

# 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

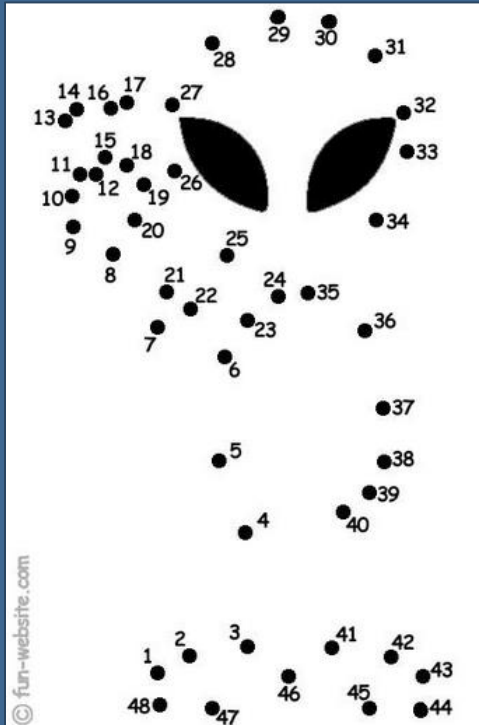
- Conformance to standards

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

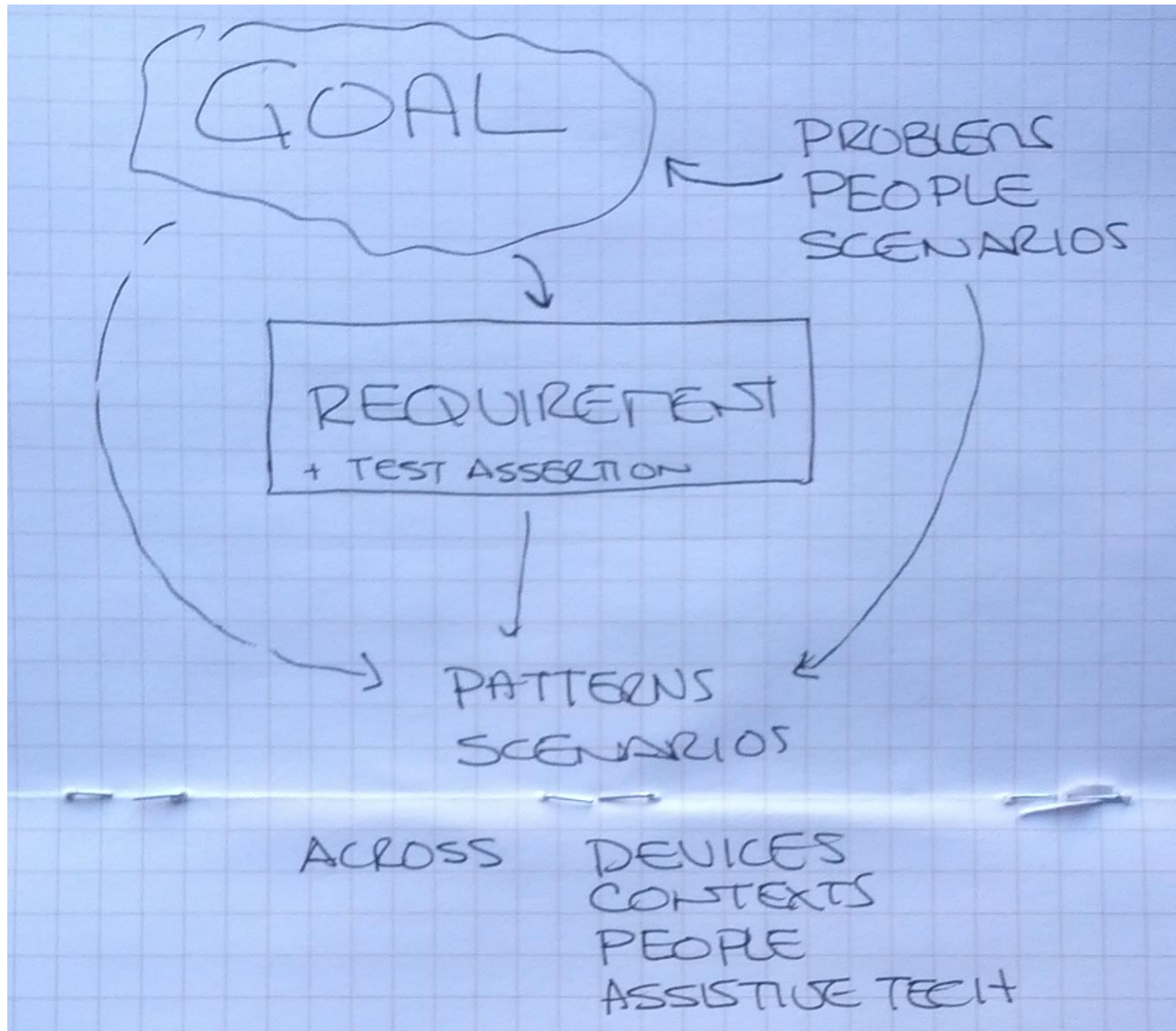
The system shall....

Precise language

Testable metrics

Clear scope

# But requirements have a context



# Field Guides

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Field Guides To Ensuring Voter Intent

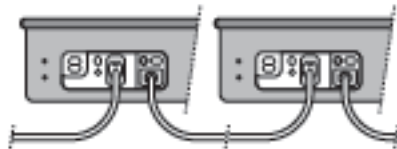
Before



- 1 Connect the unit to the power receptacle (AC in) of the previous unit.

This creates a daisy-chain of the voting units.

After



- 1 Connect the unit to the power receptacle (AC in) of the previous unit.

This creates a daisy-chain of the voting units.

Effective poll worker materials

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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 houses. Despite a narrower minimum lot width of 25 feet for detached homes, houses in R4-1 districts tend to be larger than those in R3-1 districts because of the higher **floor area ratio (FAR)** of 0.75 plus an **attic allowance**. The **perimeter wall** may rise to 25 feet, compared to 21 feet in R3-1 districts, before sloping or being set back to a maximum building height of 35 feet. Sections of Middle Village in Queens and Bay Ridge in Brooklyn are R4-1 districts.

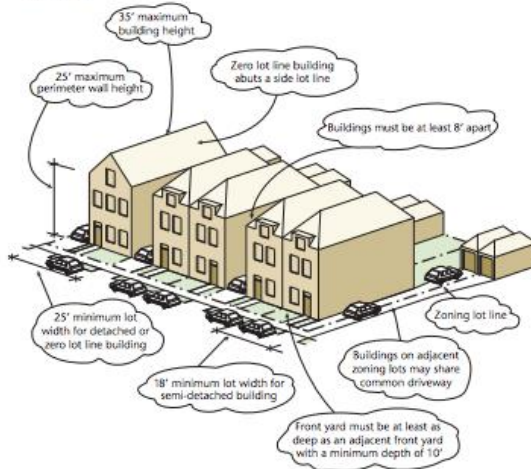
Two side yards that total eight feet must be provided for a detached residence. There is no minimum width for each side yard but there must be eight feet between buildings on adjacent zoning lots. One four foot side yard is required for each semi-detached residence, which must be on a lot at least 18 feet wide. **Zero lot line buildings**, permitted in R4-1 districts, require only one eight foot side yard. Front yards must be at least 10 feet deep and at least as deep as an adjacent front yard but need not exceed a depth of 20 feet. Parking must be within the side or rear yard or in a garage. An in-house garage is permitted within a semi-detached house, or in a detached house if the lot is 35 feet or wider. One off-street parking space is required for each dwelling unit.



Bay Ridge



Middle Village



Single- and Two-Family Detached and Semi-Detached Residences										
R4-1 <sup>1</sup>	Lot Width (min)	Lot Area (min)	FAR (max)	Front Yard (min)	Rear Yard (min)	Side Yards <sup>2</sup> (min)		Building Height/Perimeter Wall (max)	Required Parking (min)	
						#	Total			
Detached	25 ft	2,375 sf	0.75 <sup>3</sup>	10 ft <sup>4</sup>	30 ft	2	8 ft	na	35 ft/25 ft	1 per dwelling unit
Semi-detached	18 ft	1,700 sf		1	4 ft	na				

<sup>1</sup> Regulations may differ in Lower Density Growth Management Areas

<sup>2</sup> FAR may be increased up to 20% for attic allowance

<sup>3</sup> Front yard must be at least as deep as an adjacent front yard with a minimum depth of 10 feet

<sup>4</sup> Zero lot line buildings require only one side yard at least 8 feet wide; minimum of 8 feet required between buildings on adjacent zoning lots

## C6

C6 districts permit a wide range of high-bulk commercial uses requiring a central location. Most C6 districts are in Manhattan, Downtown Brooklyn and Downtown Jamaica; a C6-3D district is mapped in the Civic Center area of the Bronx. Corporate headquarters, large hotels, department stores and entertainment facilities in high-rise **mixed buildings** are permitted in C6 districts.

C6-1, C6-2 and most C6-3 districts, typically mapped in areas outside central business cores, such as the Lower East Side and Chelsea, have a commercial **floor area ratio (FAR)** of 6.0; the C6-3D district has an FAR of 9.0. C6-4 through C6-9 districts, typically mapped within the city's major business districts, have a maximum FAR of 10.0 or 15.0, exclusive of any applicable bonus. Floor area may be increased by a bonus for a **public plaza** or **Inclusionary Housing**.

C6-2A, C6-3A, C6-3X and C6-4A are contextual districts with maximum building heights. C6-3D and C6-4X districts allow towers above a building base; special rules determine the tower's height and articulation. All other C6 districts allow towers to penetrate a **sky exposure plane** and do not require a contextual base.

C6 districts are widely mapped within special districts. C6-4-3, C6-5-3, C6-6-3 and C6-7T districts are mapped only within the Special Midtown District and have unique floor area ratios and bonus rules. C6-1G, C6-2G, C6-2M and C6-4M districts are mapped in Chinatown and Chelsea and in the Special Garment Center District, and have rules for the conversion of non-residential space to residential use.

C6 districts are well served by mass transit, and off-street parking is generally not required, except within the C6-3D district.



Midtown

	C6 Commercial Districts															
	C6-1	C6-1A	C6-2	C6-2A	C6-3	C6-3A	C6-3D	C6-3X	C6-4	C6-4A	C6-4X	C6-5	C6-6	C6-7	C6-8	C6-9
Commercial FAR	6.0 <sup>1</sup>	6.0 <sup>1</sup>	6.0 <sup>1</sup>	6.0	6.0 <sup>2</sup>	6.0	9.0	6.0	10.0 <sup>1,3</sup>	10.0	10.0 <sup>1</sup>	10.0 <sup>1</sup>	15.0 <sup>1</sup>	15.0 <sup>1</sup>	10.0 <sup>1</sup>	15.0 <sup>1</sup>
Residential FAR	0.87-3.44	0.78-2.43 <sup>1,3</sup>	0.94-6.02 <sup>1,3</sup>	6.02 <sup>1</sup>	0.99-7.52 <sup>1</sup>	7.52 <sup>1</sup>	9.0 <sup>1</sup>	9.0	10.0 <sup>1,3</sup>	10.0 <sup>1</sup>	10.0 <sup>1,3</sup>	10.0 <sup>1</sup>	10.0 <sup>1</sup>	10.0 <sup>1</sup>	10.0 <sup>1,3</sup>	10.0 <sup>1</sup>
Residential District Equivalent	R7	R6	R8	R8A	R9	R9A	R9D	R9X	R10	R10A	R10X	R10	R10	R10	R10	R10

<sup>1</sup> 4.0 FAR on wide streets outside the Manhattan Core under Quality Housing Program

<sup>2</sup> 3.0 FAR on wide streets outside the Manhattan Core under Quality Housing Program

<sup>3</sup> 2.2 FAR on wide streets outside the Manhattan Core under Quality Housing Program

<sup>4</sup> FAR bonus of up to 20% for a public plaza

<sup>5</sup> Increase in FAR with Inclusionary Housing Program bonus

# 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**



View as PDF.

[Choose Option A](#)

**Option B**



View as PDF.

[Choose Option B](#)

OR

CMR Form 1002



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### Field Guides to Ensuring Voter Intent

[civicdesigning.org/fieldguides](http://civicdesigning.org/fieldguides)



### Accessible Voting Technology Initiative

Final Reports and working papers  
50 Ideas for More Accessible Elections  
[elections.itif.org/resources/working-papers/](http://elections.itif.org/resources/working-papers/)