

**COMMENTS on EXPRESS TERMS
for PROPOSED BUILDING STANDARDS
of the DIVISION OF THE STATE ARCHITECT (DSA-AC)**

**REGARDING THE CALIFORNIA BUILDING CODE
CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2**

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TO: Commissioners, California Building Standards Commission
Staff, Division of State Architect

The challenge I address in these comments is accessibility of active building control interfaces in an increasingly computerized, electronic era, specifically the accessibility of destination based elevator controls.

Accessible technology

I am writing to you from the position of one who has been directly involved in the definition of new accessible technology in San Francisco for over twenty years. I proposed the creation of San Francisco's Access Appeals Commission (AAC) in the 1980's, and served several terms over the years since. I was off the Commission while I served four years as founding executive director of the SF Mayor's Office on Disability. (For purposes of identification only; my comments do not represent any official position of the Commission.)

Previous accessible technology projects and programs include:

- Negotiating key accessibility features of proposed SF street furniture, including automated street toilets, newspaper vendor kiosks, and other advertising venues with the JC Decaux Company. This resulted in a rejection of inaccessible models used in other cities, and agreements requiring the first fully-ADA compliant street furniture in the US.
- Design and installation of the first accessible (talking) ATM in the US in San Francisco City Hall in 1999, in cooperation with the San Francisco Federal Credit Union, before court settlements required them.
- Design and installation of new accessible door entry systems, in cooperation with Viking Electronics. These essential path-of-travel security systems are now usable by blind persons at all SF newly-constructed or renovated multi-family public housing sites and other public buildings.
- Installation of IR Talking Signs pilot project in San Francisco City Hall and select

public-rights-of-way locations.

- Current discussions on accessible electric vehicle charger stations with the Governor's Office of Planning and Research et al.

What these projects have in common is applying close attention and disability community input to take advantage of increasing capacity and decreasing costs of electronic technology that can make common features and building controls in public use fully accessible.

Destination-based elevator controls in San Francisco

For market reasons not entirely clear, San Francisco has the largest concentration of computerized destination-based elevators in the US. The first destination based elevator systems installed in San Francisco were inaccessible.

The Access Appeals Commission initiated a two-year community-industry-government collaboration, a series of hearings and cases, that produced innovative, practical design requirements for destination-based control systems, using mechanical keypad interfaces. With endorsement by NEII, the major international elevator manufacturers, BOMA-SF, and the disability community, they were adopted by the local Building Commission as Administrative Bulletin AB-090. The result is affordable, buildable, AB-090-compliant, accessible projects now installed in scores of buildings in San Francisco, Los Angeles, and other cities.

My purpose in commenting to you is two-fold:

1. To help make sure that essential accessibility requirements for destination based elevator controls using **mechanical keypads** to be contained in new state code (Chapter 11B, Section 411) is at least as effective as the requirements of AB-090.

In general they *are*, with a few exceptions noted below.

2. To encourage making a regulatory pathway for accessible **touchscreen** building controls. Manufacturers' preferred user interaction for the next generation of controls is often via touchscreen. Widespread use of iPhone, Android, and other touchscreen smart phones has created a useful model, not yet available when AB-090 was adopted, for how accessible controls may be provided.

The proposed Title 24 Express Terms do not yet adequately address those issues.

Touchscreen considerations

The draft does provide one 'safe harbor' solution for touchscreen accessibility: The 'virtual keypad' solution works for people with a variety of disabilities. It has been adopted by at least one major manufacturer already, and we are told it will be in production in June. It involves no proprietary information that prevents its use by other elevator manufacturers.

The second alternative of 'Gesture-based operation' (11B-411.2.1.7.2, Exception 2.)

hints at alternative methods that could work. Manufacturers are eager to use, and have demonstrated models of other methods, such as sliders, that will work once details of user interactions are fully developed.

Sect. 2.1.7.2 lacks the detail necessary for accessibility to people who are blind, deaf/hard-of-hearing, or have common motion limitations. It is wide open to interpretation, in other words, an invitation to lawsuits from people who cannot use the possibly allowed results.

Rather than ignore other possibilities, my comment is that you should leave in the mention of other alternatives, but consider it to be a 'stub,' to be more fully developed later through code revision or administrative guidance. Absent that, we will have local building officials guess what works. We can't expect uncanny case-by-case judgments by building inspectors. Section 2.1.7.2, Exception 2 urgently needs further development.

Locally, we began a second round of public hearings in winter 2013, specifically aimed at touchscreen issues. We expect to have new local administrative standards before the end of this year.

Specifics

1 Hall call consoles. Location. (all references are to 11B-411.) 2.1.1

This scoping language resolves some problems in the older AB-090 language.
APPROVE.

2 Display screen. Contrast. 2.1.2.4.1

Every two tones have 'contrast.' Early consoles still in use appear gray on gray. AB-090 is 200:1, but current minimum, widely available, should be 300:1.
ADD: Contrast ratio minimum 300:1.

3 Button requirements. Size. 2.1.5.1

The Function key must be located directly below the numeric keypad, and must be distinctly larger than number keys. It is unique.
ADD: Function key shall be two times the area of numeric keys, or larger.

4 Button requirements. Color. 2.1.5.2

Current language permits a 'chrome' finish, common on many telephone-style keypads, but difficult to see for many persons with low vision.
ADD: . . . and have a non-glare surface.

5 Floor destination indicators. Height. 4.11.1

One inch characters have proven in practice to be too small to be useful for many people trying trying to confirm the correct elevator. Even older elevators provide enough room on the jamb for two-inch characters.
CHANGE: "1 inch (25 mm) high minimum" to "2 inch (50 mm)."