RB116-19 Presentation (stairways) to ICC Appeals Committee

by Jake Pauls, BArch, CPE, HonDSc

ICC Member for over two decades with 280 Cttee-years of codes & standards development experience in the USA, incl. two ICC Committees (IAC & A117)

August 26, 2020
ICC CP#28-05 – Code Development
(Approved: 09/24/05 | Revised: 1/22/19) concludes as follows, with bold emphasis added to the second sentence.

“13.0 Violations
13.1 ICC Board Action on Violations:
Violations of the policies and procedures contained in this Council Policy shall be brought to the immediate attention of the ICC Board for response and resolution. Additionally, the ICC Board may take any actions it deems necessary to maintain the integrity of the code development process.”

“immediate attention of the ICC Board . . . . to maintain the integrity of the code development process.”
This appeal, on RB116-19, is a call for action by the ICC Board to maintain—after restoring—the “integrity” of the ICC code development process.

**call for action by the ICC Board**
ICC has badly failed a basic duty and "solemn responsibility" under ICC’s published *Code of Ethics* (quoted here), in “the protection of the health, safety and welfare of the public by providing safe buildings and communities.”
Moreover, although (according to the ICC Code of Ethics), “the ICC advocates commitment to a standard of professional behavior that exemplifies the highest ideals and principles of ethical conduct,” the evidence for this is mixed and troubling to public health professionals and others.
Consequences of ICC’s failings include some four million Americans who are injured seriously enough—by wantonly inadequate, dangerous stairways—to require professional medical attention. The availability of such medical attention is, for the foreseeable future, drastically impacted by the COVID-19 Pandemic.
Societal injury costs for such common features of US dwelling units, notably homes addressed by ICC’s *International Residential Code (IRC)*, are on the order of 100 billion dollars annually. To appreciate that in terms ICC members might appreciate, ICC’s reserve fund would be depleted in a matter of a few hours with such a drain on resources.
At the same time, dwelling units which are seriously dysfunctional even in good times, are now being used more extensively than are the larger, often public buildings where we formerly worked, were educated, entertained, received health care, dined, had day care, retired in relative comfort and safety, etc. For many such larger buildings and occupancies, years will pass before we return—if ever—to pre-COVID-19 pandemic days.
Designed under ICC IBC rules—which have facilities far more attuned to safety and public health generally, larger buildings are more-ergonomically designed for effective human use by the full spectrum of users—able bodied or with multiple disabilities, including older adults—that, increasingly have only homes as a place of refuge from the Corona Virus.
Thus we have a pandemic, due to the virus occurring, exacerbating the endemic built environment defects, due to the double, lower standard promoted by ICC and its “Strategic Partner, the National Association of Home Builders (NAHB) especially with stairways and, to a lesser extent, with bathrooms.
Thus we have a *pandemic*, due to the virus occurring, exacerbating the *endemic* built environment defects, due to the double, lower standard promoted by ICC and its “Strategic Partner,” the National Association of Home Builders (NAHB) especially with stairways and, to a lesser extent, with bathrooms.
These “Strategic Partners” must be stopped from maintaining their ethically—and possibly illegal—dangerous *quid pro quo* relationship that endangers public safety and health. Such endangerment, begun in the mid-to-late 1990s, must now stop—with no further foot dragging by the ICC Board.
Together these two partners have major responsibilities for the reduced public health of about 20 million families living in substandard homes—by IBC standards for stairways for example. Their substandard design will continue to encourage predictable and preventable injuries for at least several decades to come, costing society a further trillion or so current (2020) dollars. This is the prospect even if ICC were to require—\textit{and its members enforced}—merely the requested, relatively few “technical” changes in each new home constructed after 2020. What a legacy for ICC’s first two decades!
This is not only a dispute over a few technical changes; it is a matter of code-development policy, process, and ethical behavior.
By way of reiteration, ICC has badly failed a basic duty and “solemn responsibility” under ICC’s published Code of Ethics (quoted here), in “the protection of the health, safety and welfare of the public by providing safe buildings and communities.”
The Board should seriously begin a program of reparation, beginning with enlightening its building control members on basic public health issues including the six “E” topics, existing as “Evidence” for the Problems and/or the Solutions to provide badly needed usability, health and safety of homes/dwelling units.

- Epidemiology
- Ergonomics
- Etiology
- Economics
- Engineering
- Education
This is not just, or even mainly, a technical failure, it is a failure of perception, consideration, policy, procedures and actions by the building regulatory field. Appeal RB116-119, addresses these failings.

Thus the ICC staff should amend its early recommendation, “that the appeals be denied and referred to the appropriate Code Action Committee for consideration in the 2024 Code Development Cycle.” Their reasoning is flawed when ICC staff contend: “Appellant is clearly dissatisfied with the outcome of the process, but as stated in CP-10, ‘the Board of Appeals shall not render decisions on the relative merits of technical matters’.”
By way of reiteration, ICC has badly failed a basic duty and “solemn responsibility” under ICC’s published Code of Ethics (quoted here), in “the protection of the health, safety and welfare of the public by providing safe buildings and communities.”
The Appellant is not merely dissatisfied with the outcome for RB116-19, but something much deeper and consequential—\textit{the current state and future prospects of a branch of public health: building control}. A leading organization, the National Fire Protection Association, NFPA, among others, has acted on model code and safety standards. It has not merely sloganized on a poor evidential base.
Recognizing ICC appears to be acting more responsibly *at this moment*— *including this hearing*, ICC too often exhibits a lack of public health vision. This applies to present pandemic conditions, let alone the future.
We see failings in ethical conduct with a regulated industry, home building, represented by NAHB, a Strategic Partner with ICC. (The US has recently seen too many such failings in at least two of the three branches of the US Federal Government. With those, at least, we—the people—have the right every few years, on average, to “kick the bums out.”)
ICC Leadership has failed, over more than two decades, to see the folly in ICC’s 1997 agreement with NAHB. It was clear, as early as 1996, that NAHB’s naïve concerns about “Affordability” aka “Cost Impact” related partly to model building and residential code improvements justified—with ample evidence in the case of home stairways—in 1993.
In 1993, the Council of American Building Officials (CABO), initiated by CABO’s Board for the Coordination of the Model Codes (BCMC), and ratified by CABO Board of Directors, published the formal recommendation for all new homes to be built with the so-called “7-11” standard for rise-run step geometry. NFPA adopted this, for new dwelling units, in 2003, formally rejecting NAHB objections—*with cause*. 

In 1993, the Council of American Building Officials (CABO), published the formal recommendation for all new homes to be built with the so-called “7-11” standard.
Designing to this standard was the major technical change proposed by RB116-19—26 years later—one-third of the proponent’s life thus far. The “7-11” standard has been a feature of ICC’s *International Building Code* in every one of its editions to date. Proposals for “7-11” for the IRC have been formally made once per decade, of ICC existence, by the proponent.

The “7-11” standard has been a feature of ICC’s *International Building Code* in every one of its editions to date.
Speaking personally now: during the final third of a lifetime, this 77-year old, code change proponent is experiencing life as a senior, the population most in need of livable, reasonably safe homes—as a matter of wellbeing and life itself. His current US home, a 630 sq. ft. apartment, has all the features NFPA codes require in new dwelling units.
Speaking personally now: during the final third of a lifetime, this 77-year old, code change proponent is experiencing life as a senior, the population most in need of livable, reasonably safe homes—as a matter of wellbeing and life itself. His current US home, a 630 sq. ft. apartment, has all the features NFPA codes require in new dwelling units. It is served by “7-11” stairs.
Speaking personally now: during the final third of a lifetime, this 77-year old, code change proponent is experiencing life as a senior, the population most in need of livable, reasonably safe homes—as a matter of wellbeing and life itself. His current US home, a 630 sq. ft. apartment, has all the features NFPA codes require in new dwelling units. It is served by “7-11” stairs. Plus the bathroom has two grab-bar-equivalent stanchions serving shower and toilet use every day. Fire safety and energy systems are state of the art, the latter being LEED Gold Certified.
The most dangerous part of the Appellant’s continuing consulting work, as an experienced Certified Professional Ergonomist, is going into single-family homes where someone had fallen on a stairway—including homes where the falling occupant was the first occupant of a newly constructed home in its first year of use.

The illustration is of a co-owner of an expensive new home. She fell on her first descent use of this stairway.
The most emotionally devastating aspect of the Appellant’s work, in investigating injurious fall incidents, is working with injured parties (via their legal counsel) including those with particularly devastating, life-altering injuries such as quadriplegia and traumatic brain injury.

Use of the accompanying photos was approved by the injured party with the intention that stairways would become safer when those responsible for their design, construction and regulation were more aware of the huge medical implications and, even more devastating, lifetime consequences of stairway falls.
Hopefully, these photographs will dispel the notion that builders cannot build proper stairways because they would make the home “unaffordable.” To disillusion those with this view, consider this stair fall victim on another stair in this relatively expensive home. She is shown descending the home’s main stairway, having difficulty with descent, physically and otherwise, e.g. due to the hard-to-grasp railing.

As shown by this stairway (and many others), builders construct very large “unaffordable” homes with more stairs, sometimes wider—but with the same inferior step dimensions, faulty expensive railings, etc., that builders put into an entry-level “affordable home,” to use their term.
Turning from the consequences of highly questionable policy and process decisions made by ICC’s Board over the years to the context in which this all started in the mid-to late 1990s, we have the ICC-NAHB Task Force on a One- and Two Family Dwelling Code (OTFDC) which led to the *International Residential Code*. Henry Green was a member of this Task Force which met in several cross-country locations from June 1996 to April 1997. I was the only member of the general public attending all open sessions of Task Force and, not being able to use recording equipment, I took notes—94 pages total of single spaced, very detailed, handwritten notes at every public meeting.
I took notes—94 pages total of single spaced, very detailed, handwritten notes at every public meeting.

The 24-minute sample record is for the 10/28/96 Mtg in Birmingham.
I took notes—94 pages total of single spaced, very detailed, handwritten notes at every public meeting. The 24-minute excerpt from the complete page records some tense exchanges between builders and code people.

This 14:48± excerpt from the complete page records some tense exchanges between builders and code people.

Green - Can we agree we're going to get an agreement out of this?

PKH -

Various - I been trying to re-define C.

Brute - read revised C

Bash - including "affordability"

Piranha - This is not what the UN fellows

PKH - "It's just a great, silly little builder."

Green - (where things go in the report)

PKH - (it's a complete summary)

Green - Let's deal with substance of report.
Every public Task Force meeting comment was cryptically documented with the name of the task Force or staff member behind the comment. It was very revealing, a bit like being in the proverbial sausage factory. It will make a good book some day as some 20 million new US homes have been influenced by what happened there and the toll of injuries on home stairways are on the order of a trillion dollars and counting—for decades more to come. Home stairways were one topic—along with home ventilation—discussed in the builders’ overarching emphasis on “affordable housing” being threatened by codes.

Home stairways were one topic—along with home ventilation—discussed in the builders’ overarching emphasis on “affordable housing” being threatened by codes.
There was occasional dark humor when the participants were bargaining over how many members the builders should be on the new code committee. That topic is also worthy of a book and is still relevant today, including in this Appeal hearing where committee composition is very relevant.

Incidentally, on the matter of “affordability,” 1997 was a watershed year as, partly due to my witnessing and documenting the “affordability” argument at the grass roots level, I took the short course at Harvard University on Benefit-Cost Analysis for Environmental, Health, and Safety Regulation.

Code committee composition is very relevant (as is) documenting the “affordability” argument at the grass roots level in addition to the relative high level treatment in the short course at Harvard University on Benefit-Cost Analysis. . .
All told, documenting even the public meetings (without being present for the “gloves off” or alcohol-fogged, private sessions) was an extraordinary opportunity to understand how we came to the current IRC code development process. Here is a photo of the last or near-last meeting of the ICC-NAHB Task Force in early 1997.
In mid-1997, following shortly after the final meeting of the ICC-NAHB Task Force which recommended equal numbers of NAHB- and ICC-appointed members of a new IRC committee, this ran into objections at the ICC Industry Advisory Committee (IAC) where the Appellant was in the forefront of such objections. The ICC caved slightly to the IAC by setting the new IRC committee membership as one third nominated by each of the following: NAHB, the IAC, and the ICC Board. While likely a small improvement, it is not working out well for reasons we can discuss. Below is the first meeting of the new IRC development committee with nine voting members and four staff from code groups and NAHB held its first meeting in Phoenix on Sept. 23, 1997, followed by several more meetings in quick succession in October, November, December 1997 and January 1998, February, and March. The Appellant, again, has very detailed records of these meetings.
Some day the record of what happened between 1997 and 2003 will be filled in from the Appellant’s detailed records, by then including video records as well as audio records. In these years the Appellant’s committee work mushroomed, especially in NFPA due to the production of its first building code, NFPA 5000-2003 first edition.

2000-2003 saw a major initiative in both NFPA and ICC to adopt, for homes, the 7-11 step geometry, plus other safety features, in the 2003 editions of their building codes plus the IRC. The Appellant’s proposal R311 for the 2003 IRC took up 40 single-spaced pages containing a first benefit-cost analysis and a great deal on the politics of IRC development.

1997-2003 marked a Renaissance in the model code development field in the US with competing model building codes from ICC and NFPA.

The battle over home stair safety was especially fierce with NFPA adopting the 7-11 for home stairs. It holds to this day.
The Appellant’s proposal R311 for the 7-11 in the 2003 IRC contains some possibly damaging information about the ICC Board kowtowing to the NAHB over the latter’s very damaging—to public health and safety, especially in homes—quid pro quo agreement with NAHB. This needs lawyers outside of these two competing code development groups to examine this carefully.

Also, as we will hear later in the RB116 Appeal Hearing, the combination of the home builders and the Commonwealth of Virginia, forced a very conscientious staff person from her career position at the Department of Housing and Community Development (whose monthly hearings the Appellant documented in detail).

This was the “gloves come off” era in relation to the debate about home stair safety documented in Proposal R311 to the IRC on the step dimension issue.
Carolyn Williams, an established representative of the VA Dept. of Housing & Community Dev. and member of the BOCA Ad Hoc Cttee., in 1993, on stairway safety, lost the fight for her job after taking an ethical stance on the home stair step geometry issue and voting on the basis of all the evidence.
Here follows an exhibit for a thorough, future examination—*based on evidence*—of the cozy relationship between the ICC Board and the NAHB in what appears to be, possibly, a *quid pro quo* arrangement (a favor or advantage granted or expected in return for something).

Disadvantaged by this arrangement are, first, the buyers of homes and all who occupy or visit such homes particularly ones designed and constructed by NAHB members over the last two decades. Affected are their safety, from fall-related injuries, as well as their ability to age in place in their homes—*as they desire overwhelming* based on AARP surveys conducted periodically. Injuries alone affect some four million home stair users annually in the US who are injured and then need professional attention by doctors in their offices, clinics, or hospitals (specifically ER or direct admission). See following epidemiological data tables.
### Annual Incidence of Stair-related Injuries in US for Period 2010-14
(of which about 90 percent occur in residential settings)

Source: Bruce Lawrence, Pacific Institute for Research and Evaluation (PIRE)

<table>
<thead>
<tr>
<th>Stairs</th>
<th>Age</th>
<th>Doc/Outp</th>
<th>ED</th>
<th>Hospital-admitted via ED</th>
<th>Direct</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>00-09</td>
<td>149,389.0</td>
<td>132,344.0</td>
<td>4,313.0</td>
<td>1,515.8</td>
<td>287,561.8</td>
</tr>
<tr>
<td></td>
<td>10-19</td>
<td>240,132.0</td>
<td>122,449.0</td>
<td>2,288.5</td>
<td>824.6</td>
<td>365,694.1</td>
</tr>
<tr>
<td></td>
<td>20-29</td>
<td>422,114.0</td>
<td>198,838.0</td>
<td>4,634.7</td>
<td>1,533.7</td>
<td>627,120.4</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>560,978.0</td>
<td>184,438.0</td>
<td>5,628.9</td>
<td>1,910.3</td>
<td>752,955.2</td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>634,787.0</td>
<td>173,156.0</td>
<td>9,241.0</td>
<td>3,050.3</td>
<td>820,234.3</td>
</tr>
<tr>
<td></td>
<td>50-59</td>
<td>502,896.0</td>
<td>148,100.0</td>
<td>14,928.3</td>
<td>5,133.4</td>
<td>671,057.7</td>
</tr>
<tr>
<td></td>
<td>60-69</td>
<td>286,908.0</td>
<td>94,429.1</td>
<td>16,556.9</td>
<td>5,644.9</td>
<td>403,538.9</td>
</tr>
<tr>
<td></td>
<td>70-79</td>
<td>173,515.0</td>
<td>66,176.8</td>
<td>17,891.0</td>
<td>6,021.7</td>
<td>263,604.5</td>
</tr>
<tr>
<td></td>
<td>&gt;=80</td>
<td>106,489.0</td>
<td>55,507.0</td>
<td>23,272.4</td>
<td>6,356.7</td>
<td>191,625.1</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>3,077,207.0</td>
<td>1,175,439.0</td>
<td>98,754.8</td>
<td>31,991.4</td>
<td>4,383,392.2</td>
</tr>
</tbody>
</table>
Annual Rate (per 100,000 population) of Stair-related Injuries in the US for Period 2010-14
(of which about 90 percent occur in residential settings)

Source: Bruce Lawrence, Pacific Institute for Research and Evaluation (PIRE)

<table>
<thead>
<tr>
<th>Stairs</th>
<th>Age</th>
<th>Doc/Outp</th>
<th>ED</th>
<th>Hospital-admitted</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>via ED</td>
<td>Direct</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>00-09</td>
<td>369.2</td>
<td>327.1</td>
<td>10.7</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>10-19</td>
<td>569.9</td>
<td>290.6</td>
<td>5.4</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>20-29</td>
<td>962.0</td>
<td>453.2</td>
<td>10.6</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>30-39</td>
<td>1,381.9</td>
<td>454.3</td>
<td>13.9</td>
<td>4.7</td>
</tr>
<tr>
<td></td>
<td>40-49</td>
<td>1,489.6</td>
<td>406.3</td>
<td>21.7</td>
<td>7.2</td>
</tr>
<tr>
<td></td>
<td>50-59</td>
<td>1,164.3</td>
<td>342.9</td>
<td>34.6</td>
<td>11.9</td>
</tr>
<tr>
<td></td>
<td>60-69</td>
<td>905.9</td>
<td>298.2</td>
<td>52.3</td>
<td>17.8</td>
</tr>
<tr>
<td></td>
<td>70-79</td>
<td>981.6</td>
<td>374.4</td>
<td>101.2</td>
<td>34.1</td>
</tr>
<tr>
<td></td>
<td>&gt;=80</td>
<td>917.0</td>
<td>478.0</td>
<td>200.4</td>
<td>54.7</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>980.5</td>
<td>374.5</td>
<td>31.5</td>
<td>10.2</td>
</tr>
</tbody>
</table>
Locales of Stair-related Injuries in US for Period 2010-14
(Of known settings, about 90 percent occur in residential settings)
Source: Bruce Lawrence, Pacific Institute for Research and Evaluation (PIRE)

<table>
<thead>
<tr>
<th>Stairs</th>
<th>Locale of accident</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Not recorded</td>
<td>1,654,812.0</td>
<td>37.75</td>
</tr>
<tr>
<td>1</td>
<td>Home</td>
<td>2,442,511.0</td>
<td>55.72</td>
</tr>
<tr>
<td>2</td>
<td>Farm/ranch</td>
<td>45.4</td>
<td>0.00</td>
</tr>
<tr>
<td>4</td>
<td>Street/highway</td>
<td>9,971.3</td>
<td>0.23</td>
</tr>
<tr>
<td>5</td>
<td>Other public property</td>
<td>173,615.4</td>
<td>3.96</td>
</tr>
<tr>
<td>6</td>
<td>Mobile/manuf home</td>
<td>2,737.7</td>
<td>0.06</td>
</tr>
<tr>
<td>7</td>
<td>Industrial</td>
<td>27.9</td>
<td>0.00</td>
</tr>
<tr>
<td>8</td>
<td>School</td>
<td>68,875.5</td>
<td>1.57</td>
</tr>
<tr>
<td>9</td>
<td>Place of rec/sports</td>
<td>30,795.2</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4,383,391.3</td>
<td>100.00</td>
</tr>
</tbody>
</table>
Returning to the matter of who else is disadvantaged by the relationship of the NAHB and ICC, NFPA is explicitly noted in the very comprehensive “war declaration” (as I will term it) on NFPA. As a member of numerous technical and two correlating committees (on both NFPA 101 and 5000) I get less return on my volunteer work for NFPA.

How NFPA deals with this is up to its management and legal team. All I can do is keep paying my NFPA membership dues and serving without financial compensation—as I accept—but I am very annoyed as a public health professional, representing the American Public Health Association on almost all my committee positions.

I know from my public health role, as a bridge among several disciplines, that the public is being very badly served by what the ICC Board and NAHB are doing. See next page for details of the ICC-NAHB relationship.
Building Codes

Support a single coordinated set of national model building codes for jurisdictions choosing to adopt a building code that provides for:

1. Responsible code development procedures as reflected by the current procedures of the International Code Council.
2. Appropriate levels of voting representation by NAHB nominees on code development committees.
3. A user-friendly, stand-alone residential building code that includes housing affordability as a major determinant in its development, as currently represented by the International Residential Code.

Continue to support the adoption of state-enabling legislation that:

4. Calls for the creation of state-wide codes based on a coordinated set of national model building codes developed in accordance with the criteria stated above.
5. Allows state-wide amendments to the model codes to account for jurisdictional differences or to enhance housing affordability by providing cost-effective requirements to provide for the health and safety of the occupants of homes.
6. Creates statewide minimum-maximum code requirements by recommending that there be no local amendments, which make the code more restrictive or housing less affordable.

Continue to oppose any building code or building code provision that is detrimental to the goal of providing decent, safe, and affordable housing and that does not include jurisdictional flexibility.

Ask HUD to withhold federal grants and loans to those states that use building codes that exceed the national model building codes and to apply the same restriction to any other stand-alone law that deals with a building code.

Urge NAHB members and affiliated home builder associations to oppose the adoption of NFPA 5000.

Support, to the extent possible, efforts by NAHB members and affiliated home builder associations to oppose the adoption of NFPA 5000 in their state and local jurisdictions.

Urge NAHB members and affiliated home builders associations to oppose the development of the NFPA One- and Two-Family Building Code (OTFBC).

Support, to the extent possible, efforts by NAHB members and affiliated home builders associations to oppose the development of the NFPA OTFBC and the adoption of it in their state and local jurisdictions.

Urge NFPA to abandon code development and adoption efforts related to NFPA 5000 and its OTFBC and to work with ICC to integrate the other NFPA codes and standards into the ICC family of codes with the goal of achieving a single coordinated set of national model building codes.

Support an affirmative program of fire safety for residential construction whose principal components are life safety improvements and cost-effectiveness.

Continue to oppose mandatory residential sprinklers for multifamily low-rise and single family residential construction and other fire protection techniques that do not enhance the safety of occupants and are not cost-effective.

Pursue alliances with organizations that support fire safety, consumer safety education, and housing affordability.

Work cooperatively with other concerned parties to oppose the restriction or banning of wood trusses, I-joists, and engineered wood products designed, manufactured, and used in accordance with nationally recognized codes and standards for unsubstantiated concerns related to fire fighter safety.

Support efforts by state and local affiliated Home Builder Associations to oppose the adoption of any new stair geometry that is not consistent with the requirements originally contained in the 1993 BOCA and 1992 CABO Codes by amending those provisions when adopting new editions of model building codes.

NAHB Policies on Codes from both ICC and NFPA dated 9/11/08. See texts of items numbered on right side.

Industry Standards
“1. Support a single coordinated set of national model building codes for jurisdictions choosing to adopt a building code that provides for:

- Responsible code development procedures as reflected by the current procedures of the International Code Council.
- Appropriate levels of voting representation by NAHB nominees on code development committees.
- A user-friendly, stand-alone residential building code that includes housing affordability as a major determinant in its development, as currently represented by the International Residential Code.
Potentially problematic NAHB text, according to the Appellant, is shown in red letters.

2 Continue to support the adoption of state-enabling legislation that:

- calls for the creation of state-wide codes based on a coordinated set of national model building codes developed in accordance with the criteria stated above.
- allows state-wide amendments to the model codes to account for jurisdictional differences or to enhance housing affordability by providing cost-effective requirements to provide for the health and safety of the occupants of homes.
- Creates statewide minimum-maximum code requirements by recommending that there be no local amendments, which make the code more restrictive or housing less affordable.
Potentially problematic NAHB text, according to the Appellant, is shown in red letters.

3. Continue to oppose any building code or building code provision that is detrimental to the goal of providing decent, safe, and affordable housing and that does not include jurisdictional flexibility.

4. Ask HUD to withhold federal grants and loans to those states that use building codes that exceed the national model building codes and to apply the same restriction to any other stand-alone law that deals with a building code.

5. Urge NAHB members and affiliated home builder associations to oppose the adoption of NFPA 5000.
6. Support, to the extent possible, efforts by NAHB members and affiliated home builders associations to oppose the adoption of NFPA 5000 in their state and local jurisdictions.

7. Urge NAHB members and affiliated home builders associations to oppose the development of the NFPA One- and Two-Family Building Code (OTFBC).

8. Support, to the extent possible, efforts by NAHB members and affiliated home builders associations to oppose the development of the NFPA OTFBC and the adoption of it in their state and local jurisdictions.
9. Urge NFPA to abandon code development and adoption efforts related to NFPA 5000 and its OTFBC and to work with ICC to integrate the other NFPA codes and standards into the ICC family of codes with the goal of achieving a single coordinated set of national model building codes.

10. Continue to oppose mandatory residential sprinklers for multifamily low-rise and single family residential construction and other fire protection techniques that do not enhance the safety of occupants and are not cost-effective.
11. Support efforts by state and local affiliated Home Builder Associations to oppose the adoption of any new stair geometry that is not consistent with the requirements originally contained in the 1993 BOCA and 1992 CABO Codes by amending those provisions when adopting new editions of model building codes.”

Number 11, the last one in NAHB’s Policy on “Industry Standards,” is clearly the most flawed of all the items (i.e., 1 through 10) in relation to this appeal. NAHB calls for the continuation of the 8.25 inch maximum rise and minimum 9-inch run dimension, a geometry that is clearly among the most unsafe.
Your family's safety is one of our primary concerns. Safety Stairs™ make walking up and down the stairs safer for your entire family. Little legs and elderly legs will appreciate the ease of Safety Stairs™.
The differences are:
• Each tread is one inch longer.
• Each riser is one-half inch shorter.
• They comply with the CABO (Council of American Building Officials) safe stair guidelines.
• They ensure a better resale value.
**STEP ONE:** Build In-House Support
- Pass association resolution

**STEP TWO:** Determine Level of Local Opposition
- Call local leaders to assess level of knowledge and support

**STEP THREE:** Establish a Task Force or Working Group
- Seek support of government leaders and particularly local building officials

**STEP FOUR:** Design Framework & Objectives for Task Force or Working Group
- Address key issues and define final product

**STEP FIVE:** Develop Lobbying Strategy
- Recognize underlying attitudes about growth

**STEP SIX:** Develop Media/PR Campaign
- Utilize community coalition

**STEP SEVEN:** Orchestrate Public Hearing
- Get all the players on the same stage at the same time on the same side.

**STEP SEVEN:** Orchestrate Public Hearing
- Get all the players on the same stage at the same time on the same side.
Table 2. Estimated relative annual risks per 100,000 population, of US hospital emergency department visits for home stair-related falls with various nominal run (going) dimensions and with various occurrences of Top of Flight Flaw (TOFF) non-uniformity. Note here that the top row, for 0 percent with TOFF, compares injury risk (per 100,000 population) for run dimensions with perfect uniformity. Thus the 230 mm 9-in stair geometry NAHB favors is 110/20 or 5.5 times more dangerous than NFPA’s stair.

<table>
<thead>
<tr>
<th>Uniformity condition: Percentage of stairs with TOFF</th>
<th>Annual injurious fall risk rates with various nominal tread runs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>190 mm Effective run with carpet</td>
</tr>
<tr>
<td>0</td>
<td>230</td>
</tr>
<tr>
<td>2</td>
<td>250</td>
</tr>
<tr>
<td>5</td>
<td>260</td>
</tr>
<tr>
<td>10</td>
<td>290</td>
</tr>
<tr>
<td>15</td>
<td>320 (10 x Ref)</td>
</tr>
<tr>
<td>20</td>
<td>350</td>
</tr>
<tr>
<td>25</td>
<td>380</td>
</tr>
<tr>
<td>30</td>
<td>410</td>
</tr>
<tr>
<td>35</td>
<td>440</td>
</tr>
<tr>
<td>40</td>
<td>470</td>
</tr>
<tr>
<td>45</td>
<td>500</td>
</tr>
<tr>
<td>50</td>
<td>530</td>
</tr>
<tr>
<td>55</td>
<td>560</td>
</tr>
<tr>
<td>60</td>
<td>590</td>
</tr>
</tbody>
</table>
Home builders claim that improved stairs will make homes unaffordable.

In reality, homes with dysfunctional, unsafe stairs impose continuing costs.
Note to ICC Staff handling AV logistics for the Appeal on RB116-19, the remaining slides are in reserve depending on discussion later in the hearing on this topic. They should be loaded to the Webex source computer for use as needed.
Post-1998 Trend for Home Stairs
Leads to 10 to 1 Ratio with Other

Pre-1998 Expectation for Home Stairs
Based on 5 to 1 Ratio with Other

CPSC-NEISS National Estimates for ED Visits

Year

75  80  85  90  95  00  05
Technical Bases for Improved Geometry of Risers and Treads

- Expert judgement based on experience
- Studies of actual fall-injury circumstances:
  - Research investigations
  - Investigations related to litigation
- Field & Laboratory studies of gait on stairs
- Field & Laboratory studies of missteps
- Foot/shoe size in relation to tread size
- Laboratory studies of energy expenditure
- Preference studies
The referred to “TOFF,” Top Of Flight Flaw, occurs when the nosing projections at the too few steps are not consistent. It is an extremely potent defect that can be readily eliminated in the building construction process before any final carpet is installed on the stair treads (and risers). The cost of the nosing piece is in the ten dollar range for Oak. Below is an example of TOFF where the topmost riser will have to have the carpet covering removed to install a structurally sound projecting nosing. The companion photo shows how TOFF is relatively reliably detected using what is called a “crouch and sight test.” That is, the floor nosing and the nosings below it do not line up. This is a serious defect and must be fixed ASAP.
“If we waited for someone to ask for a car, we would all still be getting around in horse and buggies!” – Henry Ford
5.3 Rise

COMMENTARY ON 5.3
A step with a shallow rise can be a trip hazard. The maximum rise that can be negotiated safely and easily is 200 mm.

A rise of less than 150 mm or more than 200 mm is not recommended for any category of stair. For normal-use stairs the rise should be smaller than 180 mm (see Table 1).

NOTE 1 Recommended combinations of rise and going are given in Annex C.
Table 1  **Recommended sizes for straight stairs and winders**

<table>
<thead>
<tr>
<th>Stair category</th>
<th>Rise, ( r ) mm</th>
<th>Going, ( g ) mm</th>
<th>Stair clear width (see Note 2) mm</th>
<th>Handrail height mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private stair</td>
<td>150</td>
<td>200</td>
<td>250</td>
<td>400</td>
</tr>
<tr>
<td>Normal-use stair</td>
<td>150</td>
<td>180</td>
<td>300</td>
<td>450</td>
</tr>
</tbody>
</table>

<sup>A</sup> For regular two-way traffic, the minimum stair clear width is 1000 mm

<sup>B</sup> For hospitals, the minimum stair clear width is 1200 mm.

**NOTE 1**  Requirements for means of escape in case of fire can necessitate an increase on the minimum values given for stair clear width. Where means of escape is a factor, the relevant regulations apply.

**NOTE 2**  The minimum stair clear widths could be insufficient for escape stairs, depending upon the building use and number of occupants.

**NOTE 3**  For spatial provision for stairlifts see DD 266:2007, 7.5.

**NOTE 4**  The stair clear width is measured between handrails.
3.1 Categories of stair

3.1.1 limited-use stair
stair within a dwelling, suitable for use only in existing stair enclosures that are too small for a private stair and for use in loft and basement conversions

3.1.2 normal-use stair
stair intended for use by all users in or connected to a building

NOTE This covers both public and assembly stairs in previous editions of this standard and common stairs in blocks of flats.

3.1.3 private stair
stair within a dwelling, intended for use only by occupants and visitors

NOTE A private stair is commonly steeper and narrower than a normal-use stair, saving space at the expense of both safety and amenity.