High-level accessibility review – BTAA
(Engineering Village - final version)

Primary Point of Contact

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TABLE OF CONTENTS

Engineering Village

Summary (top 3 problems for Engineering Village)

This assessment covers the Engineering Village application. The application shows some issues for accessibility, but very few stand out as major problems when it comes to navigating with a screen reader or using only the keyboard. There have been obvious efforts to use ARIA to make user interface components accessible, and it works well for the most part. There are however still issues, as this report demonstrates Beyond this general statement, the top 3 issues found in this application were:

1. **Unreliable use of title attributes to convey additional information** – In an attempt to provide more contextual information to support navigation the application relies heavily on title attribute values to provide complementary information. While a conformant approach to coding so, the support for title attribute values varies greatly from one assistive technology to the next, making this strategy unreliable at best for screen reader users.
2. **Inconsistent identification of UI components for screen readers** – In an attempt to make content more accessible to screen reader users, the application provides them with added information that often times does not match with what sighted users can see. That creates a dissonance in the information conveyed that could prove problematic when sighted users support non-sighted users going through the interfaces.
3. **Declaration of states with screen readers** – Throughout the application, a lot of feedback is provided visually, through updates in content, of actualization of information. Very few of those changes of context are conveyed to screen reader users. As a result, non-sighted users may miss key information, or be misled into thinking that nothing happened following their triggering of a call to action.

Accessibility findings

Project wide issues

The issues presented in this section were identified in multiple pages and are recorded here to avoid repetition. These are applicable to each screen. Due to particularities, similar issues are reported on a page per page basis, where applicable.

Automated findings using Axe

- **SC 1.1.1 –** Active image for Engineering Village People needs alternative text.
- **SC 1.3.1 –** List structure for Careers footer menu is invalid as the UL element contains a DIV.
- **SC 1.3.1 –** All content should all be contained in ARIA landmark regions.
- **SC 1.4.3 –** Notifications for Alerts and Selected Records do not meet contrast ratios.
- **SC 2.4.4 –** Skip link at the top of the page must have discernible text (currently an empty string).
- **SC 4.1.2 –** Menu ARIA role for Search expects missing children roles, such as menuitem.
- **SC 4.1.1 –** ID attribute values used throughout the page are not unique.
- **SC 4.1.2 –** ARIA attributes must have conforming values

Issues found through automated testing come from the Axe plugin, an open source accessibility testing tool that is available for Firefox and Chrome. Details here: https://www.deque.com/products/axe/.

Additional manual findings using NVDA screen reader

- **SC 1.1.1 –** Engineering Village image is labelled as "Home link" for screen reader users.
- **SC 1.3.1 –** Footer content in columns should have their headings removed from the UL structure.
- **SC 1.3.1 –** List structure of menu inside Help navigation submenu is confusing (Quick Search).
- **SC 3.2.3 –** Nav menu items & links are labelled differently for screen readers than sighted users.
- **SC 2.4.7 –** Keyboard focus is not visible inside Help navigation submenu (not focus ring at all).
- **SC 4.1.2 –** Contextual info about features/controls is unreliably provided through title attributes.
- **SC 4.1.2 –** Screen readers keep announcing "blank" when using arrow keys (pseudo-selectors).

1. Engineering Village landing page

Source: https://www.engineeringvillage.com/search/quick.url

Test case: Review accessibility of main search page layout. Review "Help" features (located by clicking on the question mark icon in the top navigation bar), especially the "Help" and "Contact" pages.
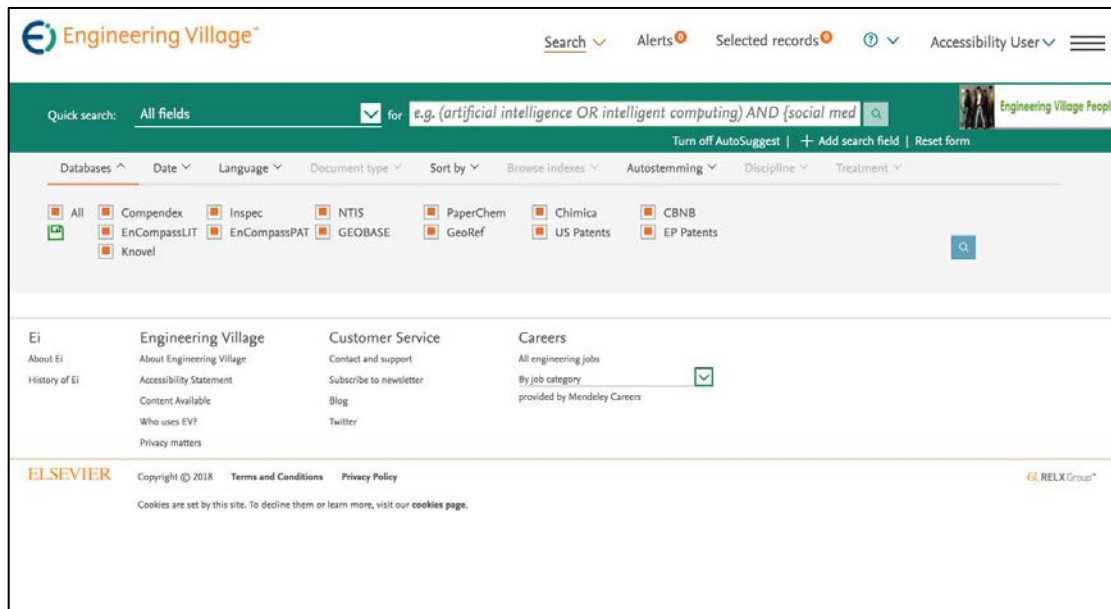
Automated findings using Axe

- **SC 1.3.1 –** Checkboxes sharing the same name must be part of the same group.
- **SC 4.1.1 –** ID attribute values used throughout the page are not unique.
- **SC 4.1.2 –** Menu ARIA role for dropdowns expects missing children roles, such as menuitem.

Additional manual findings using NVDA screen reader

- **SC 1.3.2 –** The tabbing order of elements under the "Date" tab is not logical or sequential.
- **SC 3.2.2 –** The dropdown under Career triggers without warning as soon as an option is chosen.
- **SC 4.1.2 –** Screen reader users are not getting confirmation when adding a new search field.
- **SC 4.1.2 –** The currently selected option (Databases, Date, etc.) isn't conveyed to screen readers.
- **SC 4.1.2 –** The tablist structure of the search options are not conveyed as tabs to SR users.
- **SC 4.1.2 –** Labels for checkboxes under "Database" are not meaningful and confusing.
- **SC 4.1.2 –** Info displayed in the Search auto-complete is not conveyed to screen reader users.

2. Engineering Village help page

Source: https://service.elsevier.com/app/answers/detail/a_id/25632/supporthub/engineering-village/

Test case: Review "Help" features (located by clicking on the question mark icon in the top navigation bar), especially the "Help" and "Contact" pages.
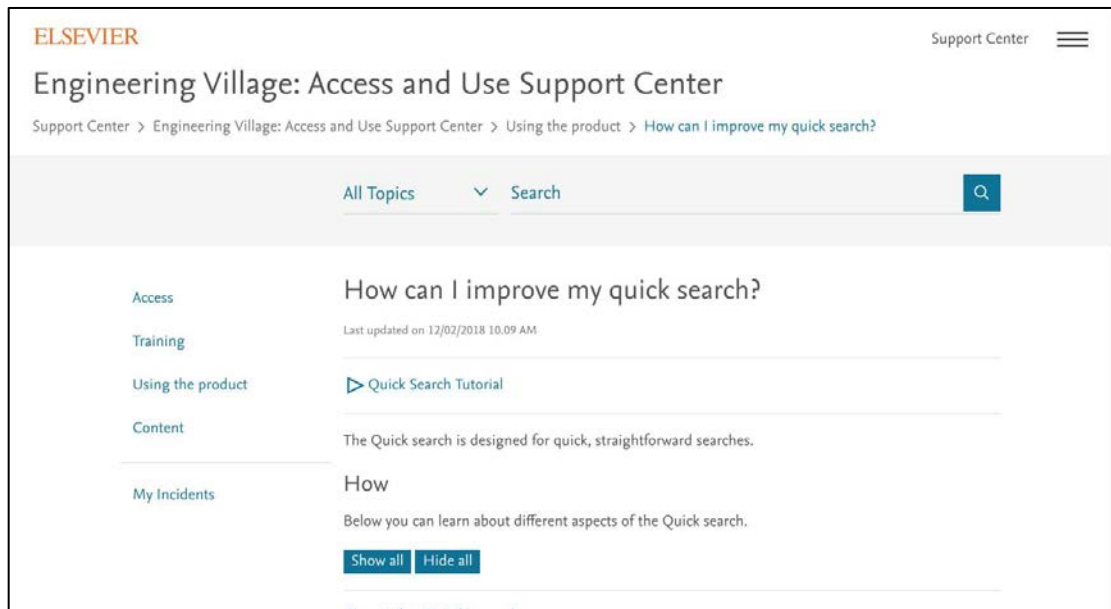
Automated findings using Axe

- **SC 1.3.1 –** The DL structure used for the accordion content is missing at least one DT element.
- **SC 1.3.1 –** List structure for left navigation menu is invalid as the UL element contains a HR.
- **SC 2.4.1 –** iFrame object does not have a title attribute with a descriptive value assigned to it.
- **SC 4.1.1 –** ID attribute values used throughout the page are not unique.
- **SC 1.3.1 –** The Search form controls has no text label (it only uses the placeholder attribute).
- **SC 4.1.2 –** The combobox role for the All Topics menu is missing its child textbox role.
- **SC 4.1.2 –** Search button must have discernible text.

Note
Due to the limited time available to assess the application and the fact that this page sits outside of the application, we have limited our testing to only running automated tools and compiling findings.

3. Engineering Village contact page

Source: https://service.elsevier.com/app/contact/supporthub/engineering-village/

Test case: Review "Help" features (located by clicking on the question mark icon in the top navigation bar), especially the "Help" and "Contact" pages.

Automated findings using Axe

- **SC 1.3.1** – Form controls must have labels (search, dropdown, file controls don't have any).
- **SC 1.3.1** – List structure for Most Recent answers is invalid as the UL element contains DIVs.
- **SC 1.3.1** – The direct parent of LI elements in Most Recent answers is not the expected UL.
- **SC 1.4.3** – Content in light grey over the white background has insufficient contrast ratios.
- **SC 2.4.1** – iFrame object does not have a title attribute with a descriptive value assigned to it.
- **SC 4.1.1** – ID attribute values used throughout the page are not unique.
- **SC 4.1.2** – The combobox role for the All Topics menu is missing its child textbox role.
- **SC 4.1.2** – Search and dropdown arrow buttons must have discernible text.

> **Note**
> Due to the limited time available to assess the application and the fact that this page sits outside of the application, we have limited our testing to only running automated tools and compiling findings.

4. Engineering Village search and results page

Source:
https://www.engineeringvillage.com/search/quick.url?SEARCHID=c7fb1976Ma522M47f7M8c66M8af04e17ecdc&COUNT=1&usageOrigin=&usageZone=

Test case: Conduct a search for the term "concretes" using all three search modes (Quick, Expert, and Thesaurus – all available from the Search option in the top-right toolbar area). Review results page for accessibility (select checkboxes, are email/print/download options accessible). Test filters in the left-hand column. Select "2017" under "year" and click the "Limit to" button at the bottom. Open a sample result item (by clicking the title) and review page for accessibility.

Automated findings using Axe

- **SC 1.3.1** – Checkboxes to refine search or select resources don't have visible text labels.
- **SC 1.3.1** – Checkboxes to refine search or select resources don't refer to common group labels.
- **SC 1.3.1** – Text field under numeric filter has no text label.
- **SC 1.4.3** – Orange content on a white background does not meet color contrast ratios.
- **SC 1.4.3** – Greyed out options in the numeric filter do not meet color contrast ratios.
- **SC 1.4.3** – Relevance dropdown text does not meet color contrast ratios.
- **SC 4.1.1** – ID attribute values used throughout the page are not unique.
- **SC 4.1.2** – Some ARIA attribute values are invalid or not orphaned throughout the page.
- **SC 4.1.2** – Multiple ARIA roles throughout the page have children missing their expected roles.

Additional manual findings using NVDA screen reader

- **SC 1.3.1** – The results checkboxes only announce the result number, not what they relate to.
- **SC 1.4.3** – Setting focus on the Continue button (Numeric Filter) causes its label to disappear.
- **SC 2.4.4** – The Show preview link for each search result is not meaningful even within context.
- **SC 2.4.4** – The Full text link for each search result is not meaningful even within context.
- **SC 2.4.4** – The Find It at UNR link for each search result is not meaningful even within context.
- **SC 2.4.4** – The CDM Smith link for each search result is not meaningful even within context.

- **SC 3.1.2 –** Passage of text in different languages are not marked up and announced as such.
- **SC 3.2.3 –** Navigation items (email, print, download) are available to keyboard, not the mouse.
- **SC 4.1.2 –** Records number found is not announced to screen readers, its value is replaced.
- **SC 4.1.2 –** Down arrow labels to open Refine drawers are not meaningful to screen readers.
- **SC 4.1.2 –** The current state of down arrow buttons (collapsed/expanded) is not announced.
- **SC 4.1.2 –** Disabled combo boxes under Numeric Filter are not clearly identified has disabled.
- **SC 4.1.2 –** The current state (collapsed/expanded) of Select all Results tooltip is not announced.

Note

Due to the limited time available to assess the application and the fact that this request encompasses three different types of searches, we have limited our testing to only assessing the quick search, using both automated tools and screen reader reviews.

5. Engineering Village results details page

Source:
https://www.engineeringvillage.com/search/doc/abstract.url?&pageType=quickSearch&usageZone=resultslist&usageOrigin=searchresults&searchtype=Quick&SEARCHID=c7fb1976Ma522M47f7M8c66M8af04e17ecdc&DOCINDEX=1&ignore_docid=cpx_M4a87d313161f6b119bfM69cf1017816339&database=6352327&format=quickSearchAbstractFormat&tagscope=&displayPagination=yes

Test case: Open a sample result item (by clicking the title) and review page for accessibility.

Automated findings using Axe

- **SC 1.3.1 –** Checkbox to select record doesn't have a visible text label.
- **SC 1.3.1 –** Checkbox to select record doesn't refer to a common group label.
- **SC 1.3.1 –** Radio buttons to download record (modal) don't refer to common group labels.
- **SC 1.4.3 –** Orange content on a white background does not meet color contrast ratios.
- **SC 1.4.3 –** Back to results and View all link text does not meet color contrast ratios.
- **SC 4.1.1 –** ID attribute values used throughout the page are not unique.
- **SC 4.1.2 –** Multiple ARIA roles throughout the page have children missing their expected roles.
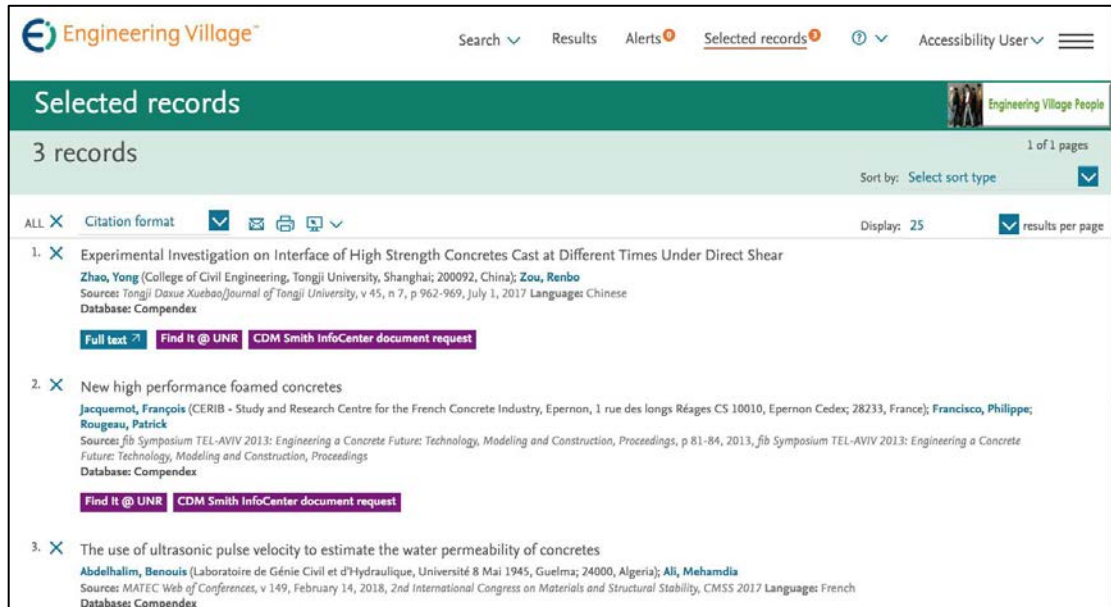
Additional manual findings using NVDA screen reader

- **SC 1.3.1 –** Headings are used to structure details (source, etc.) but are not marked up as such.
- **SC 1.3.1 –** Author details is made to look like a heading but is not marked up as such.
- **SC 1.3.1 –** Link items under some Detail categories should be structured using list markup (UL).
- **SC 1.3.1 –** List of related documents should be structured using list markup (UL).
- **SC 1.3.1 –** List of authors under Author Details should be structured using list markup (UL).
- **SC 3.2.3 –** Use of material design for form controls makes text fields hard to identify as such.
- **SC 2.4.4 –** The View All link under Related Documents is not meaningful even within context.

6. Engineering Village Selected records page

Source: https://www.engineeringvillage.com/selected/citation.url?page=1

Test case: Return to results list and select 3 items using the checkboxes. View the list of items checked by clicking on "Selected records" in the top navigation bar. Is this page accessible? Test viewing the records in Citation format, Abstract format, and Detailed format.

Automated findings using Axe

- **SC 1.4.3** – Select sort type dropdown text does not meet color contrast ratios.
- **SC 4.1.1** – ID attribute values used throughout the page are not unique.

Additional manual findings using NVDA screen reader

- **SC 1.3.1** – Database is made to look like a heading but is not marked up as such.
- **SC 2.4.4** – The Remove All control should be labelled Remove all records to be more meaningful.
- **SC 2.4.4** – The Remove record label for each entry isn't meaningful enough even within context.
- **SC 2.4.4** – The Full text link for each search result is not meaningful even within context.
- **SC 2.4.4** – The Find It at UNR link for each search result is not meaningful even within context.
- **SC 2.4.4** – The CDM Smith link for each search result is not meaningful even within context.

7. Engineering Village Search history page

Source: https://www.engineeringvillage.com/selected/citation.url?page=1

Test case: Review search history page for accessibility (mouse over "Search" in the top navigation bar, then select "Search history").

Automated findings using Axe

- **SC 1.3.1** – Radio buttons to sort by relevance and date don't refer to their common label.
- **SC 1.4.3** – Active links (orange) don't have sufficient contrast against the background.
- **SC 2.1.1** – Link to clear search results does not have a focusable target.
- **SC 4.1.1** – ID attribute values used throughout the page are not unique.

Additional manual findings using NVDA screen reader

- **SC 1.1.1** – Action icons values/labels are not meaningful, even within their immediate context.
- **SC 1.3.1** – The headers (Combine Search, etc.) are not announced when going through content.
- **SC 2.4.4** – The Details call to action value is not meaningful to non-sighted users.
- **SC 3.2.2** – Screen reader users are not made aware when new search queries are added.
- **SC 4.1.2** – The current state of the Details link is not conveyed to screen reader users.
- **SC 4.1.2** – The current state of the dropdown menu next to the checkboxes is not conveyed.
- **SC 4.1.2** – Checkbox values (query1, etc.) are not meaningfully conveyed for non-sighted users.