

# ACCESS RATINGS FOR BUILDINGS: USE AS A LEARNING TOOL FOR BUILDING ASSESSMENT INSTRUCTION

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## ABSTRACT

Currently, there are few tools for educators to teach about building accessibility. The Access Ratings for building suite of apps, including AccessTools and AccessPlace are a set of apps developed to assist in the assessment of accessibility of buildings. ARB was mainly designed to assess and provide building accessibility information to a wide range of consumers, including people with disabilities. However, the unique guided outline structure of the AccessTool building taxonomy and the personal profiles in AccessPlace make the ARB suite of tools ideal for educating pre-professional rehabilitation specialists. Those who work with people with disabilities must understand barriers to community participation, and having a deep understanding and a thorough method of evaluating buildings is part of that. Pre-professionals must have a strong knowledge of ADA and ADA guidelines, but understand the limitations of ADA for accessibility. It is also important to understand how different disabilities affect accessibility needs. The personalized profile feature of AccessPlace will allow students to not only conceptualize how barriers differ depending on disabilities, but also see how different information is needed based on disability. ARB has been designed to not look only at ADA standards but "ADA-plus". ARB has also been designed to provide Personalized Accessibility Information (PAI) that tailors information to an individual's needs. The ARB suite of apps, combined with the Accessibility Ratings Training System provide a hands on package of educational materials that instructors can use as is, or tailor to their needs in their classrooms.

## Introduction

Many resources currently exist to assess the accessibility of buildings. These include the ADA

guidelines(ADAAG),([https://www.ada.gov/regs/2010/2010ADASTandards/2010ADASTandards\\_prt.pdf](https://www.ada.gov/regs/2010/2010ADASTandards/2010ADASTandards_prt.pdf)) but these are often limited in scope (e.g., only one type of building, address only a limited scope of disabilities). Further, many of these are simply checklists, which consider all accessibility features as either "yes" or "no", or have no structure or guidance to complete a building assessment. However, few of these are designed in a way that allow educators to use the materials directly with their students. Instructors understand the need to give their students hands on experience, and have created materials in the past to do so (Mendonca, R., Smith, R. O., Lemke, M., Anson, D., & Hirschman, A. (2009); Smith, R. O., Schwanke, T., & Hirschman, A. (2007, April)). These, however, did not have the advantage of the mobile technologies now available to make accessibility assessment quicker, easier, and more streamlined.

## AccessTools

The AccessTools software is designed to be used on iOS tablets for mobility. It allows a user to search for buildings or businesses, and create an accessibility report. Once a building or business has been chosen, the user is brought to the evaluation page (Tomashek & Smith, 2015).

As seen in the figure 1, the building assessment outline is on the left side, and information and selection buttons are on the right side. The user can now choose to start the evaluation using the order provided, or can begin with any element. The AccessTools taxonomy allows for flexibility in how the assessment is conducted. Once the element is selected, the user is prompted to make a decision on whether the element is accessible or not. This is then scored using a trichotomous (TTSS) branching system.

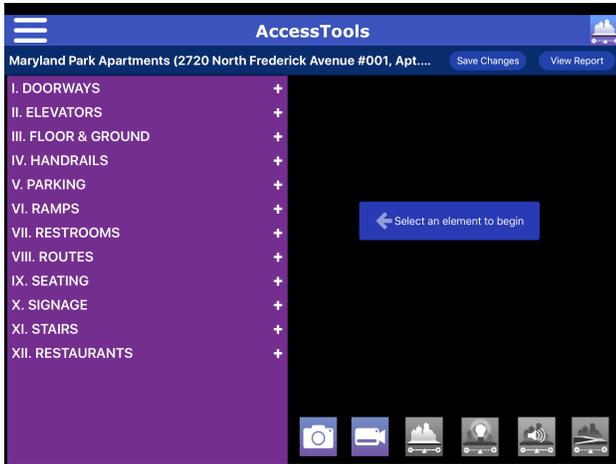


Figure 1. Screenshot of the initial evaluation page of AccessTools.

This allows users to select 2 (Yes), 0 (No), or 1 (Maybe). If a user selects 2 or 0, the taxonomy takes the user to the next element at the same level. If the user selects 1, it branches into more detailed questions. A suite of measurement mini-tools (slope, ruler, and sound) are available using the native capabilities of the tablets, and can be used to obtain actual measures of the environment. The user can also access the tablets camera and video camera.

## ACCESSPLACE

AccessPlace is a web designed app that acts as a place for consumers to leave reviews and view the comments of others (Spaeth, Tomashek, Smith, 2015). Like many of the consumer apps, the user is able to pick a place, and read comments and ratings from other users, or leave comments and ratings. The unique aspect of AccessPlace is the ability to set up a personal profile. A user is able to set up a profile, including functional impairments and disabilities. This allows the user to receive Personalized Accessibility Information (PAI). The information the user sees is then filtered so that the most relevant information, left by the people "most like me" is filtered to the top, while less relevant material is pushed down. For example, a person with a hearing problem sees comments and ratings based on noise levels first, and things like ramp and stair accessibility later.

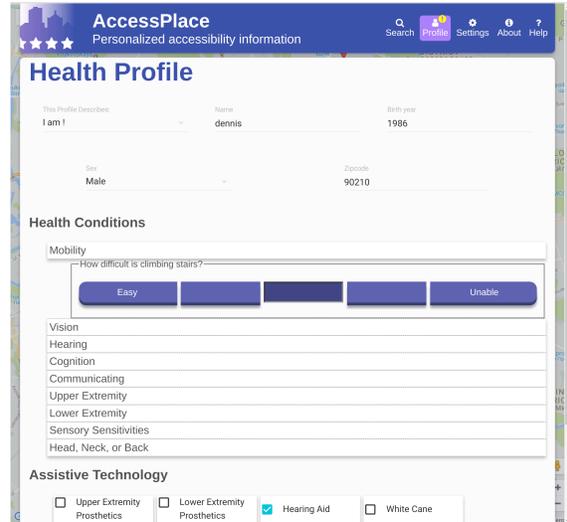


Figure 2. AccessPlace Profile page

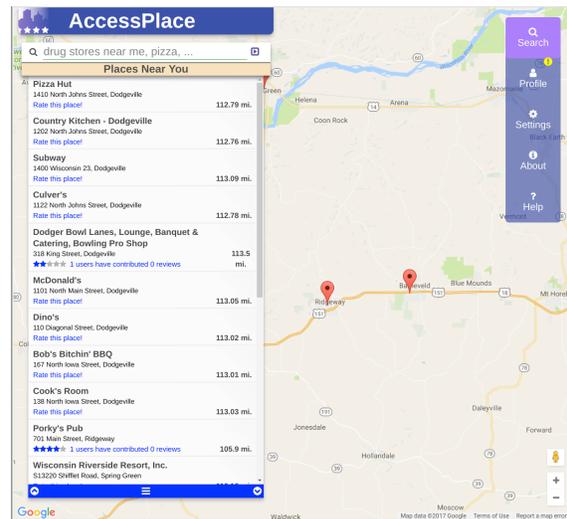


Figure 3. AccessPlace ratings page.

## AccessTools as an Educational tool

A major feature of AccessTools is the taxonomy of building elements. The taxonomy is organized in a branching system, using Trichotomous Tailored Sub-branching Scoring (TTSS) (Smith, 2002). The TTSS system is based on a 3-point scoring system, 0, 1, 2. For AccessTools, scores of 0 (accessible) and 2 (not accessible) allows the user to skip sub-branches and move to the next section. However, answering 1 (maybe) triggers the question to be branched. In AccessTools there are 3 levels of branching; The main element (e.g., Doorways), sub-elements (e.g., size way

of doorway, accessibility of floor, etc.). These sub-branches can then be branched one more level for even more detailed assessment (e.g., doorway width, doorway height, clear floor space, etc.). There are 12 main elements, 56 sub-elements, and 208 details.

A beginning student can be guided to select 1 (maybe) for each element, leading them to go through all of the sub-elements and subsequent details. The student has to then consider and score each of these details, providing a thorough, step-by-step process for rating building elements.

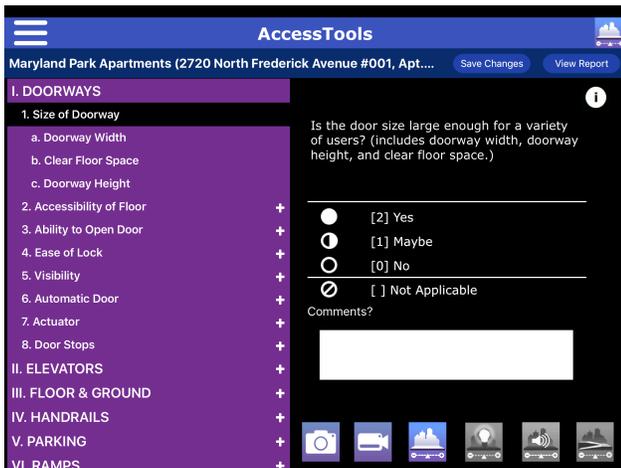


Figure 4. AccessTools evaluation page with sub-elements and details visible.

In order to aid the student, help text that describes each question are available on the right side of the screen. If a student needs even more detail, they can click on the info icon in the upper right side corner. This data includes a detailed description of the question, along with pertinent ADA information, including the standard and numerical standards that accompany the element. It should be noted that AccessTools is NOT an ADA measurement instrument. Rather it is ADA+, or ADA preferred. While ADA is important, and provides standard guidelines, it is also is only minimal requirements, and ADA compliance does not always ensure accessibility. For example, just because a hallway meets ADA standards for width, a plant, garbage bin, or other obstacle may make it inaccessible in reality.



Figure 5. AccessTools detailed help and ADA

### AccessPlace as an Educational Tool

As previously mentioned, AccessPlace is designed to be used by PWD to leave ratings and comments, and read reviews from other PWD. As mentioned above, a main component of the AccessPlace is the personal profile. This allows a person to enter important information about themselves, including functional impairments, and assistive technologies used. This enables the app to provide PAI, or filtered accessibility information.

For students learning about disability and accessibility, AccessPlace offers an excellent opportunity to see accessibility from the perspective of a people with a wide array of disabilities. Through creating a disability profile, students would have to think through the aspects of accessibility that would be important to them. What is the difference between having low vision and having a mobility impairment? How would having limited hand dexterity due to arthritis affect my interaction with a building? Additionally, students would be able to see how the information received changes based on the impairment(s) they have chosen.

### Access Ratings Training System

To ensure that both students and instructors feel competent with both the subject matter (disability and accessibility) and the apps themselves, we are developing the Access Ratings Training System, or ARTS. This will consist of several pre-made modules that instructors can download and use in classes. Content will include the importance of barrier-free environments, ADA guidelines (ADA-ABA),

guided tutorials of the ARB suite of apps, and making intervention recommendations for people and buildings. All modules will include interactive materials in text, video, and image formats. Each module will come with a set of tests.

### **DISCUSSION & IMPLICATIONS**

While not directly designed for this purpose, the ARB suite of apps offers an ideal solution for hands on training of pre-professionals in OT, PT, architecture, and other disciplines in evaluating and creating accessible environments for all people with disabilities. Guided tutorials will allow instructors and pre-professionals the ability to use the ARB suite of apps confidently. The nature of the apps, along with the ARTS will provide a much needed package of instructional materials on a topic that often is taught only theoretically, or in one class period covering ADA throughout the students' academic career. By using the ARB suite of apps, pre-professionals will become more aware of the barriers that exist in the built environment that limit the community participation of people with disabilities, and that it is not just those with mobility impairments who encounter these barriers. This in turn should create a more knowledgeable population, who can then use evidence to become strong advocates for accessibility of all buildings.

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