g. "Play, button, selected").	N/A
Additional Information:	No interactive markup elements found in book.
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	N/A
Additional Information:	No interactive text elements found in book.



## DETAILED ACCESSIBILITY EVALUATION REPORT using Non-Assistive Technologies

**Non-Assistive Technologies (NAT) Evaluations** applies only native or basic tools and software such as the keyboard and Narrator in the accessibility evaluation process. These non-assistive technologies are readily available and used by the general public.

### 1. Accessibility Documentation

A. The organization providing the online materials has a formal accessibility policy.	<b>Fail</b>
Additional Information:	<b>There was no URL to the Formal Accessibility Policy provided.</b>
B. The organization providing the online materials has an accessibility statement.	<b>Fail</b>
Additional Information:	<b>There was no URL to the Accessibility Statement.</b>
C. An Accessibility Evaluation Report is available from an external organization.	<b>Fail</b>
Additional Information:	<b>There was no URL Accessibility Evaluation Report.</b>

### 2. Text Access

A. The text of the digital resource is available to assistive technology that allows the user to enable text-to-speech (TTS) functionality.	<b>Pass</b>
Additional Information:	<b>2/2 chapters passed. Chapter 1 and 12 were read clearly and logically.</b>

### 3. Text Adjustment

A. Text is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>2/2 chapters passed. The text of this book can be changed in size (smaller and larger).</b>
B. The resource allows the user to adjust the font size and font/background color (or is rendered by an application such as a browser,	<b>Pass</b>



media player, or reader) that offers this functionality).	
Additional Information:	<b>2/2 Chapters passed. The text and book was able to switch to nightmode.</b>

#### **4. Reading Layout**

A. Text of the digital resource is compatible with assistive technology that allows the user to reflow the text by specifying the margins and line spacing (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>Fail</b>
Additional Information:	<b>0/30 pages passed. Chapter 1 and 2 and 7 and 8 and 12 and 13 were checked. The text of this book can be changed in size but the reflow of the information on the page get out of order, when it hits zoom at level 110 the scroll bar is then switched to horizontal formats.</b>
B. If the digital resource is an electronic alternative to printed materials, the page numbers correspond to the printed material.	<b>N/A</b>
Additional Information:	<b>N/A, the book is not numbered.</b>

#### **5. Reading Order**

A. The reading order for digital resource content logically corresponds to the visual layout of the page when rendered by assistive technology.	<b>N/A</b>
Additional Information:	<b>No Assistive technology was used.</b>

#### **6. Structural Markup/Navigation**

A. The text of the digital resource includes markup (e.g. tags or styles) that allows for navigation by key structural elements (chapters, headings, pages) using assistive	<b>N/A</b>
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technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	
Additional Information:	<b>No Assistive technology was used.</b>
B. The text of the digital resource includes markup for bullets and numbered lists that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>N/A</b>
Additional Information:	<b>No Assistive technology was used.</b>
C. If the text of the digital resource is delivered within an ebook reader application, a method is provided that allows users to bypass the reader interface and move directly to the text content that is compatible with assistive technology.	<b>N/A</b>
Additional Information:	<b>No Assistive technology was used.</b>

## 7. Tables

A. Data tables include markup (e.g. tags or styles) that identifies row and column headers in a manner that is compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>N/A</b>
Additional Information:	<b>No Assistive technology was used.</b>

## 8. Hyperlinks

A. In-book links take you to a location within the textbook. For example, the table of contents would be considered in-book links and embedded links take you to the correct location in the book.	<b>N/A</b>
Additional Information:	<b>N/A, all links are considered live.</b>



B. Live hyperlinks take you to any website or webpages external to the book.	<b>Fail</b>
Additional Information:	<b>11/20 links passed. Chapter 1 has 9 links that do not work. Chapter 9 has 4 links, that work. Chapter 12 has 7 links and they work.</b>
C. Live links take you to the correct webpage that is functioning properly.	<b>Pass</b>
Additional Information:	<b>Section 2.4, the link that takes you the calculator site works.</b>
D. Live links are descriptive enough for the users to know where it should take them.	<b>Pass</b>
Additional Information:	<b>Section 2.4, the link to the calculator works and is descriptive because it is the name of the name of the calculator company so the user can predict they will be going to their main page.</b>

## 9. Color and Contrast

A. All information within the material that is conveyed using color is also available in a manner that is compatible with those that do not perceive color, and information conveyed by color is also conveyed in other ways.	<b>Pass</b>
Additional Information:	<b>2/2 Chapters passed. Chapter 1 and 8 were checked and the headings and subheading are different colors and sizes, if someone is color blind they can tell there is a difference like heading vs. body text, but within the body there are blue text and they are not underlined or told in any other element.</b>
B. Information is conveyed from the sub-categories for contrast.	<b>Pass</b>
Additional Information:	<b>2/2 Chapters passed. Chapter 2 and 10 were checked and the section heading passed (both AA sub heading and text passed).</b>
C. Contrast for headers passed WCAG AA standards for large texts (contrast ratio 3:1).	<b>Pass</b>



Additional Information:	<b>2/2 Chapters passed. Chapter 2 and 10 were checked and the section heading passed (both AA sub heading and text passed).</b>
D. Contrast for text passed WCAG AA standards for normal texts (contrast ratio of 4.5:1).	<b>Pass</b>
Additional Information:	<b>2/2 Chapters passed. Chapter 2 and 10 were checked and the section heading passed (both AA sub heading and text passed).</b>
E. Contrast for simple images (for example, images of atoms) passed WCAG AA standards (contrast ratio of 4.5:1).	<b>N/A</b>
Additional Information:	<b>N/A, All complex data.</b>

### **10.Language**

A. The text of the digital resource includes markup that declares the language of the content in a manner that is compatible with assistive technology.	<b>Pass</b>
Additional Information:	<b>English language was directly stated in the code.</b>
B. If the digital resource includes passages in a foreign language, these passages include markup that declares the language in a manner that is compatible with assistive technology.	<b>N/A</b>
Additional Information:	<b>No other language was specified in the code.</b>

### **11.Images**

A. Non-decorative images have alternative text that is compatible with assistive technology (or is rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>N/A</b>
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Additional Information:	<b>N/A, There are non-decorative images but they are skipped by reader which means they were not probably labeled in the code.</b>
B. Decorative images are marked with null alternate text or contain markup that allows them to be ignored by assistive technology.	<b>Fail</b>
Additional Information:	<b>0/3 chapters passed. There is a decorative image in Chapter 1 and 6 and 13 in their introduction section, although the reader can skip them, they are all labeled and explained with a little quick summary. This is not consistent with human information processing because various things are labeled with the same title which will confuse readers and cause frustration. Another problem is that when a reader sees a label and explanation they might feel like the information is important and wonder why it is being skipped over.</b>
C. Complex images, charts, and graphs have longer text descriptions that are compatible with assistive technology (or are rendered by an application such as a browser, media player, or reader) that offers this functionality).	<b>N/A</b>
Additional Information:	<b>0/3 chapters pass. Chapter 1, 9, 15 has complex figures, each section has at least one complex image that is labeled as figure 1, 2, 3 and explained in a couple of sentences but the reader skips them which is really bad! The images help the reader understand the concepts and information but they are not labeled correctly, specifically they start over as figure 1, 2, 3 in every section, this is confusing and hard to follow.</b>

## **12. Multimedia**

A. A synchronized text track (e.g. open or closed captions) is provided with all video content.	<b>N/A</b>
Additional Information:	<b>No Multimedia found in textbook.</b>



B. A transcript is provided with all audio content.	N/A
Additional Information:	No Multimedia found in textbook.
C. Audio/video content is delivered via a media player that is compatible with assistive technology. This includes support for all criteria listed in Section 15 below.	N/A
Additional Information:	No Multimedia found in textbook.

### 13.Flickering

A. The digital resource content does not contain anything that flashes more than three times in any one-second period.	Pass
Additional Information:	No flickering data was found in the book.

### 14.Science, Technology, Engineering, and Math (STEM)

A. STEM figures have appropriate markup that indicates that the image is a figure.	N/A
Additional Information:	N/A, No assistive technology was used.
B. STEM graphs have appropriate markup that indicates that the image is a graph.	N/A
Additional Information:	N/A, No assistive technology was used.
C. STEM equations have appropriate markup that indicates that the image is an equation.	N/A
Additional Information:	N/A, No assistive technology was used.
D. STEM tables have appropriate markup that indicates the image is a table.	NA
Additional Information:	N/A, No assistive technology was used.
E. STEM figures have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	Fail
Additional Information:	N/A, No STEM content Found in book.



F. STEM graphs have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Fail</b>
Additional Information:	<b>N/A, No STEM content Found in book.</b>
G. STEM equations have appropriate notation markup that conveys both the notation (presentation) and meaning (semantics) of the STEM content.	<b>Pass</b>
Additional Information:	<b>N/A, No STEM content Found in book.</b>
H. Assistive technology used can access the content from the STEM tables.	<b>Fail</b>
Additional Information:	<b>N/A, No STEM content Found in book.</b>

### ***15. Interactive Elements***

A. Each interactive element (e.g. menu, hyperlink, button) and function (e.g. annotations) allows keyboard-only operation both with and without assistive technology.	<b>Pass</b>
Additional Information:	<b>There is an interactive flow chart at the top pf the page that shows you with fill in content how far along you are in the textbook, pluz the back and next buttons with arrows. This can be contoled by both a direct click and the tab feature.</b>
B. Each interactive element conveys information to assistive technology regarding the element’s name, type, and status (e.g. “Play, button, selected”).	<b>N/A</b>
Additional Information:	<b>No interactive elements.</b>
C. All instructions, prompts, and error messages necessary to complete forms are conveyed as text to assistive technology (or are rendered by an application such as a browser, media player, or reader that offers this functionality).	<b>N/A</b>
Additional Information:	<b>No interactive elements.</b>



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