#### COMMON ACCESS ERRORS IN EDUCATIONAL FACILITIES

#### Common Errors BSA Educational Facilities Committee 3 June 2008



## Agenda

- Common Errors
  - New Construction
  - Alterations
  - K-12 & Higher Ed
  - 521 CMR & ADAAG



# Which Standards Apply?

- All Campus Facilities
  - *The Standards for Accessible Design*" =
     ADAAG (1994)
  - Uniform Federal Accessibility Standards (UFAS)
  - ABAAG/ADAAG (2004)...coming soon
  - State Building Code
    - 521 CMR (Massachusetts)

- Dormitories
  - FHA
    - Design Guidelines
    - Safe Harbors
    - Like "Group 1"
  - 521 CMR 8 Transient Lodging
  - ADAAG 9 Transient Lodging



### Alterations

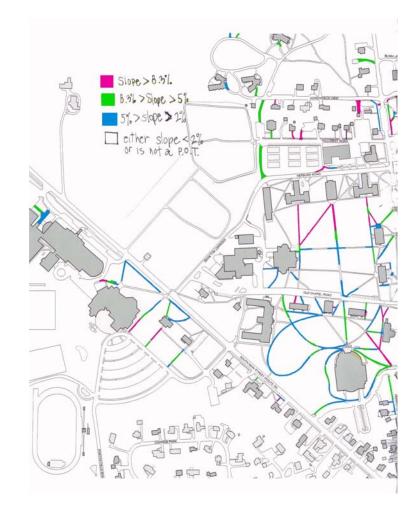
- 521 CMR
  - Like new construction
  - A few exemptions
  - 30% Trigger

- ADAAG
  - Like new construction
  - A few exemptions
  - 20% Accessible Path of Travel



### **Exterior Accessible Routes**

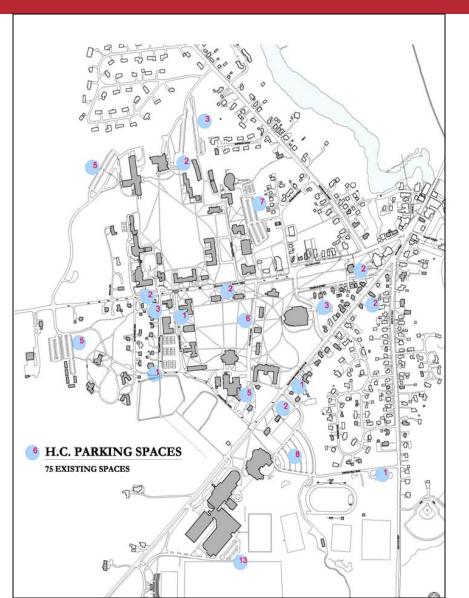
- 521 CMR
  - ALL pedestrian
     pathways = accessible
  - Affirmative requirement
- ADAAG
  - An accessible route connecting all accessible elements
  - No affirmative requirement (yet....)





## Accessible Parking

- Disperse & locate closest to all accessible entrances
  - School
  - Assembly
  - Sports fields
  - Voting locations
  - After-school uses





### Ramps

- "The least possible slope shall be used for any ramp."
   <8.33%</li>
  - <5%
- No construction tolerance on slopes

   24" SmartLevel





# Curb Cuts & Detectable Warning

- 1994 ADAAG
  - At all curb cuts
  - Wherever pedestrian
     way crosses a
     vehicular way
- 2004 ABA-ADAAG
   No requirements
- ADAAG Public ROW
  - At curb cuts on public ROW





### Entrances

- 521 CMR
  - All public entrances
- ADAAG
  - 1994 50% public
  - 2004+ 60% public & employee
- <15 lbf or automatic door opener

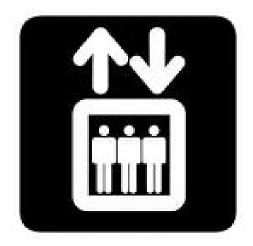






### 1 or More Elevators

- Coincide, to the maximum extent feasible, with the route for the general public
- Time between classes
- Signage





# Vertical Wheelchair Lift/LULA

- ADAAG: ... only under the following conditions:
- a) Stage access
- b) Wheelchair viewing position & dispersion
- c) Incidental occupiable spaces
- d) Ramp or an elevator infeasible.
- e) Certain courthouse elements.
- f) Player seating areas

# 521 CMR: ...*any one of the following circumstances:*

- a) Stage access
- b) Wheelchair viewing position & dispersion
- c) Distance < 1 story <u>and</u> ramp not feasible
- d) <u>Existing</u> buildings with no other work
- e) <u>Existing</u> buildings < 3 stories, or <3,000 sq. ft/story unless...



## **Platform Lifts**

#### ADAAG

Same as vertical lifts

521 CMR

- a) Stage access
- b) Wheelchair viewing position & dispersion
- c) Incidental occupiable spaces
- d) Ramp or an elevator infeasible.



### Stairs

- Handrails
  - 1.5" (+/- 1/8<sup>th</sup>") from wall
  - Round or oval
  - Continuous
  - Extensions top & bottom
  - Extensions **not** a protruding object

- Stairs
  - All stairs (521 CMR)
  - Stairs where ramp/elevator does not serve
  - Equal tread width
  - No winding stairs
  - No nosings





### Accessible Egress

- = # accessible *means of egress*.
- fire escapes are exempt.
- The exit discharge shall provide a continuous path of travel from an *exit* to a public way by means of a *walkway* or a *ramp*.
- Where public ways are > 100 feet from an exit, provide exterior *areas of rescue assistance* no closer than 100 feet from the building.
- Grade at the level of exit discharge prohibits a *walkway* or a *ramp*, an *area of rescue assistance located* exterior exit balcony.



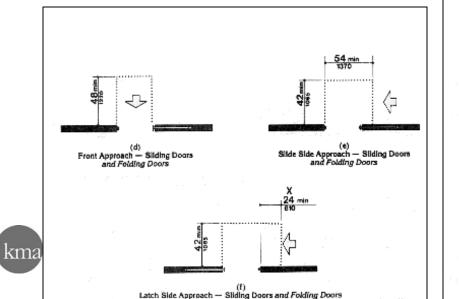
### Exterior Area of Rescue Assistance

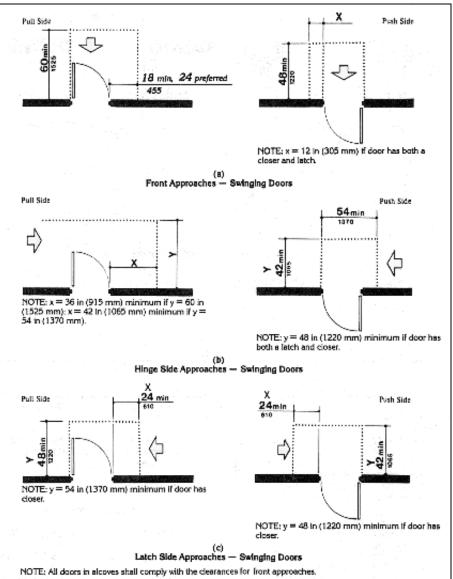
- Number/story = >1/200 persons of calculated occupant load served by the area of rescue assistance.
- 2 (min.)
- Each = 30 inches by 48 inches
- Clear of required exit width.



### Doors

- Clear maneuvering space<5 lbf</li>





### Classrooms

- Visual alarms visible
- Accessible sinks w/ knee space
- Accessible tables/desks (1/5%)



# Protruding Objects

Recess or Relocate:

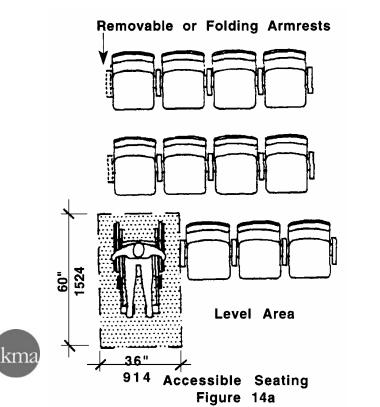
- Drinking fountains
- Fire extinguishers
- Overhead signs
- Counters
- AEDs





## Assembly Areas

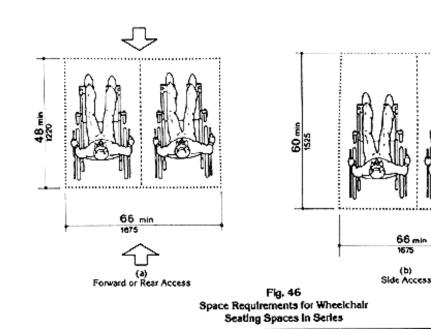
- **Dispersed** accessible & companion seating
  - 521 CMR @ 150
  - ADAAG @ 300



- 1% Armless seats
- •No exit overlap
- •ADAAG @ 48" X 60" (front)
  - @ 60" X 66" (side)

66 min 1675 (b)

•521 CMR @ 36" X 60"



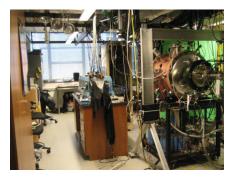
### Assembly Areas

- Handrails on aisles >5%
- = # accessible emergency egress for accessible seats
- Assistive listening devices
- Access to stage from within assembly area



### Labs

- Accessible sinks
- Accessible lab bench (1/5%)
- Accessible route through
   the lab
- Visual alarm
- Accessible reach ranges
  - Eye wash
  - Emergency showers





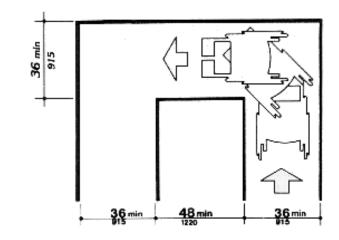
## Kitchens/Woodworking

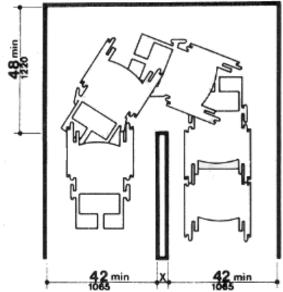
- Commercial kitchens/shops
  - Approach/enter/exit
- Teaching kitchens/shops
  - Accessible sink, counters, etc.
  - Accessible appliances, where available



### Locker Rooms

- 5% accessible lockers
- Male/female/singleuser
- Accessible route
   throughout







NOTE: Dimensions shown apply when x < 48 in (1220 mm).

### Toilet Rooms

- All accessible
- CMS and CFS at sinks
   and doors
- 18" (+/- ½")







### Controls

- All controls w/in reach ranges
- 48" max.
  - Preferred now
  - 2004 ADAAG req'd





### Visual Alarms

- Mounting height
- All areas a person could be alone, incl:
  - Toilet rooms
  - Locker rooms
  - Labs
  - Offices
- Visible from hall?



### Contract Language

www.bsa-access.org



### Accessible Design & Construction Notes

- Notes Page
- ADAAG, 521 CMR, FHA
- Typical conditions
- Specifications

LIGHTING OUTLETS	SWITCH OUTLETS		
CELING WALL	SINGLE-POLE SWITCH S	SWITCHBOARD POWER CONTROL CENTER UNIT SUBSTATIONS (SHOULD BE DRAWN TO SCALE)	SRANCH CIRCUIT HOME RUN TO PANELBOARD
SURFACE OR PENDANT INCANDESCENT ME CURY-MADOR OR SMILLA UMP FXTURE	DOUBLE-POLE SWITCH S2	V777777	NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS IA NUMERAL AT EACH ARROW MAY BE USED TO IDENTIFY CIRCUIT NUMEBER I
0 -0	THREE-WAY SWITCH \$3	FLUSH-MOUNTED TERMINAL CABINET	و و
SURFACE OR PENDANT INDIVIDUAL FLUG- RECENT FIXTURE	FOUR-WAY SWITCH S4	NOTE IN SMALL SCALE DRAWINGS THE TO MAY BE INDICATED ALONGSIDE THE SYMBOL	NOTE ANY CIRCUIT WITHOUT FURTHER IDENTIFIC CATION INDICATES A 2 WIRE C ROUIT FOR A
∞ -∞	KEY OPERATED SWITCH SK		GREATER NUMBER OF WIRES NOICHTE WITH CROSS LINES
SURFACE OR PENDANT CONTINUOUS ROW FLUDRECENT FICTURE	SWITCH AND PLOT LAMP SP	SURFACE MOUNTED TERMINAL CABINET	APPLICATIONS
0	SWITCHING SYSTEM		-+++- 3 WRES
BARE-LAMP FLUDRENSCENT	SIMTCH AND SINGLE RECEPTACLE	Lie	
<u>→ → → → → → → → → → → → → → → → → → → </u>	-OS SWITCH AND DOUBLE RECEPTACLE	NOTOR OR OTHER POWER CONTROLLER	UNLESS INDICATED OTHERWISE THE WIRE SIZE OF THE CIRCUIT IS THE MINIMUM SIZE REQUIRED BY
SURFACE OR PENDANT EXIT LIGHT	- <del>O</del> s		THE SPECIFICATION INDICATE SIZE IN INCHES AND IDENTIFY OFFERENT
U -C	DOOR SWITCH SD	EXTERNALLY OPERATED DISCONNECTION SWITCH	FUCTIONS OF WIRING SYSTEM SUCH AS SIGNALINI BY NOTATION OR OTHER MEANS
0 -0	THE SWITCH ST	COMBINATION CONTROLLER AND DISCOM-	WRING TURNED UP
RECEPTACLE OUTLETS	RESIDENTIAL OCCUPANCIES		WING TURNED DOWN
GROUNDED UNGROUNDED	SIGNALING SYSTEM STMBOLS FOR USE IN IDENT IFYING STANDARIZED RESIDENTIAL TYPE SIGNAL		•
SNGLE RECEPTICAL DUTLET	SYSTEM ITEMS ON RESIDENTIAL DRAWINGS WHERE A DESCRIPTIVE SYMBOL LIST IS NOT INCLUDED ON THE DRAWING	REMOTE CONTROL STATIONS FOR MOTORS OR OTHER EQUIPMENT	ELECTRICAL DISTRIBUTION OR LIGHTING SYSTEMS, UNDERGROUN
DUPLEX RECEPTACLE OUTLET		PUSH BUTTON STATION & GENERAL	
	PUSK BUTTON	FLOAT SWITCH-NECHANICAL	
DUPLEX RECEPTICALE DUTLET-SPLIT WRE	BUZZER V	MIT SWITCH MECHANICAL	TRANSFORMER PAD
	BELL CO	PREUMATIC SAUTCH-MECHANICAL	UNDERGROUND DIRECT BURIAL CABLE
INGLE SPECIAL-PURPOSE RECEPTACLE D	ITLET ANNUNCIATOR	ELECTRIC EVE BEAN SOURCE	INDICATES TYPE, SIZE AND NUMBER OF CONDUCTORS BY NOTATION OR SCHEDULE
	INTERCONNECTION BOX	ELECTRIC EVE-RELAY	UNDERGROUND DUCT LINE
all, all	BELL-RINGING TRANSFORMER	THERMOSTAT -	NDICATE TYPE, SIZE NUMBER OF DUCTS BY CROSS SECTION (DRITIFICATION OF EACH RUN BY NOTATION OR SCHEDULE TYPE, SIZE AND NUMBER OF CONDUCTORS BY NO TATION OF SCHEDULE
ROOR DUPLEX RECEPTACLE OUTLET	INTERCONNECTING TELEPHONE D	CIRCUITING	
₩ <u></u>	RADIO CUTLET	WRING METHOD DENTIFICATION BY NOTATION ON DRAWING OR IN SPECIFICATIONS	r -
FLOOR TELEPHONE OUTLET	TELEVISION OUTLET TH	on one of the area of the areas	
APPLICATION EXAMPLE OF THE USE OF WA SYMBOLS TO IDENTIFY LOCATION OF DIFF TYPES OF OUTLETS OR CONNECTIONS	RELATED EQUIPMENT	WRING CONCEALED IN CEIUNG OR WALL	GROUND CIRCUIT
UNDER FLOOR DUCT OR CELLULAR FLOC SYSTEMS	FLUSH WOLK TED PANELSDARD AND CASHET	NOTE USE HEAVY WEIGHT LINE TO IDENTIFY SERVICE AND FEED RUNS	4/
Ø*   *®	NOTE IDENTIFY BY NOTATION	WIRING CONCEALED IN FLOOR	
	SURFACE MOUNTED PANELBOARD AND CABINET		
		MANO EAPOSED	



### Accessible Design Review

- QC
- Different items @
  - 10%
  - 30%
  - 60%
  - 100%





## **Construction Administration**

- Avoid post-construction complaint
- Give contractor a SmartLevel
- ID allowable construction tolerances (521 CMR 2.4.4)



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