Public Comments and Responses for Facility Design and Construction Module Code and Annex after the First 60-day Review Period

Informational Copy: NOT Open for Public Comment

1. Ericka Murphy, St. Louis County Dept. of Health (Clayton, MO)

- *Comment:*
  4.5.5.2.8.2 – *Local code* -- ADD TO THIS SECTION THE TEXT "The words 'NO DIVING" in 4-inch contrasting letters shall be placed with the international no diving symbol." – **REFERENCE:** ST. LOUIS COUNTY POOL CODE http://ww5.stlouisco.com/doh/environ/POOL%20CODE%20RULES%20REGS.pdf

  Changes to Code/Annex:
  Paragraph 4.5.19.4.1 amended to require "No Diving" verbiage and the international No Diving symbol at 25 ft (max) spacing.

- *Comment:*
  4.6.11.1 – *911 not available in all areas* -- REPLACE TO SAY " A telephone capable of directly dialing 911 or emergency personnel where 911 service is not available shall be provided and accessible to all AQUATIC VENUE users"

  Changes to Code/Annex:
  Not FD&C Module. Covered in Risk Management.

- *Comment:*
  5.9.2.9 – *Local code & chemistry of shallow bodies of water* -- WADING POOLS and spas shall have a controller to automatically monitor and adjust sanitizer residual and pH levels. – REFERENCE: ST. LOUIS COUNTY POOL CODE http://ww5.stlouisco.com/doh/environ/POOL%20CODE%20RULES%20REGS.pdf

  Changes to Code/Annex:
  Not FD&C Module. Covered in Monitoring and Testing.

- *Comment:*
  6.4.2.2.7 #5 – *IF WE TELL PEOPLE THAT THEY CAN'T CHANGE ON THE DECK, A CLEAN CHANGING AREA SHOULD BE PROVIDED. NO PARENT/CARE GIVER WANTS TO CHANGE THEIR BABY ON A BATHROOM FLOOR*. – REPLACE WITH "Diaper changing on the AQUATIC VENUE DECK is prohibited. Changing areas are

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provided in the restrooms." IN THE SECTION ABOUT RESTROOMS, THE COMMITTEE NEEDS TO ADD A REQUIREMENT FOR DIAPER CHANGING FACILITIES.

Changes to Code/Annex:
Not FD&C Module. Covered in Hygiene Facilities module.

2. Stephen Keifer, Oregon Health Authority (Portland, OR)

- *Comment:*
  GENERAL – *I believe the Federal government encourages or requires SI equivalents. --* Measurement units in SI are not provided or are not in the correct units. E.g. "cm" is not an SI unit; it should be "mm" or "m." "U.S. perm" is not given in SI units, which I believe could be "$ng \cdot s^{-1} \cdot m^{-2} \cdot Pa^{-1}$."

  Changes to Code/Annex:
  Recommendations implemented. U.S. perm left as it's often referred to and the SI equivalent is not widely recognized (though it's been added parenthetically).

- *Comment:*
  4.2.1.4.2 to 4.2.1.4.4.4— *No ordinary person would know what it means when you use "finish."--* Define what the "finish" is. The language should be obvious. Maybe use "freeboard:" which, I think is (as an ordinary person), a commonly defined definition related to the intention for "finish."

  Changes to Code/Annex:
  Additional description of "finishes" given in annex along with typical examples. 4.2.1.4 and 4.2.1.4.1 help also to describe what is intended and references to these two paragraphs have been added to 4.2.1.4.2 and 4.2.1.4.3 to help clarify.

- *Comment:*
  4.2.1.5— *What defines "slip resistance?" Do we use an OSHA definition or an ADA definition? Are we looking at wet or dry? --* OSHA defines a SCOF for a walkable surface of 0.5. ADA has raised that to a SCOF of 0.6 for general surfaces, with 0.8 for ramps. "Slip-resistant" usually means a SCOF of 0.5 dry. This is not always enough. The standards do not adequately identify what a safe "wet" surface SCOF is. I would suggest that for legal purposes you select an acceptable SCOF number, remembering that most pool surfaces are wet and are being used barefoot. I have seen some opinions that suggest 0.8 dry as a minimum to make surfaces safe when wet. Perhaps, because of the variation in measurements for the "Coefficient of Friction," a statement could be clarified that "pool floor surfaces must be 'slip resistant' when wet." Let the manufacturers and courts determine what it means. – REFERENCE: -Suggest maybe ASTM F-462-94, although I don't have access to review it. ADAAG

  Changes to Code/Annex:
  Refer to the 4.2.1.5 annex.

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- *Comment:*
  4.2.2.2.1 – *Reads better and allows me to determine condensation. "Condensation of water inside building surfaces" is hard to determine sometimes.* -- Suggest: "...to assist in preventi~~on~~**ing** the condensation of water **on** inside building surfaces... Provide SI equivalent of 0.2 U.S. perms.

  Changes to Code/Annex:
  Recommendations implemented. U.S. perm left as it's often referred to and the SI equivalent is not widely recognized (though it's been added parenthetically).

- *Comment:*
  4.2.2.2.3 – Needs SI equivalent.

  Changes to Code/Annex:
  Recommendations implemented. U.S. perm left as it's often referred to and the SI equivalent is not widely recognized (though it's been added parenthetically).

- *Comment:*
  4.5.3.2 – "And/or" is not appropriate. Pick one, I suggest "or."

  Changes to Code/Annex:
  No changes made. While it's agreed that under most circumstances both a hydrostatic relief valve and an under drain system are likely redundant, specific site conditions and design parameters may dictate that both are warranted.

- *Comment:*
  4.5.3.3.1 – *What does this mean? Since it says "should," it is permissive using the modern meaning of the word; and when is it "prudent?" When I am reviewing and approving pool plans, "prudent" is not often in my vocabulary. How do I enforce "should?" Does "should" mean "shall" or do we use "ought" to define its meaning? You're the experts. Please define "should" and "prudent." My experience as a regulatory official does not include the ability to evaluate these terms. Definition "prudent": "Wise in handling practical matters; exercising good judgment or common sense." If everyone was doing this correctly, you wouldn't need me or the MAHC. But who decides what is good judgement or common sense. Pool operators do not like it when the regulatory community can abitrarily determine this... based on "common sense" and the regulatory officials "good judgement." Common sense is also counter-political, so using it usually gets us in trouble with the politicians.* -- Don't use ambiguous terms. Define when they are allowed or prohibited. Don't use "and/or"; I think "or" is appropriate here. Can't think of anything "and: would cover that can't be resolved using "or." I know, using my common sense and good judgement that ACI has some technical specifications to address expansion and construction joints. I heard about their standards often growing up, from a materials engineer that was a close relative. For materials other than concrete have them follow the manufacturer's recommendations or industry standard for that material

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Changes to Code/Annex:
Agreed that 4.5.3.3.1 is not enforceable from a regulatory standpoint as stated in the original draft. This language has been moved to the annex as more of a design note. It should be left up to licensed structural engineers.

- *Comment:*
  4.5.4.1.2 – I would refer to the recent APSP -5 language change proposal, if I completely understand their reason for the change. -- *Might want to rethink this wording. Some pools do not have a "deep end," but a deep middle or some other configuration.*

  Changes to Code/Annex:
  Changed to the "deepest portion" of the pool and similarly, 4.5.4.1.1 has been changed to the "shallowest portion."

- *Comment:*
  4.5.4.2 – *Should there be some mention of the 2010 ADA requirements? It feels a little funny not mentioning something here.*

  Changes to Code/Annex:
  Reference to ADA added to 4.5.4.1.

- *Comment:*
  4.5.5.1 / 4.5.5.2 / 4.5.8.1 / 4.5.8.3.1 / 4.5.10.1 – See the comments about 4.2.1.5

  Changes to Code/Annex:
  Refer to the 4.2.1.5 annex.

- *Comment:*
  4.5.5.4 / 4.5.5.6 – *Many unenlightened designers and builders would assume that could this requirement could mean that the handrail could go down the middle of the stair tread. --* An "unobstructed" stair tread of the stated size might be appropriate.

  Changes to Code/Annex:
  "Unobstructed" added to 4.5.5.4

- *Comment:*
  4.5.7 – *Less experienced pool builders seem to overhang the rails fairly frequently. --* There is no mention of vertical alignment of grab rails. Rails installed to overhang the edge of the pool are difficult to use and could pose some degree of hazard. Propose they be mounted so the front edge is within 0 to -3" perpendicular to the plane extended upward following the wall of the pool.
  Paragraph added to address vertical alignment.

- *Comment:*
  4.5.8.6 / 4.5.8.7.1 / 4.5.8.8 – *4.5.8.6 Does this mean that the gutter has to be located*

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between 6 and 12 inches below the deck surface? 4.5.8.7.1. requires that the gutter "shall be used as a step, while 4.5.8.6 requires the height of the step or riser as 6 to 12 inches.. 4.5.8.7.1 How do you build a roll out gutter and recessed steps? 4.5.8.6 requires steps to a separation height of 6 to 12 inches. 4.5.8.7.1 require the gutter to be a step. 4.5.8.8 Wait... if you follow 4.5.8.8 it would appear that the gutter would not have to be used as a step, but must still conform to the construction and dimensional requirements. Does that comply with 4.5.8.7.1, which is prescriptive and allows me no choice but to consider the gutter as a step?-- These need some tweaking to allow for different types of gutter systems and reliminate the contradictions.

Changes to Code/Annex:
After some thought, 4.5.8.7.1 has been deleted. The intent was not to require that the gutter be a step and the selection of the word "considered" as the draft originally stated could have some different interpretations. So 4.5.8.8 will remain and the gutter "may serve as a step" provided the other requirements are met. If you have an open rollout gutter for instance, a ladder system likely be necessary.

- *Comment:*
4.5.10.3 – *Is a trench drain required? Can the drain have a raised overflow (e.g. like a handhold edge), or must it be constructed to create no tripping hazards? Do they have to follow the slope of the deck/pool wall? --* Describe more about what a trench drain looks like. I have seen several variations, some of which I don't like because they present a tripping hazard, coming out of the major design firms.

Changes to Code/Annex:
The following language added to 4.5.10.3: The trenches may be flat or follow the slope of the zero depth entry. Any handholds that present a trip hazard shall not be continuous along the zero depth entry.

- *Comment:*
4.5.13.1 – *Do we have to continue this fallacy? Modern gunite and shotcrete can be applied vertically. We do not have to provide allowances for lazy or inexperienced builders that cannot build a proper wall. There is absolutely no way the pool will crack from ice expansion, if it pool freezes. The NFSHSA standards have been around long enough to prove that vertical walls are even safe and buildable in deep areas. --* Propose +/- 3 degrees only

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.5.13.1&2 – *If there are any lifeguards reviewing this, they would know that structural support ledges must be carefully controlled or they will be used by non-swimmers to edge around the pool perimeter into deep water. The use of support ledges must be controlled to keep them deep enough to discourage use by poor swimmers. This design is seldom used in lifeguarded pools and usually shows up in small unguarded pools. The usual*

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construction standard is dangerous. Public fiberglass-walled and vinyl liner pools, if allowed by the AHJ, should be restricted to depths not exceeding the width of their wall panel after it is supported at the top and bottom. Maybe 4-foot water depth so they can slope to the drain -- The usual construction standard is dangerous. Public fiberglass-walled and vinyl liner pools, if allowed by the AHJ, should be restricted to depths not exceeding the width of their wall panel after it is supported at the top and bottom. Maybe 4-foot water depth so they can slope to the drain. Having said that, I think that lifeguarded pools with diving areas can consider some "underwater toe ledges" in the deep area under controlled circumstances and depths. These are not "support elements" and are supervised. (See below)

Changes to Code/Annex:
Sections just allowing for a +/- 3 degree tolerance. Toe ledges allowed and governed under a separate section.

- *Comment:*
  4.5.15 – Any restrictions? I have had proposals for infinity edges that have considered drops of more than 10 feet. They were proposed to be unsupervised and had proposed no protection to prevent "wall-walking. All our pools with this design utilize the edge as a "transfer wall," so they are not more than 19" above the deck/capture drain. A 19" fall is much different than a 10+' drop. Usually they also provide a way to drop the water slightly to allow the wall to be exposed for the transfer wall usage. Or was the "infinity edge" definition that was proposed, not to consider waterfall type "vanishing edges." (e.g. Lautner edges or zero-edge pools) If this is the case, the definition needs clarification to make this very clear.

  Changes to Code/Annex:
  A section has been added requiring that the height difference between the top of the wall and the adjacent deck or trench drain for the infinity water is no more than 30" to be consistent with building code for drops that do not require a guard rail.

- *Comment:*
  4.5.17 – See comments at 4.5.13.1 & 2 I think underwater toe ledges should only be installed in deep water in lifeguarded pools. Toe ledges should discourage non-swimmers and small kids from "wall walking." Perhaps prohibit the toe ledge in water that is "shallow," and adding some space (4 ft.?) between the break-in grade and where the wall can start.

  Changes to Code/Annex:
  Recommendation implemented. Requirement for 4 ft spacing at the 5 ft slope break added.

- *Comment:*
  4.6.1.3.1 – *"lux" is the unit typically used by lighting engineers. I think we should start talking their language, maybe with foot candle equivalents, if necessary. I am very pleased we are moving away from the undefinable "watts / s q. ft. It is a large improvement to move to an objective, measurable unit.*-- Add the SI equivalent = lux = 10.76 lux /fc

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(CONTINUED ON NEXT PAGE)
1) = ~53 lux or round to 50 lux (accuracy vs. precision)
2) = ~108 lux or round to 100 lux
3) = ~108 lux or round to 100 lux

Changes to Code/Annex:
Lux equivalents added in parentheses.

- *Comment:*
  4.6.1.5.1 – *See above* -- Provide SI equivalents = 161.4 lux

  Changes to Code/Annex:
  Lux equivalents added in parentheses.

- *Comment:*
  4.6.4.1 & 4.6.4.1.1 – *When is a drinking fountain installation "practical?"* -- How about "...provided inside the pool enclosure, accept when another location is approved on a case by case basis by the AHJ."?

  Changes to Code/Annex:
  Refer to 4.6.4.1 annex. This primarily addresses the situations where the outdoor seasonal facility is adjacent to a year-round rec facility and potential winterization / convenience issues.

- *Comment:*
  4.8.4.8.1 – *What is "sufficient"? Why have undefined requirements in the MAHC Is it really something that needs to be required? If it is, then "sufficient" is not enough.*

  Changes to Code/Annex:
  The word "Sufficient" has been removed and it reads that it shall be per manufacturer requirements.

- *Comment:*
  4.8.6.2.4 – *I think the present language is in violation of IFC requirements. The pathway cannot pass through a door that might be locked while the building is occupied, per the IFC. This means the pool is off-limits for exiting any part of the building other than the pool, pool area and areas within the pool enclosure. This is applicable for either guarded or unguarded pools.* -- Isn't it simpler to say that "emergency egress pathways from building areas not part of the pool enclosure may not pass through the swimming pool enclosure? "Areas with locked doors within the pool area must be provided hardware allowing escape, exiting in the direction of the pool's fire exits."

  Changes to Code/Annex:
  This section does not speak to doors at all, so it is not in conflict with IFC. Doors and gates are scoped elsewhere. This section has been reworded to read: "Pool ENCLOSURES must not block or encumber a required emergency egress path from

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other structures. Where a required emergency egress path enters ~~runs through~~ an area occupied by an outdoor POOL, ~~the~~ emergency exit pathways from the building(s) shall ~~be~~ continue on DECK of least equally unencumbered width, and continue to the ENCLOSURE and through GATES. Exit pathways shall be separated from ~~unguarded~~ POOLS ~~areas~~ not in operation. Such separation must meet the requirements of an ENCLOSURE. ~~Temporary or~~ Seasonal separation ~~ENCLOSURES~~ may be ~~used as applicable~~ employed at seasonally operated POOLS, subject to the same physical requirements of permanent ENCLOSURES."

- *Comment:*
  4.8.6.2.6 – *Does this mean, as the operator, I would be allowed to open the windows? If so, how far? What about if they are 10 feet above an accessible surface?*

  Changes to Code/Annex:
  Section modified to read, "where windows can be opened, they shall not open more than 4" and have a non-removable screen."

- *Comment:*
  4.8.6.2.7.2 – *I'm all for higher fences, but I can see that a 6-foot solid wood fence would restrict any possible emergency assistance from seeing into the pool to see the problem. --* Any thought about outdoor pools and maintaining sight lines from outside the pool enclosure to the water surface? Suggest that at least a side of the pool enclosure be of an enclosure material and design that allows persons outside the enclosure to observe the pool for the purposes of emergency assistance and supervision. This could be important for moms, spectators, security guards, maintenance personnel and pool supervisors. It might also discourage some of the unintended use of the pool by less well behaved persons for swimming after-hours, partying and vandalism.

  Changes to Code/Annex:
  Recommendation not implemented. The main purpose of enclosures is to discourage unintended access. It would be the designers and owners prerogative whether or not any part of the enclosure should be "see-through" for emergency assistance and supervision. There are many facilities whose main target demographic may want the privacy provided by a more solid enclosure to an outdoor pool discouraging voyeurism, etc.

- *Comment:*
  4.8.6.3.1 – *No language about lockable? I have to lock mainteance gates, but other gates can remain unlocked when the pool is closed?--* You require it for indoor pools (4.8.6.4.2). Pools need to be locked when closed. I'm not picky about how as long as it is effective. Pools with keys, key cards or keypads should also be able to be locked when closed. I have to deal with continuing problems at condo association pools, as an example, where the residents have access 24 hours a day because they have a key. There should be a way to disable the lock or have a chain and padlock to assure security

  Changes to Code/Annex:

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Recommendation implemented. All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position. All gates or doors shall be capable of being locked from the exterior. They shall be designed in such a way that they do not prevent egress in the event of an emergency.

- *Comment:*
  4.8.6.3.6 – "And/or" is a meaningless term. It can always be defined as "and" or "or." Do they need to do both things ("and'), or one of the things ("or").

  Changes to Code/Annex:
  Recommendation implemented. Changed to "individual pools or grade levels or both."

- *Comment:*
  4.8.6.4.3 – *The exception does not take into account two pools operating at different times of the day. Temporary emergencies can be compensated for. Routine operation should have permanent provisions to secure a pool separately* -- Reword or eliminate the exception. I can operate two pools continuously for 12 months per year, and have them open at different hours (e.g. Close outdoor pool at dusk, indoor open until 10:00 pm.)

  Changes to Code/Annex:
  Exception reworded so that only pools operating 12 months a year and on the same schedule have relief.

- *Comment:*
  4.9.1.9.3 – "and/or" is not the appropriate use. Use either "and" or "or." I believe "and" works here.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.2.8 – *Did I miss something? The code was discussing slide run-outs, then it seemed we were suddenly dealing with drop slides. This section needs a little bit of work to transition the topics easily and understandably. Until I read it for about the fourth or fifth time, I didn't realize you were talking about three types of slides here, in disconnected requirements.* -- Needs a little more indication that the topic changed from slide "run-outs," to "landing areas," to "drop zones:" then back to "landing areas;" "steps;" then back to "drop zones." Add something to make it easier to follow from one type of slide to the next. What you want to say is there, it is hard to shift gears without some transition

  Changes to Code/Annex:
  Recommendation implemented. The runout section has been split from the dropout section for better clarification.

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- *Comment:*
  4.12.5.2.1 – Add "(45.7 m)"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.6.4.1 – Provide SI (XX mm/min)

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.7.3 – Use SI. Suggest (760 mm) & (125 mm) the same in 2)

  Changes to Code/Annex:
  Section deleted.

- *Comment:*
  4.12.7.4 – Suggest (100mm)

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.7.8 – Suggest (380 mm)

  Changes to Code/Annex:
  Changed to 38 mm.

- *Comment:*
  4.12.7.12.1 – Use SI. Probably either (990 mm) or (1000 mm) or (1 m)

  Changes to Code/Annex:
  Changed to 1140 mm. Changed 4.12.7.12 to 1.0 m.

- *Comment:*
  Rest of Module – Use SI. "mm" and "m"; not "cm"

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  4.12.8 – Does a solitary sprayground in the middle of a park need an enclosure? What about an interactive fountain (no ponded water)? Does this section apply to spray pools using potable water and having no recirculation (Use once and dispose of)?

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Changes to Code/Annex:
The definition of spraygrounds has been updated. This standard, and 4.12.8, is only intended to regulate recirculated water intended for patron use and recreation. Enclosures are not required if there is not standing water.

- *Comment:*
  4.12.9 – Do we regulate interactive fountains. Do they need enclosures? If they pond water do they count as a wading pool? Does that require an enclosure?

  Changes to Code/Annex:
  This standard, and 4.12.9, is only intended to regulate recirculated water intended for patron use and recreation. Enclosures are required when there is standing water for a place intended for public bathing.

3. Steve Hawksley, Neptune-Benson (Coventry, RI)

- *Comment:*
  4.11.6.5 -- *Module is currently titled "Separation Tank for Regenerative Media" This is misleading as the media is not regenerative, it is the design of the filter that regenerates the media. To include all precoat filters including vacuum and pressure the title should be changed to "Separation Tank for Precoat Media Filters"* -- A separation tank shall be provided prior to discharge for backwash water from precoat filters using diatomaceous earth (DE) as a filter medium. For precoat filters using perlite or cellulose as a filter medium, the backwash may be discharged to the sanitary sewer unless directed otherwise by the local AHJ.

  Changes to Code/Annex:
  Recommendation implemented.

4. Beth Hamil, DEL Ozone (San Luis Obispo, CA)

- *Comment:*
  4.9.2.10.2 & 3 – *Typographical errors.*-- "60 air changes per hour" in sections 4.9.2.10.2 and 4.9.2.10.3 are typographical errors, it should be "6 air changes per hour" (per Uniform and International Fire Codes). – **REFERENCE**: Uniform and International Fire Codes

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.9.2.10.5.2 – *Incorrect information* -- should be 18-24" above the floor (not 5 feet) as ozone is heavier than air, and the measurement parameters are 0-2 PPM not 0.0125 range – **REFERENCE**: Industry Standards

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Changes to Code/Annex:
Recommendations implemented.

5. John Ireland, Myrtha Pools USA (Sarasota, FL)

- *Comment:*
  3.0 – *European Committee for Standardization* -- The European Committee for Standardization has implemented standards for "Risk Assessment" analysis with all of their new policies. Essentially, they are putting the onus on the individual owners to complete a project specific analysis for any proposed facility features that do not agree with the standards put forth. This practice encourages innovation, but puts the responsibility on the owner and designers to fully evaluate the risks and submit to the governing agency for a concurrency review. It is essentially a more thorough and formal process for special exceptions. This process has been adopted throughout the European Union with great success and we would recommend its implementation in one form or the other for the US. – **REFERENCE**: EN Standards

  Changes to Code/Annex:
  We agree that this type of process may improve overall health and safety in the long run but feel this cannot be accomplished at this time. During regular revision of the MAHC, such ideas need to be brought forth in implementable ways to determine if they become feasible with improvements in pool construction, maintenance, and training. The Regulatory Program Administration Module has provisions outlined to obtain a variance from the AHJ.

- *Comment:*
  4.2.1.1 –*American Concrete Institute & American Plaster Association* -- Concrete is not an "impervious" material without additives orsurface treatments. Recommend revising the statement to read, "Aquatic features shall be constructed of impervious and structurally rigid materials, which provide a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses / loads for full or empty conditions." – **REFERENCE**: ACI 318, ACI 350, and APA Manual

  Changes to Code/Annex:
  Deleted the word "other" before impervious.

- *Comment:*
  4.2.1.4.1 – *Industry Standards* -- Recommend the addition of the following language at the end of the statement, "in accordance with the professional society and / or manufacturer's recommendations." We feel it is critical that additional cleaning procedures for specific products need to be encouraged and included. This statement encourages that practice without going into unnecessary specifics.

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Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
  4.2.1.5 – *OSHA* -- Recommend defining what "an acceptable coefficient of friction" is. OSHA recommends a minimum static coefficient of friction (COF) of 0.5. –**REFERENCE:** Standard 1910.22

  Changes to Code/Annex:
  Refer to annex.

- *Comment:*
  4.2.1.5.1 – *American Concrete Institute & National Plasters Council* -- Please note that all cementicious surface are rough to the touch and capable of causing "injury or discomfort" during normal use. – **REFERENCE:** ACI 506 and NPC Technical Manual; Section 1.0

  Changes to Code/Annex:
  This paragraph has been deleted in its entirety.

- *Comment:*
  4.2.1.6 –*Industry Standards* -- There are a variety of pool systems in the market place with superior water proofing characteristics and equivalent structural integrity and puncture / cracking resistance to concrete. It is redundant to insist they be installed "on top of approved materials".

  Changes to Code/Annex:
  Section modified to allow approval of liners on top of non-approved materials by the AHJ.

- *Comment:*
  4.2.1.6.1 – *Industry Standards* -- Any damage to a pool (liner or otherwise) that bears a risk of cross-contamination or compromises the water tight integrity of the system should warrant shut down until the system is fully repaired. A crack in a concrete or shotcrete pool is as potentially dangerous to the health and welfare of the public as damage to a liner system. It is recommended that this requirement be universal across all technologies.

  Changes to Code/Annex:
  Recommendation not implemented. Cracks are addressed in 5.5.6.1 and when it's required that they be evaluated by a structural engineer. The intent of this standard is not to necessarily dictate that every pool needs to be an impermeable water retaining vessel. But the concern over liner pools is if the liner is compromised, it could harbor bacteria or algae.

- *Comment:*
  4.5.2.4 –*US Army Corps of Engineers* -- The installation techniques for shotcrete are not

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controlled enough to allow for the installation of an even slope to "drain to a common central location without leaving puddles". It is recommended that special provisions be required in such cases – **REFERENCE:** Standard Practice for Shotcrete EM 110-2-2005

Changes to Code/Annex:
Recommendation not implemented.

- *Comment:*
4.4.3.3.1 –*American Concrete Institute* -- Expansion and / or construction joints should be required to utilize additional water proofing strategies such as water stops and flexible joints materials; as they are subject to failure of water tight integrity. In addition, they should be regularly inspected for signs of failure. – **REFERENCE:** ACI 504R-90 (Guide to Sealing Joints in Concrete Structures)

Changes to Code/Annex:
This language has been moved to the annex, but the recommendation has been implemented there.

- *Comment:*
4.5.4.1.2 –*European Committee for Standardization* -- The requirement for an ingress / egress point at the deep end of the aquatic venue may be too restrictive in specific instances. It is recommended that a "Risk Assessment" type of analysis be required. – **REFERENCE:** EN Standards

Changes to Code/Annex:
It's not clear what specific instances are being referred to that would prohibit the installation of recessed steps or a ladder. No changes made.

- *Comment:*
4.5.5.4 –*European Committee for Standardization* -- It is recommended that each stair maintain dimensional harmony and tread slope continuity to ensure there is no user confusion in emergency conditions or for differently abbled access. -- **REFERENCE:** EN 13451-2

Changes to Code/Annex:
Agree in theory. However, the challenge often is with steps that are perpendicular to the slope of the pool floor. The bottom step's riser is often unable to be uniform in these situations, which are frequent.

- *Comment:*
4.5.6.2 – *Industry Standards* -- It is recommended that the location for anchoring hand rails is not specified. There are many successful systems that include anchoring in the gutter or other point. If the language was modified to read, "and anchored securely to provide easy access to facility users without violating other standards in the document regarding obstructions."

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Changes to Code/Annex:
Anchoring locations deleted.

- *Comment:*
  4.5.6.5.2 –It is recommended that the resistance criteria be further defined by "any direction", "worst case", etc. In addition, what is the failure criteria ("no breakage", "plastic deformation", etc.)?

  Changes to Code/Annex:
  The draft states "applied in any direction." Failure criteria is not meeting the 200 lb standard whether it's a result of breakage, corrosion, etc.

- *Comment:*
  4.5.7.2 –*Industry Standards* -- It is recommended that the location for anchoring grab rails is not specified. There are many successful systems that include anchoring in the gutter or other point. If the language was modified to read, "anchored securely to provide easy access to facility users without violating other standards in the document regarding obstructions."

  Changes to Code/Annex:
  Anchoring locations deleted.

- *Comment:*
  4.5.13.1 – *US Army Corps of Engineers* -- Shotcrete cannot effectively and consistently be installed to the proscribed tolerances. It is recommended that special provisions be required in such cases. – **REFERENCE:** Standard Practice for Shotcrete EM 110-2-2005

  Changes to Code/Annex:
  Recommendation not implemented.

- *Comment:*
  4.5.13.3 –*FINA* -- Rounded or radiused corners in both vertical and horizontal dimensions to eliminate sharp corners are not appropriate for competitive swimming pools. – **REFERENCE:** FR 2.4

  Changes to Code/Annex:
  Industry practice is to provide a minimum floor to wall cove in pool basins for sanitary purposes. This similar approach is made to walls which are required currently by many jurisdictions. Typically the wall corners are only rounded 1-2" which won't impact the race course and surveying.

- *Comment:*
  4.5.14.2 –Cantilevered decking is not required for skimmer pool type installations. The purpose of the original statement is not fully understood.

  Changes to Code/Annex:

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A deck that extends slightly beyond the vertical plane of the pool wall, similar to a coping stone handhold on many skimmer pools.

- *Comment:*
  4.5.15.4 –*Industry Standards* -- It is recommended that the statement be revised to read, "They shall be constructed of structurally rigid impervious material and designed to withstand loads imposed by pool water, pool patrons, and adjacent soil or structures." There are many technologies that are suitable for the purpose in addition to concrete and specifying concrete can be interpreted as unintentionally restrictive.

  Changes to Code/Annex:
  Same modifications were made here as to 4.2.1.1.

- *Comment:*
  4.8.3.3 –USA Swimming -- The minimum depth in most states for competitive high school swimming is 5.0 feet. Therefore, it is not recommended to have the minimum depth of water for starting platforms at 6 foot 7 inches. – REFERENCE: Facility Standards Section 103.2.2

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.3.6 – *Industry Standards* -- Clarification of this statement is recommended. There are a variety of manufacturers that utilize a single moment type post connections; which do not constitute as, "firmly secure and stable when in use" because of the potential for flexing

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under load. If this type of system is acceptable then perhaps it should be given its own criteria.

Changes to Code/Annex:
The MAHC agrees that the draft code language ("starting platforms shall be firmly secure and stable when in use") could be worded better and each starting block manufacturer will have their own tolerances for installation which can be different for different starting blocks (single post, double post, etc.). Deferred to the manufacturers here and re-worded 4.8.3.6 to state "Starting platforms shall be installed and secured per manufacturer's recommendations at all times when in use."

- *Comment:*
4.8.7.3 – *Industry Standards* -- Please clarify why the use of integral vacuum systems are prohibited.

Changes to Code/Annex:
For suction entrapment concerns.

- *Comment:*
4.12.7.8 –*Various State's Regulations* -- Many states and industry standards consider a gap of 1.5 inches to be an entrapment hazard. If the pool wall is true and the bulkhead movement accurate there should be no need for such an extreme gap. It is recommended that the recommended gap be no more than 0.5 inches to prevent entrapment.

Changes to Code/Annex:
This section was drafted while consulting with bulkhead manufacturers. 1.5" has historically been one of the major North American suppliers design standard and entrapment here has never been an issue to anyone's knowledge. Guide pads are necessary in most instances which are often 0.5". California is the only state that is believed to have similar standards and they require 3" gaps which has led to bulkheads getting out of control if there is an issue with guide pads.

- *Comment:*
4.12.7.12 & 12.1 – *Industry Standards* -- Please clarify the definition of "walkable area". The industry standard is a 4 foot wide total minimum width including the area occupied by starting blocks. If the definition of "walkable area" only includes the clear zone behind the blocks than the additional width would represent a major embarkation from the minimum standard and could entail significant additional cost to the construction of new facilities. Additional space would be beneficial to conducting competitive events, but clarification is needed in order to understand the intent of the statement.

Changes to Code/Annex:
The "walkable area" is intended to be the complete bulkhead width. It's true that in the U.S. most minimum bulkheads are 4'-0", but there as you get outside of the U.S.

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and/or work with some foreign manufacturers, many 1.0 meter wide bulkheads are used. It was these considerations that led to the current draft.

- *Comment:*
  4.12.8.2 –It is recommended that the following statement be added in order to improve the safety of the public, "Spraygrounds shall have a slip-resistant and easily cleanable surface; that shall be designed in order to ensure the comfort and safety of the public.
  Soft watertight surfaces are strongly recommended to prevent injury."

  Changes to Code/Annex:
  Recommendation implemented. The following language added: Any manufactured surfacing shall be deemed suitable by the manufacturer for aquatic and chlorinated environments.

- *Comment:*
  5.5.6.1.1 –*Industry Standards* -- It is recommended that any cracks in a concrete or shortcrete pool that could potentially be the source of water loss or intrusion be grounds to warrant the shutdown of the pool for immediate repairs.

  Changes to Code/Annex:
  Recommendation not implemented. While likely not intended, a majority of pools leak and are not a detriment to the health and safety of bathers. All structural cracks defined by this section will require the evaluation of a structural engineer for their determination on the safety of the pool.

6. Jim Dingman, UL (Northbrook, IL)

- *Comment:*
  4.2.2.3.3.1 – *There are other national codes in use by jurisdictions in addition to the IMC and IFC that address ventilation. They all should be noted in this section. The ventilation module should also be changed to reflect this revision (section 4.6.2.1.5 and section 4.6.2.1.15)* -- Ventilation system design for chemical storage rooms shall conform to either the International Mechanical Code or Uniform Mechanical Code, and either the International Fire Code or the Uniform Fire Code, and any applicable local codes.

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  4.3.1.1 – *This is a certification issue, not a standards issue. Adding the ANSI-Accredited wording limits acceptable certifiers to those that are of a higher level of competency - which is what you want in a code. Similar wording is used elsewhere in the MAHC.* -- All equipment used or proposed for use in AQUATIC FACILITIES governed under the Model Aquatic Health Code shall be of a proven design and construction, and shall be listed by NSF International, Underwriters Laboratories or other ANSI-Accredited certification organization.

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~~accredited standards facility~~ ~~where existing standards apply~~. **-- REFERENCE**: Examples of similar language are provided in sections 4.7.3.3.1.1 and 4.7.3.3.3.2

Changes to Code/Annex:
Recommendations implemented.

- *Comment:*
4.3.2.1 – *Basically, a repeat of section 4.3.1.1. If it is to be included here also, the wording needs to be the same as in section 4.3.1.1 above.* -- All equipment used or proposed to use in AQUATIC FACILITIES shall be of proven design and construction, and shall be listed by NSF International, Underwriters Laboratories or other ANSI-Accredited certification organization. ~~or an ANSI accredited standards facility~~ ~~where existing standards apply~~. -- **REFERENCE --** Examples of similar language are provided in sections 4.7.3.3.1.1 and 4.7.3.3.3.2

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
4.9.2.5.2.2.1 – *There are other national codes in use by jurisdictions in addition to the IMC. They all should be noted in this section.* -- The exhaust airflow rate shall be the greater of: 1) the OSHA requirements for working in such enclosed spaces, or 2) the amount needed to maintain the concentration of vapors or fumes below the PEL for the expected exposure time (defined by 29 CFR 1910.1000 (OSHA)) for each stored chemical, or 3) the amount specified by International Mechanical Code Sec. 502, or 4) the amount specified by the Uniform Mechanical Code Sec. 403.7, or 5) the amount needed to maintain the specified pressure difference

  Changes to Code/Annex:
  Recommendations implemented.

7. Pamela Scully, CT Dept of Public Health (Hartford, CT)

- *Comment:*
General – Many of the Design Sections listed are not permit for construction in CT per our current Design Standards, such as underwater benches, infinity edge pools, etc.. It is CT understanding that States can use the MAHC Code, but be more stringent.

  Changes to Code/Annex:
  Yes, this is accurate.

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- *Comment:*
  4.5.5.6 – *NO maximum dimensions in CT Standards* -- Eliminate maximum dimensions on T-1 and T-2 – **REFERENCE:** CT Public Swimming Pool Design Guide

  Changes to Code/Annex:
  It was felt by the committee that both riser and tread dimensions (minimums and maximums) be governed for accessibility and safety purposes.

- *Comment:*
  4.6.4.1 – *Editorial – in CT we allow Bubblers and Bottle water* -- A drinking fountain, or other approved means of supplying drinking water, shall be provided inside a swimming pool enclosure if practical. – **REFERENCE:** Editorial – our Code only requires that drinking water be provided, not specifically by a fountain.

  Changes to Code/Annex:
  Agreed. Alternative wording added.

- *Comment:*
  4.8.1.5.1.1 – *CT Design Standard* -- Perimeter Decks shall be 5 feet minimum……. -- CT Public Swimming Pool Design Guide Section 17.1

  Changes to Code/Annex:
  Jurisdictions across the U.S. are divided on this issue. Some state that 3 feet is acceptable, while others require 4 feet, 5 feet, 6 feet, and even 8 feet. 4 feet is the most widely used nationwide and was therefore adopted by the committee.

- *Comment:*
  4.8.2.1 – *Editorial AND CT Design Standards* -- It would be hard to determine the lifelong use of a diving facility at point of construction. Pools go from non-competitive use to competitive use without any formal notification. Thus designing a diving well based on use could be difficult. In CT we base the design standards on the length of the boards. Boards less than 14 feet have one set of standards and boards greater than 14 feet must comply with NCAA Standards. – **REFERENCE:** CT Public Swimming Pool Design Guide Section18.1- 18.5

  Changes to Code/Annex:
  True, but NCAA standards for instance are less stringent than NFSHSA in many aspects. If it is difficult to project the anticipated use during design for the life of the facility, then the designers and owners should argue for the most conservative standard.

- *Comment:*
  4.8.3.3 – *CT Design Standards* -- Diving platforms shall be installed in a minimum water depth of 4 feet 6 inches. – **REFERENCE:** CT Public Swimming Pool Design Guide Section 16.6

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Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.12.8.7 – *CT Design Standards* -- Five feet (preferably eight) of deck area shall be provided between a sprayground and any landscape area. – **REFERENCE:** CT Public Swimming Pool Design Guide Section 17.1

  Changes to Code/Annex:
  The current draft is requiring eight feet of separation.

- *Comment:*
  4.12.9.2 – *CT Design Standards* -- A barrier shall be provided to separate a wading pool from other pools. – **REFERENCE:** Condition of Approval for construction of all new wading pools in CT

  Changes to Code/Annex:
  Refer to 4.12.9.2 annex for rationale.

8. Terry Brannon, C.T. Brannon Corporation (Tyler, TX)

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- *Comment:*
  4.5.2.4 – *Editorial: Pools may have more than one low area separated by higher areas.* -- Pools shall be designed so that all parts of the pool are drained so that they do not leave trapped or standing water.

  Changes to Code/Annex:
  It is felt that the intent of the current draft addresses this comment. No standing water should be allowed inside of the pool structure(s).

- *Comment:*
  4.5.4.1 – *Editorial: Exception needed for wave pools and slide plunge pools* -- Exceptions to two entry requirements: wave pools

  Changes to Code/Annex:
  Specific ingress/egress requirements for wave pools and slide plunge pools are addressed in 4.12.2 and 4.12.3.

- *Comment:*
  4.5.4.1.2 – *Editorial: Exception needed for wave pools.* -- Exception to entry required in deep water: wave pools

  Changes to Code/Annex:
  Specific ingress/egress requirements for wave pools are addressed in 4.12.2.

- *Comment:*
  4.5.5.7 – The bottom riser of a pool stair may vary in height due to pool floor slope but not exceed the height of the other risers.

  Changes to Code/Annex:
  Recommendation implemented. However, the bottom riser is only restricted by the maximum allowable riser height. It is viewed as equal of a trip hazard whether it varies in the plus or minus direction from the other risers.

- *Comment:*
  4.5.8.7.1 – *Editorial: Not all gutter configurations are safe as steps. Certainly open gutters without grates are not.* -- A covered or grated gutter may be used as a step.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.14.1 – *Editorial: Provide for other hand hold types. The original 3 types would not ever be below the static water level as permitted here.* -- Where not otherwise exempted, every pool shall be provided with hand holds (perimeter gutter system, coping, cantilevered decking, horizontal bars, recessed hand holds) around the perimeter of the pool where the water depth at the wall exceeds 42 inches installed not more than 9 inches (22.9 cm) above

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or 3 inches (7.62 cm) below the static water surface.

Changes to Code/Annex:
Recommendation implemented. However, 42 inch water depth changed to 24 inches which is the threshold between wading pool water depths (Illinois has similar requirements, but they start at 30 inches).

- *Comment:*
4.5.14.4 NEW PROPOSED SECTION -- *Editorial: self explanatory* -- For therapy similar special fitness pools used under supervision, hand holds may consist of stainless steel or non-corrosive horizontal exercise (ballet) bars if the top of bar is installed not more than 9 inches above or 3 inches below the static water level.

Changes to Code/Annex:
Specific therapy pool design requirements would be in section 4.12.4. However, this was not added since it was viewed as a generally acceptable handhold for all types of pools. Refer to 4.5.14.1.

- *Comment:*
4.5.14.5 NEW PROPOSED SECTION – *Editorial: Provide for underwater recessed hand holds.* -- Horizontal recesses may be used for hand holds provided they are a minimum of 24 inches long, a minimum of 4 inches high and between 2 and 3 inches deep. Horizontal recesses shall drain into the pool. Horizontal recesses need not be continuous but consecutive recesses shall be separated by no more than 12 inches of wall.

Changes to Code/Annex:
Recommendation added as 4.5.14.1.

- *Comment:*
4.5.18.3.2 – *Editorial: Depth can be interpreted as horizontal distance from wall to nosing. Inches is consistent with other paragraphs in lieu of feet. (e.g. 4.5.16.4)* -- Underwater shelves shall have a maximum water depth of 24 inches.

Changes to Code/Annex:
Changed from feet to inches.

- *Comment:*
4.5.19.2.1 –<Add>Painting shall not be considered a permanent marking.

Changes to Code/Annex:
It was not felt that painted depth markings (while not ideal) should be prohibited. But a requirement stating that all illegible depth markings need to be replaced was added to this paragraph.

- *Comment:*
4.8.1.5.1.1.2 – *Editorial: This provision is too over reaching. There are conditions where a*

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raised beam is desirable and safe. Seating or transfer tier for example. -- <Delete>

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
  4.8.1.5.1.2 – *Editorial: Pools are sometimes built over bluffs or on high-rises. The rule as written is too restrictive for all conditions.* -- Perimeter decks shall be constructed around at least seventy five percent (75%) of the pool perimeter. Perimeter decks shall provide means of access to all portions of the pool. However, decks need not be contiguous with the pool perimeter and may divert around other pool structures such as water falls, landscape, diving boards, slides, and vanishing edges and the plunge basins associated with vanishing edges. EXCEPTIONS: Perimeter decks are not required for pools built against natural or man-made obstacles or where a perimeter deck would afford no improved access to the pool. Slide catch pools are required to have perimeter deck only on the egress side of the pool.

  Changes to Code/Annex:
  Recommendation no implemented. The AHJ has authority to grant exemptions (and they may be warranted for shallow water or narrow pools), but this module gives additional guidelines for equipment, slides, etc.

- **4.8.1.5.13 –** *Editorial: It appears an exception is made here for unguarded pools. Why?* -- <Delete>

  Changes to Code/Annex:
  Perimeter deck is required for guarding, therefore unguarded pools are viewed through a different lense. "Class C" unguarded pools have historically been viewed similarly.

- *Comment:*
  4.8.1.7.8 – *Editorial: Grammatical; could be misread.* -- Any bridge that does not have guard rails, ropes or a barrier shall require "NO DIVING" markings . . .

  Changes to Code/Annex:
  This section has been rewritten to require barriers due to the inherent elevations.

- *Comment:*
  4.8.1.7.6 – *Editorial: A ladder or ramp can safely provide access to an island.* -- <Add> " a ramp or ladder"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.3.3 – *Editorial: The proposed depth change is drastic and renders many existing*

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recreational pools out of compliance. Frequently, depth was determined by height of platform. -- Starting platforms shall be permitted only where the pool depth in front of the platform is at least 5 feet for a distance of 16.5 feet from the pool end wall. – **REFERENCE:** USA Swim Regulations for Facilities Article 103.2 (5 feet); NCAA Rules and Regulations for Competitive Swimming and Diving (4 feet); National Federation of State High School Associations (4 feet)

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.6.3.5 – *Editorial: current language sounds permissive and not required.* -- Exit doors or gates shall swing outward from the pool enclosure.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.7.7 – *Editorial: Add SHALL. current "should" language is permissive and not mandatory.* -- Any robotic cleaner power supply shall be connected . . .

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.9.1.8.3.1.2 – *Editorial: Although dyke is acceptable spelling it has social implications.* --

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(Replace dyke with dike.)

Changes to Code/Annex:
Recommendation implemented.

- **4.11.6.1 –** *Editorial: Not all sewage systems are municipal. Not all sewage systems will accept the load.* -- Wastewater from a swimming pool, including filter backwash water, shall be discharged to a sanitary sewer system having sufficient capacity to collect and treat the wastewater OR to an on-site sewage disposal system designed for this purpose. Wastewater shall not be directed to storm water systems without appropriate permits from state agency and U.S. EPA.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.4 – *Editorial: clarification of interior steps. Refer to following item:* -- Interior steps or stairs shall be installed in spas with water depths in excess of 24 inches.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.4.2 – *Editorial: Add requirement for exterior steps in some instances but allowing for seated entry.* -- Steps or benches may be used as part of these steps. Approach steps on the exterior of a spa wall extending above the deck shall also be required unless the raised spa wall is 19 inches or less in height above the deck and it is used as a transfer tier or pivot-seated entry.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.5.2 – *Editorial: No need to limit spas to recessed. Raised spas should be allowed.* -- Spas may be allowed adjacent to other pools.

  Changes to Code/Annex:
  Refer to 4.12.1.5 annex for rationale.

- *Comment:*
  4.12.1.5.3 – *Editorial: There is not necessarily a safety problem here in a properly designed pool. No need to restrict the designer or require barriers. Otherwise, the definition of barrier needs expansion. A separating wall not suitable for seating atop could be a barrier. It should not be limited to fencing.* -- Elevated spas may be located adjacent to other pools.

  Changes to Code/Annex:

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Refer to 4.12.1.5 annex for rationale.

- *Comment:*
  4.12.2.5.5 – *Editorial: "Step holes" is not a defined term. Recessed steps is defined in the Definitions and 4.5.7.3 describes grab rails.* -- If steps are provided instead of exit ladders or recessed wall steps with grab rails, handrails shall be provided . . .

  Changes to Code/Annex:
  Refer to 4.12.1.5 annex for rationale.

- *Comment:*
  4.12.2.6.1 – *Editorial: This is an exception to 4.5.4.1 and to 4.8.1.5.1.2* -- <Add> "Perimeter deck is not required on the catch pool sides where there is no egress."

  Changes to Code/Annex:
  No change made. Section 4.12 is intended to provide relief or a different set of requirements from the main body of the code for specialty pools.

- **4.12.2.8.3 –** *Editorial: No exception for drop slide.* -- There shall be a slide landing area in accordance with the slide manufacturer's recommendations.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.3.2.1 – *Editorial: cite exception to two entries, one in deep end.* -- Bathers must gain access to the wave pool at the shallow or beach end the provisions of 4.5.4.1.2 notwithstanding.

  Changes to Code/Annex:
  No changes made. Ingress for wave pools should only take place at the beach entry.

- *Comment:*
  4.12.3.2.2.1 – *Editorial: Shall is mandatory. Should is not. Is a handhold in water less than 42" functional?* -- These handholds shall be continuous around the perimeter of the pool where the water depth exceeds 42 inches at the wall.

  Changes to Code/Annex:
  Recommendation implemented. However, the minimum water depth was changed to 24 inches for consistency.

- *Comment:*
  4.12.3.2.3 – *Editorial: prohibit ladders or grab rails for similar reasons.* -- Ladders, recessed steps and grab rails shall not be allowed along the walls of a wave pool due to the entrapment potential. Handrails as required by ADA for accessible entries are acceptable in the beach entry. **– REFERENCE:** ADA 2010 Section 1009.3.3 and Exceptions 1 and 2 of

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this paragraph.

Changes to Code/Annex:
A new paragraph added (4.12.3.2.1.2) to address the necessity of handrails for ADA entry.

- *Comment:*
4.12.3.2.4 – *Editorial: conflicts with 4.12.3.2.1 (Entry only at shallow or beach end)* -- <delete>

Changes to Code/Annex:
No changes made. 4.12.3.2.1 speaks to entry or ingress. The referenced section states that these means shall only be used for egress.

- *Comment:*
4.12.3.2.5 – *Editorial: add two additional exceptions* -- The egress requirements in 4.5.4.1 (two entries required), 4.5.4.1.2 (egress required from deep end), and 4.5.4.3 (egress each side of wide pools) do not apply to wave pools

Changes to Code/Annex:
Recommendations implemented.

- *Comment:*
4.12.5 – *Editorial: Leisure rivers are only one type of current channel; expand application* -- Leisure rivers, activity rivers, current channels and vortex pools

Changes to Code/Annex:
Refer to glossary. "Leisure Rivers" refers to manufactured streams in which the water is moved by pumps or other means of propulsion to provide a river-like flow that transports bathers over a defined path that may include water features and play devices. This is intended to capture "leisure rivers," "activity rivers," and "current channels."

- *Comment:*
4.12.5.2.1 – *Editorial: Access to leisure rivers or similar current channels is often restricted to one location where tubes are provided. There should be no requirement to permit access or egress every 150 feet! Conflicts with 4.12.5.2.2* -- <delete>

Changes to Code/Annex:
This is not requiring that each point of access or egress be provided with tube supplies. This can still take place at one or two locations around a river, however a facility and the designer feels it would operate best. But it was felt that only a single point of access for a river of any distance is not a safe design approach. Upon review, it was not felt that there was a conflict between 4.12.5.2.1 and 4.12.5.2.2. Refer also to the annex.

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- *Comment:*
  4.12.5.2.3 – *Editorial: incorrect MAHC citation; handholds should be on both walls. Not one. Leisure rivers are typically 36" or less in depth.* -- Continuous hand holds in accordance with MAHC 4.5.14 shall be provided in rivers or other current channels where water depths exceed 42 inches at the channel wall. The top of channel or coping may meet this requirement if within 9 inches of the water surface. –

  Changes to Code/Annex:
  Section 4.12 provides additional requirements or relief from the main body of the design portion of the MAHC for specialty bodies of water such as rivers. Since rivers are narrow bodies of water (compared to general pools), a handhold on only one side is required.

- *Comment:*
  4.12.7.8 – *Editorial: conflicts with 4.12.7.3* -- <delete>

  Changes to Code/Annex:
  4.12.7.3 has been deleted.

- *Comment:*
  4.12.7.12.1 – *Editorial: Clarifies the width is not measured from back of platform .* -- If starting platforms are installed, the clear width of the walkable area of the bulkhead shall be at least 3 feet 9 inches, neglecting the platform.

  Changes to Code/Annex:
  Parenthetical clarifications were made to 4.12.7.12 and 4.12.7.12.1 to note that these dimensions are referring to the total width of the bulkhead.

- *Comment:*
  4.12.8.7 – *Editorial: Too restrictive and over reaching. Designers should be allowed to abut walls, buildings, landscape, shade structures, etc. Designers should not be forced to always incorporate an 8'0" wide deck. Only 4'-0" is required around pools! The land-scape may be elevated for example.* -- <delete>

  Changes to Code/Annex:
  Recommendation not implemented, however an exemption is given for landscape in elevated planters.

- *Comment:*
  4.12.8.8 – *Editorial: A spray-ground might be incorporated into the zero depth entry of a pool, for example.* -- <Add at end> The foregoing shall not be deemed to require separation or barriers for spray features or equipment intentionally incorporated into a pool structure, for example, a zero depth beach entry to a pool.

  Changes to Code/Annex:

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Section 4.12.8 only applies to spraygrounds as they are defined in the glossary. The situation described would not fall under the sprayground requirements.

- *Comment:*
  4.12.9.2 –<add at end> The barrier shall not be required to be a complete enclosure of the wading pool provided the shortest distance of travel between the wading pool around the barrier to the other pool, is a minimum of 15 feet.

  Changes to Code/Annex:
  Recommendation implemented

9. Louis Cirigliano, Breakwater Beach Waterpark (Seaside Heights, NJ)
10. Caryl Chase, City of Casa Grande (Casa Grande, AZ)
11. Frank Perez, NRH2O Water Park (North Richland Hills, TX)
12. George Deines, City of Garland Texas (Garland, TX)
13. Holly Osborn, City of Surprise (Surprise, AZ)
14. Richard Fuller, Hyland Hills Parks and Rec (Federal Heights, CO)
15. Sasha Mateer, Deep River Waterpark (Crown Point, IN)
16. Luke Borowy, H2O Indoor Water Park and Split Rock Resort (Lake Harmony, PA)
17. Taryn Eisenman, CoCo Key Water Resort (Mount Laurel, NJ)
18. Jim Basala, Lake County Parks Dept. (Crown Point, IN)
19. Lee Hovis, Tolomoto CDD (Ponte Vedra, FL)

- *Comment:*
  Glossary "Accessible Route" – *These standards are the law, not the guidelines* -- Accessible Route means ingress/egress standards as defined by the 2010 ADA Standards adopted by the Department of Justice

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  Glossary "Barrier" – *Typo* -- Change "prevent" to "preventing"

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  Glossary "Code" – *No need to provide a dictionary definition of code.* -- Either reference the MHAC or delete

  Changes to Code/Annex:
  Recommendations implemented.

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- *Comment:*
  Glossary "Cracking" – *This is not a definition.* -- Delete everything after the first sentence

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  Glossary "Dry Deck" – *In waterparks, many pools do not have any enclosure other than that around the entire facility.* -- As there is no definition of "Pool Enclosure" this definition is problematic

  Changes to Code/Annex:
  Refer to the definition of "enclosure."

- *Comment:*
  Glossary "Enclosure" – *Clarification* -- Delete "pool facility" and replace with either aquatic facility or aquatic venue

  Changes to Code/Annex:
  Recommendations implemented. "Pool facility" changed to "aquatic facility."

- *Comment:*
  Glossary "Flume Slide" – *Delete definition of either flume slide or water slide* -- What is the difference between a flume slide and a waterslide

  Changes to Code/Annex:
  Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".

- *Comment:*
  Glossary "Pool Slide" – Reference to CFR is incomplete

  Changes to Code/Annex:
  Recommendations implemented. Added "Title 16."

- *Comment:*
  Glossary "Peninsula / Wing Wall" – *Not part of a definition* -- Delete last sentence

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  Glossary "Spa" – *Definition is so broad it includes anything holding water* -- Redo definition

  Changes to Code/Annex:

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Definition modified.

- **Glossary "Waterslide" –** *First, reference to CFR is incomplete – no title – and reference Comment:*
  should be to the ASTM standard. Also, what is the difference between flume slide and water slide. Why 2 separate definitions? **--** "Waterslides" means an attraction as defined in ASTM F2376-08, Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide, 1.1.

  Changes to Code/Annex:
  Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".

- *Comment:*
  4.2.1.1 – *This is absurd. Most of these items are metal to begin with and many need to be soft/padded – not rigid and made out of concrete.* – Delete

  Changes to Code/Annex:
  Intended to read "aquatic venues" and not "aquatic features." Correction made.

- *Comment:*
  4.2.1.2.1 – *Not needed here but in the first or introductory section of the Code* -- This should be a general reg for the entire code.

  Changes to Code/Annex:
  Not changed at this time. Will consider as all modules are merged.

- *Comment:*
  4.2.1.2.3.1 – *Need to clarify that this is for pool design.* -- Permission in writing from the Authority Having Jurisdiction for use of a pool design shall be obtained…

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  4.2.1.3 – Change "POOL" to "POOLS"

  Changes to Code/Annex:
  Recommendations implemented.

- *Comment:*
  4.2.1.4.4 – *Define "POOL FINISH" Not sure what this term refers to.* -- "POOL FINISH" is capitalized but not defined in the glossary

  Changes to Code/Annex:

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- **"FINISH" is not capitalized and therefore not indicating that there is a corresponding glossary term.**

- *Comment:*
  4.2.1.6.1 – *Minor cut may not require total and immediate shutdown. May be able to operate pool without significant problems through end of the season.* -- If at any time the liner system is damaged or cut, the POOL should be shut down as soon as practicable until the system is repaired.

  Changes to Code/Annex:
  Agree that a pool could successfully operate with a "minor cut" to the liner. However, "minor cut" and "should be shut down as soon as practical" are too loose and can be left to many interpretations. And one of the main concerns isn't necessarily with physical patron safety or water loss, but with inhibiting the growth of bacteria.

- *Comment:*
  4.3.1.1 – *What does "equipment" mean? An aquatic facility can include concessions, shelters, etc – not directly related to the actual pool. Specific equipment man not be listed by any organization. Many aquatic venues in waterparks employ new technology which is not "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Non-aquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here. Not all of this equipment needs to be listed by NSF International.* -- This needs major clarification regarding the definition of "equipment".

  Changes to Code/Annex:
  Changed "aquatic facilities" to "aquatic venues".

- *Comment:*
  4.3.2.1 – *What does "equipment" mean? An aquatic facility can include concessions, shelters, etc – not directly related to the actual pool. Specific equipment man not be listed by any organization. Many aquatic venues in waterparks employ new technology which is not "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Non-aquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here.* -- This needs major clarification regarding the definition of "equipment".

  Changes to Code/Annex:
  Changed "aquatic facilities" to "aquatic venues".

- *Comment:*
  4.3.2.2. #2— *Appropriate equipment should be installed according to the manufacturers standards and as inspected by local building department. No need for a third party inspection here.* – Delete

  Changes to Code/Annex:

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Recommendation not implemented. Certification is critical for recirculation systems.

- *Comment:*
  4.5.2.4 – *Common central location is unclear. Does this mean only one drain in the pool or that all pool drains are connected to the common central location? Why do all drains need to be connected to the same central location?* -- Delete "common central location"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.3.2 – *Should not be mandatory* -- Change "shall" to "should"

  Changes to Code/Annex:
  Recommendation not implemented (it is believed that this comment was in reference to 4.5.3.3 and not 4.5.3.2).

- *Comment:*
  4.5.4.1 – *Not required and may be hazardous in non-traditional pools such as catch pools.* -- Either delete entirely or change to "All pools used primarily for recreational swimming"

  Changes to Code/Annex:
  Requirements for non-traditional pools or catch pools are addressed in 4.12.

- *Comment:*
  4.5.4.1.1 and 1.2 – *In many aquatic venues, there is not pool and many have the same depth of water throughout. Ingress/egress should be based on manufacturer requirements.* -- Change "aquatic venues" to "pools" used primarily for recreational swimming"

  Changes to Code/Annex:
  Manufacturers don't have ingress/egress requirements unless we're talking about waterslides, etc. These two sections are in the majority of current standards today and are more for smaller pools. For most pools, 4.5.4.3 would apply requiring ingress/egress every 75 feet.

- *Comment:*
  4.5.4.3 – *For pools such as catch pools, do not want access on the sides of the pool but rather at the end directly in front of the slide entry.* -- For POOLS used primarily for recreational swimming…

  Changes to Code/Annex:
  Requirements for non-traditional pools or catch pools are addressed in 4.12.

- *Comment:*
  4.5.5 – *This should be in accordance with local building codes.* -- Delete entire section

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Changes to Code/Annex:
Most building codes do not speak to nor govern steps inside of a pool.

- *Comment:*
  4.5.6 – *This should be in accordance with local building codes.* -- Delete entire section

  Changes to Code/Annex:
  Most building codes do not speak to nor govern steps inside of a pool.

- **4.5.6.5 –** *The ADA 2010 Standards have specific requirements. No need to repeat them here.* – Delete

  Changes to Code/Annex:
  ADA standards have specific requirements on spacing and their location, but not structural integrity.

- *Comment:*
  4.5.7.6 – *First of all, grab rails do not provide ADA access. The ADA 2010 Standards have specific requirements. No need to repeat them here.* – Delete

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.9.4.1 – *Ladders are not an ADA approved means of access. The ADA 2010 Standards have specific requirements. No need to repeat them here.* – Delete

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.11.1 – *The guidelines are not enforceable. They have been incorporated into the ADA Standards approved by the Department of Justice – which are enforceable.* -- Access for disabled persons shall conform to ADA Standards as approved by the Department of Justice

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.12.1 – *Not necessary in shallower pools.* -- Add "… in pools with greater than two feet of water depth.

  Changes to Code/Annex:
  Recommendation implemented.

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- *Comment:*
  4.5.12.1.3 – *AHJ should have authority to make any exception they see fit. No need to state it here.* – Delete

  Changes to Code/Annex:
  Recommendation not implemented.

- *Comment:*
  4.5.13.1 – *Non traditional pools should not be so limited.* -- POOLS used primarily for swimming …

  Changes to Code/Annex:
  Recommendation not implemented.

- **4.5.13.4 –** *Does this exclude peninsulas/wing walls??* -- ???

  Changes to Code/Annex:
  4.8.1.6 allows for the design / projection of wing walls and peninsulas. For clarification, these have been added to 4.5.13.4.

- *Comment:*
  4.5.14.1 –*Are there any exemptions set forth? Many pools that are not used primarily for recreational swimming do not require handholds and this would be an unnecessary expense. No reason for handholds on a wading pool, spa, etc* -- Unless otherwise exempted, POOLS used primarily for recreational swimming with not less than 4 feet of water depth,…

  Changes to Code/Annex:
  Exemption for wavepools. Exemptions for rivers (only one side) as stated in 4.12. Otherwise, all pool perimeter in water depths greater than 24 inches will require an acceptable hand hold.

- *Comment:*
  4.5.19.1.1 – *No good reason to place such depth markers on all pools. Catch pool depths are important to note at the top of a slide where people enter – not at the pool itself. Is there a need to put depth markers on wading pools?* -- POOLS used primarily for recreational swimming shall require depth to be clearly…

  Changes to Code/Annex:
  Recommendation not implemented. Catch pools are often used for other purposes besides sliding, such as learn-to-swim programming during off-peak hours. Depth markings will be necessary for all areas around pool perimeters except zero beaches as described in the MAHC. This is not a deviation from almost every local standard that is enforced today.

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- *Comment:*
  4.5.19.4.1 – *No reason to put this warning on catch pools which are entered by a slide. Also, no reason to use the no diving symbol in an area that does not allow pool access.* -- For POOLS used primarily for recreational swimming and with water depths of 5.0 feet or shallower, ……. with the exception that such symbol is not required in areas where an enclosure prevents access to the POOL.

  Changes to Code/Annex:
  Recommendation not implemented. See previous response to 4.5.19.1.1.

- *Comment:*
  4.5.19.5.2 – *What if there is no break – just a steadily sloping surface?* -- What does "break in floor slope" actually mean?

  Changes to Code/Annex:
  Then a depth marking will only be required per 4.5.19.1. A "break in floor slope" is where the slope of the pool floor changes. For example, between the shallow end up to a 5' water depth, the maximum allowable slope is 1:12. Beyond for deeper water, this maximum allowable slope is 1:3. At this interface there is a slope break.

- *Comment:*
  4.6.1.4.1 – *No reason to have lights on in every outdoor pool during daylight operations. Some small pools do not require lighting at all due to size or shallow depth.* -- Modify to exempt outdoor pools only open during daylight hours and pools of shallow depth.

  Changes to Code/Annex:
  Outdoor pools open only during "daylight" hours are exempted. Refer to 4.6.1.5.1.

- *Comment:*
  4.6.2.1.1 – *Clarification* -- Spell out National Electrical Code

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.6.4 – *Clarify what is considered a POOL ENCLOSURE* -- POOL ENCLOSURE is used repeatedly in this entire section but is not defined in the glossary

  Changes to Code/Annex:
  "Enclosure" was the glossary term rather than "pool enclosure." Modification to the glossary implemented.

- *Comment:*
  4.6.4.1 – *Not necessary.* – Delete

  Changes to Code/Annex:

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Recommendation not implemented. Refer to the annex for rationale.

- *Comment:*
  4.6.4.1.1 – *Not suitable for multi-venued facilities like waterparks.* – Delete

  Changes to Code/Annex:
  Recommendation not implemented. Refer to the annex. This is not intended to discourage multiple drinking fountains for large facilities like waterparks.

- *Comment:*
  4.6.4.3 – *Not sure what the requirement is here.* – Confusing

  Changes to Code/Annex:
  For example, a municipal facility that has a lap pool and a wading pool would only be required to have a minimum of one drinking fountain.

- *Comment:*
  4.6.4.4 – *Not necessary to specify the type of drinking fountain. That is a building code issue.* – Delete

  Changes to Code/Annex:
  Recommendation not implemented. In most jurisdictions currently, this is not under the purview of the building code and is in the local pool codes (though perhaps not to this detail).

- *Comment:*
  4.6.5.1 – *Clarify* -- What is a POOL ENCLOSURE?

  Changes to Code/Annex:
  "Enclosure" was the glossary term rather than "pool enclosure." Modification to the glossary implemented.

- *Comment:*
  4.6.5.2 – *Stick to defined terms* -- Replace "POOL" with "AQUATIC"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.6.7 – *Needs clarification in entire section* -- Define POOL ENCLOSURE"

  Changes to Code/Annex:
  "Enclosure" was the glossary term rather than "pool enclosure." Modification to the glossary implemented.

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- *Comment:*
  4.8.1.1.5 – *Should be in accordance with local building code.* – Delete

  Changes to Code/Annex:
  Recommendation not implemented. Pool decks are not addressed by most building code and are currently in most local pool codes.

- *Comment:*
  4.8.1.3.4 – *Typo* -- Change "receptacle" to "receptacles"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.4.3 – *Carpeting is a suitable material for Pool Decks and has been used in the waterpark industry for decades without problem.* -- Delete "POOL DECK"

  Changes to Code/Annex:
  Recommendation not implemented. Refer to annex.

- *Comment:*
  4.8.1.5.1.1 – *For many non-traditional pools, there is no need for perimeter deck on all sides. Many of these pools have enclosures/barriers that do not allow for perimeter decking.* -- PERIMETER DECK areas of pools used primarily for recreational bathing …

  Changes to Code/Annex:
  Exemptions are given in a few areas throughout the code for "non-traditional" pools and unguarded pools.

- *Comment:*
  4.8.1.5.1.2 –*For many non-traditional pools, there is no need for perimeter deck on all sides. Many of these pools have enclosures/barriers that do not allow for perimeter decking. Do not find any exceptions for non-traditional pools* -- PERIMETER DECK areas of pools used primarily for recreational bathing …

  Changes to Code/Annex:
  Exemptions are given in a few areas throughout the code for "non-traditional" pools and unguarded pools.

- *Comment:*
  4.8.1.5.3.1 – *Not necessary to include ADA requirements here. Also, the proper citation is to ADA Standards as approved by the Department of Justice – not the guidelines.* – Delete

  Changes to Code/Annex:
  This is intending to reference general accessibility (building) and not pool which doesn't speak to deck. Reference changed to simply "ADA".

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- *Comment:*
  4.8.1.5.3.3 – *Not necessary to include ADA requirements here. Also, the proper citation is to ADA Standards as approved by the Department of Justice – not the guidelines.* -- Delete all after "exits"

  Changes to Code/Annex:
  This is intending to reference general accessibility (building) and not pool which doesn't speak to deck. Reference changed to simply "ADA".

- *Comment:*
  4.8.1.7.5 – *Clarify that accessible does not refer to ADA.* -- Change to "if the ISLAND is designed for bather use.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.9.1 –*100 foot hose max is not a reasonable limit* -- Delete all after "POOL DECK"

  Changes to Code/Annex:
  Section modified to read "a hose of adequate length." The intent is just to ensure that all areas of the perimeter deck and pool deck can be washed down properly with a hose.

- *Comment:*
  4.8.4.2 – *POOL SLIDE and limitations are already defined in the Glossary – no need to repeat.* – Delete

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.3.1 – *Pool enclosure may be much different in a waterpark versus a traditional pool. Not all gates/doors in a waterpark outer enclosure are or should be self-closing – especially when staffed during operational hours.* -- Need to define "pool enclosure"

  Changes to Code/Annex:
  Recommendation implemented. All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position. All gates or doors shall be capable of being locked from the exterior. They shall be designed in such a way that they do not prevent egress in the event of an emergency.

- *Comment:*
  4.8.6.3.1.2 – *Not all gates/doors serve as pool/facility enclosures.* -- Except where staffed

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during operational hours, propping open gates or doors of an enclosure is prohibited

Changes to Code/Annex:
Recommendation not implemented. It's not believed that the code should state this.

- *Comment:*
4.8.6.3.3 – *Waterparks may have turnstiles that do form part of the overall facility enclosure. These are staffed and work quite well.* – Delete

Changes to Code/Annex:
Recommendation not implemented. Concern is not while they are staffed but when they aren't staffed or during closed hours. It's not intended to prohibit turnstiles, but a secure enclosure that meets the requirements of this standard are necessary either before or after the turnstiles to complete a secure pool enclosure.

- *Comment:*
4.8.6.3.6 – *Not sure what is meant by "a logical pool area" or "exit door". What is the door exiting to? In waterparks, there a few if any barriers between pools – where would these gates/doors be placed?* – Delete

Changes to Code/Annex:
Recommendation not implemented. Additional language added to the annex. This section is intended to address large facilities where there may either be multiple pools, multiple grade elevations, or both. Exit gates must be provided to permit adequate emergency egress. For example, a facility with 10 pools split between different grade elevations should have the required number of exits spaced reasonably around the perimeter and not all at one grade elevation.

- *Comment:*
4.9.1.2 – *This should be governed by local building code. No need for this specificity in this Code.* -- Delete entire section

Changes to Code/Annex:
Recommendation not implemented.

- *Comment:*
4.9.1.3.2 – Spell out NRTL

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.1.5.1 – *No need for such specificity in this Code. Should be in accordance with local building code.* -- Identification shall be provided as required by the AHJ

Changes to Code/Annex:

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Recommendation not implemented.

- *Comment:*
  4.9.1.8 – *Should be in accordance with local building code.* -- Delete entire section

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.1.8.2 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.1.9 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.1 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.2 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

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- *Comment:*
  4.9.2.3 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.4 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.5 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.6 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.7 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

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- *Comment:*
  4.9.2.8 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.9 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.9.2.12 – *Should be in accordance with local building code. No need for such specificity in this Code* -- Delete entirely

  Changes to Code/Annex:
  Recommendation not implemented. Most local building codes do not speak to these types of unique design circumstances surrounding aquatic facilities. But the MAHC defers throughout to local AHJs where it might be applicable.

- *Comment:*
  4.11.3.2 – *This does not cause a health hazard and is good practice in the face of the nationwide drought conditions.* -- Include discharge to filtration system

  Changes to Code/Annex:
  Not allowed to go to the pool filtration system. But minor modifications were made to try and clearly defer to the AHJ for review and approval of alternate ways to treat the deck drain water.

- *Comment:*
  4.11.6.1 – *In some aquatic facilities as Water World, some drain lines and backwash water are discharged to an on-site water treatment facility and the water used for irrigation purposes.* -- Add “or to an approved water recovery system”.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.15 – *Where staff is actively supervising a spa, staff should be making the decision to*

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engage the shut off – not bathers. -- Add "Such bather accessibility is not required where the SPAS are actively supervised during all hours of operation".

Changes to Code/Annex:
Recommendation not implemented. This is per current NEC.

- *Comment:*
4.12.2.1.2 – *Waterslide is already defined in the glossary.* – Delete

Changes to Code/Annex:
Language moved to the glossary definition.

- *Comment:*
4.12.2.2 – *Choose an item.* -- Should either call them waterslides or flumes but not both

Changes to Code/Annex:
Recommendation not implemented. Flumes are a component of the waterslide and have been independently defined in the glossary.

- *Comment:*
4.12.2.2.2 #2 – *Some waterslides are designed for some airborne activity* -- Riders must not become airborne unless the waterslide manufacture and operation safely supports such activity.

Changes to Code/Annex:
Recommendation implemented. Defers to the waterslide manufacturer.

- *Comment:*
4.12.2.4.2 – *Not all slides are designed to be perpendicular. Need to find one term and stick to it.* -- "Except as otherwise designed by the manufacturer, … " Also, should be using either "waterslide" or "flume", not just "slide".

Changes to Code/Annex:
Recommendation implemented. Defers to the waterslide manufacturer.

- *Comment:*
4.12.2.5.6 – *Clarification* -- Change "Department" to "AHJ".

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.12.3.2.2.1 – *This would require handholds in areas of very shallow water along the wave pool side walls. Absolutely not necessary. Should have a minimum depth before handholds are required.* – Delete

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Changes to Code/Annex:
This section has been modified to require handholds starting at a water depth of 24 inches.

- *Comment:*
  4.12.3.2.4 – *How can you have side wall ladders that do not project out? --* ???

  Changes to Code/Annex:
  Many wave pools have recesses in the wall for ladders.

- *Comment:*
  4.12.3.2.6 – *Not all wave pool models require a float line and float lines may be improperly used by bathers.* -- Add "if required by the manufacturer".

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.3.3.3 – *Audible warnings systems can be counterproductive as they may result in persons running to get into the wave pool or running in the shallow areas to get into the deeper areas – all as soon as they hear the sound.* – Delete

  Changes to Code/Annex:
  Recommendation implemented. This will be left to the discretion of the designer / engineer / owner.

- *Comment:*
  4.12.3.3.4 – *Already covered in 4.5.19 Also, no need for such signage where a barrier or enclosure prevents bather access to the wave pool and in zero depth or shallow areas.* – Delete

  Changes to Code/Annex:
  This is a deviation from 4.5.19 which is why it's mentioned here. No diving is permitted in wave pools regardless of the water depth. While barriers would exist along the deeper portion of wave pools, there would still be emergency egress ladders as stipulated in the code so the majority of the perimeter could be accessed by bathers. No diving signage is not required at the zero beach entry (similar to other zero beaches) and this exception was added to this section for clarification.

- *Comment:*
  4.12.5.2.1 – *Not necessary and not directly related to safety. Should be according to the approved design.* – Delete

  Changes to Code/Annex:

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Recommendation not implemented. The quantity / frequency of available points of access / egress are directly related to safety. Refer to annex for rationale.

- *Comment:*
  4.12.5.2.2 – *No safety justification for this in a shallow water leisure river. Counterproductive as bathers will hold onto handholds clogging up the river flow/access to others.* – Delete

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.5.2.4 – *No reason for decking on either side. Water World has a leisure river with no decking and it has operated safely for over 20 years.* – Delete

  Changes to Code/Annex:
  Recommendation not implemented. Refer to annex for rationale.

- *Comment:*
  4.12.8.12 – *Should be according to local building code. If the AHJ adopts the NEC, than it applies as set forth in the Code.* -- Delete

  Changes to Code/Annex:
  Recommendation not implemented.

20. Jared Troutman, Splash Kingdom Waterpark (Shreveport, LA)

- *Comment:*
  6.3.4.1.8.3

  Waterparks involve moving water and because of this fact there should be two separate 'MAHCs' for how flat pools are overseen versus waterparks.

  Changes to Code/Annex:
  Moving water such as river, slides, wave pools, etc. are addressed in separate categories under 4.12 as it's recognized that certain requirements or relief from portions of traditional pool code is necessary.

21. Jim Hayes, NC DHHS Division of Public Health (Raleigh, NC)

- *Comment:*
  4.5.18.1 – *Shelves or benches provide a shallow area attractive to non-swimming children,*

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who should not be enticed to fall into deeper water -- UNDERWATER SHELVES or benches shall not be constructed immediately adjacent to water deeper than 4 feet deep.

Changes to Code/Annex:
Recommendation implemented, but maximum depth of adjacent water changed to 5 feet consistent with the definition of shallow water.

- *Comment:*
  4.8.1.3.3 – *Connection of deck drains to the pool should be specifically prohibited for clarity* -- Direct connection between the POOL DECK drains and the swimming pool, sewer or plumbing drainage systems shall be prohibited.

  Changes to Code/Annex:
  4.8.1.3.3.1 states that deck drains are not allowed to drain to the pool, pool gutter, or pool recirculation system.

- *Comment:*
  4.8.1.3.5 – *Need to clarify storm drain covers with openings of 1 inch or greater are not appropriate for bare foot traffic.* -- Drain covers shall be suitable for bare foot traffic with openings no wider than one-half inch and easily removable with a simple tool to facilitate regular cleaning.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.5.1.3 – *Any obstacle on the deck should have a walkway around it so people can move quickly around the pool without having to reverse course. This is not limited to unguarded pools.* -- PERIMETER DECKS shall provide a walkway completely around the pool and provide sufficient access that the entire perimeter and depth is readily reachable by a pole and hook from the perimeter deck..

  Changes to Code/Annex:
  Recommendation not implemented. Refer to annex.

- *Comment:*
  4.8.1.6.1 – *If peninsulas are not designed to prevent them being walked on, they will be walked on and are part of the deck.* -- WING WALLS or PENINSULAS less than 18 inches (45.7 cm) in width shall not be considered a part of the PERIMETER DECK where the wall is capped by a handrail or otherwise constructed to prevent it being used as a walking surface.

  Changes to Code/Annex:
  Recommendation not implemented. The majority of wing walls are very narrow and short and primarily used to truncate stairs or reconcile slopes between adjacent

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portions of the pool and are allowed by nearly every local and state jurisdictions currently. And the vast majority of those do not require a handrail or something similar.

- *Comment:*
  4.8.4.2 – *This section unnecessarily restricts the height and flow rate for water slides.*

  Changes to Code/Annex:
  Only intended to govern smaller slides that are often found on the side of the pool perhaps supplied by a 1" pipe or garden hose, or those attached to an interactive play structure. Refer to section 4.12 for the majority of waterslide regulations.

- *Comment:*
  4.8.6.2.6 – *No need to restrict windows and balcony doors on upper floors and ground-level windows could open to 4 inches without providing access to the pool.* -- Ground floor Windows on a building that forms part of a POOL ENCLOSURE shall ~~not be operable by patrons~~. be child protected to prevent them being opened to provide more than a 4-inch opening.

  Changes to Code/Annex:
  Recommendation implemented. Where windows can be opened, they shall not open more than 4" and have a non-removable screen.

- *Comment:*
  4.8.6.2.7.2 – *A 4-foot barrier is sufficient to prevent inadvertent entry by small children. Should use ICC pool fence requirement* -- Enclosures shall not be less than ~~6~~ 4 feet (1.83 m) in height.

  Changes to Code/Annex:
  Recommendation not implemented. Refer to annex.

- *Comment:*
  4.8.6.3.5 – *Children outside a pool area attempting to push open an unlatched gate should close, rather than swing open the gate.* -- Exit gates or doors shall ~~be allowed to~~ swing ~~outward~~ away from the swimming pool except where emergency egress codes require them to swing into the pool enclosure

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.5.2 – *A barrier is needed between separate children's activity areas and swimming pools* -- Wading pools shall be separated from deeper pools by a fence or barrier. Gates on wading pool barriers shall open away from the deeper pool. Wading pools do not need to be separated from other wading pools by a BARRIER.

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Changes to Code/Annex:
Refer to 4.12.9 for barrier requirements between a wading pool and a swimming pool.

- *Comment:*
  4.8.7.3 – *Integral vacuum fittings should not be prohibited, but should have a self-closing cap unless there is evidence of injuries from that type of fitting* -- When used, integral vacuum fittings shall comply with IAPMO SPS 4 – *Special use suction fitting for swimming pools, spas and hot tubs (for suction side automatic swimming pool cleaners).*

  Changes to Code/Annex:
  Recommendation not implemented.

- *Comment:*
  4.9.1.1.4 – *No need for the fixture to be indoors if one is nearby.* -- At least one (1) hose bibb with backflow preventer shall be located in the equipment room or accessible within 50 feet of the equipment room door.~~area.~~

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.11.1.1 – *Some small pools on well water may serve a population of less than 25 people and would not meet the definition of a public water system.* -- Water serving a swimming pool shall be supplied from ~~a public water system as defined by EPA~~ potable water source.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.15 – *Spa emergency shutoff switch should not be required because it is unnecessary and will result in disinfection failures.*

  Changes to Code/Annex:
  Recommendation not implemented. Required per NEC for spas.

- *Comment:*
  4.12.7.3 – *A 5 inch opening will allow head or body entrapment that could be prevented if the opening is less than 4 inches.* -- The bulkhead shall be designed, installed and operated so that either: 1) The bulkhead extends down to the pool floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than ~~5 inches (12.7 cm)~~4 inches, or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than ~~5 inches (12.7 cm)~~4 inches..

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Changes to Code/Annex:
This section has been deleted.

22. Steven Chevalier, Tri-County Health Dept. (Greenwood Village, CO)

- *Comment:*
  Glossary "Natatorium" –"Natatorium" is not included in the glossary

  Changes to Code/Annex:
  Recommendation not implemented. Aquatic facility was determined a more consistent term with other modules and presumably more encompassing.

- *Comment:*
  4.5.13.1 – line 3, "11 degrees" should be "11°" just like it is in the next section

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.6.1.4 – Should there be a requirement for underwater lighting during periods that the pool is closed?

  Changes to Code/Annex:
  Recommendation not implemented. This is not current industry standard.

- *Comment:*
  4.6.4.1 – The language for the requirement for a drinking fountain provided in the code does not agree with the annex, where the annex states it is a requirement, and the code notes that it is optional.

  Changes to Code/Annex:
  This section has been modified. A drinking fountain is required or some alternative equivalent (e.g. bottled water) that may be acceptable to the AHJ.

- *Comment:*
  4.8.1.5.1.1 – *Existing State regulation* -- PERIMETER DECKS shall be 5 feet (1.524 m) minimum in unobstructed width around the POOL perimeter as prescribed in this section. – **REFERENCE:** Colorado Regulations

  Changes to Code/Annex:
  Jurisdictions across the U.S. are divided on this issue. Some state that 3 feet is acceptable, while others require 4 feet, 5 feet, 6 feet, and even 8 feet. 4 feet is the most widely used nationwide and was therefore adopted by the committee.

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- *Comment:*
  4.8.1.3 – The specific language provided in the code directing that deck drains shall discharge to sanitary sewer should direct readers to 4.11.3.2 from this section.

  Changes to Code/Annex:
  Internal reference added.

- *Comment:*
  4.8.1.6.3 – The statement in the second sentence is conflicting. Should the sentence start with "Since" instead of "While"? Also, the explanation provided may be more suitable for the annex.

  Changes to Code/Annex:
  "While" changed to "since."

- *Comment:*
  4.8.1.6.5 – The tops of the peninsulas "should be" crowned, or "SHALL" be crowned? A more definitive guidance is preferred.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.5 – Do wading pools need to be separated from other pools with a barrier? This section should direct readers to 4.12.9.2

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.9.1 – *Existing State regulation* -- Domestic water source points shall be provided in sufficient quantity, spacing and type to easily wash down PERIMETER DECK and POOL DECK areas using a maximum 50 foot (15.24 m) long hose. – **REFERENCE:** Colorado Regulations

  Changes to Code/Annex:
  Modification to the section which requires a hose of adequate length to easily wash all perimeter deck and pool deck. Allows longer hoses if available and practical.

- *Comment:*
  4.9.1.1.2 – Should a minimum/maximum slope be specified?

  Changes to Code/Annex:
  Recommendation not implemented. Eliminating standing water is the objective. Specific minimum and maximum slopes would depend on several parameters including finish and texture of the floor.

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- *Comment:*
  4.9.1.2 – Should minimum clearances from the standard specified in annex be included in the code?

  Changes to Code/Annex:
  Other standards are referenced where applicable rather than excerpting certain parts of these standards for use in the MAHC.

- *Comment:*
  4.9.1.5.1 – The code does not specify how the piping should be identified or marked – should it be color coded according to use, lettered according to what it is connected to, etc.

  Changes to Code/Annex:
  Suggested ways to meet this requirement added to the annex.

- *Comment:*
  4.9.1.5.4 – Is there a specific requirement for a piping diagram/schematic elsewhere in the code?

  Changes to Code/Annex:
  No.

- *Comment:*
  4.9.2.10.5.2 & 5.3 – One of these sections uses “parts per million” and the other uses “ppm”. They should either be the same or the first to use it should say “parts per million (ppm)” and then all subsequent references can be “ppm”

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.6 – Are depth markers required on both the vertical and horizontal walls for spas? This is not specified

  Changes to Code/Annex:
  Yes. Since it’s not mentioned, requirements would default to the main body of the design regulations which require both horizontal and vertical markings.

- *Comment:*
  4.12.8 – Are there provisions for a storm water diversion switch than can be activated during a storm event so the water in the treatment tank is not contaminated by runoff during storms?

  Changes to Code/Annex:

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No. 4.12.8.3 requires that sloping of the sprayground and surrounding deck will allow only the feature water to return to the reservoir. In the event of a storm, any rainwater that lands on the spraypad will drain to the reservoir if no diverters are provided. This would be similar to a pool.

- *Comment:*
  4.12.8 – Are there provisions for the requirement of a turbidimeter to be installed in the water treatment tank to monitor the water clarity as an additional water quality measure?

  Changes to Code/Annex:
  This would be addressed under the Disinfection and Water Quality module of the MAHC.

23. Kathleen Moore, Texas Dept. of State Health Services (Austin, TX)

- *Comment:*
  4.8.3.3 – *FINA does not require a depth of 6'7" for competition pools.* -- Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m) or in accordance with Competition Sanctioning Body such as FINA or NCAA. – **REFERENCE: FR 2.3 Depth** - A minimum depth of 1.35 metres, extending from 1.0 metre to at least 6.0 metres from the end wall is required for pools with starting blocks. A minimum depth of 1.0 metre is required elsewhere.

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be

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collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.12.1.5.3 – *Elevated spas are often constructed next to a pool having a weir that discharges water from the spa into the pool. Existing language appears to eliminate that type of construction or requires a fence between the spa and pool. By adding the definition of barrier to include the elevated portion of the spa wall in this subsection only, the need for a fence is eliminated* -- Elevated spas may be located adjacent to another pool as long as there is an effective barrier between the spa and the adjacent pool which can consist of the elevated portion of the wall and weir between the pool and spa.

  Changes to Code/Annex:
  Recommendation not implemented. That alone would not be classified as an effective barrier since the pool and spa would be adjacent to one another and the top of the spa could still be used for unintended access into the pool.

- *Comment:*
  4.12.5.2.1 – *Many facilities control entry/exit into a Leisure River in order to control the numbers in the river and to control the number of inner tubes and other aquatic play devices in the river. Requiring one every 150 ft. would necessitate a facility to put more staff at entry/exits and less staff on the deck as lifeguards.* -- Means of access/egress shall be located at intervals around the Leisure River in sufficient numbers to provide adequate entry/exit and as needed to control access into the Leisure River.

  Changes to Code/Annex:
  This is not requiring that each point of access or egress be provided with tube supplies. This can still take place at one or two locations around a river, however a facility and the designer feels it would operate best. But it was felt that only a single point of access for a river of any distance is not a safe design approach. A ladder or set of recessed steps would suffice. This should not have an impact on the quantity of lifeguards around the river. The overall quantity should still be determined by viewing angles and their ability to observe 100% of the surface area of the river. Each point of egress would not need to be staffed necessarily by a lifeguard. Refer also to the annex.

24. Henry Fryczynski, Scarlet Aquatics (Somerset, NJ)

- *Comment:*
  4.5.19.4.1 – I believe that the intent is to permit diving into water that is at least 5 feet deep. -- For POOL water depths ~~5.0 feet or~~ shallower than 5.0 feet, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for “NO DIVING” directly adjacent to the depth marker.

  Changes to Code/Annex:
  Not changed. Intent is 5 ft or less, not less than 5 ft.

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- *Comment:*
  4.8.3.2 – The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Joel Stager, Director, reports that the critical link to safe starting block starts is education. -- Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor. –
  REFERENCE: The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to:
  http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf

  Changes to Code/Annex:
  Agreed. Wording altered.

- *Comment:*
  4.8.3.3 –2m is the depth specified by USA Swimming and FINA for championship meets for the sake of maximum speed, not safety. Testing has demonstrated that diving off blocks into 4 feet of water is just as safe as deeper water. -- Starting platforms shall be installed in a minimum water depth of ~~6~~ 4 feet ~~and 7 inches (2.01 m)~~. **--** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf
  David Klossner, Natl Collegiate Athletic Association (Indianapolis, IN)

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies

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suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.3.3 – *National Collegiate Athletic Association ("NCAA") Rule 1-1-2-b-2 states in part "The water depth shall not be less than 4 feet (1.22 m) at the starting end of the racing course and should not be less than 3.5 feet (1.07 m) at the opposite end". This is the current playing rule that the NCAA Swimming & Diving committee has adopted, in light of what it considers to be a safe starting environment for starting off blocks by student-athletes of the collegiate age. NCAA Rule 1-1-2-a-1 states in part "a minimum water depth of 7 feet (2.13 m) is desirable for competition. " The NCAA Swimming & Diving committee adopted that language mainly for pools being constructed (with architectural plans after 9/1/1996) to allow for premium competition. Based upon information available and shared within the swimming community and other federations, it was determined that the 7 foot depth recommendation referred to was to allow elite competitors proper depth as it related to underwater swimming/kicking and for reducing water turbulence. The preferred pool depth of 7-foot (2.13 m) is based upon a preferred performance standard to create a "fast pool" experience designed for competitive swimming, not necessarily safety ones. Other similar national swimming governing bodies currently have established a minimum water depth of 4 feet. The NCAA monitors catastrophic injury through research conducted by Dr. Fred Mueller of University North Carolina and the National Center for Catastrophic Sport Injury Research. This research has documented just one cervical spine injury in 1983 during a practice drill which is no longer performed and have no reported catastrophic injuries or fatalities related to racing starts at the 4 feet level. Recent studies show that swimmers in competition adjust to pool depth by executing shallower starting dives in shallow water accommodating to the shallower water even though there was a smaller margin of error. Experienced swimmers completed shallower starts decrease the depth that their heads reach during racing starts. Additional conclusions included additional reviews may be needed and that less experienced athletes were less predictable on their start depths suggesting the importance of teaching and skill instruction prior to competing. --* Starting platforms should be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). – **REFERENCE:** Excerpted from research data compiled by Dr. Fred Mueller, Director, National Center for Catastrophic Sports Injury Research. NCAA Swimming and Diving 2012 and 2013 Rules. Published by the NCAA. ********* Racing Start Safety: Head Depth and Head Speed During Competitive Starts into a Water Depth of 1.22m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2010, 4, 365-378. ********* Competitive Swimmers Modify Racing Start Depth Upon Request. White, Cornett, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 187-198. ********* Racing Start Safety: Head Depth and Head Speed During Competitive Swim Starts into a Water Depth of 2.29m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 14-31.

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- *Comment:*
  4.5.19.4 – *Discussing starting platforms and diving regulations and optimal depth is misleading within the same context. References referring to the "5 feet litigation line for starting platform" as the safe water depth should be cited. --* This section needs significant revision and study by the technical committee. – **REFERENCE:** Racing Start Safety: Head Depth and Head Speed During Competitive Starts into a Water Depth of 1.22m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2010, 4, 365-378. ********** Competitive Swimmers Modify Racing Start Depth Upon Request. White, Cornett, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 187-198. ********** Racing Start Safety: Head Depth and Head Speed During Competitive Swim Starts into a Water Depth of 2.29m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 14-31.

  Changes to Code/Annex:
  Wording altered. The "No diving" markers are required at 5 ft and pertain to recreational diving, no competitive diving since few pools cater only to competitive swimming.

- *Comment:*
  Annex 4.8.3.1 – *This section contains misleading information that we would like to bring to*

your attention where it references use of "springboards and jumpboards". These two pieces of equipment are different from starting blocks that are used for competitive purposes. Springboards relate to diving boards that are used in a separate diving area and jumpboards are recreationally used devices that are more common in commercial pools and have little or no use in a competitive facility. The statistical information regarding these two pieces of equipment should not be misconstrued or otherwise misused when determining depths for starting blocks. References referring to the litigation and "the most conservative and safest" starting depth should be cited. -- This section requires significant revision and study by the technical committee based on recent published research. – **REFERENCE:** Racing Start Safety: Head Depth and Head Speed During Competitive Starts into a Water Depth of 1.22m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2010, 4, 365-378. ********* Competitive Swimmers Modify Racing Start Depth Upon Request. White, Cornett, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 187-198. ********** Racing Start Safety: Head Depth and Head Speed During Competitive Swim Starts into a Water Depth of 2.29m. Cornett, White, Wright, Willmott, and Stager. International Journal of Aquatic Research and Education, 2011, 5, 14-31.

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.12.7.3 & 4.12.7.8 – Please review these statements, as they appear to me to be contradictory. In one the space between a bulkhead and the pool walls seems to require at least 3 inches, and the other 1.5 inches.

  Changes to Code/Annex:

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Modifications made. 1.5 inches is recommended by bulkhead manufacturers between the bulkhead and the side walls. 4.12.7.3 has been deleted in its entirety.

25. Scot Hunsaker, Counsilman-Hunsaker (St. Louis, MO)

- *Comment:*
  Glossary "Cracking" –*Delete "Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel." Definitions typically don't have action statements*. -- "Cracking" means any and all breaks in the structural shell of a pool vessel. Such breaks shall be identified, evaluated, and repaired in a manner that will restore structural integrity and water tightness to the vessel. Cracks exhibiting any of the following qualities should be evaluated by a structural engineer:

  Changes to Code/Annex:
  Recommendation implemented. Only the first sentence remains in the glossary and the remainder is only in the body of the code.

- *Comment:*
  Glossary "Waterslides" –*This definition is the same as "Pool Slide". Later in the module, "Waterslide" is defined differently. Verify these two definitions.* -- "Waterslides" means an attraction having a configuration as defined in The Code of Federal Regulations (CFR) Ch. II, Part 1207, or is similar in construction to a playground slide used to allow users to slide from an elevated height to a pool.

  Changes to Code/Annex:
  Pool slide is intended to govern smaller slides that are often found on the side of the pool perhaps supplied by a 1" pipe or garden hose, or those attached to an interactive play structure. Waterslides are more traditional 15-20 ft + tall permanent structures. Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.

- *Comment:*
  4.2.1.1 –*Should be both full and empty conditions.* -- AQUATIC FEATURES shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or **and** empty conditions.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.2.2 –*Add USA Swimming and NFSHSA as recognized governing bodies.* -- Competitive type POOLS may have lane markings and end wall targets installed in accordance with FINA, NCAA, **USA Swimming, NFSHSA,** or other recognized standard.

  Changes to Code/Annex:

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Recommendation implemented.

- *Comment:*
  4.2.1.3 –POOL**S** shall be designed in such a way to maintain their capability to retain water.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.6.1 –*Damaged can be Potentially interpreted as faded or in other unintended ways*. -- If at any time the liner system**'s** is damaged **integrity is compromised** or cut, the POOL shall be shut down until the system is fully repaired.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.2.1.2 –*Do these exist? Recommend deleting.* -- Interior finish materials that become wet due to splashing or uncontrolled condensation shall not support the growth of biological CONTAMINANTS.

  Changes to Code/Annex:
  Modified to read "contribute to" the growth of biological contaminants.

- *Comment:*
  4.2.2.2.1 –*Is it reasonable that these extremes ("coldest outdoor conditions") be the design points? Typically it based on yearly averages.* -- Natatorium building envelope construction shall include a vapor retarder/ insulation arrangement to assist in the prevention of condensation of water inside building surfaces under the coldest outdoor conditions expected for the location at the design indoor temperature and the highest design indoor relative humidity.

  Changes to Code/Annex:
  Rather than the "coldest outdoor conditions" this section has been modified to design upon ASHRAE climate data.

- *Comment:*
  4.2.2.2.2.2 –*This is a means and methods direction and does not belong in a code.* -- ~~Unless specifically forbidden by the manufacturer, the paint or coating shall be applied in two or more coats.~~

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.2.2.3 –*Why is 0.1 perm acceptable here and 0.2 perm is acceptable in4.2.2.2.2?*

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Recommend consistent rating in both sections. -- Where a perforated interior-finish material is used in a natatorium, as for acoustic effects, the perforated material shall not be considered to be a vapor retarder unless it has a listed permeability rating less than 0.1 U.S. perm.

Changes to Code/Annex:
Recommendation implemented. Changed to 0.2 perm.

- *Comment:*
4.2.2.5.4 –*Can you "glaze" a window to minimize the risk of condensation? I think this might be bad terminology.* -- Natatorium windows shall be glazed to the interior side or be otherwise constructed to minimize the risk of uncontrolled condensation. – **REFERENCE:** Common types of glazing that are used in architectural applications include clear and tinted float glass, tempered glass, and laminated glass as well as a variety of coated glasses, all of which can be glazed singly or as double, or even triple, glazing units.

Changes to Code/Annex:
Section deleted. The terminology is correct; however, after further discussion, it was felt this would be best removed and some modest commentary on design practices should be added to the annex. It reads: "Windows are usually maintained above natatorium-air dew point to prevent condensation and mold growth by heated supply air flowing over them. Heavy window frames on the interior side interfere with the proper flow of this heated air by the Coanda effect (a corollary of Bernoulli's principle). There are many ways mechanically to address window condensation issues. Air supply can be dumped on glazing from both above and below. Fin tube heaters have also been effectively employed along sills in many instances."

- *Comment:*
4.3.1.1 –*Shouldn't say "all equipment." What about starting blocks, lane lines, pool paint?* -- **Where applicable, all** equipment used or proposed for use in POOLS governed under the Aquatic Health Code shall be of a proven design and construction and listed by NSF International, Underwriters Laboratories or other accredited standards facility where existing standards apply.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.5.2.3 – *Add USA Diving.* -- In water depths 5 foot and greater, the slope of the floors of all POOLS shall not exceed 1 foot (30.5 cm) vertical to 3 feet (91.4 cm) horizontal, except that POOLS designed and used for competitive diving shall be designed to meet the standards of the sanctioning organization (such as NFSHSA, NCAA, **USA Diving,** or FINA).

Changes to Code/Annex:
Recommendation implemented.

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- *Comment:*
  4.5.2.4 –*Possible misinterpretation could be that drains need to be "centrally located" in the mid-point of all pools and not the mid-point of the deep end.* -- POOLS shall be designed so that they drain to **drains** a common central location without leaving puddles or trapped standing water.

  Changes to Code/Annex:
  Section reworded to avoid potential misinterpretation.

- *Comment:*
  4.5.2.4.1 –*Possible misinterpretation could be that drains need to be "centrally located" in all pools.* -- ~~If the central location includes main drains~~, the entire area of the main drains may be level.

  Changes to Code/Annex:
  Paragraph removed.

- *Comment:*
  4.5.3.3.1 –*Recommend deleting. This is an engineering driven solution that is dependent on local soil conditions and means and methods.* -- Expansion and/or CONSTRUCTION JOINTS should be **only** utilized when prudent.

  Changes to Code/Annex:
  Paragraph removed from the code and placed in the annex with some additional language.

- *Comment:*
  4.5.5.4 –*Add tolerance to be consistent with 4.5.5.7.* -- Traditional rectangular stairs shall have a minimum uniform horizontal tread depth of 12 inches (30.5 cm), and a minimum tread width of 24 (61 cm) inches**, with a tolerance of 1/2 inches (1.27 cm) between adjacent risers.**

  Changes to Code/Annex:
  Recommendation not implemented. This paragraph only speaks to the treads whereas 4.5.5.7 speaks to the risers. Tolerance on risers is arguably more critical and more difficult to construct in the field especially when the stairs are perpendicular to a non-level pool floor slope.

- *Comment:*
  4.5.6.4 –*There doesn't appear to be a basis for the 10 ft spacing requirement and is not addressed in the majority of current standards. Suggest increasing this as a starting point / minimum requirement.* -- Stairs wider than 5 feet (1.52 m) shall have at least one additional hand rail for every **15 feet** 10 feet (3.05 m) of stair width.

  Changes to Code/Annex:

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Recommendation implemented. However, maximum width changed from 10 ft to 12 ft (not 15 ft) to be consistent with the current regulations enforced by the state of Michigan.

- *Comment:*
  4.5.7.5 –*Table 4.5.6.7 says 27". Should be coordinated.* -- The upper railing surface of grab rails shall extend above the POOL coping or POOL DECK a minimum of 28 inches (71.1 cm).

  Changes to Code/Annex:
  Recommendation not implemented. The table addresses handrails for pool stairs and ramps. Grab rails are for recessed steps.

- *Comment:*
  4.5.10.3 –*There is little benefit and high cost to this requirement which is not currently a standard in a lot of jurisdictions. Especially for small skimmertype wading pools, the cost is disproportionate to the project cost and may not serve any real purpose. Would this also apply to handicap ramps? It's not defined by the definitions. Suggest replacing "shall" with "recommend."* -- Trench drains **are recommended to** shall be extended throughout zero depth entries to facilitate surface skimming.

  Changes to Code/Annex:
  Recommendation not implemented. These trenches can be tied into skimmer systems which wouldn't be cost prohibitive by adding a surge tank and full gutter system.

- *Comment:*
  4.5.12.1 – *See:4.5.12.1.1* -- Floors and walls below the water line shall be white or light pastel in color such that a bather is visible on the POOL floor).

  Changes to Code/Annex:
  See response below to 4.5.12.1.1.

- *Comment:*
  4.5.12.1.1 –*In our research, of the 50 states only 2 address this item. This will significantly impact waterpark and leisure industry. Recommend a performance standard to visibility if this is required or delete.* -- The finish shall be at least 9 on the Munsell color value scale.

  Changes to Code/Annex:
  Minimum Munsell color value requirement modified to 6.5 to be consistent with the State of Wisconsin. Additional research has been suggested in this area for the relationship between pool finish colors, water clarity / turbidity, and underwater lighting as they relate to visibility (both physical safety and bacteriological safety).

- *Comment:*
  4.5.14.1 –*The State of Illinois is one state that does not require handholds in shallow areas which is fairly logical.* -- Where not otherwise exempted, every POOL shall be provided with

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hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter **where the water depths is 30 inches or greater and** installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level.

Changes to Code/Annex:
Standards modified to require handholds starting at water depths greater than 24 inches.

- *Comment:*
4.5.15.2 –*This limits the infinity edge to 32 ft in length or have a pool less than 16 ft in width. This would eliminate a significant portion of the infinity pools that have been designed to date. Recommend taking another look at these restrictive requirements. Also, it can be argued that shallow pools could come under different requirements.* -- Not more than fifty percent (50%) of the POOL perimeter shall incorporate an INFINITY EDGE detail, unless an adjacent and patron accessible POOL DECK space conforming to MAHC Section 4.8.1 is provided.

Changes to Code/Annex:
This section has been modified. More research is needed in the future on this topic, in conjunction with lifeguarding and bather safety. A limit of 30 feet will be enforced for deep water infinity edges and no maximum length for infinity edges in water depths 5 ft and shallower.

- *Comment:*
4.5.15.4 –*Incorrect reference.* -- Handholds conforming to the requirements of Section **4.5.14** 4.5.6 shall be provided for INFINITY EDGES, which may be separate from, or incorporated as part of the INFINITY EDGE detail.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.5.17.1 –*Can a ledge stick out from the wall if deep enough?* -- Where UNDERWATER TOE LEDGES are provided to enable swimmers in deep water to rest, or to provide structural support for an upper wall, they shall be constructed with slip-resistant materials.

Changes to Code/Annex:
Yes, as noted in the standards.

- *Comment:*
4.5.19.1.3 –*Similar standards are in place in other jurisdictions and they are often useless since the nearest place to post markings could be 30 ft + away from the pool.* -- Where depth markings cannot be placed on the vertical wall above the water level, other means shall be used so that the markings will be plainly visible to persons in the pool.

Changes to Code/Annex:

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Refer to annex.

- *Comment:*
  4.5.19.3.1 –*This prevents marking depths such as 3'-9". Does one round up to 4'-0" or round down to 3'-6"? There are consequences to both. Recommend modifying language to allow for markings to be within 3" of measured depth. Then leisure pools and other pools can be accurately marked with depth markers.* -- Depth markers shall be located to indicate water depth to the nearest **3** 6 inches (**7.6** 15.2 cm), as measured from the POOL floor 3 feet (91.4 cm) out from the POOL wall to the gutter lip, mid-point of surface skimmer(s), or surge weir(s).

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.6.1.7.1 –*"Avoid" is virtually impossible. Suggest changing language to "inhibit."* --
  Windows and any other features providing natural light into the pool space and overhead pool lighting shall be arranged to **inhibit** ~~avoid~~ glare on the pool surface that would prevent identification of objects on the pool bottom.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.5.2.1 –*Add structural columns to the list.* -- Unobstructed deck area 4 feet (1.22m) minimum in width shall be provided for access around diving equipment, special feature stairways (such as a WATERSLIDE), **structural columns,** and similar deck equipment.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.7.1 –*"Prevent" will be difficult, especially if it's allowed to be accessed by lifeguard personnel. The result would be barriers that would likely impact lifeguard observation*. -- An ISLAND not more than 18 inches (45.7 cm) in width shall be designed to **discourage** prevent a person from walking on the ISLAND **by not providing stairs or bridges to the ISLAND.**

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.2.1.2 –*Add figure reference.* -- If the venue does not have competitive diving, then the diving envelope must conform to the diving envelope standards of Figure **4.8.2.2.4.1.**

  Changes to Code/Annex:
  Recommendation implemented

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- *Comment:*
  4.8.3.3 –*Modify to be consistent with 4.5.1.9.4, and defer to governing bodies per annex and similar to the diving section.* -- Starting platforms shall be installed **according to the governing body having jurisdiction or** in a minimum water depth of **5 feet where no governing body applies** ~~6 feet and 7 inches~~ (2.01 m).

  Changes to Code/Annex:
  Partially agree. The "No Diving' Markers are required at 5 ft and pertain to non-competitive diving---few pools cater only to competitive swimming. Starting block depths have been altered for competitive diving. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.6.1.3 –*Typically small pools (hotel) typically do not have separate rooms for chemical storage and pool equipment.* -- ~~BARRIERS shall be provided between CHEMICAL STORAGE/ POOL mechanical spaces and areas accessible to the public, in accordance with local building CODES.~~

  Changes to Code/Annex:
  Acknowledged, but this section is stating that pool chemicals and equipment need to prevent public access.

- *Comment:*
  4.9.1.5.4 – *"to be provided" is awkward. Suggest change.* -- Valves shall be described as to their function and referenced in the operating instruction manual and wall-mounted piping

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diagram ~~to be prepared~~ **shall be provided.**

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.1.8.2.1 –*This is VERY common in practice.* -- ~~A door or doors shall not be installed in a wall between such equipment rooms and an interior chemical-storage space.~~

Changes to Code/Annex:
Recommendation not implemented. It may be common in practice, but it shouldn't be continued as it's not best practice and can pose a significant health/safety concern. Combustion equipment will eventually result in leaking carbon monoxide if chemical doors are left open and fumes are able to get to the combustion equipment.

- *Comment:*
4.9.2.1.6 –*The eyewash station should be allowed outside of the chemical room if desired, especially to keep functional and away from harsh chemicals.* -- In all rooms in which pool chemicals will be stored, an emergency eyewash station shall be provided. **The eyewash station may be provided outside of the chemical room as an alternative.** If more stringent requirements are dictated by the AHJ, then those shall govern and be applicable.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.2.2.3 –*Delete "by the application of a coating or sealant capable of resisting attack by the chemicals to be stored."* -- The floor or deck of the chemical-storage space shall be protected against substantial chemical damage. ~~by the application of a coating or sealant capable of resisting attack bythe chemicals to be stored.~~

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.2.4.4 –*This is VERY common in practice.* -- ~~Where a chemical-storage space door must open to an interior space, the door shall not open to a space containing combustion equipment, air-handling equipment, or electrical equipment.~~

Changes to Code/Annex:
Recommendation not implemented. It may be common in practice, but it shouldn't be continued as it's not best practice and can pose a significant health/safety concern. Combustion equipment will eventually result in leaking carbon monoxide if chemical doors are left open and fumes are able to get to the combustion equipment.

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- *Comment:*
  4.9.2.4.5.7.1 –*I'm not aware of any current jurisdiction where anything close is required in the industry.* -- ~~This alarm shall have a minimum output level of 85 dbA at 10 feet.~~

  Changes to Code/Annex:
  Recommendation not implemented. There aren't similar requirements in existing industry standards, but the intent is to do everything to make it as uncomfortable as possible for the doors to remain open under any unintended circumstances.

- *Comment:*
  4.9.2.5.2.3 –*I'm not aware of any current jurisdiction where anything close is required in the industry.* -- ~~Function of this exhaust system shall be monitored continuously by an audible differential-pressure alarm system which shall sound if the specified differential air pressure is not maintained for a period of thirty minutes.~~

  Changes to Code/Annex:
  Recommendation not implemented. There aren't similar requirements in existing industry standards, but the intent is to address the situation when a blower fails.

- *Comment:*
  4.9.2.6.2.2.2 –*I don't believe this to be true. Should read that the intake must be 20ft from any exhaust duct.* -- ~~This duct must end at a point on the exterior of the building, at least 20 feet from any air intake for breathing air, cooling air, or combustion air.~~

  Changes to Code/Annex:
  Recommendation not implemented.

- *Comment:*
  4.9.2.10.1 –*Why does ozone require its own room? Ozone DIN side stream needs to be defined.* -- Ozone ~~Rooms~~

  Changes to Code/Annex:
  Section modified to attempt to clarify that a dedicated room is not required. DIN side stream should be addressed by the Disinfection & Water Quality module.

- *Comment:*
  4.11.3.3 –*Should this reference 4.8.1.2 as written or 4.8.1.3? Neither section indicates any requirement for deck drain spacing.* -- Deck drains may be either area drains or linear drains. See subsection 4.8.1.2 for deck drain area, spacing, and other requirements.

  Changes to Code/Annex:
  Reference corrected.

- *Comment:*
  4.11.6.5 –*Would like to see a differentiation between DE and perlite so that perlite would not be subject to this requirement as it most often is not currently.* -- A separation tank

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shall be provided prior to discharge for backwash water from filters using **diatomaceous earth (D.E.)** ~~regenerative media~~, exceptions may be made by local AHJ.

Changes to Code/Annex:
Paragraph updated to distinguish between perlite / cellulose and DE.

- *Comment:*
4.12.1.1 –*Add "or reliefs" to indicate that this section governs when in conflict with the larger pool code preceding.* -- In addition to the general swimming POOL requirements stated in this CODE, SPAS shall comply with the additional provisions **or reliefs** of this section.

Changes to Code/Annex:
Recommendation implemented in 4.12.1.1, 4.12.2.1, 4.12.3.1, 4.12.4.1, 4.12.5.1, 4.12.6.1, 4.12.7.1, 4.12.8.1, and 4.12.9.1.

- *Comment:*
4.12.1.5.3 –*This goes against common industry practice to-date.* -- ~~Elevated SPAS may be located adjacent to another POOL as long as there is an effective BARRIER between the SPA and the adjacent pool.~~

Changes to Code/Annex:
Recommendation not implemented. Refer to annex for rationale. There are several codes enforced today that require separation between pools and spas for safety purposes which is what 4.12.1.5.3 and 4.12.1.5.4 are addressing.

- *Comment:*
4.12.1.5.4 –*This goes against common industry practice to-date.* -- ~~If an effective BARRIER is not provided, a minimum distance of 4 feet (1.22 m) between the POOL and SPA is required.~~

Changes to Code/Annex:
Recommendation not implemented. Refer to annex for rationale. There are several codes enforced today that require separation between pools and spas for safety purposes which is what 4.12.1.5.3 and 4.12.1.5.4 are addressing.

- *Comment:*
4.12.2.1.1 –*"Waterslide", using this term in this section relates back to what is the definition of waterslide.* -- In addition to the general AQUATIC FACILITY requirements stated in this CODE, WATERSLIDES and CATCH POOLS shall comply with the additional provisions of this section.

Changes to Code/Annex:
Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.

- *Comment:*
4.12.2.4.2 –*The only requirement should be that the lateral clearances required by the*

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manufacturer are not infringed upon by the pool geometry. -- ~~Slides shall be perpendicular to the wall of the POOL at the point of exit.~~

Changes to Code/Annex:
Paragraph modified to state that the slides shall be perpendicular to the wall of the pool at the point of exit unless otherwise permitted by the waterslide manufacturer.

- *Comment:*
4.12.2.5.6 –*Change "facility" to "venue" for consistency.* -- If the water slide FLUME shall end in a swimming pool, the landing area shall be divided from the rest of the AQUATIC **VENUE** ~~FACILITY~~ by a float line or as approved by the Department.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.12.2.8.3 –*Why would an exemption be made for drop slides? The annex does not explain. There is liability and risk to not following manufacturer's recommendations.* -- There shall be a slide landing area in accordance with the slide manufacturer's recommendations.

Changes to Code/Annex:
Recommendation implemented. Exemption for drop slides deleted.

- *Comment:*
4.12.5.2.4 –*This requirement is not typical in many states. It should be made clear that an interior island that can be utilized for lifeguarding purposes as defined in the code shall suffice.* -- A deck shall be provided along the entire length of the LEISURE RIVER.

Changes to Code/Annex:
Refer to the following paragraph which allows for access on only one side and can alternate between the outside and inside if necessary. Also, refer to the annex.

- *Comment:*
4.12.7.3 –*This is not the current industry standard. Is there science or data to suggest that there is currently an issue that should be addressed here? None that I'm aware of or addressed in the annex.* -- ~~The BULKHEAD shall be designed, installed and operated so that either 1) The BULKHEAD extends down to the POOL floor and openings between the BULKHEAD and POOL floor and walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm), or 2) There is at least 4 feet (1.22 m) of clearance between the bottom of the BULKHEAD and the POOL floor and openings between the BULKHEAD and POOL walls is at least 3 inches (7.62 cm) but not greater than 5 inches (12.7 cm).~~

Changes to Code/Annex:
Recommendation implemented. Section deleted.

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- *Comment:*
  4.12.7.4 –*This is not typical and I don't understand the purpose / benefit.* -- ~~A line of contrasting color at least 4 inches (10.2 cm) wide shall mark the bottom edge of the BULKHEAD.~~

  Changes to Code/Annex:
  Recommendation implemented. Section deleted.

- *Comment:*
  ANNEX 4.5.5.3 –*Verbiage clarification suggestions.* -- It is common, especially in high-end diving wells with 10-meter towers, for there to be "swim-out" stairs underneath the dive tower. This provision is allowing for those types of deep water stairs without requiring the stairs to continue down to the bottom of the pool (which **may** ~~would~~ be 17 feet **deep** and impractical in the diving well example).

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  ANNEX 4.5.19.4 –*"Case histories reveal that there are extremely few starting platform injuries to competitive swimmers where the water depth is deeper than 5 feet (1.5 m)." If this is the "science" and 5 feet is also the most conventional practice in the industry, why is the bar being raised to 6'-7" arbitrarily without the science to substantiate a significant improvement in safety?* -- The vast majority of current standards allow for diving off the side of the pool in water 5 feet (1.5 m) deep. Standards also allow diving off of starting blocks at 6 feet and 7 inches (2 m) (or even 4 feet (1.22 m) by some regulations as allowed by some governing bodies and permitted by this module's draft) and mandate 8 feet (2.44 m) off the pool deck. Water depths of at least 5 feet (1.5 m) are generally considered as safe for diving from the edge of a pool where the coping/deck is the typical 6 inches (15.24 cm) above the water surface. Starting platforms are located 18 inches (45.72 cm) to 30 inches (76.2 cm) above the waterline, with most at 29.5 inches (74.93 cm). Case histories reveal that there are extremely few starting platform injuries to competitive swimmers where the water depth is deeper than 5 feet (1.5 m). Because of this, 5 feet has developed into the litigation line for starting platform injury cases. If 5 feet is considered a safe water depth for a platform that is 18 inches or more above the water surface, then 5 feet should also be safe for diving from the side of a pool with 6 inches above the water surface. The main caveat remains that a person must be trained to use a shallow entry dive. The American Red Cross recommends 9 feet (2.74 m) of water depth based on analyses of spinal cord injuries[1]. The organization has clarified this recommendation to state "Be sure water is at least nine-feet deep unless performed with proper supervision and in water depths that conform with the rules of the concerned regulating body, such as USA Swimming, the National Collegiate Athletic Association (NCAA), the Amateur Athletic Union (AAU), the National Federation of State High School Associations (NFHS), YMCA of the USA and the international swimming federation (FINA)." In a summary of 194 neck injuries from deck level dives into inground pools, 86.6% where in water less than or equal to 4 ft; 99.0% were in water less than or equal to 5 feet (1.5 m). Only 1 injury occurred in water between 6 and

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7 feet—this supports keeping a diving depth of 5 feet at this time.[2]The same study investigated 74 neck injuries occurring with use of springboards and jumpboards. Of these injuries, 12.2% occurred in water less than or equal to 4 feet; 66.2% occurred in water less than or equal to 5 feet,; 94.6% occurred in water less than or equal to 6 feet all injuries occurred in water of 7 feet or less. These data support increased the diving depth under diving boards or starting blocks because of the increased height before entry and associated increased body velocity. Another study showed that 89% of diving-associated neck injuries occurred in water less than 5 feet.

Changes to Code/Annex:
The section mentioned is about :No diving" markers to be installed at 5 ft and does not pertain to competitive diving, just recreational. Section 4.8.3.3 refers to starting block depths and has been altered based on public comment. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  ANNEX 4.8.1.4.3 –*How would rubber surfaces typically found on splashpads or spraygrounds and their perimeters be viewed under this section? I suggest it gets examined by the committee and addressed in this section.* -- Carpet and artificial turf have been found to be inappropriate finish materials for the wettest area immediately around the pool, i.e. perimeter deck. Although the materials that carpet is manufactured from are durable and do not support mold growth, when they are installed over a relatively impermeable surface, water flows very slowly through the carpet. Soil and contaminants entering into the carpet are not easily removed. Since the carpet stays wet longer, and soil and contaminants remain in the carpet mold and algae growth is observed. Therefore carpeting is not an acceptable finish material in the wet perimeter deck. Finish materials for

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the perimeter deck should not block deck drains or impair water flowing to deck drains. Carpeting can be installed beyond the deck drains, i.e. dry deck.

Changes to Code/Annex:
This standard is not intended to list all approved materials, only those which are prohibited or not permitted. Rubber surfacing could be submitted for review and approval by the AHJ.

- *Comment:*
ANNEX 4.8.3.1 –*The recommended Olympic competition depth of 6'-7" is not for safety purposes, rather for "fast water". FINA supports starting blocks for the majority of their facilities under 5 feet of water depth.* -- The intent is to require 6 feet 7 inches (2 m) water depth unless there is a governing body (e.g. FINA, USA Swimming, NCAA, NFSHSA, etc.) that is applicable. FINA and NCAA allow 4 feet (1.22 m) at starting platforms. As is well documented in case histories and litigation, this depth is unsafe for high school age beginners. Five feet (1.52 m) is on the edge of safety for a high school age male to make a starting error. The most conservative and safest starting depth is 6 feet 7 inches or 2-meters. This is consistent with the recommended minimum starting depth for Olympic competition.

Changes to Code/Annex:
Disagree. Recent data is limited on competitive diving starts and injuries since progressive training for shallow dives has been implemented. The MAHC has altered the MAHC based on this and public comment but recommends further data collection and analysis to inform future decision making. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

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- *Comment:*
  ANNEX 4.8.7.8 –*If this is current industry or NEC standard, then I'm unaware of it. If not, are there documented cases where this has been an issue? Would we be infringing upon the regulatory scope of the NEC? This could also be difficult to achieve and/or costly for many facilities since the solution would be different for each pool.* -- The power cord length needs to be shorter than the distance between the receptacle and the edge of the pool in order to prevent the power supply from accidentally entering the pool water while connected.

  Changes to Code/Annex:
  Recommendation not implemented. Viewed as a safety concern, and reasonably implemented for new facility design moving forward.

- *Comment:*
  ANNEX 4.9.1.8.3.1 –*This may be viewed by authorities as either a safety hazard and/or an ADA issue.* -- Where a door or doors must be installed in a wall between an equipment room and a natatorium, the floor of the equipment room should slope back into the equipment room in such a way as to prevent any equipment-room spills from running under the door into the natatorium. Exceptions may include: 1) This may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor. 2) This may be met by a continuous dyke not less than four inches high located entirely within the equipment room, which will prevent spills from reaching the natatorium floor. *Note: Equipment-room floor drains may be required.* Even if pool chemicals and cleaning supplies are not in the equipment room, there is a very good chance that other fluids may be, e.g. ethylene-glycol heating fluids, petroleum refrigeration oils, polyol-ester refrigeration oils, alkyl-benzene refrigeration oils, other lubricants, caustic or acidic coil cleaners, etc.

  Changes to Code/Annex:
  Recommendation implemented. Note added that all designs shall be compliant with ADA as they may be applicable.

- *Comment:*
  ANNEX 4.9.2.5.2.3 –*I disagree with this requirement. This is not industry standard now, at least as far as I'm aware. And unless there is substantial case documentation for asking this change in the industry or from ASHRAE, then I believe this requirement should be removed.* -- Function of this exhaust system should be monitored continuously by an audible differential-pressure alarm system which should sound if the specified differential air pressure is not maintained for a period of thirty minutes.

  Changes to Code/Annex:
  Recommendation not implemented. There aren't similar requirements in existing industry standards, but the intent is to address the situation when a blower fails.

26. Joe Stefanyak, Jeff Ellis and Associates (Ocoee, FL)

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- *Comment:*
  General – "Aquatic Facility/Venue" should be used (as opposed to specific types) where appropriate, in order to broaden the scope of the intention. These are terms clearly established by the Code and the Code should address facility construction, not just "pool" construction. Not enough effort was put forth to consider all types of venues, and this is necessary throughout for the Code to be complete.

  Changes to Code/Annex:
  Agreed. Edited accordingly.

- *Comment:*
  Glossary "Barrier" – Term "Barrier". "Aquatic Facility/Venue" should be used as opposed to pool to broaden the scope of the intention. These are terms clearly established by the Code and the Code should address facility construction, not just "pool" construction. Not enough effort was put forth to consider all types of venues, and this is necessary throughout for the Code to be complete. Code appears to be written only with "pools" in mind, with all other venues as an afterthought. Not acceptable. Suggest: "… unfettered access (by children) to an aquatic facility or individual aquatic venue such as a swimming pool, wading pool, spa, among others…" also "…access from one area to another area within a facility/venue enclosure."

  Changes to Code/Annex:
  Agreed. Wording altered

- *Comment:*
  Glossary "Body of Water" – Term "Body of Water". Again aquatic venue should be used. Suggest: "…means any aquatic venue holding standing water, whether permanent or storable."

  Changes to Code/Annex:
  Agreed. Wording changed.

- *Comment:*
  Glossary "Chemical Storage Space" – Term "Chemical Storage Space". Why is this being limited to chemicals listed? Should be a blanket term covering all chemicals as defined by "Right to Know

  Changes to Code/Annex:
  Agreed. Wording altered.

- *Comment:*
  Glossary "Dry Deck" – Term "Dry Deck". Again use Facility/Venue" as there is a Dry Deck component to non-pool attractions. Suggest: "…surface areas within the aquatic facility/venue enclosure…"

  Changes to Code/Annex:

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Agreed. Wording altered

- *Comment:*
  Glossary "Enclosure" – Term "Enclosure". Again use Facility/Venue" as enclosures apply to all aquatic facilities. Suggest: "…surrounding and securing an aquatic facility"

  Changes to Code/Annex:
  Agreed. Wording altered

- *Comment:*
  Glossary "Expansion Joint" – Term "Expansion Joint". Again use Venue" as expansion Joints apply to all aquatic venues. Suggest: "…provided as part of an aquatic venue's construction, used to relieve…"

  Changes to Code/Annex:
  Agreed. Wording altered.

- *Comment:*
  Glossary "Flume Slide" – Term "Flume Slide". Why the need to differentiate between slide types? Why not refer to them all as waterslides as defined?

  Changes to Code/Annex:
  Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".

- *Comment:*
  Glossary "Flume Slide" – Term "Flume Slide". What is a "high water flow"? Suggest: …water flow of more than 100 GPM, & which do not exceed 10 feet in height…" This language is consistent with language found in definition of "Pool Slide".

  Changes to Code/Annex:
  Assume "Pool Slide" is being referenced. Pool slides are intended to govern smaller slides that are often found on the side of the pool perhaps supplied by a 1" pipe or garden hose, or those attached to an interactive play structure.

- *Comment:*
  Glossary "Flume Valleys or Dips" – Term "Flume Valleys or Dips". Suggest changing from "water attractions" to "…a specific part of a waterslide..." as these only apply to slides and no other feature/venue by definition.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  Glossary "Leisure Rivers" – Term "Leisure Rivers". Suggest changing from "water features" to "…that may include water aquatic features and play..." as features may be

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something other than water features.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
Glossary "Perimeter Deck" – Term "Perimeter Deck". Suggest changing from "swimming pool" to "…the edge of the aquatic venue also known as the wet deck..." as Code requires perimeter deck for non-swimming pool attractions as well.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
Glossary "Pool Deck" – Term "Pool Deck". Suggest changing from "Pool Deck" to "Venue Deck". Also change definition to read "…perimeter deck within the facility/venue enclosure..." as Code needs to address decking for non-swimming pool attractions as well.

  Changes to Code/Annex:
  Changed to aquatic facility. Pool Deck term left.

- *Comment:*
Glossary "Pool Slide" – Term "Pool Slide". CFR Ch. II, part 1207 makes no distinction between slide types by definition and reads: "…types or classes of products that are subject to this standard are those swimming pool slides manufactured, constructed, or imported for use in connection with all swimming pools, whether in-ground, on-ground, or above-ground, regardless of the materials of manufacture or structural characteristics of the slides." Therefore the Code of Regulations should not be cited here and there is no need for distinction between slide types.

  Changes to Code/Annex:
  Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.

- *Comment:*
Glossary "Pool Slide" – Term "Pool Slide". The defined term cannot be used as part of the definition. Delete it.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
Glossary "Pool Slide" – Term "Pool Slide". "…within the basin of a public swimming pool…" should not be allowed unless this Code addresses barriers underneath the structure and specific design, installation, and safety criteria.

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Changes to Code/Annex:
Recommendation implemented. A section requiring barriers to prevent access underneath pool slides where there are insufficient clearances has been added.

- *Comment:*
  Glossary "Splash Pool" –Term "Splash Pool". This is confusing as splash pool is what a slide catch pool is commonly referred to in the industry. Suggest Changing term to "Wading Pool" as there is no need to differentiate between pools that are 2' in depth vs.- those that are 18"

  Changes to Code/Annex:
  Definition deleted.

- *Comment:*
  Glossary "Splash Pool" –Term "Splash Pool". Reference to "flume type water slides" is confusing as this is too similar to "Flume Slide" as defined above but which is completely different Suggest Changing to "…small waterslides" as there is no need to differentiate between slide types

  Changes to Code/Annex:
  Definition deleted.

- *Comment:*
  Glossary "Spraygrounds" –Term "Spraygrounds". Suggest adding "…and where there is no standing water." to the end of the definition.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  Glossary "Sprayground Treatment Tank" –Term "Sprayground Treatment Tank". Suggest changing the term itself to "Sprayground Holding/Collection Tank" or "Sprayground Surge Tank" as there is no treatment taking place within the tank.

  Changes to Code/Annex:
  Recommendation implemented. Changed to "Collection" tank.

- *Comment:*
  Glossary "Wading Pools" –Term "Wading Pools". See comment above regarding combining with "Splash Pool" definition, as there is no need for separation of the two.

  Changes to Code/Annex:
  Recommendation implemented. Splash pools have been eliminated.

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- *Comment:*
  Glossary "Waterslides" –Term "Waterslides". As currently defined by CFR reference and added language, slides with run-outs are not included in the definition. Suggest adding "… or deceleration area (run-out)." to the end.

  Changes to Code/Annex:
  Run-outs have been added to the expanded definition.

- *Comment:*
  4.2.1.1 –"Aquatic Feature" is not the correct terminology, as by definition this would include things like squirt guns, tipping buckets, and padded kiddie slides all need to be impervious and rigid? This makes no sense based on the definition of aquatic feature above...

  Changes to Code/Annex:
  Changed to Aquatic Venues.

- *Comment:*
  4.2.1.2 –Not possible as written using Aquatic Feature term. Many "features" need winterized and/or removed for winter storage.

  Changes to Code/Annex:
  Applies to Aquatic Venues, i.e. pools.

- *Comment:*
  4.2.1.2.2 –What about noncompetitive type pools? Can they not have lane markings? This should be broadened to include all pools as this is an unnecessary and unfair restriction.

  Changes to Code/Annex:
  Changed to completive or lap pools.

- *Comment:*
  4.2.1.2.3 –The word design is confused with actual architectural/engineering design and should be changed. Suggest using "graphics"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.2.3 –Should apply to all aquatic venues not just pools.

  Changes to Code/Annex:
  Recommendation not implemented. Paragraph applies to pools, which are independently defined in the glossary.

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- *Comment:*
  4.2.1.2.3.1 –Again, the word design is confused with actual architectural/engineering design and should be changed. Suggest using "graphics"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.3 –Again "Pool" should be replaced by "Venue" as we must think on a broader scope.

  Changes to Code/Annex:
  Recommendation not implemented. Paragraph applies to pools, which are independently defined in the glossary.

- *Comment:*
  4.2.1.4.2 –Definition of a "Skimmer Pool" is needed. Not a common industry term or reference.

  Changes to Code/Annex:
  Definition will be added to glossary of the complete MAHC on the final round of public comment.

- *Comment:*
  4.2.1.4.4 –"If dark colors are utilized for the POOL finish, the POOL finish shall not exceed a maximum height of 12 inches (30.5cm)". As written this suggests the remainder of the pool wall does not need to be finished. This needs to be reworded to clarify entire pool needs finished.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.5 –"…acceptable coefficient of friction" needs defined, either by reference or Code entry.

  Changes to Code/Annex:
  Refer to the annex.

- *Comment:*
  4.2.1.6.1 –Depending on location and what the damage is, complete shutdown may not be needed. Must define damage requiring shutdown more clearly...

  Changes to Code/Annex:
  Paragraph updated.

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- *Comment:*
  4.2.1.7 –Many existing pools have a layer of sand on the bottom to serve theme aspects is this no longer acceptable?

  Changes to Code/Annex:
  Yes, as the current draft reads, this would not be acceptable for new construction moving forward.

- *Comment:*
  4.2.2.1.1 –"Natatorium" needs defined

  Changes to Code/Annex:
  Definition added to glossary.

- *Comment:*
  4.2.2.1.2 –"Uncontrolled Condensation" needs defined

  Changes to Code/Annex:
  This paragraph has been removed.

- *Comment:*
  4.3.1.1 –What does "equipment" mean? An aquatic facility can include concessions, shelters, etc. – not directly related to the actual pools/venues. Specific equipment man not be listed by any organization. Many aquatic venues, especially in waterparks, employ new technology that is not of "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Nonaquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here. Not all of this equipment needs to be listed by NSF International.

  Changes to Code/Annex:
  This paragraph has been updated. It states "where applicable, all equipment used or proposed for use in aquatic venues…."

- *Comment:*
  4.3.2.1 –What does "equipment" mean? An aquatic facility can include concessions, shelters, etc. – not directly related to the actual pools/venues. Specific equipment man not be listed by any organization. Many aquatic venues, especially in waterparks, employ new technology that is not of "proven design and construction". ASTM provides standards for waterslides but does not "list" them. Nonaquatic related items should not be included under this section. Use of term "aquatic facility" is way too broad here. Not all of this equipment needs to be listed by NSF International

  Changes to Code/Annex:
  This paragraph has been updated. It states "where applicable, all equipment used or proposed for use in aquatic venues…."

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- *Comment:*
  4.5.1.1 –Change all uses of "pool" to "Venue".

  Changes to Code/Annex:
  Recommendation not implemented. Pools are independently defined in the glossary.

- *Comment:*
  4.5.2.4 – This should be objective and not prescriptive. Venues do not need to drain entirely to one central location as long as the drainage can be achieved without puddles or standing water.

  Changes to Code/Annex:
  This section has been amended.

- *Comment:*
  4.5.3.1 –Suggest changing to "…withstand the reasonably anticipated loads imposed by POOL water, POOL patrons, and adjacent soils or structures." Earthquakes for example may not be withstood.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.4.1 –Not necessary and may be hazardous in non-traditional pools such as catch pools.

  Changes to Code/Annex:
  Recommendation not implemented. There are exemptions and reliefs from these and other requirements for "non-traditional" pools in section 4.12.

- *Comment:*
  4.5.4.1.2 –Again, many factors must be considered here such as type of venue and safety/need of doing so.

  Changes to Code/Annex:
  Recommendation not implemented. There are exemptions and reliefs from these and other requirements for "non-traditional" pools in section 4.12.

- *Comment:*
  4.5.4.2 –Add lifts and transfer stations here or are lifts/transfer stations not acceptable so we need 3 means to comply with ADA?

  Changes to Code/Annex:
  This is intended to be independent of the ADA requirements which have been added as a reference to 4.5.4.1.

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- *Comment:*
  4.5.4.3 –How does this apply to a Lazy River for example? Does a lazy river that is 1/2 mile long needs access/egress every 75 feet. Overly Burdensome and Unnecessary

  Changes to Code/Annex:
  Recommendation not implemented. There are exemptions and reliefs from these and other requirements for rivers in section 4.12.

- *Comment:*
  4.5.5 –This entire section should be in accordance with local building codes.

  Changes to Code/Annex:
  Recommendation not implemented. Local building codes do not govern stairs inside swimming pools.

- *Comment:*
  4.5.5.2 –Add "…on both the top of horizontal edges and leading vertical edges." to the end of the entry.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.6 –This entire section should be in accordance with local building codes.

  Changes to Code/Annex:
  Recommendation not implemented. Local building codes do not govern stairs inside swimming pools or pool railings.

- *Comment:*
  4.5.6.5 –Reference should be made to the specific ADA standard here and not to MAHC sections.

  Changes to Code/Annex:
  Recommendation not implemented. ADA speaks to spacing requirements, which the MAHC defers to ADA. However, structural requirements of those railings are not addressed in the ADA standard.

- *Comment:*
  4.5.7.6 –Reference should be made to the specific ADA standard here and not to MAHC sections.

  Changes to Code/Annex:
  This paragraph has been deleted. This was included as an oversight initially since grab rails are not an acceptable means of access per ADA.

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- *Comment:*
  4.5.8.7.1 –This entry causes a problem with gutter being less than required minimum step height to go from gutter to deck if defined as a step. Many pools have only a 2" step up to deck from gutter surface, which would make them noncompliant with this Code as written.

  Changes to Code/Annex:
  This section has been deleted, but more to just merge with 4.5.8.8. If we were to make the gutter meet all of the recessed step requirements, only deck level or fully recessed gutters would be acceptable due to both the elevation and set back differences between many gutters and decks.

- *Comment:*
  4.5.9.3.4 –Suggest amending this to allow ladders to terminate 12" below gutter as well, as gutters count as a step and may inhibit one from stepping directly to deck/coping.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.9.4.1 –Reference should be made to the specific ADA standard here and not to MAHC sections.

  Changes to Code/Annex:
  This paragraph has been deleted. This was included as an oversight initially since ladders are not an acceptable means of access per ADA.

- *Comment:*
  4.5.10.3 –Suggest rewording to something similar to "Trench drains shall be used along the zero depth entry edge to facilitate surface skimming."

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.11.1 –The guidelines here are not enforceable. They have been incorporated into the ADA Standards approved by the Department of Justice – which are enforceable.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.13.4 –Remove this entry or rewrite it… This does not allow for special use attractions, Float and Rope Anchors, slides, entertainment features, light covers, or any of the multitude of features found in today's aquatic facilities. The intention is good but this as is will not work as is.

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Changes to Code/Annex:
Additional features added to the list of exemptions.

- *Comment:*
  4.5.14.1 –How does this apply to zero depth pools and is it really needed in shallow water wading pools? Is it necessary on Caisson walls or restricted areas where there is no guest access? Needs to be re-written and encompass all types of venues.

  Changes to Code/Annex:
  Section amended to only require handholds for water deeper than 24 inches and not along beach entries.

- *Comment:*
  4.5.15.2 –This is a ridiculous requirement in a guarded facility. Might be ok for an unguarded facility but needs to be clarified.

  Changes to Code/Annex:
  This section has been modified. More research is needed in the future on this topic, in conjunction with lifeguarding and bather safety. A limit of 30 feet will be enforced for deep water infinity edges and no maximum length for infinity edges in water depths 5 ft and shallower.

- *Comment:*
  4.5.16.2 –Add "…on both the top of horizontal edges and leading vertical edges, and should be viewable from the deck or from underwater." to the end of the entry.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.17.5 –Add "…on both the top of horizontal edges and leading vertical edges and should be viewable from the deck or from underwater." to the end of the entry.

  Changes to Code/Annex:
  Recommendation not implemented. Marking the vertical edges not viewed as necessary since most don't project into the pool and if they do, there is usually not enough surface area vertically to get a marking. There is also no vertical safety issue.

- *Comment:*
  4.5.17.5.1 –How does this work with recessed ledges, which are permissible as stated above?

  Changes to Code/Annex:

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Section modified to only pertain to those ledges that project past the plane of the pool wall.

- *Comment:*
  4.5.18.2 –Add "…on both the top of horizontal edges and leading vertical edges and should be viewable from the deck or from underwater." to the end of the entry.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.19.1.1 –Is this really needed in zero depth entry ways, catch pools, lazy rivers, and other specialty pools not intended for access at all points

  Changes to Code/Annex:
  Refer to 4.12 for reliefs from these requirements (such as zero beach entries). But catch pools, for instance, can be used for learn-to-swim programming at municipal facilities during non-peak hours. So they often serve multiple purposes. And perimeter deck is required around 100% of most pools, so they should be marked accordingly.

- *Comment:*
  4.5.19.1.6 –Add "…and according to the requirements above." to the end.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.19.4.1 –Is this really needed in zero depth entry ways, catch pools, lazy rivers, and other specialty pools not intended for access at all points

  Changes to Code/Annex:
  Refer to 4.12 for reliefs from these requirements (such as zero beach entries). But catch pools, for instance, can be used for learn-to-swim programming at municipal facilities during non-peak hours. So they often serve multiple purposes. And perimeter deck is required around 100% of most pools, so they should be marked accordingly.

- *Comment:*
  4.5.19.5.1 –Not always possible this can also be address by positioning of lifeguards/staff -- How does a straight line work in a round pool (bowl shaped, or an attraction without a straight break line? How do you apply it to pool walls in these instances?

  Changes to Code/Annex:
  The word "straight" has been removed.

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- *Comment:*
  4.5.19.5.1 –Add "…to the perimeter deck."

  Changes to Code/Annex:
  Changed to "…to the waterline."

- *Comment:*
  4.6 –This needs broken down into two sections: Indoor and Outdoor, as the entire section is confusing to the reader and does not differentiate.

  Changes to Code/Annex:
  Recommendation not implemented. After additional consideration, there is too much that applies to both indoor and outdoor facilities and the consensus was that the section was best as it initially was written.

- *Comment:*
  4.6.1.4 –Confused by this entry. Is this saying that outdoor daytime only pools need underwater lighting? Must clarify here.

  Changes to Code/Annex:
  No. Exemption stated in 4.6.1.5.1.

- *Comment:*
  4.6.1.4.1.1 –Is this using only underwater lights or in conjunction with other light sources? Needs clarification here.

  Changes to Code/Annex:
  Clarification added that this is intended in conjunction with overhead lighting.

- *Comment:*
  4.6.1.5.1 –Why does this only apply to outdoor pools?

  Changes to Code/Annex:
  Because indoor pools have a higher requirement for overhead lighting (4.6.1.3.1).

- *Comment:*
  4.6.1.7.1 –Not always possible; this should be an objective statement that glare should not prohibit identification of objects on the bottom. This can be accomplished in various ways i.e by positioning of lifeguards/staff

  Changes to Code/Annex:
  Refer to the annex. Most of the design and operational recommendations aren't able to be codified and are suggested in the annex.

- *Comment:*
  4.6.4.1 –Add: "A drinking fountain or other form of potable water, free and available to

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patrons (i.e. cup of water from food stand), shall be provided…"

Changes to Code/Annex:
Refer to the annex. Alternatives, such as bottled water, shall be evaluated by the AHJ and added to this code section.

- *Comment:*
4.6.4.1 –Change "Pool" to "Facility/Venue"

Changes to Code/Annex:
Recommendation not implemented. "Pool Enclosure" is a defined term. Refer to the glossary.

- *Comment:*
4.6.4.1.1 –Add Exception: "…unless another source of water is available."

Changes to Code/Annex:
Alternatives, such as bottled water, shall be evaluated by the AHJ and added to this code section.

- *Comment:*
4.6.4.3 –Add: "A single drinking fountain or other form of potable water, free and available to patrons (i.e. cup of water from food stand), shall be allowed for one or more venue within a facility enclosure.

Changes to Code/Annex:
Alternatives, such as bottled water, shall be evaluated by the AHJ and added to this code section.

- *Comment:*
4.6.5.1 –Change "pool enclosure" to "facility/venue enclosure"

Changes to Code/Annex:
Recommendation not implemented. "Pool Enclosure" is a defined term. Refer to the glossary.

- *Comment:*
4.6.5.2 –Delete "Pool"

Changes to Code/Annex:
Changed to "Aquatic facility manager."

- *Comment:*
4.6.7.1 –Change "pool enclosure" to "facility/venue enclosure"

Changes to Code/Annex:

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Recommendation not implemented. "Pool Enclosure" is a defined term. Refer to the glossary.

- *Comment:*
  4.6.7.2.1 & 7.2.2 – WHY? This is not practical especially within the confines of a large water park, nor is it necessary in any case. There is no need for this to be a barrier as defined in 4.8.6.1

  Changes to Code/Annex:
  This is intended to limit foot traffic with shoes and concessions onto the deck.

- *Comment:*
  4.8.1.1.5 –Add: "… and in accordance with local building code."

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.1.2 –What is reasoning for requiring perimeter deck… if it is for drainage and water removal then some considerations apply, if it is for access by staff/guests then another set applies, if both then there has not been enough thought here.

  Changes to Code/Annex:
  It is primarily from a drainage / water removal standpoint to evaluate slopes, acceptable finishes, etc. Refer to the annex.

- *Comment:*
  4.8.1.2.3.1 –4.8.1.1.2.1 above says 3/16 maximum and 1/2 inch differential … this is confusing

  Changes to Code/Annex:
  4.8.1.1.2.1 changed from ½" to ¼".

- *Comment:*
  4.8.1.3.3 –Not even with a backflow preventer?

  Changes to Code/Annex:
  Exception granted when used in conjunction with a backflow preventer and allowed by the AHJ.

- *Comment:*
  4.8.1.4.1 –Truthfully, concrete is not impervious...

  Changes to Code/Annex:
  Recommendation implemented. "impervious material" deleted.

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- *Comment:*
  4.8.1.5.1 –What is reasoning for requiring perimeter deck… if it is for drainage and water removal then some considerations apply, if it is for access by staff/guests then another set applies, if both then there has not been enough thought here.

  Changes to Code/Annex:
  Perimeter decks are defined separately in this standard to address drainage / water removal standpoint to evaluate slopes, acceptable finishes, etc. Refer to the annex. However, perimeter decks are generally required for lifeguarding and safety purposes. Much of this section speaks to these requirements.

- *Comment:*
  4.8.1.5.1.1 –I can see requiring if there is access to the deck, but it is not needed where there is no access. Simply require slope away and drainage, why is 4 feet needed? Is there no provision for theming or rockwork adjacent to pool, or where features are provided? Slide or attraction columns are often within that 4 feet area, and unobstructed is not always feasible.

  Changes to Code/Annex:
  For lifeguarding and general safety. Refer to annex. Refer also to 4.8.1.5.2.1 for equipment exemptions to the unobstructed deck requirement.

- *Comment:*
  4.8.1.5.1.3 –Why is the requirement different for an unguarded pool? This is unjustly requiring more from a guarded facility

  Changes to Code/Annex:
  This is typical of many current standards. The logic often is that the perimeter deck is needed for lifeguards and access which wouldn't apply for these types of pools.

- *Comment:*
  4.8.1.5.2.1 –Not always possible as columns or supports, cue line rails, may obstruct this area. Also do not want a deck to go under low stairs as this creates a striking hazard.

  Changes to Code/Annex:
  An exemption has been added for structural columns.

- *Comment:*
  4.8.1.5.2.2 – Define "Circulation Path"

  Changes to Code/Annex:
  Definition added to glossary.

- *Comment:*
  4.8.1.5.2.4 – Add "dry deck" here as many stairs are not in areas where either perimeter deck or pool deck exists …

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Changes to Code/Annex:
Recommendation not implemented. An example of where the immediate area around the equipment will be dry deck cannot be thought of. The area around noted equipment will always be trafficked by wet bathers and used for lifeguard / patron access.

- *Comment:*
4.8.1.5.3.1 –Not necessary to include ADA requirements here. Also, the proper citation is to ADA Standards as approved by the Department of Justice – not the guidelines.

  Changes to Code/Annex:
  Recommendation not implemented. This is not intended to speak to pool ADA requirements, rather general building ADA requirements which address grade slopes.

- *Comment:*
4.8.1.5.3.2 –Again this is not necessary and/or practical. Think about lifeguard chairs as an example...

  Changes to Code/Annex:
  Lifeguard stand exemption would fall under the umbrella of 4.8.1.5.2.1 along with slides, diving boards, etc. 4.8.1.5.3.2 is intended to apply to lounge chairs, tables, etc. Clarifications have been made to both of these paragraphs.

- *Comment:*
4.8.1.6.6 –Add: "…with at lest 1 per side at a minimum."

  Changes to Code/Annex:
  Recommendation not implemented. One may not be necessary in all instances depending on spacing and use.

- *Comment:*
4.8.1.7.4 –Add: "…with at least 1 visible from 360 degrees."

  Changes to Code/Annex:
  Recommendation implemented. Section changed to require that they are "visible from all sides."

- *Comment:*
4.8.1.7.4 –Should apply only when accessible to patrons - not needed if only for lifeguard use.

  Changes to Code/Annex:
  Recommendation not implemented. The vertical markings are provided for patrons in the water regardless if it's used by lifeguards.

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- *Comment:*
  4.8.1.7.6 –How do you bridge from the pool to the island? This will create 1 million hazards and is a poor entry for this code. Deck access by bridge possibly, but also not necessary. Ladders are best access from pool and not even mentioned

  Changes to Code/Annex:
  Bridges would be from the deck, spanning the pool, to the island. Changes describing ramps and ladders also noted as means of access in this section.

- *Comment:*
  4.8.1.7.7 –Must also address clearance from water surface to structure and visibility for lifeguards to see underneath.

  Changes to Code/Annex:
  Lifeguarding is a separate module of the MAHC. The clearance between the water surface and the bridge would only apply due to floatables and was considered when drafting this standard into the 7 ft requirement.

- *Comment:*
  4.8.1.7.8 –Why would this even be permissible? Must have perimeter barrier on any bridge structure…

  Changes to Code/Annex:
  Recommendation implemented. Minimum 42" high barriers required on both sides.

- *Comment:*
  4.8.1.9.1 –Overly burdensome for large waterparks. Too prescriptive, make it objective…. "so that the entire deck may be cleaned as needed." Who cares how much hose is used?

  Changes to Code/Annex:
  This section has been modified to read "a hose of adequate length." The intent remains that all perimeter and pool deck need to be able to be reached by a hose for sufficient cleaning.

- *Comment:*
  4.8.1.9.2 –Change "water source points" to "hose bibs".

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.2.2.1 –Change to: "… butt end of the board or platform shall have steps…"

  Changes to Code/Annex:
  Recommendation implemented.

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- *Comment:*
  4.8.2.2.3 –Should extend 1 foot beyond the edge of the coping and over the pool…

  Changes to Code/Annex:
  Recommendation not implemented because it is not consistent with current industry standards.

- *Comment:*
  4.8.3.3 –This is much deeper than current requirement and many pools for competition are not even this deep? This will close many competition pools

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.4.2 #3 –Most do not terminate at or below the normal operating level, as they terminate above surface.

  Changes to Code/Annex:
  This requirement has been deleted and this section has been located solely in the glossary since these requirements define a pool slide.

- *Comment:*
  4.8.4.3 –It is not possible to eliminate the possibility of injury

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Changes to Code/Annex:
Recommendation implemented. "Eliminate" changed to "inhibit." Section number changed to 4.12.2.10.2.

- *Comment:*
  4.8.4.5 –Must define "rung" versus "tread"

  Changes to Code/Annex:
  Recommendation implemented. See section 4.12.2.10.4.

- *Comment:*
  4.8.4.6 –For ladders yes, for stairs and/or ramps this makes no sense and height should be standard handrail specifications.

  Changes to Code/Annex:
  Recommendation implemented. Changed to "Handrails for ladders…" Section number changed to 4.12.2.10.5

- *Comment:*
  4.8.6.1.1 –Change "Pool" to "Facility/Venue"

  Changes to Code/Annex:
  Recommendation implemented. Changed to aquatic facilities.

- *Comment:*
  4.8.6.1.1 –The use of the terms "Barriers" and "Enclosures" need to be consistent in this section. This should say Enclosure.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.1.3 –Change "Pool" to "Facility/Venue"

  Changes to Code/Annex:
  Recommendation not implemented.

- *Comment:*
  4.8.6.2.3 –2-inch chain link is ok if slats installed to prevent climbing.

  Changes to Code/Annex:
  Recommendation not implemented. With the slats envisioned, the 2" chain link could still provide enough space for a toe-hold and unintended access.

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- *Comment:*
  4.8.6.2.4 –Define "Unguarded" … is this no lifeguard or is this without a barrier?

  Changes to Code/Annex:
  No lifeguard.

- *Comment:*
  4.8.6.2.4 -- Why would unguarded pools be exempt?

  Changes to Code/Annex:
  Different standards and considerations have been applied here and historically to unguarded pools and the attempt is not to deviate too far from the industry standard set forth by ANSI and other industry codes in this regard. Unguarded Pools (Class C pools) are not required to provide separated paths of egress, but must maintain unencumbered exit paths to and through the ENCLOSURE.

- *Comment:*
  4.8.6.3.1 –NO, this must be removed … This is not possible when talking about emergency vehicle access points in waterpark/pool fences, or maintenance gates… Perhaps public access gates/doors as a clarifier

  Changes to Code/Annex:
  Recommendation implemented. All primary public access gates or doors serving as part of a pool enclosure shall be self-closing and self-latching from any open position. All gates or doors shall be capable of being locked from the exterior. They shall be designed in such a way that they do not prevent egress in the event of an emergency.

- *Comment:*
  4.8.6.3.1.2 –Change to: "Propping open perimeter enclosure gates/doors is prohibited."

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.3.6 –Delete this entire entry as it makes no sense and says nothing of value. If anything say exit must be provided.

  Changes to Code/Annex:
  Recommendation not implemented. Additional language added to the annex. This section is intended to address large facilities where there may either be multiple pools, multiple grade elevations, or both. Exit gates must be provided to permit adequate emergency egress. For example, a facility with 10 pools split between different grade elevations should have the required number of exits spaced reasonably around the perimeter and not all at one grade elevation.

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- *Comment:*
  4.8.6.3.7 –Conflicts with other code entries requiring 48 inches

  Changes to Code/Annex:
  Noted, but unguarded pools have different standards.

- *Comment:*
  4.8.7.3 –Other parts of this code allow for this?

  Changes to Code/Annex:
  Don't believe this is accurate. This was prohibited at the SC's request.

- *Comment:*
  4.8.7.4 –Not really a design/construction issue as required in MAHC. If anything say all circuits within the facility enclosure must be GFI protected.

  Changes to Code/Annex:
  Recommendation not implemented. Power requirements and infrastructure would fall under the lens of design.

- *Comment:*
  4.8.7.5 –Undue burden on large facilities such as waterparks, and quite frankly not necessary. Too Prescriptive make it objective…

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.7.6 –Robotic cleaner not a design/construction issue … requirement belongs elsewhere

  Changes to Code/Annex:
  Recommendation not implemented. Specific cleaners are specified by the design community or furnished by the contractor.

- *Comment:*
  4.8.7.8 –Change to "…between the receptacle and the nearest edge of the closest pool."

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.9.1 –"Equipment Room" needs defined as waterparks/larger facilities have a lot of equipment in a lot of rooms.

  Changes to Code/Annex:
  Definition added to glossary.

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- *Comment:*
  4.9.1.1.1 –Concrete is not non-absorbent, nor is it smooth unless finished that way which in turn is not non-slip

  Changes to Code/Annex:
  Recommendation implemented. Nonabsorbent changed to suitable.

- *Comment:*
  4.9.1.2 –This should be governed by local building code. No need for this specificity in this Code.

  Changes to Code/Annex:
  Not governed by all local codes. Some current pool standards speak to spacing, ventilation, lighting, and other requirements for the equipment room.

- *Comment:*
  4.9.1.3.1 –Replace local jurisdiction with AHJ. This should be wording throughout entire document.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.9.1.5.1 –Add: 10) Return Lines 11) Feature Name and Suction or Discharge

  Changes to Code/Annex:
  Recommendation not implemented. Return lines are "filtered water" and suction is covered by "main drains and skimmers." Features can have separate labeling, but it's not required by this code. Typically feature pump water is not separately heated, chemically treated, etc. It's just pulled from the pool and immediately returned.

- *Comment:*
  4.9.1.5.4 –Where is the requirement for wall mounted piping diagram found within the Code?

  Changes to Code/Annex:
  In this section.

- *Comment:*
  4.9.1.6.1 –Why? If it is, it is, and must be dealt with appropriately -not a Code issue.

  Changes to Code/Annex:
  Recommendation implemented. Section deleted.

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- *Comment:*
  4.9.1.6.2 –This entry says nothing of value; delete it. This is a code, not a warning document.

  Changes to Code/Annex:
  Recommendation implemented. Section deleted.

- *Comment:*
  4.9.2.1 to 4.9.9.2 –This should be governed by local building code. No need for this specificity in this Code.

  Changes to Code/Annex:
  MAHC defers to the local building codes and AHJ throughout, especially if requirements are more stringent. Not all jurisdictions nationwide follow the same practices, so the best practices are adopted here especially for those locales that don't have the regulations.

- *Comment:*
  4.9.2.2.6 –Doors are not permissible as above entry states. Why include it here?

  Changes to Code/Annex:
  Recommendation implemented. "Other than a possible door" deleted.

- *Comment:*
  4.9.2.12 –This should be governed by local building code. No need for this specificity in this Code.

  Changes to Code/Annex:
  MAHC defers to the local building codes and AHJ throughout, especially if requirements are more stringent. Not all jurisdictions nationwide follow the same practices, so the best practices are adopted here especially for those locales that don't have the regulations.

- *Comment:*
  4.11.1.1 –Change "swimming pool" to Aquatic Facility/Venue"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.11.1.2.1 –Undue expense - and not reliable enough. Too Prescriptive and Overly Burdensome. Suggest: "A system must be in place to insure addition of make up water to allow for consistent skimming…"

  Changes to Code/Annex:

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Recommendation not implemented. A maximum time (one hour) was conservatively established due to the need to pools to return to surface skimming as soon as possible for sanitation purposes.

- *Comment:*
  4.11.4.1 –This entry should be relocated with make-up water info.

  Changes to Code/Annex:
  Recommendation implemented. Moved to 4.11.2.1.

- *Comment:*
  4.11.5.1 –Change "swimming pool" to Aquatic Facility/Venue"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.3.1 –Delete "ropes"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.1.5 –Why would this requirement be less than that of a pool?

  Changes to Code/Annex:
  4 ft is required around pools, but only 50% of the perimeter is needed due to the size of the overwhelming majority of spas. This is consistent with many state and local codes currently.

- *Comment:*
  4.12.1.14 –What is the reasoning? The objective should be to limit length of usage by patrons in one sitting. Make this entry objective and not add undue requirements as a method to accomplish this.

  Changes to Code/Annex:
  Recommendation not implemented. This is per NEC 680 requirements.

- *Comment:*
  4.12.2.1 –This should be governed by ASTM. No need for this specificity in this Code.

  Changes to Code/Annex:
  ASTM is limited in its scope. The MAHC is not intending to supercede ASTM. However, there are certain design aspects affiliated with waterslides and their plunge areas that requires it gets addressed in this standard.

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- *Comment:*
  4.12.2.4.1 –Delete this entry… Let manufacturers decide this and do not limit it. Most do not meet your requirement anyway.

  Changes to Code/Annex:
  Added language allowing deferment to the manufacturer.

- *Comment:*
  4.12.2.4.3 –Delete this entry… Let manufacturers decide this and do not limit it.

  Changes to Code/Annex:
  Added language allowing deferment to the manufacturer.

- *Comment:*
  4.12.2.5.5 –These handrails may present a hazard and are not really necessary in all cases. Let manufacturer decide this.

  Changes to Code/Annex:
  Recommendation not implemented. Proper pool ingress/egress should be regulated by this code.

- *Comment:*
  4.12.2.5.6 –Replace Department with AHJ

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.2.6.1 –Conflicts with earlier requirement for all pools on all sides

  Changes to Code/Annex:
  4.12 exists for non-traditional pools and is intended to provide additional requirements or relief from the main body of this standard. In this case, relief is provided for catch pools regarding perimeter deck requirements.

- *Comment:*
  4.12.2.7.1 –No kidding… this really needs to be included?

  Changes to Code/Annex:
  Just reinforcing that a proper deck needs to be provided from point A to point B, discouraging paths cutting through landscaping, etc.

- *Comment:*
  4.12.2.8.1 –How will this be measured?

  Changes to Code/Annex:

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From the bottom of the runout flume to the top of the runout side wall (perpendicularly, not circumferentially).

- *Comment:*
  4.12.2.8.3 –Drop slides still need a defined landing area… I don't get it?

  Changes to Code/Annex:
  This exception has been deleted.

- *Comment:*
  4.12.3.2.2.1 –Add: "…and the deep end wave generating wall (caisson wall)"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.3.2.3 –These must be allowed as emergency exit for guests. Properly designed/constructed recessed steps should pose no entrapment hazard.

  Changes to Code/Annex:
  That's the intent. They need to be provided, but at the same time should be safely designed. The intent was that alcoves in the walls would be provided (consistent with many existing wave pools) where the ladder comes flush with the pool wall. Refer to 4.12.3.2.4.

- *Comment:*
  4.12.3.2.4 –Does this not make them recessed by definition?

  Changes to Code/Annex:
  Recessed steps, as defined in this standard, are pockets in the pool wall that require deck anchored grab rails. These are not practical for most wave pools due to the freeboard requirements. Therefore ladders are and have been most practical for wave pools.

- *Comment:*
  4.12.3.3.4 –Not necessary at zero depth edge and on caisson wall where there is no bather access. Truthfully, this is not needed anywhere as code requires no side access without barrier.

  Changes to Code/Annex:
  Not required at the zero beach entry or caisson wall. Required even along the sides of the pool because they may be accessible to patrons who use the egress ladders.

- *Comment:*
  4.12.4.3 –What is a recirculation system? Disinfection? Needs Definition.

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Changes to Code/Annex:
Definition added to the glossary.

- *Comment:*
  4.12.5.2.1 –Way to many points, too close together … No need for this, as most of these attractions do not want for there to be access/egress at that many locations. This access must be controlled and that will be lost.

  Changes to Code/Annex:
  It's not necessary for access to be controlled as most are not envisioned to be large tube supply locations. But additional means of access should be provided for safety purposes, whether is just using a small stair alcove, recessed steps with grab rails, ladder, or other means. This shouldn't impact the total number of guards for a river as they should still be provided in such a way that one can view all portions of the river from their positions.

- *Comment:*
  4.12.5.2.4 –This is in conflict with previous Code entries - all pools require both sides as per language above.

  Changes to Code/Annex:
  This is a relief for rivers. Deck needs to be provided around the perimeter, but is allowed to change sides as needed with the island.

- *Comment:*
  4.12.7.11 –Where does this number come from?

  Changes to Code/Annex:
  Manufacturer's recommendations.

- *Comment:*
  4.12.8.4.1 –Term "Sprayground Treatment Tank". Suggest changing the term itself to "Sprayground Holding/Collection Tank" or "Sprayground Surge Tank" as there is no treatment taking place within the tank.

  Changes to Code/Annex:
  Recommendation implemented. Changed to "collection" tank.

- *Comment:*
  4.12.8.5 –Is that 1/2 x ½, or 1/2 x any length?

  Changes to Code/Annex:
  Only ½" in the width direction.

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27. Gina Claassen, Herschend Family Entertainment Corp. (Branson, MO)

- *Comment:*
  Glossary "Pool" – *Confirm the definition of pool does not include catch pools, lazy rivers, wave pools, activity pools, etc.*

  Changes to Code/Annex:
  "Non-traditional" pools such as therapy pools, leisure rivers, wave pools, etc. are defined separately and are given relief or different regulations from the main body of the code where stated in section 4.12.

- *Comment:*
  4.12.3.2.2 – *Do not believe hand holds are safe in wave pools. Do not want swimmers hanging on to walls*

  Changes to Code/Annex:
  They are required by this standard and the majority of others currently in place for safety purposes.

- *Comment:*
  4.12.5.2.1 – *Unnecessary and impractical* – Delete

  Changes to Code/Annex:
  Additional spacing between points of access / egress allowed for rivers, however, they should be regulated for safety.

- *Comment:*
  4.12.5.2.3 – *Unnecessary and impractical* – Delete

  Changes to Code/Annex:
  Required for safety purposes and by the overwhelming majority of current state and local codes.

- *Comment:*
  4.12.5.2.4 – *Do not believe it is practical or necessary to have a deck around lazy rivers*

  Changes to Code/Annex:
  The perimeter deck is required for access and more importantly for guarding and supervision. This is a current requirement of most current state and local codes.

- *Comment:*
  4.12.9.2 – *Unnecessary and impractical* – Delete

  Changes to Code/Annex:
  Refer to annex for rationale centered around safety.

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28. Richard Merrifield, Bradford Products, LLC (Wilmington, NC)

- *Comment:*
  4.2.1.1 –"or other impervious and structurally sound material"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.3 –"to maintain their ability to retain the designed amount of water"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.4.2 –"water line finish"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.2.1.4.3 –"finished"

  Changes to Code/Annex:
  Recommendation not implemented.

- *Comment:*
  4.2.1.4.4 –"above the designed water level"

  Changes to Code/Annex:
  Recommendation modified and implemented.

- *Comment:*
  4.2.1.6 –"Vinyl, PVC, or PVC-P"; "and the pool system shall be a minimum of 60 mils thick"

  Changes to Code/Annex:
  PVC-P added.

- *Comment:*
  4.5.4 –"Pool Access/Egress/ADA Requirements"

  Changes to Code/Annex:
  ADA referenced in 4.5.4.1.

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- *Comment:*
  4.5.5.6 –"and one additional hand rail for each additional 5 feet or portion thereof"

  Changes to Code/Annex:
  Additional handrail requirements for wide stairs are covered by 4.5.6.4.

- *Comment:*
  4.5.10.1 –"with a minimum slip resistance co-efficiency of friction of 0.6 or greater"

  Changes to Code/Annex:
  COFs are noted in the annex (4.2.1.5) as they reference other standards.

- *Comment:*
  4.5.14.3 –"shall not be greater than 2" from the vertical plane of the pool wall"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.15.3 – This could lead to design issues

  Changes to Code/Annex:
  For infinity edge designs, a recessed handhold below the water level will likely prove most feasible.

- *Comment:*
  4.5.19.1.1 – All markers should be in metric and English measurements

  Changes to Code/Annex:
  Only English measurements are required and metric is optional.

- *Comment:*
  4.6.1.3 – Be consistent with verbiage. Watts/sq. ft. works better than trying to convert from watts, to lumens, to foot-candles. ½ watt per square foot is the most commonly referenced requirement.

  Changes to Code/Annex:
  The MAHC acknowledges that W/SF units are most recognized in the pool industry. However, it means little to nothing to regular electrical engineers and lay people. This standard attempts to move the pool industry to more acknowledged units while referencing traditional units through conversions.

- *Comment:*
  4.6.3.1 –104 degrees is the maximum temperature allowed in spas. I think that the same measures should be enforced for water entering a pool.

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Changes to Code/Annex:
This is not intending to reference any sort of maintained water temperature. Most heat exchangers are set to higher temperatures (110 deg) prior to returning to the recirculation line and blending with the pool/spa water.

- *Comment:*
  4.8.2.2.4 –"6.56 ft." not "6.56m"

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.9.2.11.7.4 – A minimum of two (2) SCBA systems on hand at all times and two (2) qualified operators are to be involved in the changing of the tanks. No exceptions. One of the operators should be stationed OUTSIDE the chemical room where the operator inside can be seen at all times. An emergency direct line telephone should be located by the door.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.9.2.12.2 – Safety glass should be specified for all window and door glass in the pool and chemical storage environments.

  Changes to Code/Annex:
  Recommendation implemented. Requirement added that the glass be either tempered or plasticized.

- *Comment:*
  4.12.6.5.2 – A 10 foot minimum spacing is a safer requirement

  Changes to Code/Annex:
  Recommendation not implemented. It's not understood why a different standard should apply here compared to other warning signs around the pool.

- *Comment:*
  4.12.7.5 –"underneath ***OR*** inside of the BULKHEAD."

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.7.8 -- Section 4.12.7.8 contradicts section 4.12.7.3 1)

  Changes to Code/Annex:

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Corrections have been made to address the contradiction and section 4.12.7.3 has been deleted in its entirety.

29. Gary Fraser, Washington State Dept of Health (Olympia, WA)

- *Comment:*
  Glossary "Water Slide" -- "waterslide" This term applied as you have noted, is identical to the term you have applied to a "pool slide", except that the slide can be used at any distance above the pool water level. This seems to be a misuse of the term in relation to our rules as it is more related to the flume slide terminology earlier in your glossary. It also runs counter to the industry standard which also uses the term "waterslide" used in ASTM F2376 and the World Waterpark Association (WWA). In fact WWA provides the following term for the CPSC (Part 1207) standard. Noting. Swimming pool sliding boards has a very specific and narrow application to sliding boards, which are commonly recognized as the type found at public and residential swimming pools and as defined dimensionally in the standard. They are valid for the type of device defined, but they are not applicable in any way to slides of the types found in waterparks." – **REFERENCE:** ASTM F2376-08; WWA Standard 1.2.4. The standard established for these was written by CPSC back in the 60's and was written in relation to the use for backyard residential uses. If you look closely at the comments in the CFR, there are warnings about use of these slides by adults in shallow water. Suggest that these smaller slides should recognize ASTM F2461-09 as it works with the smaller slides up to 6 feet in height.

  Changes to Code/Annex:
  Definitions have been modified and the original "Pool Slide" section has been merged into 4.12.2 with some modifications.

- *Comment:*
  4.2.1.2.3 – *Provide an objective measurement for evaluating the colors for a pool.* -- This condition is very vague and subjective. Suggested language. Swimming pools shall provide a pool color that is white or if there is any light color, it shall provide a light reflectance value of 70% or more to enhance bather visibility. Any design or finish added to the pool shall not prevent detection of a bather in the pool. – **REFERENCE:** Handbook of Sports and Recreation in the section 33 dealing with Electrical Engineering Services, establishes a minimum light reflectance value of 0.7 or greater.

  Changes to Code/Annex:
  Recommendation not implemented. Refer to 4.5.12.1.2 on color and finish which utilizes the Munsell color value scale.

- *Comment:*
  4.2.2.2 – This section seems like a building department function

  Changes to Code/Annex:

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The majority of building standards do not address the unique requirements of natatorium envelopes. Therefore, some best practices in the industry are referenced in this standard.

- *Comment:*
  4.2.2.3.3 – *Provides some details for review, beyond the amount of air makeup. --* Recognizing the ASHRAE standard seems appropriate, but also need some design details that should be included when reviewing: Assuring the fresh air return to exhaust doesn't short circuit and the air pressure in the natatorium maintains a negative air pressure less than any surrounding rooms. – **REFERENCE:** WAC 246-260-031(19).

  Changes to Code/Annex:
  This would be covered by the MAHC Ventilation module.

- *Comment:*
  4.2.2.4 & 4.2.2.5 – The section seems like a building department function

  Changes to Code/Annex:
  The majority of building standards do not address the unique requirements of natatorium envelopes. Therefore, some best practices in the industry are referenced in this standard.

- *Comment:*
  4.5.3 – This section seems like a building department function

  Changes to Code/Annex:
  The majority of building standards do not address these requriements. Many existing state and local codes do, so it was broadly felt that the pool structure should be included in this standard.

- *Comment:*
  4.5.5.6 – Suggested change: Maintain maximum riser height on pools are over 1500 or 2000 SF to a range of 6" to 7.5". – **REFERENCE:** You have a wide range of acceptable stair riser height. When we rewrote our rules in the 90's, we received public input regarding riser height and injury. The public is used to a standard height on stairs and when entering a pool may be surprised by higher minimum riser heights. Also can make a difference for smaller children that are setting on the steps and suddenly go a foot deeper.

  Changes to Code/Annex:
  Recommendation not implemented. It's felt that if it's a safety concern for ingress/egress of one pool then it should be a safety concern for ingress/egress of any pool.

- *Comment:*
  FIGURE 4.5.6.7.1 – Are you only recognizing handrails that extend into the water? Some facilities use "figure 4" handrails that extend over the water, but don't make a connection to

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the floor or steps due to issues of strength of materials. Having some language that talks about how far it has to extend to in relation to the bottom riser may be helpful. Establishing a statement on the handrails having the leading edges extending a certain distance beyond and /or less than the vertical plane of the bottom riser, ensures it extends to be accessible at the bottom step. – **REFERENCE:** WAC 246-260-031(11)(b)(iv)

Changes to Code/Annex:
Recommendation implemented. Refer to the new 4.5.7.6 paragraph where language added for grab rails in relation to the vertical plane of the pool wall.

- *Comment:*
  4.5.10.2 – There is a consistency issue here on slope. In another section you require a 1/12 slope up to 5 feet depth. Are you going to allow a steeper slope in a zero depth pool after 3 feet?

  Changes to Code/Annex:
  Not intended. Reference to 4.5.2.2 added which has the same maximum slope requirement.

- *Comment:*
  4.5.10.2.1 – This seems to create a potential problem for small non-swimmers, if you allow a sudden change in floor slope without accounting for protections for the small swimmers.

  Changes to Code/Annex:
  This is primarily intended to allow for level areas that are often required for interactive play structures in zero entries.

- *Comment:*
  4.5.12.1.1 – Not sure I understand the use of the Munsell color value. The Munsell charts are used for soil samples. I haven't read any literature supporting visual acuity results related to the Munsell color value. When asking manufacturer's to specify compliance with this requirement, it will be harder for determinations than with light reflectance values. Have you asked industry if they will provide this determination. I can see it getting very difficult when we are working with a surface that has multiple colors of materials interspersed in the product. Determining light reflectance value is more objective. A further comment, when considering the Munsell color value, it seems that it is also necessary to consider the other two values associated with the Munsell charts, including "Hue" and "Chroma" which are not addressed in the proposed standard. Swimming pools shall provide a pool color that is white or light color. If providing a light color, it shall provide a light reflectance value of 70% or more to enhance bather visibility. Any design or finish added to the pool shall not prevent detection of a bather in the pool. – **REFERENCE:** Handbook of Sports and Recreation in the section dealing with Electrical Engineering Services, establishes a minimum light reflectance value of 0.7 or greater.

  Changes to Code/Annex:

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Minimum Munsell color value requirement modified to 6.5 to be consistent with the State of Wisconsin. Light reflectance was also considered, but Munsell was agreed upon since it's utilized by a few states currently. In Wisconsin's implementation of the Munsell color values, they indicated that most of the quartz aggregate plaster applicators were comfortable with this level and have not expressed concern with it or compliance since it's been enforced.

- *Comment:*
  4.5.13.2 – Add additional sentence. A contrasting color shall be provided on the edges of any support ledge to draw attention to the ledge for bather safety.. – **REFERENCE:** There have been injuries where bathers have hit an edge either on diving or swimming. This provides warning of the submerged condition.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.15 – Add new 4.5.15.6 The maximum depth of the wall outside of the infinity edge will not exceed 30 inches in height above the pool wall. – **REFERENCE:** Building codes require a guard rail on any distance over 30" in height for safety.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.16 – Add new 4.5.16.5 Underwater ledges shall be offset from the regular wall of the pool. The ledge shall not be used in an area that is used for lap swimming. No diving markings shall be provided on the deck above the ledge. – **REFERENCE:** The underwater ledge can create a hazard for swimmers and persons jumping into a pool. The ledge should be offset from the primary pool wall to draw attention to it's placement and prevent bathers from running into it while swimming. See WAC 246-260-091(2).

  Changes to Code/Annex:
  Requirement inherent. As stated in 4.5.16, benches cannot be installed in water deeper than 5 ft which would require No Diving signs by this standard.

- *Comment:*
  4.5.17 – Underwater ledge construction shall conform with FIA facility rules for Swimming pools, FR2.4.2 – **REFERENCE:** This establishes the limitations of the ledges and how far they can protrude and the depth for placement so as not to interfere with flip turns.

  Changes to Code/Annex:
  Recommendation not implemented. While this would be applicable and valid for FINA regulation pools, it would not be applicable in the majority of installations in the U.S. since they would not govern unless it's a high-end competitive meet. Most

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toe ledges are at 4'-0" below the water surface which would avoid interference with almost every flip turn.

- *Comment:*
  4.5.18.1 – Proposed revision: Under water ledges may be constructed adjacent to water depths of 3 to 3.5 feet of water depth, but preferably located adjacent to stairs leading into the pool. – **REFERENCE:** Underwater ledges need to account for the issue with small children who may use them and suddenly go into deeper water.

  Changes to Code/Annex:
  Recommendation implemented, but modified to 5 feet of water depth (maximum) to coincide with the definition of "shallow water."

- *Comment:*
  4.5.19.5 – Proposed revision: Retitle: Safety float and Marking Line: When encountering any change in slope exceeding 1 in 12 in the pool at depths of 5' or less, a safety float line and marking line shall be placed at this area. The safety float line shall be secured to allow bathers to hold onto the line for support. A receptacle for receiving the safety line shall be recessed into the pool wall. – **REFERENCE:** to preclude non-swimmers from suddenly going into deeper water..

  Changes to Code/Annex:
  Floor slopes exceeding 1:12 are not permitted in water less than 5 ft deep. A paragraph has been added to clarify the need for a safety float rope at deep water slope breaks.

- *Comment:*
  4.6.1.7 – Glare: In the Western Hemisphere, it is advised that windows or other fixtures allowing natural light into the natatorium, be placed on the north end of the natatorium. When placed on other sides, consideration for providing suitable coverings over the windows to reduce glare issues. – **REFERENCE:** Good design practice

  Changes to Code/Annex:
  While good design practice to address the issue of glare, this isn't an item that the MAHC committee felt could be codified. Some good design practices are noted in the annex for reference.

- *Comment:*
  4.6.3 – Pool Water Heating: Maybe I'm not understanding this. The 120 F temperature will protect against scalds, and that is appropriate for showers and sink water. But this section is for pool water heating. We need to ensure the overall temperature of the water in a pool doesn't exceed 104 F. If you're talking about the water coming out of a jet into the pool, perhaps that should be said, but the overall temperature of the pool water should not exceed 104 F and preferably 102 F. (Spa) and probably not > 95 F in a swimming pool. – **REFERENCE:** CPSC work on establishing the maximum spa temperature to 104 F back in the early 80s.

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Changes to Code/Annex:
Agreed that the blended pool / spa water temperature should not exceed 104 F, but it is common for heat exchangers to have temperature set points in excess of this for heating the water before it fully "blends." Spa water temperatures are limited to 104 per 4.12.1.7.

- *Comment:*
4.6.7.3 – Suggested change: A spectator or other area located in a balcony within ~~10~~ 15 feet of or overhanging any portion of a swimming pool shall be designed to deter jumping or diving into the swim pool. – **REFERENCE:** An average healthy adult doing a standing broad jump on level ground is able to go 7.5 feet. Provide the elevation above the pool and the 10 feet is not enough.

Changes to Code/Annex:
Recommendation not implemented. 10 feet is standard adopted from the state of Michigan's current standards.

- *Comment:*
4.8.1.6 – Proposed addition: 4.8.1.6.7. Wing walls or peninsulas shall not be used by the public. If walls are less than 18 inches in width, no one shall use the wall and it shall be so designed to eliminate any walking surface with rounding or cantilevered surfaces. In addition, raised guardrails shall be incorporated and signs or markings noting "keep off" or "stay off wall" provided.

Changes to Code/Annex:
Recommendation not implemented. Wing walls less than 18 inches are not allowed for anyone's access per 4.8.1.6.1. The majority of wing walls are very narrow and short and primarily used to truncate stairs or reconcile slopes between adjacent portions of the pool and are allowed by nearly every local and state jurisdictions currently. And the vast majority of those do not require a handrail or something similar.

- *Comment:*
4.8.1.7.7 – Proposed addition: Minimum distance between the top of the water and the bottom of the bridge shall not be less than 48". – **REFERENCE:** The limitations of the current proposal don't consider potential with shallow depths.

Changes to Code/Annex:
Recommendation not implemented. If there were shallow water depths, then the required minimum clearance between the water surface and the bridge would be even greater.

- *Comment:*
4.8.1.7.8 – Proposed modification: Any bridge going over a water feature shall be designed and operated to deter jumping or diving into the water below. – **REFERENCE:** Ordinary

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height handrails would not prevent a teenager from easily jumping from the bridge to the water below.

Changes to Code/Annex:
This section has been rewritten to require a minimum 42" high barrier due to its inherent elevation over the pool. Motivated teenagers may still be able to jump with some effort; however, a 42" high barrier will be consistent with most building code requirements.

- *Comment:*
FIGURE 4.8.2.2.4.1 – Modify value J for 0.5 and 0.75 meter to 16 feet. – **REFERENCE:** From work presented from CNCA in their previous standards

Changes to Code/Annex:
Recommendation not implemented. The length of these boards are shorter and refer to the lengths of dimension "J" for 1 meter and 3 meter boards for comparison.

- *Comment:*
4.8.3.2 – Add following: "only used by competitive swimmers trained in proper use of starting blocks." – **REFERENCE:** WAC 246-260-041(6)(b)

Changes to Code/Annex:
Agreed on rewording. Wording altered.

- *Comment:*
4.8.3.2.1 – Consider modifying: "If water depth is less than nine feet, staring blocks must be removed or covered with protective equipment unless used by competitive swimmers trained in proper use of starting blocks" – **REFERENCE:** WAC 246-260-041(6)(b)(ii)

Changes to Code/Annex:
Disagree. Prefer not to add a depth. Blocks should be used by recreational swimmers regardless of depth.

- *Comment:*
4.8.3.3 – Consider modifying: "conforming to the minimum nationally recognized starting block height of the sponsoring organization. Standards nationally recognized currently include: NFSHSA, NCAA, USS, FINA, -- **REFERENCE:** The reviewing authorities sponsoring the swim meets are moving to deeper depths. For swim teams to be able to continue there needs to be room for the changes needed for existing facilities.

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and

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maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.4 – Suggest modifying this term to "sliding board" that is limited to 6 feet height and 10-12 feet of run. The entire section here is attempting to broaden the type of slide that was originally envisioned in the CPSC standard. I believe the 1207 consideration should be removed from consideration for public facilities. We did make this change in our rule in 2004, directing all slides to conform with water slide standards. Many of these slides have steep slopes and can create high velocities for the persons coming into the pool. – **REFERENCE:** WWA 1.2.4; Diving Injuries A critical Insight and Recommendations.

  Changes to Code/Annex:
  This section has merged with the overall waterslide section and the definition of "pool slide" has been updated to hopefully give more clarity to intent and purpose.

- *Comment:*
  4.8.6.2.1 – Modify: BARRIERS shall be constructed in accordance with the ~~state or local Building~~ AHJ CODE.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.2.4 – What do you do with a guarded pool that is not being used and the emergency egress out of a building runs persons past the pool? This shouldn't be an emergency egress area.

  Changes to Code/Annex:
  There are many large facilities, or facilities that are in an open courtyard of a larger building that have to emergency egress in similar manners. They must pass through

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a separate defined enclosure if unguarded. It is only intended for emergency egress to continue and pass through, and if guarded, the lifeguards can help to manage this egress.

- *Comment:*
  4.8.6.2.5 – Modify the distance from 10 feet to 15 feet. -- An average healthy adult doing a standing broad jump on level ground is able to go 7.5 feet. Provide the elevation above the pool and the 10 feet is not enough.

  Changes to Code/Annex:
  Recommendation not implemented. 10 feet is standard adopted from the state of Michigan's current standards.

- *Comment:*
  4.8.6.2.6 – Modify: Windows on a building that forms part of a POOL ENCLOSURE shall have a maximum opening width not to exceed 4 inches ~~not be operable by patrons~~. – **REFERENCE:** A building manager is just as likely to open a window too wide as a patron, unless restricted.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.2.7 – Modify: For the purposes of this section, barrier height is measured from the side outside the pool enclosure area. Owners shall ensure that surrounding ground levels, structures, or landscaping do not reduce the effective barrier height. ~~finished grade to the top of the BARRIER. Where a change in grade occurs at a BARRIER, height is measured from the uppermost grade to the top of the BARRIER~~ -- **REFERENCE:** WAC 246-260-31(4)(i)

  Changes to Code/Annex:
  Recommendation implemented. Requirements on landscaping, structures, etc. is addressed in 4.8.6.2.2.

- *Comment:*
  4.12.2 – The term you have used for waterslides and the conditions, appear similar to what you have in the glossary for "flume slides" In the glossary, a water slide needs to meet the conditions of the CPSC standard . Is that what you are intending here?

  Changes to Code/Annex:
  Definitions have been modified. "Flume" now just speaks to that portion of the waterslide and not a different classification of "Waterslide".

- *Comment:*
  4.12.2.1.1 – *Establishes current recognized standards for guiding owners, manufacturer's*

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and AHJ's in review -- Add this before the current 4.12.2.1.1. Owners and manufacturers shall ensure adherence to recognized design and construction standards including, but not limited to: ASTM F2376-08 Standard Practice for Classification, Design, Manufacture, Construction, and Operaton of Water Slide Systems: ASTM F2469-09 Standard Practice for Manufacturer, Construction, Operation, and Maintenance of Aquatic Play Equipment; World Water Park Considerations for Operating Safety. 2004. A handbook for Risk Management and Operating Safety at Waterparks. EN 1069-1:2010 Water Slides – Part 1 : Safety Requirements and test methods EN 1069 -2: 1020 Water Slides – Part 2: Operation and Risk Management

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
  4.12.2.2.2 – Suggested addition (3) Assurance that the slider will not impact the slide itself in such a way to cause injury, such as from a rapid change in direction or becoming inverted in the slide.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.2.4.1 – Modify: Slides shall be designed to terminate at or below water level when stipulated by the AHJ, except for drop slides **-- REFERENCE**: WAC 246-262-070

  Changes to Code/Annex:
  Below added to the paragraph.

- *Comment:*
  4.12.2.4.2 – Modify: Slides shall be straight viewed in plan for the last 8 feet of the water slide entering a pool. ~~perpendicular to the wall of the POOL at the point of exit.~~ – **REFERENCE:** ASTM F2376-08

  Changes to Code/Annex:
  Recommendation not implemented. The design of the waterslide itself and any preparation for entry into the pool or deceleration should be the responsibility of the waterslide manufacturer. It's believed that most require 10 feet.

- *Comment:*
  4.12.6.3 – New (1) The design of the moveable floor must protect against entrapment between the floor and the pool wall by bathers.

  Changes to Code/Annex:
  Recommendation implemented.

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- *Comment:*
  4.12.6.3 – New (3) If hydraulic methods are used to raise the moveable floor the hydraulic compounds must be safe for use in the pool water if there is a hydraulic leak. –
  REFERENCE: We had a leak with a hydraulic moveable floor and the material was evaluated by our toxicologist and found hazardous and the pool had to be drained. Ensure provide suitable fluids that don't create health and safety issues.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.12.8.6 – Add new 4.12.8.6.1. The holding tank size is determined considering the daily use of the facility, the need to replenish water, and the frequency the owner plans to have an operator manually drain, clean and refill the tank. Take the total volume of the holding tank and divide by three (3) and then divide this by the daily use of the spray feature. Sizing the volume of the spray feature holding tank should allow the holding tank to supply adequate water for a replacement schedule of at least four days of operations. –
  REFERENCE: The build up of TDS in the tank will be similar to a spa pool and needs routine water removal, cleaning and disinfection of the tank and new water placed in the tank to prevent buildup of biofilms.

  Changes to Code/Annex:
  This should be addressed in the Recirculation Systems & Filtration module.

- *Comment:*
  4.12.8.10 – Suggested modification: To prevent injury ensure nozzle designs and maximum impact force per orifice is not greater than 9.0 pound-force for spray features with multiple inlets. The basic formula used is as follows; Pound Force = $0.0526 \times GPM \times \sqrt{\ } PSI$ --
  REFERENCE: The issue with the nozzles creating potential injury is related to the Spray nozzle forces rather than the velocity. Some fog nozzles will exceed the velocity noted, but is so spread out, it will not create a force injury issue.

  Changes to Code/Annex:
  Recommendation not implemented. Refer to the annex and the study cited as the basis behind this requirement due to ocular injuries.

30. Jennifer Hatfield, APSP (Delray Beach, FL)

- *Comment:*
  GENERAL – *The Model Aquatic Health Code (MAHC) should be confined to the operation and hygiene of public pools and spas and surrounding facilities, areas which are properly in the domain of the state or local departments of health or comparable agencies. On issue of design and construction of pools and spas, whether public or residential, the MAHC should defer to or reference the 2012 International Swimming Pool and Spa Code (ISPSC). This*

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Code was developed jointly by the APSP, which is recognized by the American National Standards Institute (ANSI) as the developer and secretariat of national consensus standards with regard to pool and spa design, construction and safety, and the International Code Council (ICC), which is a member based organization comprised primarily of building officials and inspectors and the developer of the universally recognized International Residential Code (IRC), International Building Code (IBC) and International Plumbing Code (IPC). The ISPSC was also developed under the rigorous and open ICC government consensus process. Unlike the MAHC, the ISPSC addresses ALL aspects of pool and spa construction, including dimensions, slopes, finishing, means of exit and entry, decking, as well as many areas that are neglected or overlooked in the MAHC, such as drowning prevention, plumbing and circulation equipment, energy efficiency and entrapment avoidance. Efforts by the MAHC to address some of these issues in the pending module will only cause confusion and conflict, and thus compromise overall safety. It appears that the developers of this MAHC module did not investigate if they had created any conflicts with the ISPSC. The contractors and designers of aquatic vessels will not benefit from the lack of correlation between these two codes. In addition, there are numerous errors in this module, with regard to definitions and use of terminology that will cause confusion among owners, operators and enforcement personnel, and with regard to specific requirements. It is impossible to list and correct all the elements within this module, the following are some of the obvious examples. -- All of the sections relating to design and construction should be deleted. – **REFERENCE:** See the 2012 International Swimming Pool & Spa Code (ISPSC).

Changes to Code/Annex:
Disagree: CDC signed a Memorandum of understanding between the International Code Council (ICC), and the National Environmental Health Association (NEHA) intended to reduce conflict and overlap between the two codes while increasing communication between building and health officials. Please see the attached Memorandum of Understanding for detailed information.

- *Comment:*
  GENERAL RE: Portable Spas – *Scope of the MAHC does not provide any distinction between inground permanently installed spas versus portable spas or swims spas. Factory built portable electric spas are predominantly built for residential applications and therefore are not be held to the MAHC requirements; however, even public versions of portable spas and swim spas would have difficulty meeting these requirements. The scope of this module needs to be written to be more explicit in what the code covers and it is recommended that it clearly exempts portable spas and swim spas from this design & construction module. UL 1563 is a universally recognized standard addressing safety and design in portable electric spas. Portable spas that are listed under this Standard are exempt from any further requirements under the VGB, and should be exempt from any further requirements in this module as well.* – **REFERENCE:** See ISPSC Chapter 3, factory built portable spas were exempted from 90% of all construction related items. There were further public spa and residential spa sections.

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Changes to Code/Annex:
Glossary definition of the term spa updated to reference permanent structures.

- *Comment:*
GENERAL RE: Pool Slide – *The problem with the definitions and provisions in this module re Pool Slides is that the definition of Pool Slide includes a requirement that the exit must terminate at or below the normal operating water level of the pool. What is the purpose of this requirement? What is the purpose of making the distinction between a drop slide and a slide that terminates at the water level? Section 4.8.4.7 states that the water depth at the exit shall be determined by the manufacturer if the slide exits at or below the waterline. However, if it is a drop slide you are directed to another section 4.12, which says that the slide landing area must be in accordance with the manufacturer's recommendations. The conclusion is the same if the slide exit terminates at the water line or above the water line; the slide must be installed per the manufacturer's instructions. These sections are not very well organized and will lead to confusion. The requirement for a Pool Slide to terminate at or below the waterline should be removed. The key requirement, as required in the ISPSC, is for all slides to be designed to meet the requirements of the CPSC 1207 Standard. --* General Comment specifically re the following: Definitions: Pool Slide, Drop Slide, and Flume Slide Sections: 4.8.4 and 4.12.2 **-- REFERENCE:** ISPSC Sections: 406.8: Swimming pool slides shall comply with the requirements of 16 CFR, part 1207. The manufacturer of the slide shall provide installation and use instructions for the slide. Slides shall be installed in accordance with the manufacturer's instructions. 809.1: Slides shall be installed in accordance with manufacturer's instructions.

Changes to Code/Annex:
Recommendation implemented. Defers to manufacturer for exit criteria.

- *Comment:*
GLOSSARY "BATHER" – *Recommend removing last sentence because it reads like commentary.* – Bather: Means a person at an aquatic venue who has contact with water either through spray or partial or total immersion. ~~Bathers can be exposed to contaminated water as well as potentially contaminate the water.~~

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
GLOSSARY "BARRIER" – *These terms require separate definitions. The revised definition of "Barrier 'Enclosure'" will bring this definition into conformity with the Virginia Graemme Baker Pool and Spa Safety Act (VGB. 15 U.S.C. 8001 et seq. --* **"Barrier"** means an obstacle prevents direct access from one point to another. ~~The term "Enclosure Barrier"~~ **Barrier "Enclosure"** ~~refers to~~ is a constructed feature or obstacle that is intended to deter or effectively prevent unpermitted, uncontrolled, and unfettered access (by children) to a swimming pool, wading pool, or spa. ~~An "enclosure barrier" shall be~~ It is designed to resist climbing and to prevent passage through it and under it. ~~The term~~

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~~"Separation Barrier"~~ **Barrier "Separation"** means a constructed feature that is intended to control and limit but not prevent direct access from one area to another area within a pool enclosure. ~~A separation barrier~~ It may be permanently installed or moveable. – **REFERENCE:** Virginia Graeme Baker Pool and Spa Safety Act (VGB. 15 U.S.C. 8001 et seq See 2012 ISPSC definition of Barrier.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
GLOSSARY "CATCH POOL" – *The additional explanation, found in the ISPSC, goes a step further and better defines and explains this term.* -- **"Catch Pool"** ~~(also known as waterslide landing pool) means a~~ A pool or designated section of a pool located at the exit of one or more waterslide flumes. The body of water is provided for the purpose of terminating the slide action and providing a means for exit to a deck or walkway area. **Waterslide Landing Pool.** See **Catch Pool. – REFERENCE:** See ISPSC definitions.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
GLOSSARY "CHEMICAL STORAGE SPACE" – *The definition should include the possibility of a storage building that is not intended for human or animal occupation.* -- **"Chemical Storage Space"** means an interior space of a building ~~intended for human or animal occupation~~, used for the storage of pool chemicals, acids, fertilizers, salt, oxidizing cleaning materials, other corrosive or oxidizing chemicals, or pesticides.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
GLOSSARY "DISINFECTION" – *Should include a reference to EPA registration for substances that require registration (all chemicals that are not generated on site that make any claims to mitigate pests including bacteria, etc., and some devices such as ionizers) and all devices that require an EPA establishment number.* -- **"Disinfection"** means a treatment that kills microorganisms (e.g., bacteria, viruses, and parasites); in water treatment, a chemical (commonly chlorine, chloramine, or ozone) or physical process (e.g., ultraviolet radiation) can be used. See General Comment

Changes to Code/Annex:
Defer to Disinfection and Water Quality module of the MAHC.

- *Comment:*
GLOSSARY "PLUMBING FIXTURES" – *Definition out of date and does not address waterless urinals. Also conflicts with the ISPSC (Section 201.3) and IPC (International Plumbing Code), which are accepted nationally.* -- **"Plumbing Fixtures"** ~~means fixture or~~

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~~device for the distribution and use of water; for example, toilets, urinals, showers, and hose bibs.~~ A receptacle or device that is connected to a water supply system or discharges to a drainage system or both. Such receptacles or devices require a supply of water; or discharge liquid waste or liquid-borne solid waste; or require a supply of water and discharge waste to a drainage system. – **REFERENCE:** ISPSC and IPC code books.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
GLOSSARY "SPA" – *Spa definition taken from NSF-50 and not consistent with the ISPSC definition. The definition needs to clearly differentiate between the different types of spas, i.e. inground permanently installed spas, portable spas and swim spas – recommend ISPSC definitions be used. "Pool" is referenced throughout the code. Pool by definition incorporates spas which is not correct.* -- **"Spa"** means a structure that is intended to be used for bathing or other recreational uses and is not drained and refilled after each use. It may include, but is not limited to, hydrotherapy, air induction bubbles, and recirculation. See General Comment – **REFERENCE:** See ISPSC definitions.

Changes to Code/Annex:
Definition updated to address "permanent" spa structures.

- *Comment:*
4.2.1.1 – *The current language is grossly inadequate and overlooks and fails to address numerous issues necessary for safety and operation. The MAHC should reference the comprehensive ISPSC to ensure the user understands aspects of design that the local building official will require compliance with. For example:*
    - **i.** *307.3 Aquatic vessels and appurtenances thereto shall be constructed of materials that are nontoxic to humans and the environment; that are generally or commonly regarded to be impervious and enduring; that will withstand the design stresses; and that will provide a watertight structure with a smooth and easily cleanable surface without cracks or joints, excluding structural joints, or that will provide a watertight structure to which a smooth, easily cleaned surface/finish is applied or attached. Material surfaces that come in contact with the user shall be finished, so that they do not constitute a cutting, pinching, puncturing or abrasion hazard under casual contact and intended use.*
    - **ii.** *307.4 Structural design. The structural design of aquatic vessels shall be in accordance with the International Building Code or International Residential Code, as applicable in accordance with Section 102.7.1.*
    - **iii.** *307.6(Surface condition)requires the surfaces within public aquatic vessels intended to provide footing for users to be slip resistant and shall not cause injury during normal use.*
    - **iv.** *Further, Permanent in-ground residential swimming pools is addressed in Section 802 of the ISPSC. And Section AG103 references ANSI/NSPI-5 and ANSI/NSPI-4.* -- 4.2.1.1 Aquatic features shall be constructed of reinforced concrete or other impervious and structurally rigid material, which provides a

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smooth, easily cleaned, watertight structure capable of withstanding the anticipated stresses/loads for full or empty conditions. The design shall be in accordance with the International Building Code and International Swimming Pool And Spa Code. – **REFERENCE:** ISPSC, IBC, and IRC

Changes to Code/Annex:
Recommendations not implemented. The recommendations such as materials (impervious, non-toxic, enduring, etc.), finishes, slip resistance, etc. are all found elsewhere in this module. The structural design of water retaining vessels is arguably more applicable to the American Concrete Institute (ACI), section 350.

- *Comment:*
4.2.1.5.1 – *The term "discomfort" has no objective meaning in this context, is highly subjective and unenforceable.* -- 4.2.1.5.1 The roughness or irregularity of the finish shall not cause injury ~~or discomfort~~ to the feet during normal use.

  Changes to Code/Annex:
  This subparagraph has been deleted in its entirety.

- *Comment:*
4.2.2.1.2 – *It is nearly impossible to have a surface that does not support the growth of biological contaminants when wet. The wording in Section 4.2.2.5.2 is better: "that do not contribute to the growth of biological contaminants."* -- Interior finish materials that become wet due to splashing or uncontrolled condensation shall not contribute to ~~support~~ the growth of biological CONTAMINANTs.

  Changes to Code/Annex:
  Changed to "contribute to..."

- *Comment:*
4.3.2.1 – *Should also list EPA since some devices that may be used for pool applications must be registered.* -- All equipment used or proposed to use in AQUATIC FACILITIES shall be of proven design and construction and listed by NSF International or an ANSI accredited standards facility where existing standards apply or EPA registration where applicable. **-- REFERENCE:** http://www.epa.gov/fedrgstr/EPA-PEST/2007/September/Day-21/p18591.htm

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
4.5 – *Section 4.5 omits the critical provisions that means of exit/entry be located outside the "diving" envelope.* – **REFERENCE:** See ISPSC Section 322

  Changes to Code/Annex:

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Recommendation not implemented. Diving is addressed in section 4.8.2.2 and the intent of the minimum diving envelope in 4.8.2.2.4.1 is to not have any objects (stairs or anything else) infringe upon the footprint of this envelope.

- *Comment:*
  4.5.2.2 – *This section of the MAHC fails to recognize the difference classes of pools and the need of varied requirements. Slopes of 1 unit vertical in 10 units horizontal must be permitted for Class C pools (a pool operated solely for an in conjunction with lodgings such as hotels, motels, apartments, and condominiums). This slope adequately serves to protect children and swimmers, while allowing a pool to be constructed within the space available for many such properties. Many if not most pools in this category presently have slopes of 1:10 as opposed to 1:12, and there is no data or evidence that requiring a steeper slope would enhance safety. Requiring a 1:12 slope in this category would also make it impossible for many properties to install a pool with a deep and a shallow end. A 1 unit vertical in 12 units horizontal slope for Class B pools (a pool intended for public recreational use) is appropriate. --* 4.5.2.2 ~~In water depths under 5 feet (1.52 m), the slope of the floor of all pools shall not exceed 1 foot (30.5 cm) vertical drop for every 12 feet (3.66 m) horizontal.~~ Replace with Section 401.5 of the ISPSC. – **REFERENCE:** ISPSC, Section 401.5

  Changes to Code/Annex:
  Recommendation not implemented. 1:10 is steeper than 1:12, so the argument is not that a steeper slope is safer. 1:12 is consistent with ADA and the majority of local and state regulations in place. This standard is not intended to be enforced retroactively to pools already in existence, so there would be no impact on those Class C pools. It is not felt that the difference between 1:10 and 1:12 is prohibitive for most of these Class C pools. If they are of limited size and have a deep and shallow end, it can be presumed that the shallow end is not a full beach entry and likely 3'-0" or 3'-6". This would only require an additional 3-4 ft of shallow transition.

- *Comment:*
  4.5.4.1, 4.5.4.1.1, & 4.5.4.1.2 – *The current MAHC language is inadequate and confusing, and mistakenly presumes that every pool has a shallow or deep end. This revision, which incorporates the already accepted language from the ISPSC removes thre confusion and closes that loophole. --* 4.5.4.1 Each POOL shall have a minimum of two means of access and egress, located so as to serve both ends of a pool. ~~4.5.4.1.1 At least one access/egress point shall be at the shallow end of the aquatic venue. 4.5.4.1.2 At least one access / egress point shall be at the deep end of the aquatic venue.~~ – **REFERENCE:** ISPSC Section 411.1

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.4.2 – *This section is inadequate and fails to address many important issues, such as location of means and of access/egress. ISPSC requirements in Section 411.1 are very*

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specific and thorough; recommend either more detail that is consistent with ISPSC or a reference to the ISPSC section. **-- 4.5.4.2** Acceptable means of access/egress shall include stairs/handrails, grab rails/recessed steps, zero depth entries. SEE General Concern/Comment under Basis for Change. – **REFERENCE:** ISPSC Section 411.1.

Changes to Code/Annex:
Additional means of access listed.

- *Comment:*
  4.5.5.3 – *There is a 6 inch difference in water depths that mandates pool stairs extending below the static water level and there is also 6 inches difference in the depth the stairs must travel below the water level. Suggest that the language be changed to match the ISPSC.* -- 4.5.5.3 Where stairs are provided in pool water depths **greater than 3.5 feet (1.07 m),** they shall extend to a minimum depth of **3.5 feet** below the static water level. 411.2.4 Bottom tread. Where stairs are located in water depths **greater than 48 inches (1219 mm),** the lowest tread shall be not less than **48 inches** (1219 mm) below the deck and shall be recessed in the pool wall. RECOMMEND changing 4.5.5.3 to align with 411.2.4 of ISPSC.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.9.2.2 – *There is a one inch difference with the ISPSC on minimum horizontal clear space between hand rails. This is another example of where inconsistency between codes will cause problems for the local building and health departments, as well as the contractor and consumer/pool owner.* -- 4.5.9.2.2 The horizontal clear space between hand rails shall be not less than **17**~~18~~ inches (45.7 cm) and not more than 24 inches (61 cm). – **REFERENCE:** See Section 322.4.3 of the ISPSC

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.9.2.4 – *There is no justification or data for this requirement to differ from what is in the current ISPSC. This is another example of inconsistencies between the codes. If this requirement were to remain, many ladders currently on the market would not be able to meet it without having to purchase expensive tooling at a minimum, and even after such purchase, it may not be technically feasible for manufacturers to produce compliant ladders using current manufacturing methods. An example of a typical clearance for ladders currently on the market is a range between 4.5" to 5.5".* -- The clear space between hand rails and the POOL wall shall be not less than 3~~2~~ inches (~~5.08 c~~76mm) and not more than 6~~4~~ inches (~~10.2 c~~152mm). – **REFERENCE: See ISPSC Section 322.3.1 Wall clearance.** There shall be a clearance of not less than 3 inches (76 mm) and not greater than 6 inches (152 mm) between the pool wall and the *ladder*.

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Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.5.10.2 – *Zero depth sloped entries are better identified and defined in Chapter 6 (Aquatic Recreation Facilities) of the ISPSC. And D-3 pools have specific requirements not found here. The further break down of the different Public swimming pools is clearly an advantage in addressing the differences of public swimming pools. There is also a two foot difference in the water depth requirement from the ISPSC, see Section 602.1* -- **4.5.10.2** Zero depth entries shall have a maximum floor slope of 1:12 to a water depth of 5~~3~~ feet (91.4 cm). – **REFERENCE:** ISPSC Section 602.1

Changes to Code/Annex:
Minor modifications made to this section.

- *Comment:*
4.5.12 – *Restricts color of interior to "white or light pastel" whereas ISPSC Section 307.7 and ANSI/APSP-1 state "shall not obscure objects or surfaces…" Thus allowing any color that allows for visibility. There is no evidence that "light colors" insure greater visibility. –* **REFERENCE:** See ISPSC Section 307.7 and ANSI/APSP-1

Changes to Code/Annex:
Recommendation not implemented. Refer to the annex for additional rationale.

- *Comment:*
4.5.14.1 – *ISPSC allows handholds to be located no more than 12 inches above design water line. An unnecessary conflict has been created. The ISPSC language is correct. There is no reason to restrict the depth of the handhold or to preclude its location up to 12 inches above.* -- Where not otherwise exempted, every POOL shall be provided with hand holds (perimeter gutter system, coping, or cantilevered decking) around the entire perimeter installed not greater than 9 inches (22.9 cm) above, or 3 inches (7.62 cm) below static water level. SEE GENERAL COMMENT under Basis for Change. – **REFERENCE:** See ISPSC Section 323.1

Changes to Code/Annex:
Recommendation implemented.

Comment:
4.5.16.2 – *Another discrepancy, this time of a 1/4", from what is in the ISPSC.* -- The edges of UNDERWATER BENCHES shall be outlined with slip-resistant color contrasting tile or other permanent marking of not less than ~~1 inch (2.54 cm)~~ ¾ inch (1.91 cm) and not greater than 2 inches (5.08 cm). SEE General Comment under Basis for Change. – **REFERENCE:** See section 610.6.4 of the ISPSC.

Changes to Code/Annex:

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Recommendation implemented.

- *Comment:*
  4.5.16.4 – *There is a discrepancy of 4 inches between this section & section 411.5.2 of the ISPSC. Further, underwater seats and swim-outs are also addressed in Section 610.6 and 610.7 of Chapter 6 (Aquatic Recreation Facilities) of the ISPSC. Another example of discrepancy by having construction and design elements in two codes that ultimately should complement each other.* **--** The maximum submerged depth of any seat or sitting bench shall be ~~24~~ 20 inches ~~(61 cm)~~ measured from the water line. SEE General Comment under Basis for Change. – **REFERENCE:** See section 411.5.2 of the ISPSC.

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.17.3 – *States that ledges shall only be provide within areas of a pool with water depths of 5 feet or greater. It does not state the minimum distance below the water surface it should be located. Can they be in pools less than 5 feet? What is the width of the ledge? --* UNDERWATER TOE LEDGES for resting shall only be provided within areas of a POOL with water depths of 5 feet (1.52 m) or greater. See General Comment under Basis for Change. – **REFERENCE:** See 404.1 of the ISPSC

  Changes to Code/Annex:
  Refer to 4.5.17.6 for allowable tread depth. Clarification has been added that toe ledges may not be less than 4 feet below the water surface. They are not permitted in water shallower than 5 feet because it discourages "wall walking" by children who are poor swimmers and shouldn't be in deep water.

- *Comment:*
  4.5.19.1.4 – *Why the difference in six inches? Another example of conflict between MAHC and ISPSC that will cause considerable problems for the enforcement side, contractor, and consumer. --* 4.5.19.1.4 Depth markers shall also be located on the POOL coping or deck within ~~12~~ 18 inches ~~(30.5 cm)~~ (46.6 cm) of the POOL structural wall or perimeter gutter. See General Comment under Basis for Change. – **REFERENCE:** See ISPSC, Section 409.2.5

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.5.19.3.1 – *An discrepancy between stated depth and actual depth over three inches is not acceptable, and can create a risk of drowning or other injury by misleading bathers, supervising adults, or lifeguards as to the true depth of the water. Three inches is sufficient to account for variation in depth due to water level. --* 4.5.19.3.1 Depth markers shall be located to indicate water depth to the nearest 6 inches (15.2 cm), as measured from the POOL floor 3 feet (91.4 cm) out from the POOL wall to the gutter lip, mid-point of surface

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skimmer(s), or surge weir(s). See General Comment under Basis for Change. – **REFERENCE:** See ISPSC, Section 409.2.3

Changes to Code/Annex:

Recommendation implemented. Depth markers shall be provided to the nearest 3 inches.

- *Comment:*
  4.5.19.4.1 – *This section is inadequate because it does not address maximum interval between signs and therefore fails to ensure that a sign will be within the line of vision of a bather. It also fails to reference NEMA Z535* -- 4.5.19.4.1 For POOL water depths 5.0 feet or shallower, all depth markers required by section 4.5.19 above shall be provided with the universal international symbol for "NO DIVING" directly adjacent to the depth marker. See General Comment under Basis for Change. – **REFERENCE:** See ISPSC, Section 409.3, NEMA Z535

  Changes to Code/Annex:

  Initially, the international no diving symbol was required adjacent to the depth markings for water less than 5 feet. And these depth markings were required at 25 ft max spacing per 4.5.19 and the reference to that section in 4.5.19.4.1. However, this section has been modified to require the "No Diving" verbiage with the symbol and will therefore not be adjacent to the depth markings necessarily. So a 25 ft interval requirement has been added here.

- *Comment:*
  4.6.1.3.1 – *Large discrepancy for indoor and outdoor requirements here from what is in the ISPSC.* -- 4.6.1.3.1 POOL water surface and POOL DECK light levels shall meet the following minimum maintained light levels:
  1) Indoor Water Surface - 30 horizontal footcandles
  2) Outdoor Water Surface - 10 horizontal footcandles
  3) POOL DECK - 10 horizontal footcandles
  – **REFERENCE:** See ISPSC, Section 321.2.2

  Changes to Code/Annex:

  Recommendation not implemented. Current proposal submitted to the ISPSC to align with MAHC lighting requirements.

- *Comment:*
  4.6.1.4.1 – *Difference of 2 lumens per square foot of pool water with ISPSC, where it is minimum of 8 lumens per square foot of pool water. Suggest using Section 321.2.3 language.* -- Underwater lighting of not less than 6 initial rated lumens per square foot of POOL water surface area shall be provided. Higher un **-- REFERENCE**: See ISPSC, Section 321.2.3

  Changes to Code/Annex:

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- **Recommendation not implemented. Refer to the annex and basis for conversions. It is recommended that future studies be conducted to determine minimum lighting requirements based on water depth, hours of operation, and overhead lighting design. The main goal is to be able to see the bottom of the pool at all times when the pool is open to the public.**

- *Comment:*
  4.6.1.6.1 – *Suggested revision to change the emergency lighting requirement to "…in no case shall the path of egress be illuminated to less than a maintained value of ~~0.5~~ 0.6 footcandles." This would allow for the IBC requirement of 1 footcandle to apply, but still allow the illumination to decline during the 90 minutes of operation. The absolute minimum in either case would then be 0.6 footcandles.* -- POOL areas requiring lighting shall be provided with emergency egress lighting in compliance with the applicable Building Code, but in no case shall the path of egress be illuminated to less than a maintained value of ~~0.5~~ 0.6 footcandles. – **REFERENCE:** See ISPSC, Section 321.3 and IBC, Section 1006.3.1

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.6.3.2 – *This section will create confusion. It also fails to reference NFPA 70, which thoroughly addresses this issue. The MAHC should reference Section 316.4 of the ISPSC, which includes the appropriate references and citations.* -- Where pool-water heating equipment is installed with valves capable of isolating the heating equipment from the pool, a listed pressure-relief device shall be installed to limit the pressure on the heating equipment to no more than the maximum value specified by the heating-equipment manufacturer. See General Comment under Basis for Change – **REFERENCE:** See ISPSC, Section 316.4

  Changes to Code/Annex:
  NFPA 70 reference added to the other standards listed in 4.6.3.1 of the annex.

- *Comment:*
  4.6.3.3 – *Same as above. Suggest using language in Section 316.4 of the ISPSC.* -- Pool-water heating equipment shall be selected and installed to preserve compliance with the applicable codes, the terms of listing, and labeling of equipment, and with the equipment manufacturer's installation instructions. See General Comment under Basis for Change – **REFERENCE:** See ISPSC, Section 316.4

  Changes to Code/Annex:
  NFPA 70 reference added to the other standards listed in 4.6.3.1 of the annex.

- *Comment:*
  4.6.7.2 – *This will allow facilities where the 48" egress width is not adequate to still comply. This does not change the requirement in the MAHC, but allows it to coordinate with the*

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egress requirements in the IBC. The IBC requires a minimum width of 44", but this can increase based on the occupant load. The IBC will use a factor of 0.2" per person to determine the required egress path width. -- When a spectator area or an access to a spectator area is located within the POOL ENCLOSURE, the POOL DECK adjacent to the area or access shall ~~be an additional 4 feet (1.22 m) wider than~~ provide egress width for the spectators in addition to the width required by Section 4.8.1.5. The additional width shall be based on the egress requirements in the Building Code based on the occupant load served with a minimum width of 4 feet (1.22 m) and have either of the following: -- **REFERENCE:** See IBC

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
  4.6.7.4 – *The ICC 300 Standard is available in 2012 Edition. This section should reference the 2012 edition or refer to the most recent addition of the ICC 300 Standard.* -- 4.6.7.4 Bleachers in a spectator area shall be designed according to International Code Council 300-2007 which has been approved for reference in the 2007 Supplement to the International Codes or another applicable CODE.See General Comment under Basis for Change – **REFERENCE:** ICC 300 Standard

  Changes to Code/Annex:
  Recommendation implemented.

- *Comment:*
  4.8.6.2.3 – *The MAHC should confine itself to the dimensional or construction requirements. The current language fails to provide a maximum and is therefore not enforceable. ISPSC Section 305.27 states the maximum opening formed by a chain-link fence shall not be more than 1.75".* -- **ENCLOSURES** shall be constructed in such a way as to discourage climbing. Horizontal mid-rails are not permissible. ~~Chain-link fencing constructed with standard 2 inches (5.08 cm) mesh is considered climbable and is therefore not permitted. Chain-link fencing constructed of 1 1/4 inches (3.18 cm) mesh is permissible.~~ Chain-link fencing shall have a maximum opening of 1-3/4 inches (4.4 cm). – **REFERENCE:** ISPSC Section 305.27

  Changes to Code/Annex:
  Recommendation implemented.

  Comment:
  4.8.6.2.7.1 – *ISPSC Section 305.2.1 and IBC Section 3109.3 require public pools to be completely enclosed by a fence not less than 4 feet(1290mm) in height or a screen enclosure* **--** Enclosures shall not be less than 4 ~~6~~ feet (1.22m) ~~(1.83m)~~ in height. General Comment, See Basis for change – **REFERENCE:** ISPSC and IBC.

  Changes to Code/Annex:

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Recommendation not implemented. Current state and local standards have a fair amount of disagreement on the preferred minimum height. Many allow 4 feet for unguarded pools (with higher minimum requirements for guarded public pools). However, it was felt that even unguarded pools have some hours of use and entry should be discouraged when it's not intended. 4 foot high fences are generally climbable, even with chain links of 1.75".

- *Comment:*
  4.8.6.3.5 – *Current MAHC language is inadequate and fails to state what is required. This section should state the requirement, not what is"allowed." Should refer to the ISPSC. --* Exit gates or doors shall open outward away from the aquatic venue ~~be allowed to swing outward~~. **-- REFERENCE**: ISPSC, Section 305.3

  Changes to Code/Annex:
  This section has been modified with alternate language.

- *Comment:*
  4.8.6.3.7 – *Uses non-mandatory (may). Further, there is a conflict in height of self-latching devices above finish grade between this section and the IPSC. Suggest using ISPSC Section 305.3 language. –* **REFERENCE:** ISPSC, Section 305.3

  Changes to Code/Annex:
  Recommendation not implemented. "May" is not used in this paragraph. It is felt that a latch 3" from the top of a 4 ft high gate, which would be allowed by ISPSC is not safe since small children can operate the gate from outside of the pool enclosure.

- *Comment:*
  4.9.1.1.4 – *IPC thoroughly addresses hose bibbs, and MAHC should reference same to ensure consistency. --* 4.9.1.1.4 At least one (1) hose bibb ~~with backflow preventer~~ shall be located in the equipment room or area and shall be installed in accordance with the International Plumbing Code.

  Changes to Code/Annex:
  A reference to the International Plumbing Code has been added.

- *Comment:*
  4.9.1.8.2.3 – *This section ignores the ventilation requirements of the International Fire Code (IFC) and International Building Code, . See:* ***2012 IFC - Section 5004.3 Ventilation.*** *Indoor storage areas and storage buildings shall be provided with mechanical exhaust ventilation or natural ventilation where natural ventilation can be shown to be acceptable for the materials as stored. Exception: Storage areas for flammable solids complying with Chapter 59. --* 4.9.1.8.2.3 There shall be no ducts, grilles, pass-throughs, or other openings connecting such equipment rooms to chemical-storage spaces except as permitted by the International Fire Code and International Building Code. – **REFERENCE:** IFC, Section 5004.3

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Changes to Code/Annex:
Recommendation implemented. Reference to the International Fire Code added

- *Comment:*
4.9.1.8.3.1.1 – *This section ignores the IBC Section 1003.5 or as part of the accessible route requirements of Section 1104, including Section 1104.3.1) and Section 5004 of the International Fire Code regarding storage of hazardous material or equipment. --* 4.9.1.8.3.1.1 Exception 1. This requirement may be met by a floor all of which is at least four inches below the level of the nearest part of the natatorium floor. General Comment – **REFERENCE:** IBC Section 1003.5, Section 5004 of the International Fire Code

Changes to Code/Annex:
Recommendation not implemented. Mechanical spaces are exempt from accessibility requirements.

- *Comment:*
4.9.1.8.3.2.1 – *The section should require that the door closes and 'latches'.* **--** The door, frame, and automatic closer shall be installed and maintained so as to ensure that the door closes completely and ~~reliably~~ latches without human assistance.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.2.1.1 – *Pool chemicals should not be stored outdoors unless they are kept in a protective enclosure to prevent access by the public and protect the chemicals from sunlight, heat, rain, etc.* **--** Pool chemicals, acids, fertilizers, salt, de-icing chemicals, oxidizing cleaning materials, other corrosive or oxidizing chemicals, and pesticides should be stored outdoors in a protective enclosure such as ~~or in~~ a well-ventilated structure not intended for occupation.

Changes to Code/Annex:
"In a protective enclosure" added.

- *Comment:*
4.9.2.2.2 – The construction of the chemical-storage space shall, to the extent practical, protect the stored materials against tampering, wild fires, unintended ~~unexpected~~ exposure to water, etc.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.2.2, 4.9.9.3, 4.9.2.4, & 4.9.2.6 – *The construction of chemical storage rooms are thoroughly addressed in NFPA 400, the IFPC, and the IBC* – **REFERENCE:** See NFPA

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and I-codes

Changes to Code/Annex:
Annex additions made for 4.9.2.2, 4.9.2.3, 4.9.2.4, and 4.9.2.5. As applicable, the standards of NFPA 400, the IFPC, and the IBC shall prevail. This standard is not intended to provide relief from these other regulations, but to provide best practice where these regulations are not adopted or enforced. The more stringent standard shall prevail as applicable.

- *Comment:*
4.9.2.4.5.6 – *Same change as 4.9.1.8.3.2.1, this section should require that the door closes and "latches."* -- Such doors shall be equipped with an automatic door closer that will completely close the door and latch without human assistance.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.9.2.10.1 – *MAHC requires emergency ventilation in Section 4.9.2.10.2. The IFC also requires continuous ventilation but at a much lower exchange rate. It could be possible for only the emergency system to be installed since the user may see that is all that is stated in this document. Adding the new section will meet the IFC/IBC/IMC requirements. Then the 'emergency ventilation' system will kick in at 60 air changes per hour.* -- Ozone equipment rooms shall be equipped with an emergency ventilation system capable of 60 air changes per hour. Suggest adding a new section as follows: 4.9.2.10.1.1 The ozone equipment room shall be provided with continuous ventilation of 6 air changes per hour. – **REFERENCE:** See Section 6005.3.2 of the IFC

Changes to Code/Annex:
Recommendation implemented. This was a typo in the draft. 6 air changes were intended, not 60.

- *Comment:*
4.9.2.10.3.2 – *IFC requires that the ventilation system operate when the ozone detection system is activated. Section 4.9.2.10.2.2 also requires the emergency ventilation system to operate when the ozone detection system is activated. This recommended change ensures consistency with the IFC requirements.* -- Such ventilation system shall be so arranged as to
1) run automatically concurrent with the ozone equipment and for at least a time allowing for 15 air changes after the ozone equipment is stopped, ~~and~~
2) run upon activation of the ozone detection and alarm system, and
3~~2~~) run on command of a manual switch. – **REFERENCE:** See IFC Section 502.9.9 Ozone gas generators. Ozone cabinets and ozone gas-generator rooms for systems having a maximum ozone-generating capacity of 1/2 pound (0.23 kg) or more over a 24-hour period shall be mechanically ventilated at a rate of not less than six air changes per hour. For cabinets, the average velocity of ventilation at makeup air openings with cabinet doors

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closed shall be not less than 200 feet per minute (1.02 m/s).

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
  4.11.2.2 – *Unless resolved this will be a conflict with local health authorities and building departments due to difference between MAHC and ISPSC sections.* -- A swimming POOL shall be protected against backflow from a wastewater disposal system consisting of an acceptable air gap unless the permitting agency approves the elimination of the air gap. See General Comment – **REFERENCE:** ISPSC Section 320.1 Backwash water or draining water. Backwash water and draining water shall be discharged to the sanitary or storm sewer, or into an approved disposal system on the premise, or shall be disposed of by other means approved by the state or local authority. Direct connections shall not be made between the end of the backwash line and the disposal system. Drains shall discharge through an air gap.

  Changes to Code/Annex:
  Recommendation implemented. Section modified to reflect potable water supply. Direct connections are allowed by some local jurisdictions for potable water supply with approved backflow preventers and this standard is not intended to contradict them.
- *Comment:*
  4.11.2.2.1 – *Why is the stopping point 10 inches? Why not 9 or 11? This conflicts with the IPC, which is accepted nationally. IPC Section 802.2.1 Air gap. The air gap between the indirect waste pipe and the flood level rim of the waste receptor shall be not less than twice the effective opening of the indirect waste pipe.* -- The air gap shall consist of a vertical distance of not less than 2 pipe diameters of the POOL wastewater discharge pipe up to a maximum of 10 inches (25.4 cm) over the highest free-flowing discharge point of the receiving pipe, tank, or vessel. – **REFERENCE:** See IPC Section 802.2.1

  Changes to Code/Annex:
  This paragraph and the preceding one have been deleted as they are redundant with the first section under Cross-Connection Control (4.11.3). The minimum air gap requirement is two pipe diameters or 6 inches, whichever is greater.

- *Comment:*
  4.11.4.1 – *Another inconsistency between the MAHC and ISPSC, the MAHC being subjective in nature where the requirements in the ISPSC for over-the-rim spouts are clear. Suggest referring to the ISPSC in order to provide consistency and not create another area where local building and health officials may differ.* -- 4.11.4.1 If a fill spout is used at a pool, the fill spout shall be located so that it is not a SAFETY hazard to BATHERS. – **REFERENCE:** See ISPSC Section 318.3 Over-the-rim spouts. Over-the-rim spouts shall be located under a diving board, adjacent to a ladder, or otherwise shielded so as not to create a hazard. The open end of such spouts shall not have sharp edges and shall not protrude more than 2 inches (51 mm) beyond the edge of the pool. The open end shall be

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separated from the water by an air gap of at least 1.5 pipe diameters measured from the pipe outlet to the rim.

Changes to Code/Annex:
Recommendation implemented. Language modified slightly.

- *Comment:*
4.11.6.3 – *The way it is currently written, it sounds like it is the wastewater that is required rather than the permit.* -- Wastewater discharged from a swimming POOL to surface waters may ~~be~~ required ~~to obtain~~ a permit for disposal.

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.12.1.2 – *The recommended changes provide requirements for exercise spas and spas designed for a special purpose – areas covered in the ISPSC, Section 503.1, but missing here. Without this additional language the MAHC proposes to put all spas in a one size fits all category; limiting design and function.* -- The maximum water depth in spas shall be 4 feet (1.22 m) measured from the design water line~~.~~, except for spas that are designed for special purposes and approved by the authority having jurisdiction. The water depth for exercise spas shall not exceed 6 feet 6 inches (1981mm) measured from the design waterline. – **REFERENCE:** See ISPSC Section 503.1

Changes to Code/Annex:
Recommendation implemented.

- *Comment:*
4.12.1.2.1 – *Another inconsistency between the ISPSC and MAHC regarding spa design and construction.* -- The maximum submerged depth of any seat, ~~or~~ sitting bench, or multi-level seating shall be 28~~4~~ inches (711~~61 c~~mm) measured from the design water line to the lowest measureable point. – **REFERENCE:** See ISPSC Section 503.2

Changes to Code/Annex:
Recommendation implemented

- *Comment:*
4.12.1.5.4 – *What is considered an effective barrier? What is the intent of this requirement? Once again this is another subjective requirement in the MAHC that will be problematic for the AHJ and users of the code. It also is another example of inconsistency with the ISPSC (see Section 607 Barriers).* -- If an effective BARRIER is not provided, a minimum distance of 4 feet (1.22 m) between the POOL and SPA is required. SEE GENERAL COMMENT – **REFERENCE:** SECTION 607 – BARRIERS
607.1 Barriers. Multiple aquatic vessels within a single complex shall be permitted without barriers where a barrier separates the single complex from the surrounding property in accordance with Section 305.

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Changes to Code/Annex:
Recommendation not implemented. Refer to the glossary and annex for clarification on intent.

- *Comment:*
4.12.1.7 – *Clarifies it is the incoming makeup water that shall not exceed the maximum temperature. Consistent with ISPSC Section 507.1* -- Water temperature entering the spa from the heat source shall not exceed 104°F (40°C). – **REFERENCE:** See ISPSC Section 507.1

Changes to Code/Annex:
Recommendation not implemented.

- *Comment:*
4.12.1.12, 4.12.2.5.4, 4.12.3.4.4, 4.12.4.8, and 4.12.9.6 – *There is no code section from the Contamination Burden TC, so the design committee, the burden committee or some other committee will need to draft some verbiage for bather load limits if they are not in another section already.*

Changes to Code/Annex:
Agreed. These were internal notes and maximum bather loads will be in the final MAHC.

- *Comment:*
4.12.3.2.2 – *What is the rationale for this requirement, which appears to be an unnecessary expense and once again conflicts with the ISPSC, Section 605.1* **--** ~~WAVE POOLS shall be provided with handholds at the static water level or not more than 6 inches above the static water level.~~ **– REFERENCE:** See Section 605.1

Changes to Code/Annex:
Recommendation not implemented

31. Vicki Russo, City of Pacifica (Pacifica, CA)

- *Comment:*
4.8.3.3 -- *Consistent with USA Swimming regulations* -- Change to, "In pools with water depth 4 feet (1.22 meters) or more at starting end, starting platforms shall not be higher than 2 feet 6 inches (.762 meters) above surface of water." – **REFERENCE**: USA Swimming Rule Book page 46, 103.13 Starting Platforms, Short Course Yards

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the

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auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

32. Adam Zaczkowski, USA Swimming (DeWitt, NY)

- *Comment:*
  4.8.3.3 -- *Safety, pools remaining open. -- Currently the minimum depth to use blocks in competition is 4.0 feet and according to Risk Management Services, there have been no bottom strikes since going to this depth. The US has lost over 1,100 pools in the country last season (2011-2012). Going to the new proposed depth will cause even more pools to go off line and be unusable for swim meets. If these new minimum depth requirements are passed, many of our existing pools will be useless for holding swim meets without major costly renovation. --* Starting Block Depth should be 4 ft (1.2921m) for competitive swimming meets and competitions

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the

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reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

33. Brian Edmister, GVST Swim Team (Belmont, NY)

- *Comment:*
  4.8.3.3 -- *The current depth of 4'0" is sufficient to safely use starting platforms. No injuries have been reported at that depth in our pool.* -- Starting Platforms shall be installed with a minimum depth of 6'7".

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

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34. Jon Larson, Emmaus Aquatic Club (Emmaus PA)

- *Comment:*
  4.8.3.3 -- *Every sanctioning body of competitive swimming has implemented policies regarding minimum depth. Since implementation, there have been no reports of bottom strikes. It is important to note that increasing the minimum to over 6 feet would eliminate so many facilities that the impact on competitive swimming in the US would be catastrophic. --* Starting platforms shall be installed in a minimum water depth of 4 feet and 0 inches.

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

35. Chris Miller, GCIT (Sewell, NJ)

- *Comment:*
  4.8.3.3 -- *No empirical evidence of increased danger at that depth, nor empirical evidence showing a change to 2m will decrease any casualties.* **--** Depth of water for competition starting blocks should follow FINA and USA Swimming recommendations of 1.35 meters. – **REFERENCE**: FINA guidelines and US Swimming's Risk Management firm.

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the

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auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

36. Matthew Sprang, Middle Atlantic Swimming (Sewell, NJ)

- *Comment:*
  4.8.3.3 -- *Proposed change shall cause irreparable harm to many businesses, children, and the livelihood of many individuals depending on the use of aquatics facilities for their employment. The proposed changes will also do so much harm to the sport of swimming in the United States. Last year alone over 1,100 pools closed in the US. This rule change will force many more facilities to either move forward with extremely costly renovations or close their doors (at least for competitions) as well. We, in Middle Atlantic Swimming, are desperately trying to find more competitive opportunities for our athletes. This proposed rule change will only take competitive opportunities away. Likewise, Risk Management Services, the insurance company which provides coverage for all USA Swimming affiliated teams, has stated that the current allowable depth for starting platforms is more than enough to provide a safe depth for racing starts when a swimmer has been certified as being able to perform a racing start by a USA Swimming Coach Member.--* Maintain current depth for use of starting platforms but require a depth of 6 feet for the teaching of racing starts until the swimmer is certified as proficient as per USA Swimming current standards.

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools

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and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

37. Cindy Passalacqua, Jersey Devilrays Swimming (Westampton, NJ)

- *Comment:*
  4.8.3.3 -- Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m). This ruling will render many of the pools in the NJ, DE and PA area useless for swim competitions. There are not enough pools available already for all the swimmers in the Middle Atlantic LSC. USA Swimming requires us to certify that all our swimmers who step up on the blocks are racing start certified, so that they don't dive too deep. Renovation costs will probably force many of the affected pools to stop hosting swim meets. This includes high school swim meets and the summer rec leagues that are very popular in the Tri-State area. Please keep the pool depth for the blocks at the current 4.0 feet.

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically

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addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

38. TJ Liston, YMCA of Central Virginia (Lynchburg, VA)

- *Comment:*
  4.8.4.4 (perhaps intended 4.8.3.3?) – *USAS-Swimming Rules and regulatons* -- Starting platforms shall be installed in a minimum water depth of 6 feet 7 inches (2.01 m). – **REFERNCE**: USA-Swimming falls under the US-Olympic Committee umbrella and is the leading organization in competitive swimming. Their rules and regulations have a depth of 4 feet or greater for competitions. 6'7" will eliminate an extraordinary number of competitive facilities across the country and many of the facilities will close without swim team support. Please reconsider the USAS depth levels for racing starts/platforms.

  Changes to Code/Annex:
  - **Agreed. (actually referring to section 4.8.3.3) Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.**

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- *Comment:*
  4.6.2 – *No change- just encouraging looking at pools different from other open areas to ensure air quality. Thank you.* – Ventilation

  Changes to Code/Annex:
  Not sure what reference is being made. See Ventilation module for exact guidance

39. Kelly Mcclanahan, Univ of Northern Colorado (Greeley, CO)

- *Comment:*
  4.8.3.3 -- *This will hurt many club, high school and college programs who cannot afford to reconstruct their pools to adhere to that depth.* -- Do not implement the 6'7" requirement for starting blocks

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

40. Doug Colin, Loras College (Dubuque, IA)

- *Comment:*
  4.8.3 -- Question – Will this, in the future, be applied to existing pools? If so, it will end many small college, HS, & club programs, as they will not be able to afford the required expense to make the necessary change. If for only new construction, then it is understandable. I believe there is miswording in the text of the proposed document, when

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referring to “springboards” and “jumpboards”. Are you talking about an actual diving springboard (diving board) or to competitive swimming starting blocks? Improper training and reckless, individual horse-play is responsible for nearly all starting block injuries. When trained correctly, an athlete, regardless of size can execute a safe competitive start into water as shallow as 3 feet. Obviously, 3 ft. is not safe for beginners. NCAA and USA Swimming are currently at 4 ft. for minimum depth. But, to go to 6’7” is an extreme.

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires “No Diving” signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

41. William Marlin, Potomac Marlins Swim Team (Herndon, VA)

- *Comment:*
  4.8.3.3 -- Starting platforms shall be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a “fast-pool” factor not a safety feature. FINA’s minimum depth for racing starts is 1.35 meters (4ft. 6 in.). This also is a pool manufactures spec based on standard depth for steel pool walls and is not a safety feature backed up by any research. Editorial Comment: The proposed minimum depth arbitrarily changes the current industry standard with no research or analysis to support that 6’7” is safer than 4’. Editorial Comment: Greater pool depth does not guarantee racing start safety. Proper education, awareness and supervision are the keys. USA Swimming recommends a specific racing start teaching progression and requires that all swimmers must be certified as proficient in performing a

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racing start. Editorial Comment: If the minimum 6'7" recommendation should become part of the final code, it would be very problematic for competitive swimming and even for many recreational programs. Thousands of pools that currently host swim meets and practices for every major aquatic organization would be adversely impacted. – **REFERENCE**: The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

42. Erik Cozadd, Boys & Girls Clubs of Deep East Texas (Nacogdoches, TX)

- *Comment:*
  4.8.3.2 – *Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor.* -- Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor. – **REFERENCE:** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to:

http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf

Changes to Code/Annex:
Agreed. Wording added.

- *Comment:*
  4.8.3.3 – *Starting platforms shall be used only for competitive swimming competition and training ~~only~~ and only under the direct supervision of a coach or instructor.* -- Starting platforms shall be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). – **REFERENCE:** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Go to: http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf

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43. Paul Mostinski, Pennsbury Aquatic Club (Bensalem, PA)

- *Comment:*
  4.8.3.3 -- *It is safe for competitive swimmers.USA Swimming doesn't have enough swimming pools for competitions deeper than 4 feet. Only beginners need deeper pools for practices.* -- New language in the main document: Starting platforms shall be installed in a minimum water depth of 4 feet (1.33 m) for competitive swimming competition. Minimum water depth for starts from starting platforms used for training only should be at least 6 feet

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and 7 inches (2.01 m). In the annex: FINA and NCAA allow 4 feet (1.22 m) at starting platforms. It is less than the best Olympic regulations, therefore the requirements for the swimmers starting from blocks have to be enforced: any competing swimmer has to maintain document signed by the coach about the proficiency in starting from the block. Only platforms at the side of the pool not less deep as 6 feet 7 inches (2 m) can be used for any training, for beginners practice of any age. – **REFERENCE:** USA Swimming National Convention report by Mick Nelson (from USA Swimming) about safe use of 4' pools in competitions. My own experience as 3 year practice as a stroke and turn judge.

Changes to Code/Annex:
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44. Corey Doise (Mechanicsville, VA)

Comment:
4.8.3.3 -- Starting platforms shall be installed in a minimum water depth of 4 feet.

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the

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public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

45. William Burnley, Parent of Competitive Swimmer (Mechanicsville, VA)

- *Comment:*
  4.8.3.3 -- *USA Swimming facilities development pool certification program guidelines. USA swimming is the leading swimming authority in the world. To mandate an increase in pool depth would have a devastating impact on competitive swim programs in America. The current USA Swimming standard of 4 ft water depth at the starting blocks is safe. Please consider consultation with USA Swimming before implementing these overly restrictive rules.* -- Starting platforms shall be installed in a minimum water depth of 4 feet. –
  REFERENCE: Section 103.2 Water Depth in document -
  http://www.usaswimming.org/_Rainbow/Documents/3811efc7-eea6-4e32-a770-94b782a797d3/P-Flash%20certification%20process%20for%20pools%20is%20on%20our%20web%20site.pdf

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing

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body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

46. Pat Hogan, USA Swimming (Colorado Springs, CO)

- *Comment:*
  4.8.3.1 -- *To better clarify the intent of the section.* -- Starting platforms shall be installed and conform to applicable standards established by the Federation Internationale de Natation (FINA), USA Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High School Associations (NFHS), YMCA or other sanctioning bodies.

  Changes to Code/Annex
  Agreed. Wording added to section

- *Comment:*
  4.8.3.1 ANNEX -- *Correction: FINA's minimum starting depth is 4 feet 6 inches. Editorial Comment: Instruction and supervision is the primary key to safety. It is important that the Code and Annex recommend supervision of a certified coach. There is no definitive documentation or research that supports the statement "this depth is unsafe for high school age beginners. Five feet (1.52m) is on the edge of safety for a high school age male to make a starting error." There is no research to support the claim that 6 feet 7 inches is the safest starting depth. Also, 6'7" depth is not the recommended minimum starting depth for Olympic competition. We strongly suggest that you remove the final paragraph in this section since the referenced 1990 study actually reviewed the use of springboards and jumpboards and not starting platforms. The angle of entry for dives off of jumpboards and diving boards is entirely different than for racing starts. This study has no bearing whatsoever on racing start safety.* -- The intent is to require 4 feet (1.22 meters) ~~6 feet 7 inches (2m)~~ water depth unless there is a different governing body (e.g. FINA, USA Swimming, NCAA, NFHS ~~NFSHSA~~, YMCA, etc.) standard that is applicable for sanctioned competitions and for organized practice. ~~FINA~~ USA Swimming, NFHS and the NCAA allow 4 feet (1.22 m) at starting platforms. ~~As is well documented in case histories and litigation, this depth is unsafe for high school age beginners. Five feet (1.52 m) is on the edge of safety for a high school age male to make a starting error. The most conservative and safest starting depth is 6 feet 7 inches or 2-meters. This is consistent with the recommended minimum starting depth for Olympic competition. A seminal study in 1990 investigated 74 neck injuries occurring with use of springboards and jumpboards. Of these injuries, 12.2% occurred in water less than or equal to 4 ft; 66.2% occurred in water less than or equal to 5 ft., 94.6% occurred in water less than or equal to 6ft. all injuries occurred in water of 7 ft or less. These data support increased the diving depth under diving boards or starting blocks due to the increased height before entry and associated increased body velocity.~~ The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety. This study suggests that proper education, awareness and

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supervision are the keys to safe racing starts. Racing starts should always be performed under the direct supervision of a certified coach. – **REFERENCE:** Dr. Joel Stager and the Counsilman Center for the Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf Suggestion: We strongly recommend that the Technical Committee meet with Dr. Stager to get his input. Dr. Stager is arguably the leading authority in the USA on racing start safety. USA Swimming would be happy to assist with arranging such a meeting. _____ Note FINA Rules FR 2.3 (pg. 361) and FR 3.3 (pg. 364) in the 2009-2013 FINA Handbook

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
4.8.2.1 -- *No change; supporting comment: Editorial Comment: Separating recreational swimming from competitive swimming is the most effective way to facilitate a practical minimum water depth for competitive use of starting platforms. Prohibiting and preventing use of starting platforms by recreational swimmers is paramount.* -- Starting platforms shall be removed or prohibited from use during all recreational or non-competitive swimming activity.

Changes to Code/Annex:
Agreed. Wording kept intact. (actually referring to 4.8.3.1)

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- *Comment:*
  4.8.3.3 -- *The industry standard in the United States is 4 feet as evidenced by NCAA, NFHS, and USA Swimming rules. Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). Editorial Comment: The proposed 6'7" minimum depth arbitrarily changes the current industry standard with no definitive research or analysis to support that 6'7" is safer than 4' or any other depth. Editorial Comment: Greater pool depth does not guarantee racing start safety. Proper education, awareness and supervision are the keys. USA Swimming requires a specific teaching progression for racing starts. In addition, it is required that all swimmers be certified as proficient in performing a racing start before they are permitted to start in 4 feet. Editorial Comment: If the minimum 6'7" requirement is part of the final code, it will be very problematic for competitive swimming and for many recreational programs. Thousands of pools that currently host swim meets and practices for every major competitive swimming organization would be adversely impacted.* -- Starting platforms shall be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). – **REFERENCE:** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. http://www.indiana.edu/~kines/pdf_files/council/White_2011.pdf Note FINA Rules FR 2.3 (pg. 361) and FR 3.3 (pg. 364) in the 2009-2013 FINA Handbook

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject.

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The MAHC Annex includes a short summary of these data.

47. Carol Zaleski, FINA Technical Swimming Committee (Pittsburg, PA)

- *Comment:*
4.8.3.1 -- *It appears that the MAHC committee has selected a minimum depth recommendation for starting platforms that is tied to the minimum swimming pool depth established by FINA for the conduct of the Olympic Games. Please be aware that the 2 meter minimum depth for pools for the Olympic Games is a performance consideration specified for the elite levels of international competition. This dimension is a "fast pool" consideration not a safety factor. Experience has demonstrated that deep water allows for faster performances because the deep water significantly reduces turbulence in the pool. As the chair of the FINA Technical Rules Committee, I want you to know that this statement is incorrect. The only reference in the FINA rulebook to a minimum depth for starting blocks is Rule FR 2.3 which specifically requires a minimum depth of 1.35 meters (4 feet 6 inches) for pools with starting blocks. This dimension is consistent with the minimum depth standard of 4-feet to 5-feet utilized by the major competitive swimming governing bodies in the USA. It is important that the committee understand the intent and purpose of the 2-meter depth required for Olympic competition. Utilizing this "fast pool" performance factor as a required minimum depth for starting platforms is taking the FINA rule out of context. --* The intent is to require 4 feet (1.22 meters) ~~6 feet 7 inches (2m)~~ water depth unless there is a different governing body (e.g. FINA, USA Swimming, NCAA, NFHS ~~NFSHSA~~, YMCA, etc.) standard that is applicable for sanctioned competitions and for organized practice. ~~FINA~~ USA Swimming, NFHS and the NCAA allow 4 feet (1.22 m) at starting platforms. ~~As is well documented in case histories and litigation, this depth is unsafe for high school age beginners. Five feet (1.52 m) is on the edge of safety for a high school age male to make a starting error. The most conservative and safest starting depth is 6 feet 7 inches or 2-meters. This is consistent with the recommended minimum starting depth for Olympic competition.~~ – **REFERENCE:** Please note FINA Rules FR 2.3 (pg. 361) and FR 3.3 (pg. 364) in the 2009-2013 FINA Handbook

ALSO, SEE Document titled "Design and Construction – Zaleski Letter"

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the

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reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

48. George Massey, Burkwood Swim and Racquet Club (Mechanicsville, VA)

- *Comment:*
  4.8.3.3 -- Starting platforms shall be installed in a minimum water depth of 4 feet (1.22m).

- **ALSO SEE "Design and Construction – Massey Letter"**

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

49. David Strider, no comment form submitted (Virginia)

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- *Comment:*
  Dear Officers of CDC,
  I do not believe 6 feet and 7 inches is necessary for depth of pool for starting end or turn end. Swimmers may injure themselves in 6 feet of water as easy as in 4 to 5 feet, bases on the angle and propulsion of the dive. Such greater depth will result in delay in future pool building due to lack of funding for additional concrete / excavation costs / water treatment costs.This will trickle down to less overall pool water, and less opportunities for children to learn to swim, as well as compete.

  Such excessive limitations on the minimum depth (e.g. proposal of 6 ft , 7 inches) will direclty take away swimming pool capacity,, and this may result in INCREASED rate of drowning, due to this nationally generated curb on the development of new pools that may have blueprints for 5 feet of water in the start and turn ends.

  Thank you of rreconsidering this limitation.
  David Strider, RN, CCRN, MSN, MSB, ACNP. DNP
  General Chairperson - Virginia Swimming

Changes to Code/Annex:

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50. Eugenie and Michael Randazzo, New Jersey Swimming (Wall, NJ)

- *Comment:*
  4.8.3.2 – *The Counsilman Center for The Science of Swimming completed a study in 2011*

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on racing start safety published in the International Journal of Aquatic Research and Education. Joel Stager, Director, reports that the critical link to safe starting block starts is education. Editorial Comment: Proper supervision and instruction has and will continue to prevent more injuries than arbitrarily increasing the minim -- Starting platforms shall be used only for competitive swimming competition and training only and only under the direct supervision of a coach or instructor. – **REFERENCE:** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed.

Changes to Code/Annex:
Agreed. Wording added.

- *Comment:*
  4.8.3.3 – *Same reference as above. Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). This also is a pool manufactures spec based on standard depth for steel pool walls and is not a safety feature backed up by any research. Editorial Comment: The proposed minimum depth arbitrarily changes the current industry standard with no research or analysis to support that 6'7" is safer than 4'. Editorial Comment: Greater pool depth does not guarantee racing start safety. Proper education, awareness and supervision are the keys. USA Swimming recommends a specific racing start teaching progression and requires that all swimmers must be certified as proficient in performing a racing start. Editorial Comment: If the minimum 6'7" recommendation should become part of the final code, it would be very problematic for competitive swimming and even for many recreational programs. Thousands of pools that currently host swim meets and practices for every major aquatic organization would be adversely impacted.* -- Starting platforms shall be installed in a minimum water depth of 6 feet and 7 inches (2.01 m) 4 feet (1.22 meters). – **REFERENCE:** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed.

  Changes to Code/Annex:
  Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of

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a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

51. Becky Oakes, Natl Federation of State High School Association (Indianapolis, IN)

- *Comment:*
  4.8.3.3 – *The FINA requirement of 6 feet 7 inches is based upon the dimensions of a "fast pool" designed for competitive swimming, and is based on a performance factor, not a safety factor. All other similar national swimming governing bodies that have safety as a paramount concern have established a minimum water depth of 4 feet. Moreover, recent study and injury data completed after the promulgation of safety based rules changes reveals data in contrast to the 1990 Gabrielson study. Specifically, research conducted by Dr. Fred Mueller of University North Carolina reveals that, since the NFHS changed its minimum starting depth to 4 feet over a decade ago, there have been no reported catastrophic injuries or fatalities related to racing starts. Dr. Dawn Comstock of The Ohio State University tracks noncatastrophic injury data at the high school level and has reported only 1 injury (a hand contusion suffered in practice) that resulted from contact with the bottom of the pool after diving off of a board, platform, or block over the same time period. Indeed, proper supervision and instruction are more significant limiters of injury potential due to competitive racing starts than pool depth. Conversely, drowning is a major problem in the United States. By the Centers for Disease Control's own statistics, unintentional drowning deaths from 2000-2010 averaged 3,827 deaths per year, which illuminates there is a more significant risk of harm in swimming in general. Because of this risk, the multi-use publicly funded pools that high school teams frequently swim in are designed with an eye toward the safety of small children, elderly, and people with disabilities who will also be using them. This means that both ends of the pools are often shallower than 6 feet 7 inches. Even though the proposal before us would apply only to new construction, many schools and local communities would deem it an industry standard that would require immediate action. Such immediate action would likely be: (1) to rebuild pools, at some considerable expense in this cash-strapped time for the nation's educational systems and local communities; (2) to eliminate dives off of starting blocks, which would remove an important element of the sport; or (3) to discontinue swimming as a high school sport. Placing the minimum pool depth at 6 feet 7 inches, as opposed to 4 feet, would put high*

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schools in a difficult position vis a vis their swimming programs. Moreover, it would also put other, noncompetitive users of the pool at an increased risk of drowning – a much higher risk than the incidence of serious injury due to competitive racing starts – in the typical multi-use pools used by many high school swimming programs. Based on the above-referenced data from UNC, OSU and the CDC, the technical committee should start over on this section. Such action is all the more appropriate because adding depth to multi-purpose pools, such as the ones used by many high school swim teams, would put at greater risk other pool users such as the young, the old, people learning to swim and people with disabilities. -- Starting platforms should be installed in a minimum water depth of ~~6 feet and 7 inches (2.01 m)~~ 4 feet (1.22 meters). – **REFERENCE:** Excerpted from research data compiled by Dr. Fred Mueller, Director, National Center for Catastrophic Sports Injury Research. ……. Excerpted from research data compiled by Dr. Dawn Comstock, Principal Investigator, Center for Injury Research and Policy…… "Unintentional Drowning Deaths and Rates per 100,000, 2000-2010, United States, All Races, Both Sexes, All Ages." Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) [online]. Available from URL: www.cdc.gov/ncipc/wisqars. ……. White, J. C., Cornett, A. C., Wright, B. V., Willmott, A. P., & Stager, J. M. (2011). Competitive Swimmers Modify Racing Start Depth Upon Request. *International Journal Of Aquatic Research & Education*, *5*(2), 187-198.

Changes to Code/Annex:
Agreed. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.3.2 – *Recent research and injury data shows that proper supervision and instruction,*

both of which are particular emphases of the NFHS, are more significant limiters of injury potential due to competitive racing starts than pool depth. Based on the above-referenced data from UNC, OSU and the Counsilmen Center for the Science of Swimming , the technical committee should start over on this section. -- Starting platforms ~~shall~~ should be used only for competitive swimming competition and training under the supervision of a trained coach or instructor. -- **REFERENCE:** Excerpted from research data compiled by Dr. Fred Mueller, Director, National Center for Catastrophic Sports Injury Research. ……. Excerpted from research data compiled by Dr. Dawn Comstock, Principal Investigator, Center for Injury Research and Policy. …… White, J. C., Cornett, A. C., Wright, B. V., Willmott, A. P., & Stager, J. M. (2011). Competitive Swimmers Modify Racing Start Depth Upon Request. *International Journal Of Aquatic Research & Education*, *5*(2), 187-198.

Changes to Code/Annex:
Agreed. Wording changed.

- *Comment:*
  ANNEX 4.5.19.4 – *There is an inconsistency in this section in addressing untrained diving versus trained diving during a competitive racing start. More recent data from Dr. Dawn Comstock and Dr. Fred Mueller indicates that since the NFHS has made its rule change to require a minimum water depth of 4 feet, there have been zero reported catastrophic or fatal injuries due to race starts in competitive high school swimming. Moreover, the data indicates only one injury over that period that was the result of contact with the bottom of the pool after a racing start. Proper supervision and instruction appears to have a much more significant affect on the potential for injury during a competitive racing start than pool depth. There is no reference given to cases or a history of lawsuits that have established this purported litigation line for diving from a starting platform. Moreover, as the goal of this model is to establish best practices for the industry, the purpose should be to discuss best practices not models for litigation. Based on the above-referenced data from UNC, OSU and the Counsilmen Center for the Science of Swimming , the technical committee should start over on this section.* -- This section should be withdrawn pending further study by the technical Committee. – **REFERENCE:** Excerpted from research data compiled by Dr. Fred Mueller, Director, National Center for Catastrophic Sports Injury Research. …….. Excerpted from research data compiled by Dr. Dawn Comstock, Principal Investigator, Center for Injury Research and Policy. …… White, J. C., Cornett, A. C., Wright, B. V., Willmott, A. P., & Stager, J. M. (2011). Competitive Swimmers Modify Racing Start Depth Upon Request. *International Journal Of Aquatic Research & Education*, *5*(2), 187-198.

  Changes to Code/Annex:
  Agreed to rewording. Changes made to Annex wording. This section relates to recreational diving at deck level, not competitive diving.

- *Comment:*
  ANNEX 4.8.3.1 – *See our comments for 4.8.3.3 (above).* -- This section should be withdrawn pending further study by the technical Committee. – **REFERENCE:** See our citations for 4.8.3.3 (above).

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Changes to Code/Annex:
Agreed to Annex rewording.

52. Karyn Boston, YMCA of the USA (Chicago, IL)

- *Comment:*
  4.8.3.1 – Starting platforms shall be installed and conform to applicable safety standards established by YMCA of the USA, the Federation Internationale de Natation (FINA), USA Swimming, National Collegiate Athletic Association (NCAA), National Federation of State High School Associations (NFHS), or other sanctioning bodies.

  Changes to Code/Annex:
  Agreed, wording changed.

- *Comment:*
  Annex 4.8.3.1 – *Correction: FINA's minimum starting depth is 4 feet 6 inches. Editorial Comment: Instruction and supervision is the primary key to safety. It is important that the Code and Annex recommend that coaches use proper training/teaching progressions when teaching swimmers competitive racing starts. Starting platforms should only be used by trained and proficient swimmers during practice and competition under the supervision of a certified coach. Coaches should also enforce safe starting skills. There is no definitive documentation or research that supports the statement "this depth is unsafe for high school age beginners. Five feet (1.52m) is on the edge of safety for a high school age male to make a starting error." There is no research to support the claim that 6 feet 7 inches is the safest starting depth. Also, 6'7" depth is not the recommended minimum starting depth for Olympic competition. FINA's minimum starting depth is 4 feet 6 inches. 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. We strongly suggest that you remove the final paragraph in this section since the referenced 1990 study actually reviewed the use of springboards and jumpboards and not starting platforms. The angle of entry for dives off of jumpboards and diving boards is entirely different than for racing starts. This study has no bearing whatsoever on racing start safety.* -- The intent is that starting platforms be installed in water depths that conform to safety standards of the governing body (e.g. YMCA of the USA, FINA, USA Swimming, NCAA, NFHS, etc.) that is applicable for competitions and for organized practice. YMCA of the USA recommends a depth of at least 5 feet (1.52 m). FINA recommends a minimum starting depth of 4 feet 6 inches (1.35 m). USA Swimming, NFHS and the NCAA allows a starting platform depth of 4 feet (1.22 m). The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety. This study suggests that proper education, awareness and supervision are the keys to safe racing starts. Racing starts should always be performed under the direct supervision of a certified coach. – **REFERENCE:** Dr. Joel Stager and the Counsilman Center for the Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify

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racing start depth when directed. Suggestion: Y-USA strongly recommends that the Technical Committee conduct further research prior to recommending a safe depth. Note FINA Rules FR 2.3 (pg. 361) and FR 3.3 (pg. 364) in the 2009-2013 FINA Handbook

Changes to Code/Annex:
Agreed to alter wording. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

- *Comment:*
  4.8.2.1 – *No change; supporting comment. Editorial Comment: Separating recreational swimming from competitive swimming is the most effective way to facilitate a practical minimum water depth for competitive use of starting platforms. Prohibiting and preventing use of starting platforms by recreational swimmers is paramount. Starting platforms should only be used by trained and proficient swimmers under the supervision of a trained coach. --* Starting platforms shall be removed or prohibited from use during all recreational or non-competitive swimming activity.

  Changes to Code/Annex:
  Agreed, wording added to clarify.

- *Comment:*
  4.8.3.3 – *Delete Section. Point of Information: 6 ft. 7 inches is the minimum competition pool depth required by FINA for the Olympic Games and World Championships. This is the high performance depth specified for elite level international competition. It is a "fast-pool" factor not a safety feature. FINA's minimum depth for racing starts is 1.35 meters (4ft. 6 in.). Editorial Comment: The proposed 6'7" minimum depth arbitrarily changes standards set by governing bodies with no definitive research or analysis to support that 6'7" is safer*

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than any other depth. Editorial Comment: More research is needed to establish a minimum uniform water depth. Currently no data or research exists. The research presented in this annex was based on springboards and jump boards, not starting platforms. Editorial Comment: Expert opinion is also not in agreement to a uniform standard for a minimum depth. This is evident in the inconsistencies found in the annexes of the following MAHC modules: Risk Management and Safety. Annex sections 4.5.5.1 (Depth Measurements) and 4.5.5.2.8 (No diving Symbol) both indicate "This requirement is not intended to apply to competition AQUATIC VENUEs where skilled divers train and compete in 4-6 feet (1.3-2m) of water and are under the supervision of a certified instructor." Lifeguarding and Bather Supervision. Annex section 6.3.3.1 …… Surveillance Reference - Any aquatic venue which allows the usage of diving boards of any type or starting platforms indicates "There should be absolutely no head first entries in the water in 5 feet (1.52 m) of water or less from the deck or any elevations without proper training and lifeguard supervision." Editorial Comment: Greater pool depth does not guarantee racing start safety. Proper education, training, safety awareness and close supervision are the keys. USA Swimming and YMCA of the USA require a teaching progression for racing starts. Editorial Comment: If the minimum 6'7" requirement is part of the final code, the implications, both financially and programmatically will be substantial, and could adversely impact competitive swim programs for every major competitive swimming organization Approximately 1000 YMCA programs would be affected. YMCA of the USA estimates that the cost to modify pools to a 6' 7' depth at approximately $200,000 per pool. The safety of program participants is and always has been a priority for YMCAs; thus YMCA is willing to participate in the process and support research efforts designed to determine and substantiate safe depths. -- Delete Section. – **REFERENCE:** The Counsilman Center for The Science of Swimming completed a study in 2011 on racing start safety published in the International Journal of Aquatic Research and Education. Pages 187-198 of this study address the demonstrated ability of competitive swimmers to modify racing start depth when directed. Note FINA Rules FR 2.3 (pg. 361) and FR 3.3 (pg. 364) in the 2009-2013 FINA Handbook Multiple editorial comments. MAHC Risk Management and Safety annex sections 4.5.5.1 and 4.5.5.2.8. MAHC Lifeguarding and Bather Supervision annex section 6.3.3.1.

Changes to Code/Annex:

Agreed on rewording, section not deleted. Change made based on public comment to accept shallower depths with a minimum of 4 ft. below starting platforms for competitive swimming under the auspices of an aquatics governing body. A key goal of the MAHC is to continue to encourage aquatic experiences through increased access to healthy and safe pools and programs, while also promoting continued improvements to pool design and maintenance. The MAHC effort seeks the most effective and feasible interventions to promote pool safety, and we value the collective input of the diverse stakeholders involved in drafting the MAHC who have provided important feedback through the public comment process. The MAHC requires "No Diving" signs around the areas of a pool 5 ft or shallower, which is well supported by data on spinal cord injuries to recreational divers performing deck level dives. This change is based on the reported experience from aquatics governing bodies with progressive training and certification of athletes on shallow water dives and the limited data specifically addressing competitive athletes diving

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off starting platforms and risk for spinal cord injuries: not all competitive swimmers are registered with an aquatics governing body that is collecting information on these injuries. Because some of these studies suggest there is an increased risk of touching or closely approaching the bottom with older, presumably heavier competitive divers diving into shallower depths (4 ft.), it is recommended that more data for competitive diving off platforms be collected to better inform future decision making and re-assessment on this subject. The MAHC Annex includes a short summary of these data.

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