Writing standards for usability in voting systems

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Why is it so hard to write good standards for usability (and accessibility) of voting systems?
Usability focuses on people

Their behavior
context
goals
diversity

And interaction
with
the voting system
Accessibility is an extreme form of usability

Accessibility is the usability of a product, service, environment, or facility by people with the widest range of capabilities.

ISO 9241-20
Usability testing methods answer questions

Many different goals (and questions)
  Design insights
  Compare different designs
  Test performance metrics
  Conformance to standards

Protocols may be
  Formal or informal
  Natural environment or lab
What do we want from usability standards?

A simple connect-the-dots way to design to the standard?

A safety net, providing a minimum level of usability?

Examples of acceptable design solutions to meet requirements?
(Good) design is not a mechanical process

Standards can

Identify design elements "known to be seen in the company of usability"

Set performance benchmarks

Encourage good practice through requirements

But a standard alone cannot create good design
There are a lot of challenges in this field.

Knowledge and skills gaps
- Little experience with usability or usability testing
- Little exposure to existing standards
- Misinterpreted requirements

Design constraints in current systems

And the format of standards themselves
We need a better way to write standards for usability and accessibility
Here's how we usually do it

The system shall....

Precise language
Testable metrics
Clear scope
But requirements have a context
No. 08

**Use graphics to illustrate actions.**

Keep graphics simple – show only what is necessary.

Place illustrations and the related text next to each other, side-by-side.

Identify items and actions on graphics.

Use callouts to show where features are located on the equipment.
New York City Zoning Handbook

R4-1

R4-1 contextual districts, like R3-1 districts, permit only one- and two-family detached and semi-detached house. Despite a narrower minimum lot width of 25 feet for detached homes, houses in R4-1 districts tend to be larger than those in R4-1 districts because of the higher floor area ratio (FAR) of 0.75 plus an attic allowance. The perimeter wall may face up to 25 feet, compared to 21 feet in R3-1 districts, before stopping or being set back to a maximum building height of 15 feet. Sections of Vallido Village in Queens and Bay Ridge in Brooklyn are R4-1 districts.

Two side yards that total eight feet must be provided for a detached residence. There is no minimum width for each side yard, but there must be at least 10 feet between buildings on adjacent zoning lots. One four-foot side yard is required for each semi-detached residence, which must be on a lot at least 33 feet wide. Zero lot line buildings, permitted in R3-1 districts, require only one eight-foot side yard. Front yards must be at least 10 feet deep and at least as deep as an adjoining front yard but need not exceed a depth of 20 feet. Parking must be within the side or rear yard of a garage. A basement garage is permitted within a semi-detached house, or in a detached house if the lot is 33 feet or wider. One off-street parking space is required for each dwelling unit.

C6

C6 districts permit a wide range of high-rise and mid-rise buildings in commercial areas requiring a central location next to the commercial area, Downtown Brooklyn, and Downtown Manhattan. Commercial area uses are encouraged. C6-10 is typically zoned in the Civic Center area of the 16th Street area of the 16th Avenue area. C6-1, C6-2, and most C6-3 districts, typically mapped in areas outside central business cores, may be increased by a bonus for a public place or a public plaza.

New York City Zoning Handbook

<table>
<thead>
<tr>
<th>R4-1</th>
<th>Let Width (min)</th>
<th>Lot Area (min)</th>
<th>FAR</th>
<th>Front Yard (min)</th>
<th>Block Yard (min)</th>
<th>Lot Line Building Height (max)</th>
<th>Perimeter Wall Height (max)</th>
<th>Building Height/Parameter Wall</th>
<th>Required Parking (max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detached</td>
<td>25 ft</td>
<td>2,375 sq ft</td>
<td>0.75&gt;</td>
<td>10 ft</td>
<td>10 ft</td>
<td>15 ft</td>
<td>15 ft</td>
<td>33 ft</td>
<td>57 ft</td>
</tr>
<tr>
<td>Semi-detached</td>
<td>18 ft</td>
<td>1,700 sq ft</td>
<td>0.75&gt;</td>
<td>10 ft</td>
<td>10 ft</td>
<td>15 ft</td>
<td>15 ft</td>
<td>33 ft</td>
<td>57 ft</td>
</tr>
</tbody>
</table>

Regulations may be in other Lower Density Growth Management Areas. It may be increased up to 25% for public use.

Front yard must be at least twice as deep as an adjacent front yard with a minimum depth of 10 feet.

Zero lot line buildings require an one-story yard at least 10 feet wide, minimum of 8 feet required between buildings on adjacent zoning lots.

New York City Zoning Handbook
GOV.UK design patterns

1. Single page of questions
   All questions are placed on a single page.

   **The good:**
   - there’s only one submit button to press
   - a single URL gives access to all form fields
   - it doesn’t force a fixed order of completion
   - you benefit from context of neighbouring sections
   - progress is self-evident

   **The bad:**
   - long forms can be overwhelming and off-putting
   - it’s less well suited to branching or non-linear flow
   - how do you save partial progress?
   - can be harder to track analytics like drop-off rates
   - making validation errors usable is harder

2. One question per page
   Each question goes on its own page.

   **The good:**
   - it’s easier to handle branching and dependencies between questions
   - it’s easier to let the user save progress
   - a transaction can feel more manageable
   - easier to guide a user through an unfamiliar process
   - easier to capture analytics like drop-off rates for each section

   **The bad:**
   - harder to show progress
   - users have to click more to progress through the questions
   - you lose the context of neighbouring questions
   - you need to build a separate page to review and edit questions
   - doesn’t naturally handle non-linear processes like looping, adding and removing
Mortgage Disclosures

SELECT A FORM

Here are two disclosure forms for the same loan product.

Please select the form that best gives you the information you need to decide if you want this loan.

You can see larger versions of the forms by clicking the images below, or using the links to PDF versions beneath each form.

Option A

Option B

View as PDF.
Choose Option A

OR

View as PDF.
Choose Option B
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Field Guides to Ensuring Voter Intent
civicdesigning.org/fieldguides

Accessible Voting Technology Initiative
Final Reports and working papers
50 Ideas for More Accessible Elections
elections.itif.org/resources/working-papers/