

WiU

Web interface & Usability



Course Director

Chris Burke
cburke@fullsail.com

Office Hours
every other day
2pm - 4pm



Course Policies

Hours
Attendance
Deadlines



COURSE POLICIES

Hours

- This is a 60 hour course
- 7.5 days this month
- $4 \text{ hr lecture} + 4 \text{ hr lab} = 8 \text{ hrs} \times 7 \text{ days} = 56 \text{ hrs}$
- $4 \text{ hr lecture} + \text{no lab} = 4 \text{ hrs}$ (*this happens last day*)
- $56 \text{ hrs} + 4 \text{ hrs} = 60 \text{ total course hours}$
- **You can only miss 6 hrs total** (*this will effect your GPS*)

COURSE POLICIES

Attendance

- taken 15 minutes past the hour
- if you are not here, you are 2 hours out
- there are no tardies after attendance is taken
- You're either here or you're not

COURSE POLICIES

Deadlines

- lab assignments are issued each lab
- assignments due the beginning of next lecture
- Late assignments will be locked-out

COURSE OVERVIEW

1. You've learned how to draw shapes & images
2. Now we will learn [good] interface design

Understand & Utilize

- Interaction Design (IxD)
- Usability
- Human Computer Interaction (HCI)
- User Experience (UX)
- Design Patterns

Terminology

Interaction Design
Usability
HCI



INTERACTION DESIGN

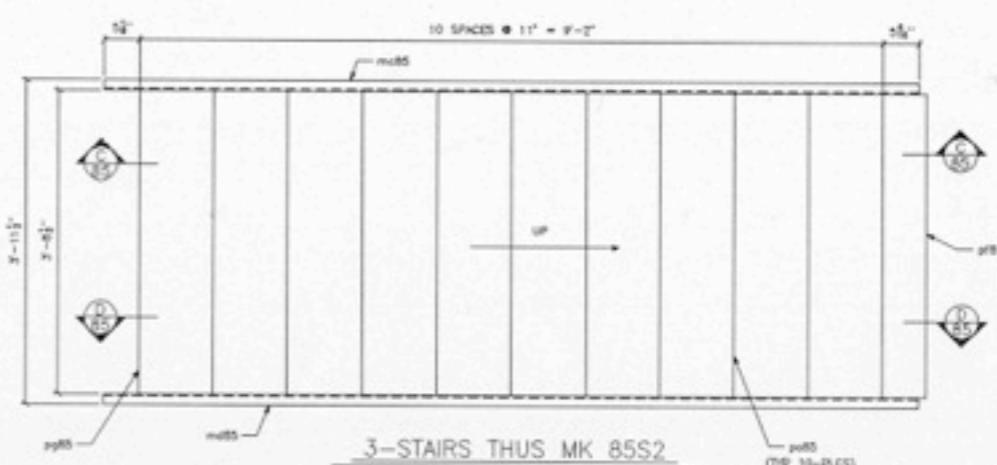
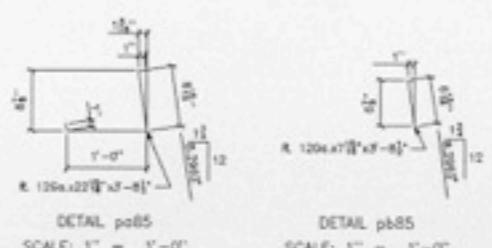
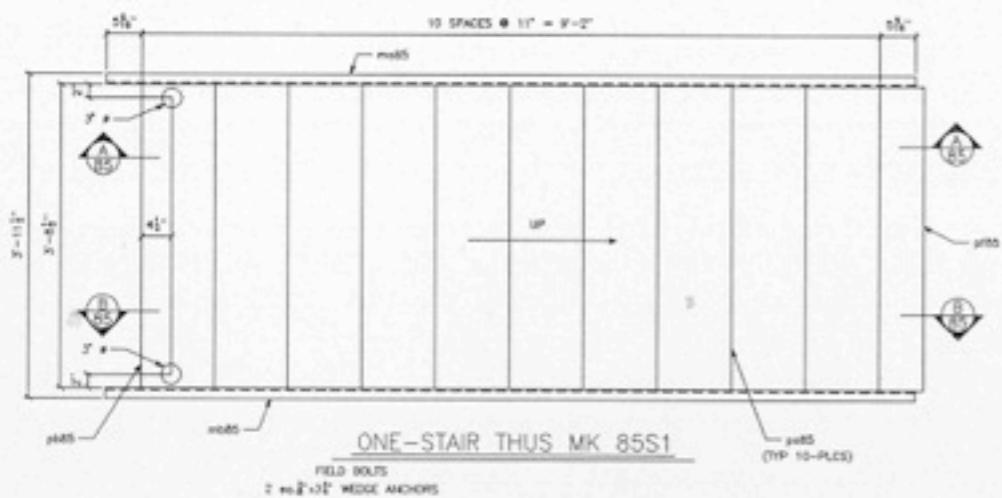
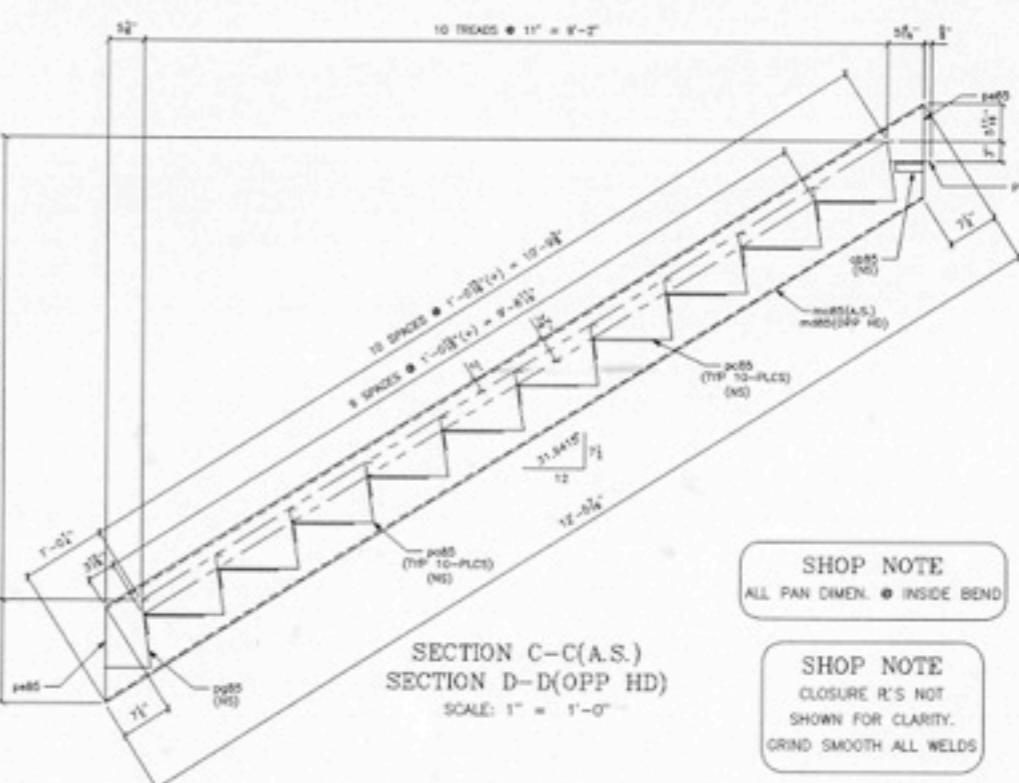
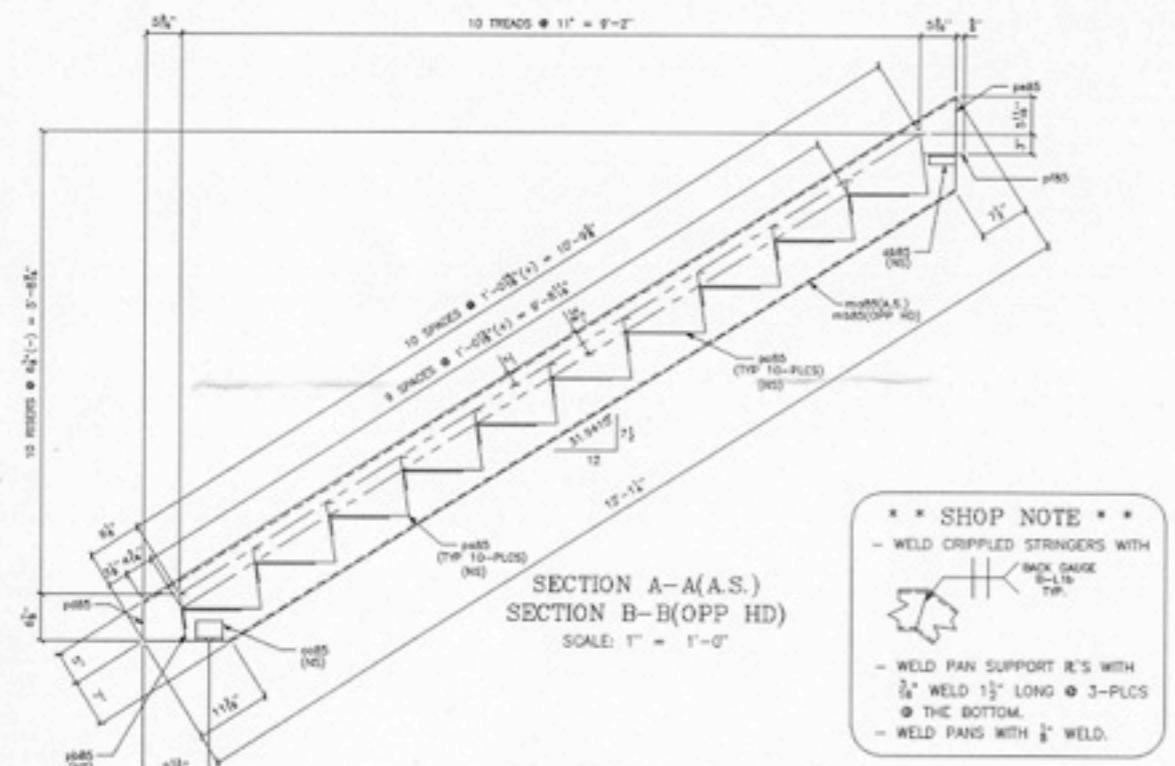
... is about creating intuitive user experiences that enhance and extend the way people work, live and interact in the real world

- ✓ cell phone
- ✓ doors
- ✓ remote control
- ✓ vending machine
- ✓ ATM
- ✓ photocopier
- ✓ watch
- ✓ stairs
- ✓ calculator
- ✓ ticket machines
- ✓ video game...

INTERACTION DESIGN

So how do we design interactions?

SAMPLE: STAIR DETAILS



FOR FABRICATION

THIS IS A CAD DRAWING
DO NOT CHANGE MANUALLY
PUT DATE: 2-12-99
CAD FILE NAME: 8522-85.DWG
CAD STATION: A

BILL OF MATERIAL			
SHIP MARK	ASSEMBLY MARK	QTY	DESCRIPTION
8551	ONE	STAIR	
	pb85	ONE	MC12X10.6 12'-12"
	pb85	ONE	MC12X10.6 12'-12"
	pb85	10	12 Ga. x22 1/2" 3'-8 1/2"
	pb85	12	12 Ga. x17 1/2" 3'-8 1/2"
	pb85	20	R. 1" x 1" 1'-0"
	pb85	2	R. 3/4" x 1" 0'-5 1/2"
	pb85	2	R. 3/4" x 1" 0'-5 1/2"
	pb85	12	12 Ga. x17 1/2" 3'-8 1/2"
	pb85	3	12 Ga. x17 1/2" 3'-8 1/2"
	pb85	5	12 Ga. x17 1/2" 3'-8 1/2"
	pb85	6	L 1 1/2" x1 1/2" x1/2" 0'-4"
8552	3	STAIR	
	pb85	3	MC12X10.6 12'-5 1/2"
	pb85	3	MC12X10.6 12'-5 1/2"
	pb85	30	12 Ga. x22 1/2" 3'-8"
	pb85	60	R. 1" x 1" 1'-0"
	pb85	12	R. 3/4" x 1" 0'-2 1/2"
	pb85	3	12 Ga. x17 1/2" 3'-8 1/2"
	pb85	5	12 Ga. x17 1/2" 3'-8 1/2"
	pb85	6	L 1 1/2" x1 1/2" x1/2" 0'-4"

Weld electrodes: E70XX (L.H.) All material ASTM A-36
Steel detailing provided by SAMI ENGINEERING,
1306 N. WILSON ST., SUITE-7 HUNTSVILLE, AL 35801 FAX (205) 526-4488
Job Ferrell Duncan Clinic, Inc.
Customer DeWitt & Associates, Inc.
Location Springfield, MO 65808
Arch. - Eng. Sam A. Winn & Associates
Description Stairs Detail

SHOP NOTES:
MATERIALS WILL NOT BE SCHEDULED FOR FABRICATION UNTIL FINAL APPROVED DRAWINGS FOR FABRICATION IS ISSUED.
ALL STAIR DIMENSIONS ARE FROM LEFT END OF BEAM (NOT CUP ANGLES), AND COLUMNS FROM TOP OF BASE PLATE.
Splices may occur at any point in members. Splices shall be prequalified welded joints for complete fabrication groove welds per ASCE and the AWS. Welded joints shall be "B-L15-GF" or "B-L40-GF" as required by metal thickness and shall be made with E70XX (L.H.) electrodes.

PRINT RECORD					
NO.	FOR	DATE	NO.	FOR	DATE
KANSAS CITY (816) 353-1300 ST. LOUIS (314) 225-0637 SPRING (816) 433-5028 JOPLIN (417) 624-7774 JACKSON (319) 243-3874 CHICAGO (708) 891-0015					



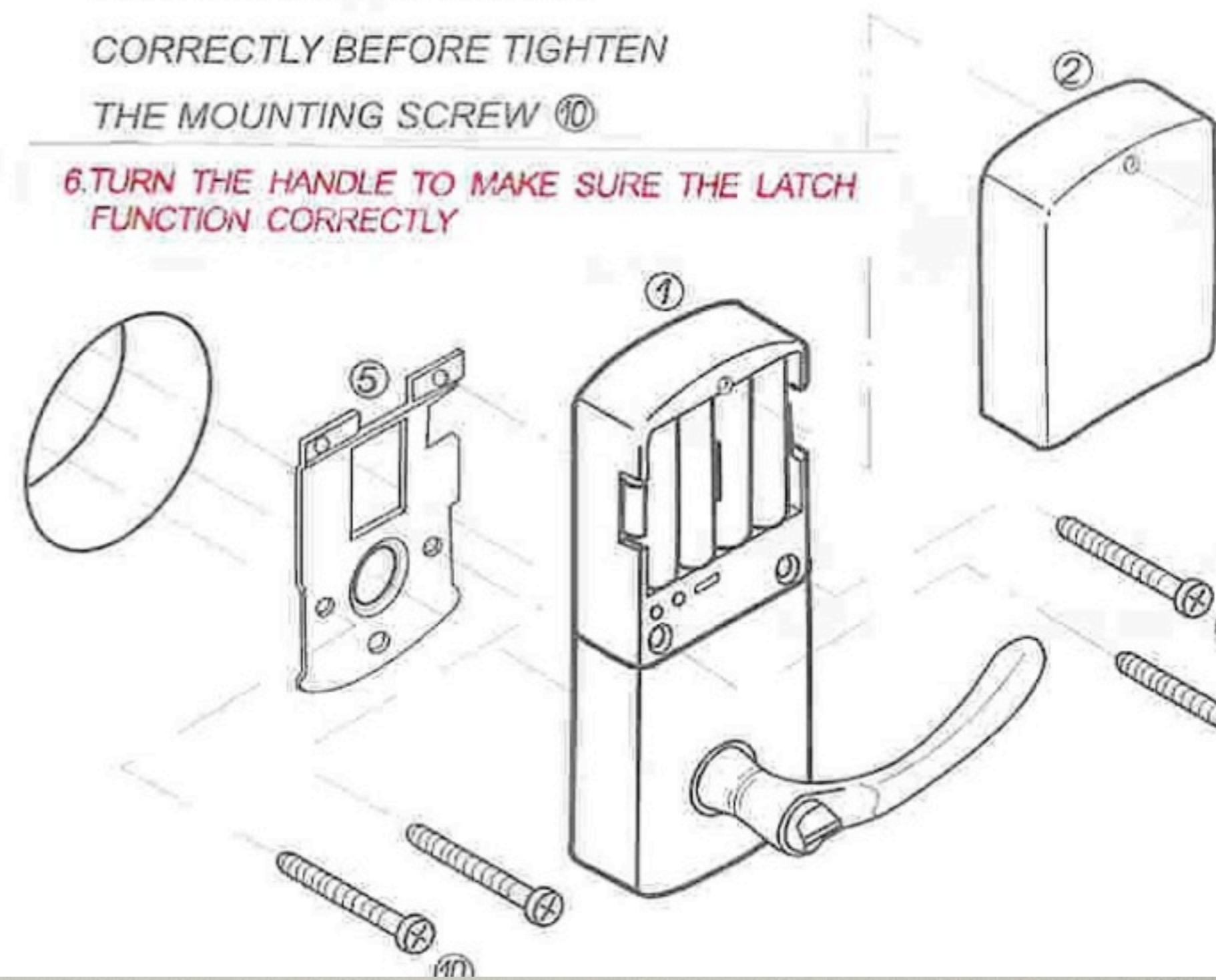
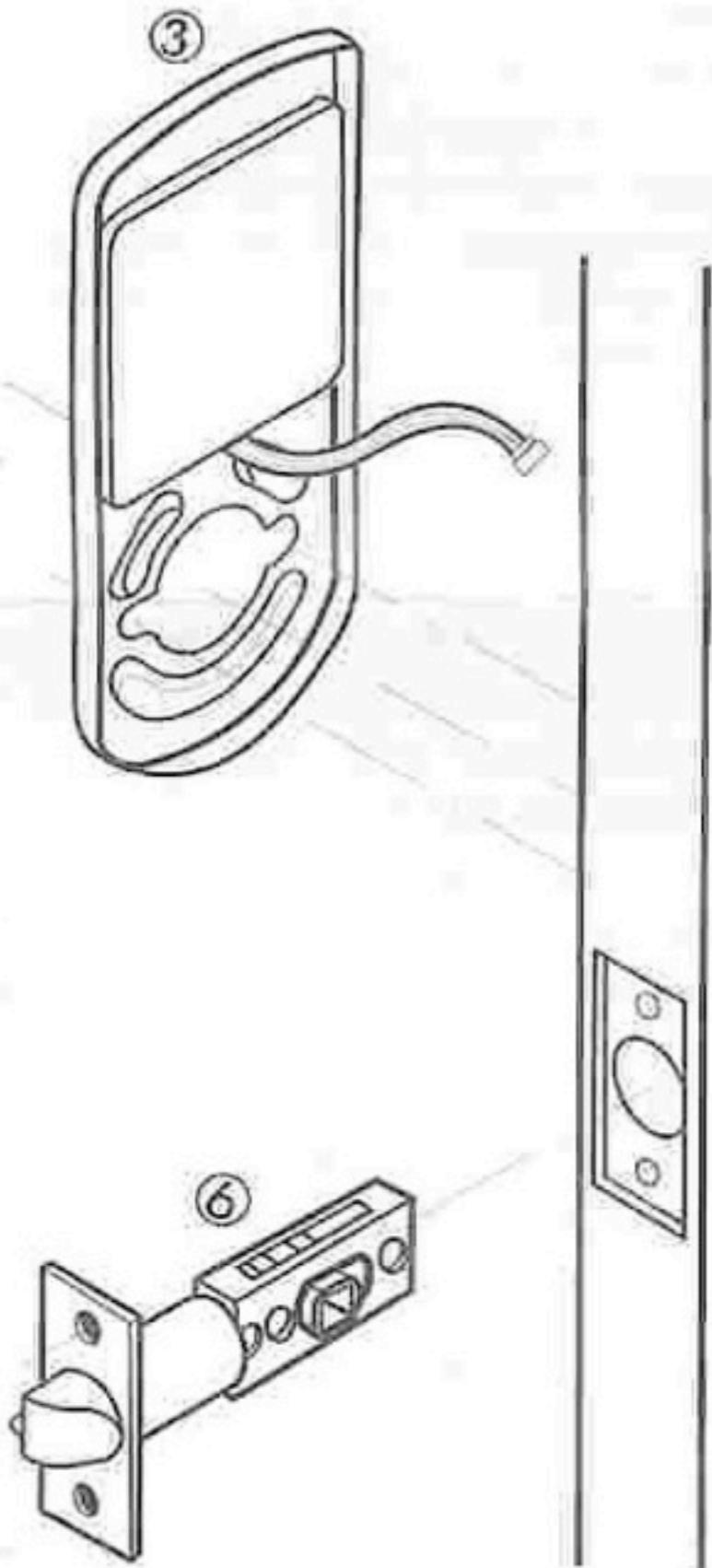
DOING STEEL, INC.
2125 N. GOLDEN SPRINGFIELD, MO 65803
(417) 866-5020 FAX (417) 866-7619
ABC CERTIFIED COMPLEX STEEL STRUCTURES

DETAILED BY AA	REVISIONS		
	DATE	REV.	REMARKS
DATE 11-98			
CHECKED BY AA			
DATE 2-99			NO SCALE UNLESS NOTED



1. REMOVE ALL COPONENTS OF OLD LOCK FROM THE DOOR.
2. FOLLOW PROCEDURE 6 AND 7 TO INSTALL BACKSET
3. INSTALL PARTS ④, ③, ⑤, THEN CONNECT THE WIRING
4. INSTALL PARTS ① LAST
5. MAKE SURE THE FLAT DRIVER BAR
AND THE THUMP TURN FIT
CORRECTLY BEFORE TIGHTEN
THE MOUNTING SCREW ⑩

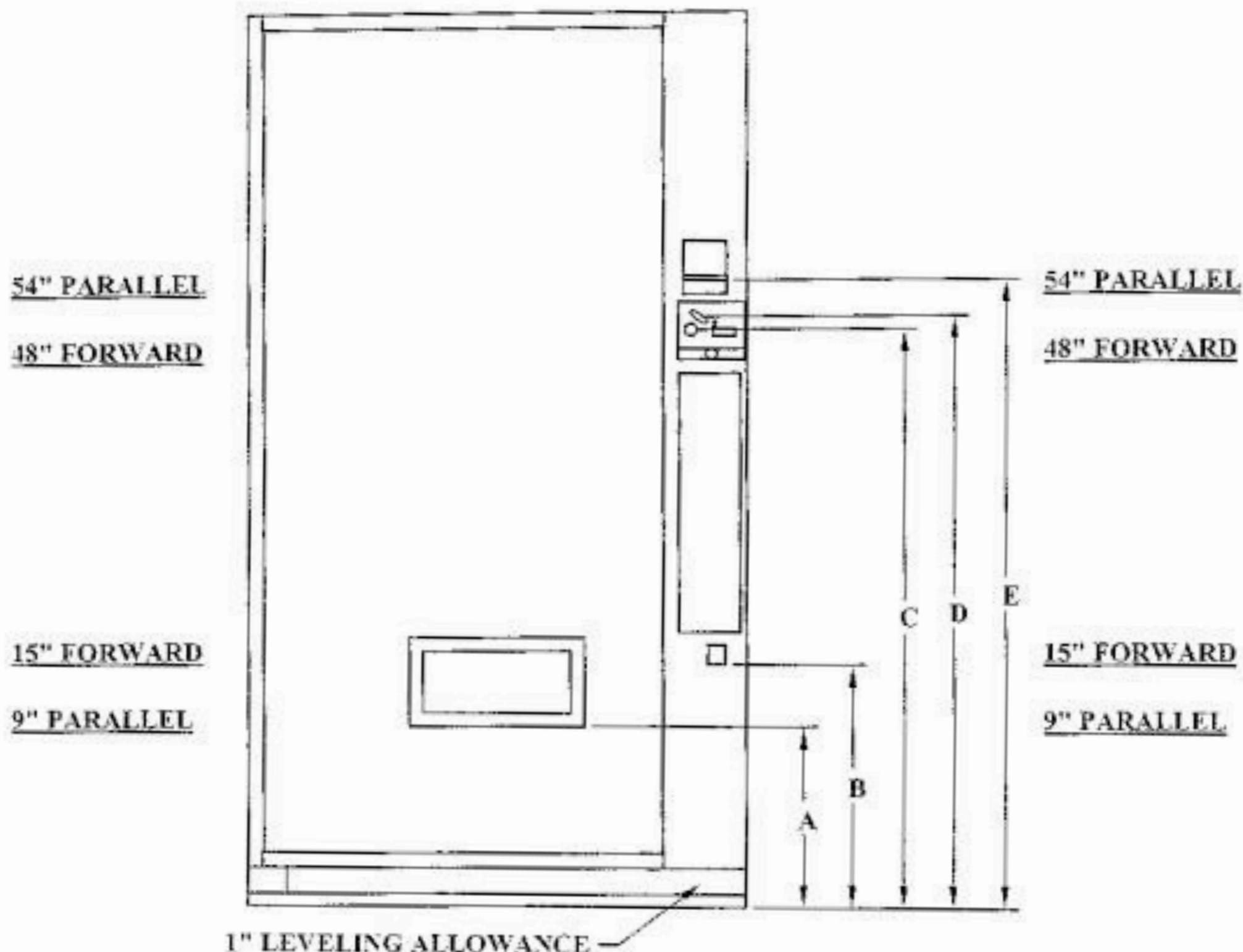
6. TURN THE HANDLE TO MAKE SURE THE LATCH
FUNCTION CORRECTLY



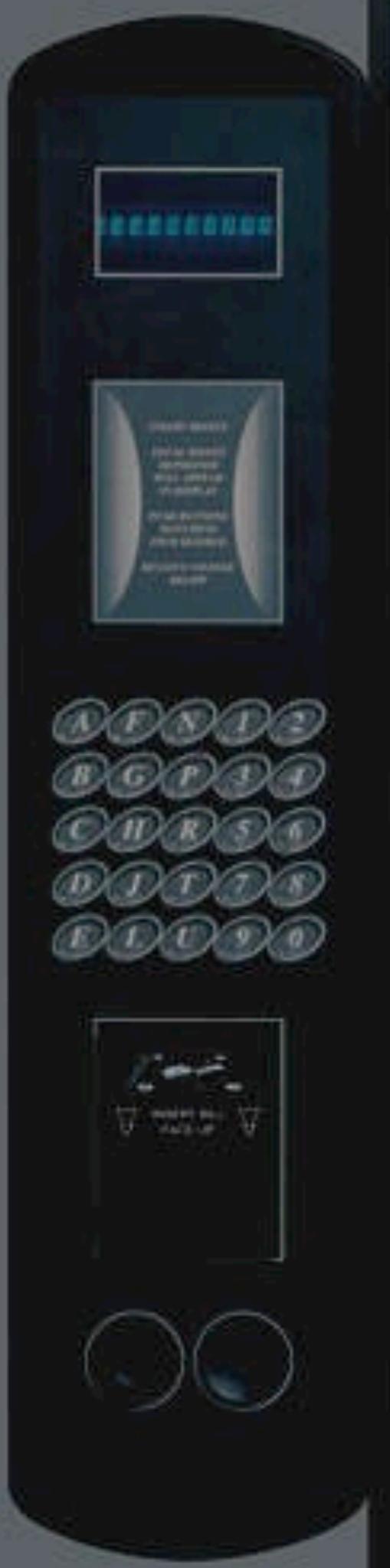


ADA GUIDELINES

Vendo V-Max
Curved Sign Face



1. DIMENSIONS ARE IN INCHES.
2. TOLERANCES ARE $\pm .25$



INTERACTION DESIGN

“Interactive products should be designed with the intent of the users actions”

INTERACTION DESIGN

“Good designs are easy, effective and
enjoyable to use
from the users perspective”

INTERACTION DESIGN

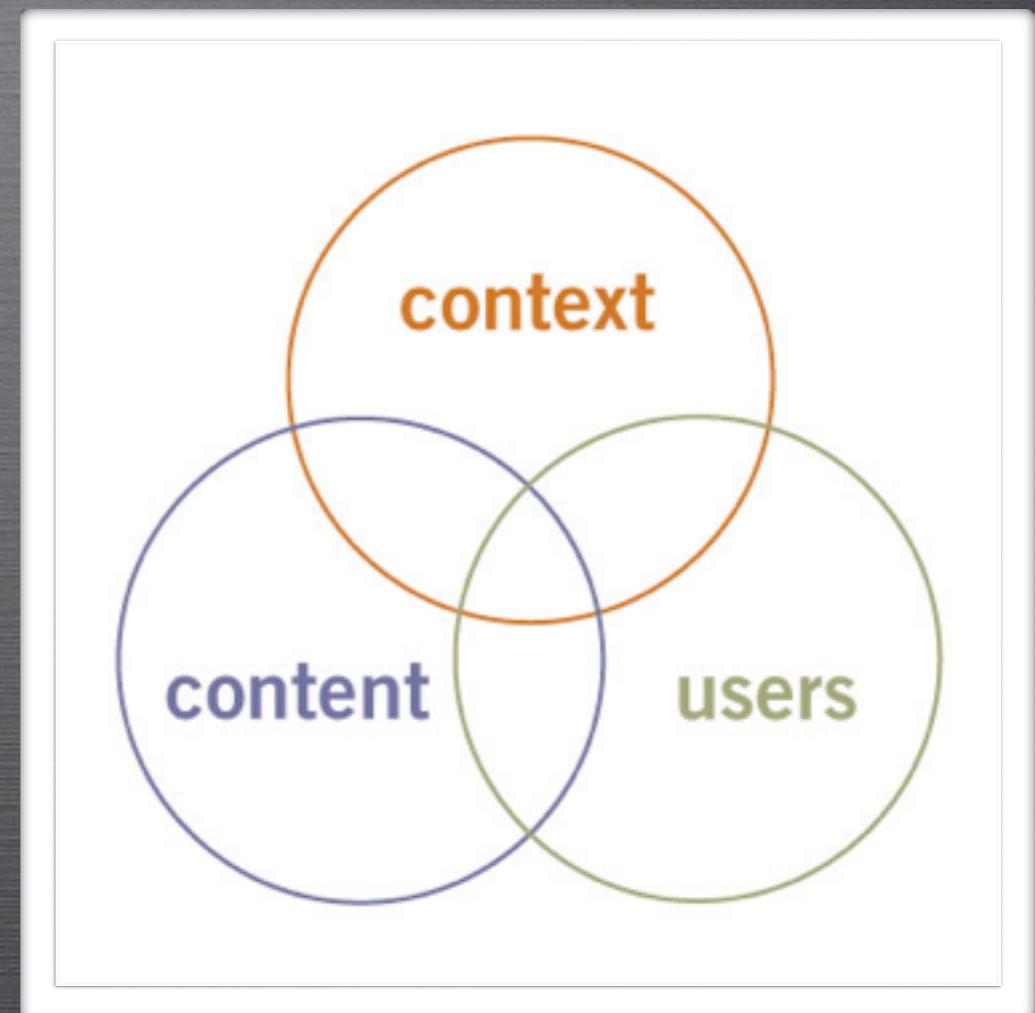
Ok.. So what is “Bad Design”?

INTERACTION DESIGN

“The aim of Interaction Design is to support user behaviors by incorporating **Usability** throughout the design process”

Usability

what is it?



USABILITY

A way to measure & improve

- how easy things are to use
- how efficient, effective & satisfying they are too
- the results of our interaction design
- the creation of more usable products

USABILITY

While Designing

- reveals the quantitative results of interaction
aka - how many times did users do “X”
- reveals the qualitative results of interaction
aka - how did users feel about “X”
- Also referred to as “**User Centered Design**”
when incorporated throughout the production process

USER CENTERED DESIGN



HCI

Human Computer Interaction



HCI

What is it?

- › the study driving interaction
 - › the interaction between users (people) & computers
 - › Computer Science
 - Behavioral Science
 - + Design
-

Human Computer Interaction

HCI

Design Principles

- early focus on user tasks - UCD
- empirical measurement - quantitative
 - *number of users performing the task*
 - *the time to complete the task*
 - *number of errors made to complete the task*
- Iterative Design -
 - *design, test, evaluate, design, test*

HCI

“Interaction between humans and computers occurs at the User Interface”

a User?

Someone that is accessing data, entities, or information from a system or application.

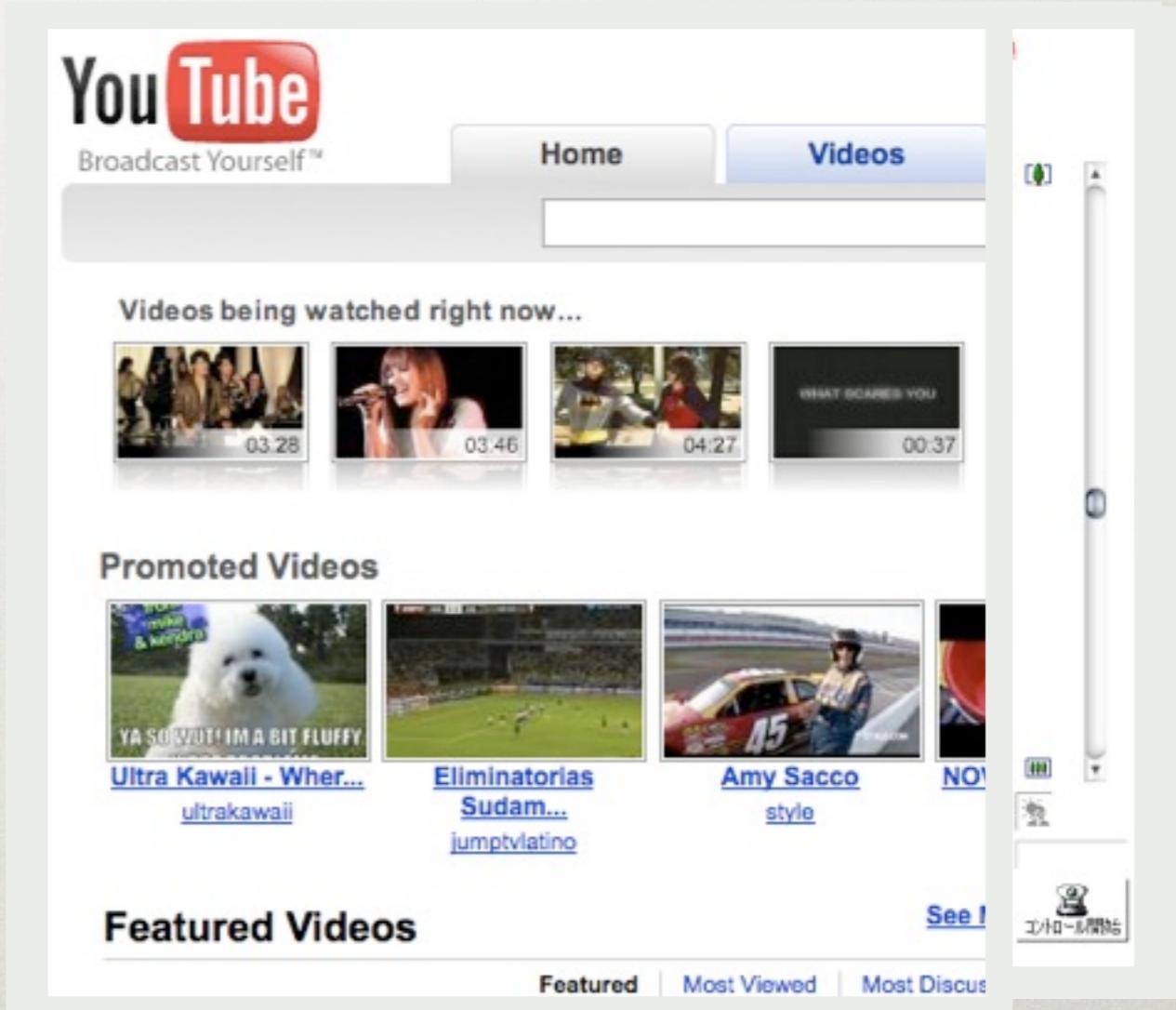
For our purposes, a user is someone that is accessing data or information from a website (i.e. "application") in a web browser.



UNDERSTANDING USERS

They visit to accomplish tasks

1. find something
2. learn something
3. make a transaction
4. control something
5. create something
6. communicate
7. be entertained



Usability

background & utilization



USABILITY

Who is Jakob Nielsen?

- A leading web usability consultant
- Holds a Ph.D. in HCI
- Technical University of Denmark
- www.useit.com



USABILITY

5 Principles: by Jakob Nielsen

1. Learnability
2. Efficiency
3. Memorability
4. Errors
5. Satisfaction

USABILITY

1. Learnability

- how easy it for users to learn an interface in order to accomplish basic tasks

Tips:

- Reduce the verbiage (eliminate “happy talk”)
- Use icons (metaphors) when applicable



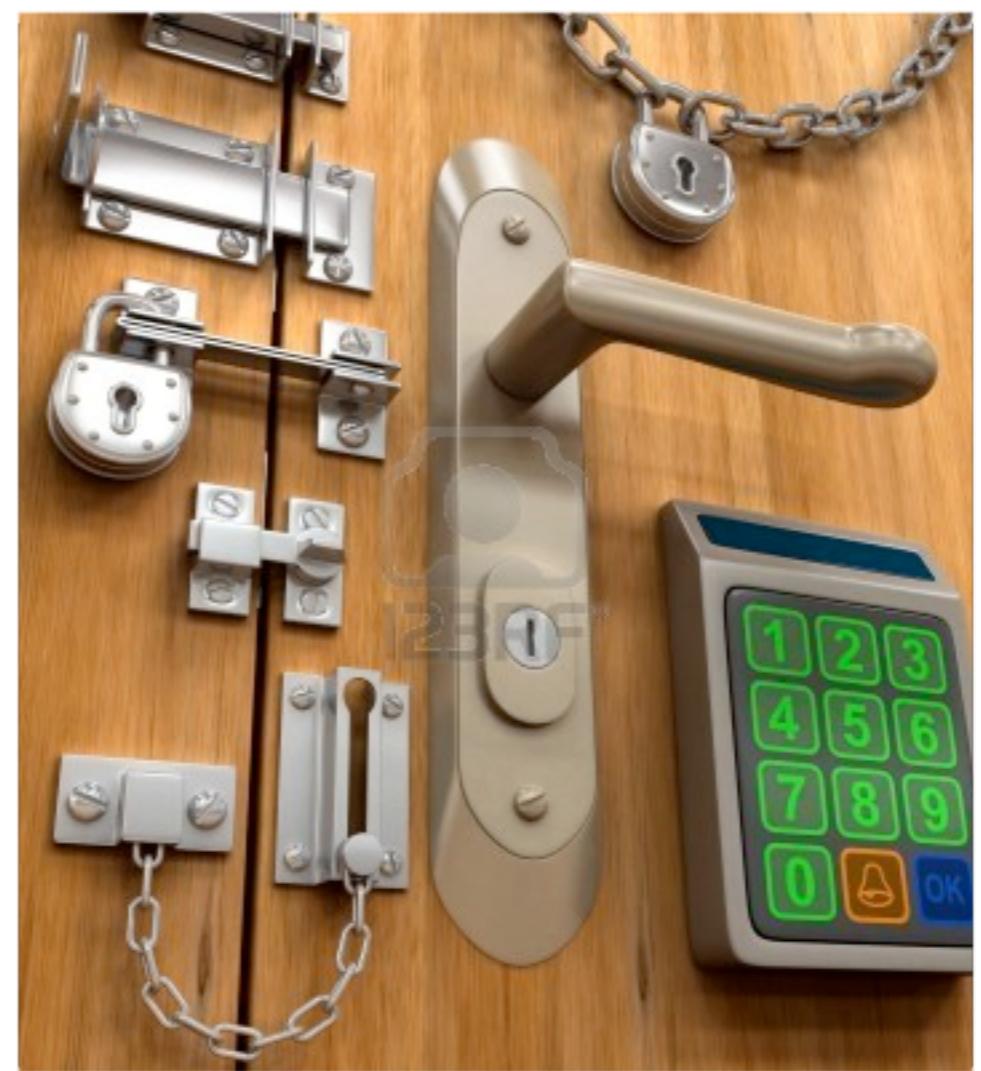
USABILITY

2. Efficiency

- how quickly can users perform tasks after learning the design

Tips:

- Reduce visual clutter
- Reduce the number of steps



USABILITY

3. Memorability

- reestablishing proficiency after a period of not using the design

Tips:

- Point the way to start
- Reduce redundancies
- Reduce color palette



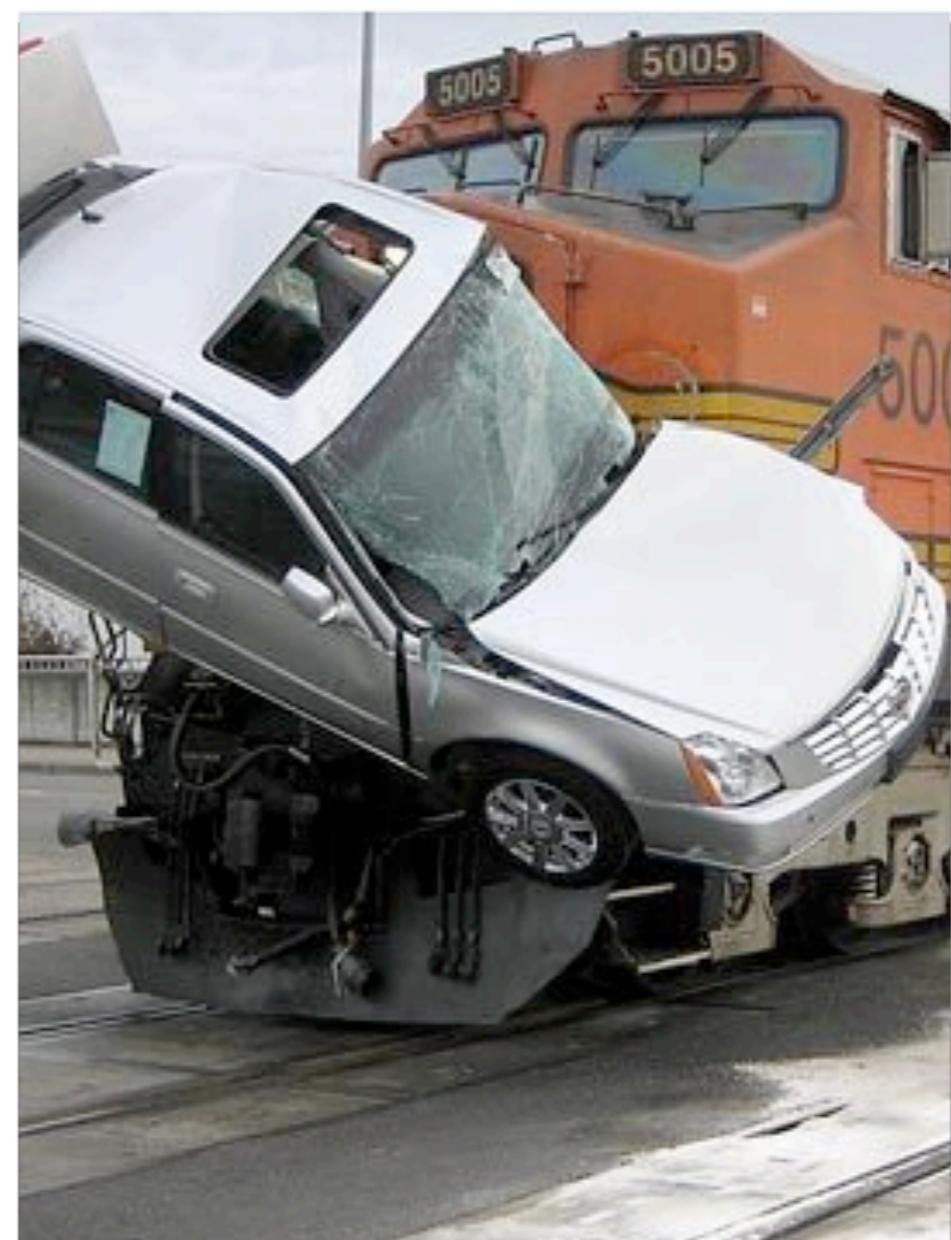
USABILITY

4. Errors

- what kind of errors are made and how quickly can users recover

Tips:

- First try to prevent errors from occurring (use constraints)
- Provide good feedback (must be clear and understood)



USABILITY

5. Satisfaction

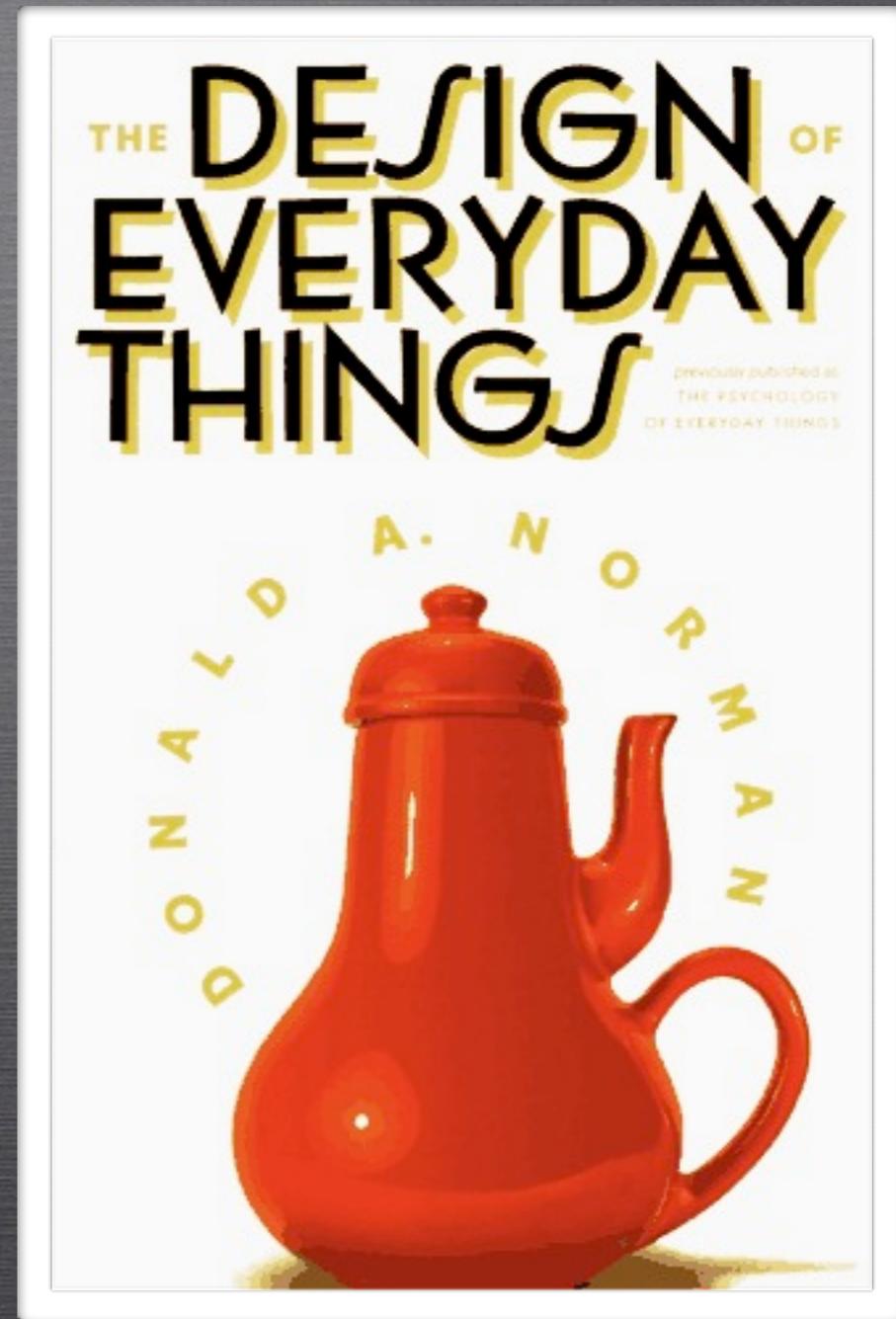
- how pleasant was the experience while interacting with the design

Tips:

- Design the interfaces main intent (its purpose)
- Know your audience (experience and limitations)
- Create an inviting aesthetic



Designing with Usability



DESIGNING WITH USABILITY

Who is Don Norman?

- Co-founder of the Nielsen Norman Group
www.nngroup.com
- In 1998 he wrote:
“the Design of Everyday Things”
- Founder of Design Principles



DESIGN PRINCIPLES

What are they?

- generalized abstractions intended to orient designers towards thinking about different aspects of their designs
- they suggest what to provide and what to avoid at the interface
- The “Do’s and Don’ts” of interaction design

DESIGN PRINCIPLES

“The best known Design Principles
are concerned with determining
what users should see and do
when performing tasks
using interactive products”

DESIGN PRINCIPLES

What to design for?

1. Visibility
2. Feedback
3. Constraints
4. Mapping
5. Consistency
6. Affordance

DESIGN PRINCIPLES

1. Visibility

- the more visible functions are, the more likely users will know what to do or what they can do next
- decreases the time it takes to learn how to use the design
- by making the most common tasks or actions visible first
- let's hide the rest as options available “on demand”
- Design Pattern = Extras on Demand

DESIGN PRINCIPLES

2. Feedback

- provide users feedback to assure them the action is being understood and performed
- responses to users actions should be instantaneous
- delayed responses cause users to second guess the outcome of their actions, resulting in less efficiency and less trust in the system
- Design Pattern = Preview, Progress Indicators

DESIGN PRINCIPLES

3. Constraints

- restrict available users interactions to only permissible actions, at any given moment, during the experience
- prevents users from making incorrect choices or performing incorrect actions that lead to mistakes
- aka “lock-outs” or “lock-ins”
- part of Poka Yoke design
- Design Pattern = Responsive Enabling & Disclosure

DESIGN PRINCIPLES

4. Mapping

- is the relationship between controls and their effects on a system or within the real world
- mapping of the relative position of controls and their effects is important
- Design Pattern = done/submit buttons, cancelability

DESIGN PRINCIPLES

5. Consistency

- design interfaces to have similar operations that use similar elements for achieving similar tasks
- it makes things easier to learn and use
- Design Pattern = global navigations, button groups

DESIGN PRINCIPLES

6. Affordance

- term used to refer to an attribute of an object that allows people to understand how to use it
- 2 kinds:
 - real - a physical object like a door knob
 - perceived - virtual object like an icon button.
- Design Pattern = navigations, button groups, actions panels, structured format, etc...

DESIGNING INTERACTIONS WITH USABILITY

6 Interaction Principles: by Donald Norman

- Visibility
- Feedback
- Constraints
- Mapping
- Consistency
- Affordance

5 Usability Factors: by Jakob Nielsen

- Learnability
- Efficiency
- Memorability
- Errors
- Satisfaction

[pull]

The End

