



**DGC Committee Hearing Meeting Minutes # 5**

April 21, 2022

2 p.m. – 5 p.m.

City and County of Denver

1. Roll Call and Introductions: 14/18 voting members, 13 as of 3:25pm, 14 as of 4:30pm.

Quorum Achieved. (Quorum is 10) (Majority Vote = ½ + 1)

<b>Name of Committee Member</b>		<b>In Attendance?</b>
Cheryl Hoffman		X
Christy Collins		X
Courtney Anderson		X
Don Larsen	Non-Voting	
Eric Browning		X
Daniel Krausz		X
Josh Radoff		
Paul Hutton	Non-Voting	
Adam Meltzer		X (left at 3:30, back at 4:30)
Chris Gorham		Will be absent
Travis Hendrix		X
Tom Hootman		X
Eric Entlich		Will be absent
Jonathan Fertig		X
Jeff Tejral	Non-Voting	X
Austin Krcmarik		X
Renee Azerbegi		X
Darcie O’Conner Chinnis		Will be absent
Keith Fox		X
Scott Rank		X
Stephen Sanderson	Non-Voting	
Antonio Navarra		X

2. Discussion and voting on **DGC**

- a. [#P34.9](#) 601.3.2.1 Plumbing Fixtures & Appliances

Public Questions/Comments

- Manufacturers presented for toilets
  - Waterless urinals use slope, pipe smoothness and gravity to drain. Do not get cleaned with water, but use an oily sealant with fragrances that have no toxicity concerns beyond fragrance sensitivities/allergies
  - Testimonials from municipalities that odors and cleaning were not issues
  - Products: Sloan and Kohl, prices in line with flush type urinals
- Committee Questions/Comments:
- Cheryl how many projects have used this option in DGC?
  - Christy notes that pilots are using alternative paths not as written
  - Readily available at little no cost increase is based on market research discussed previous session. USGBC, cost comparison
- Cheryl asks if this is passed, does current DGC language move into DBC? Christy clarifies no, that would be voted on separately
- In favor of allowing Lindsay to answer questions: 9 (passes)
- Adam proposes to keep 1.1, which offers a ton more options on commercial market. B. is not feasible per experience with them. .25gpm faucets, are there aerators on the market for this? Would like to talk about Park water organization that talks about slope of piping and arrangement of fixtures to meet the low flow fixtures. Need to address this in proposals or could result in market complaints. Adam posted a link: [https://www.map-testing.com/assets/reports/PERC-Report\\_FINAL\\_Phase-One\\_Nov-2012.pdf](https://www.map-testing.com/assets/reports/PERC-Report_FINAL_Phase-One_Nov-2012.pdf)
- Jonathan asks if this would forbid toilet with integrated washlets (integrated sinks, greywater flushing). How is that water use captured or dictated by this? Would it fall under .25 gal/flush? Lindsay clarifies that these are not currently allowed under graywater statute which is currently being reviewed. Although they are installed in some places in Denver. If they are legal, would not want to disincentivize these.

- Christy understands these are not currently legal. In response to Adam's comment, the 0.8 vs 1.1 outside market availability. It's okay for the DGC because it is chosen provisions to drive the market. If it became mandatory the market would be able to respond. This could create demand. Functionally, have heard mixed results but am not an expert.
- Renee are we trying to strike a balance between flushing twice and not wanting fixtures to be replaced to meet functional needs. In busy areas such as airport, they are used 100+ times per hour. Prefer keeping 0.125, and adding to have water refill option at every fountain. Need studies not by manufacturers to have real data.
- Tony what consideration has been taken to actual cartridge. Waterless urinals cartridges can range \$40-1200 and need replaced every 3 weeks, and requires a special tool. Lindsay clarifies that similar cost of cartridge replacement, but not all models require the cartridges. Some are cleaned instead. Don't have replacement frequency but guess it's variable per use frequency
- Tony asks how to guarantee that bleach or Clorox does not go down drain. Lindsay don't understand the distinction between waterless and water using in this respect. Haven't seen anything research around challenges with chemical mixing in drains. Tony has several citing of this happening.
- Austin provides insight on 0.8 gal/flush from Denver Water experience. Large apartment and condo complexes installed hundreds 0.8 gal/flush and have had zero problems. Slope in ground of sewer lines is a factor. Will share EPA Watersense site with product list of what is available in market. Do not have an issue with these flow reductions. As long as it has a high MAP rating then it appears to work fine. Austin posted a link: <https://lookforwatersense.epa.gov/products/>
- Jeff agrees with Austin. 0.8 gpf toilets and low flow showers in multifamily setting did not have any issues. No double flushing. Water savings exceeded predictions. Pilot program working with new development was focused on getting these products into market. Had

30 buildings participating. They were all able to find the products and at cost. Hardest part was communicating the requirement to the installers. No one complained about cost or function/operation issues.

- Jonathan follows up Renee's comments that bottle filling stations at every station – usually a high/low. Could say any location where there is a water fountain, there is a bottle filling station.
  - Austin reports that on new development side, with help sourcing initially, most developers would not have trouble with these standards.
  - Daniel appreciates expert information. Regarding wording and structure of code, is worded as amendment to mandatory provisions. As a mandatory provision any project that may not be able to pursue it may be driven away from entire code. Don't want to lose benefits in other areas of the code. Christy responds that we've been ignoring the mandatory versus elective until the end. Otherwise, it is not intended that we determine mandatory versus elective. Vote with knowledge that it may be mandatory or elective. This will be determined as Noresco performs LEED Platinum comparison.
  - Daniel asks what a substitute would be for waterless urinals? What is next efficiency? Renee says 0.125 gal/flush.
  - Kristen reports drought resiliency proposal is coming up, which will discuss waterless toilets.
  - Austin responds to Daniel, that 0.125 gal/flush is the most efficient that has many products available on Watersense.
- **Motion to amend:** Adam motions to amend proposal as is to add 0.125 maximum on urinals. Change public lavatory faucets to .35, put back .1 gal/flush. Renee asks for clarity on 0.25 gal/flush and proposes to add 100% bottle filling at drinking fountains. **(12 votes yes, 1 vote no, 0 abstained)**
- Daniel proposes to have understanding that it's up to CPS to decide whether it's mandatory. Adam says not necessary, it's understood.  
Seconds motion
- Jonathan wants to modify drinking fountain language.

- Cheryl: Since I can't get my audio to work, I will stay brief. The un-amended flow rates are already aggressive for commercially available large-scale projects. I believe we should leave this amendment as is for another 3 years then revisit.
- **Motion Passes: Motion to Modify as written on screen: Courtney (10 votes yes, 2 vote no, 1 abstained)**

b. [#34.10](#) 501.3 – Stormwater

- Committee Questions/Comments
  - Collin Bell introduces proposal on behalf of DOTI
    - A. Landscape design- add plant list to list of plant lists.  
Added two plant list for vegetations.
    - B. Original DGC stormwater on greenfield projects, should be applied to add development projects. Important in Denver. a/ and b/ are stricken, b/c this language is not used in practice. Striking old criteria and replacing it, shifting it done
      - Under ½ acre no stormwater, + new detention
      - ½-1 acre requires detention, + new water quality
      - Over 1 acre: requires both water quality and detention + new requirement for infiltration or evaporated.
      - Include non-structural stormwater controls: pet waste, dog run, street sweeping
  - Currently different footprints have different requirements, now ratcheting up stringency.
  - Daniel: Intent of street sweeping or parking spaces (in garages too) so that debris does not end up in storm drains
  - Jeff: Is there a specific design criterion for pet waste station? What about a program for street sweeping (how is that in the building code)? Developer would come up with plan for ongoing maintenance. No set design plans for pet waste station.

- Jonathan: Why do you need so many? Should be modified to be more realistic. Collin would have to as MS4 team on where this came from but concerns are valid.
  - Cheryl: Is it physically possible to provide storm water detention in sites less than 0.5 acres? I am concerned that for infill projects this will require large underground excavations on sites with potential underground hazards to the past history of building on the site.  
Collin: underground detention, green roofs, or green underground, def possible.
  - Courtney: 1 per 30 units, suggests maximum. Wants to have pet waste station and not a trashcan. Collin: In agreement.
  - Adam: Define pet waste station will solve issue.
- Committee Discussion:
- Daniel: Wants to know how this dovetails into the Landscape Proposal (P34.8 passed with 3 modifications) for 601.3.1.1. Makes a recommendation, street sweeping included with plan for maintenance instead since this is a building code. If this were to pass, only #4 would be added to the previous approved proposal.
- **Motion to Modify:** Courtney, (11 votes yes, 0 vote no, 1 abstained) , Christy to second, PASS
- Modify program to plan for the biannual street sweeping. Modify pet waste station quantity based on frontage, Christy recommends figuring this out in committee.
  - Kyra clarified that we approved items in Hearing 1 regarding landscape requirements in chapter 5 but not in chapter 6.
- **Motion Passes: Motion to Approve as written on screen: Daniel, (11 votes yes, 0 vote no, 2 abstained), Courtney to second**

c. [#34.11](#) 601 - Irrigation

- Collin: Interface of stormwater and irrigation, alternative sources of water to reduce potable water demand. Runoff harvested, routed to landscape areas, establishing it as an alt 3A. 4A Exempt from source measurement requirements, since it is hard to measure/ predict.
- Committee Questions/Comments/Discussion:

- Eric: Table: Alternate Source of water seems to be general, other sources that is not intended to be use? Should be more specific?
- Austin: Wanted it to include greywater system, consider some sort of definition.
- Jeff: What are all the sources of water= condensate water reuse, dewatering, most are hard to measure, rainwater runoff is the largest in quantity and the hardest to manage.
- Renee: Who is paying for this? Is building level water metering the intent? Property owners and developers, but since rainwater harvesting is being proposed not to be included in the submetering language, this does not apply to the modifications under consideration.
- Collin: Intent to fit runoff harvesting into code.
- Austin: Add submeter, not shared water system. More granular data on what is on sites to review water efficiency. Add NSF 350 Greywater systems to the table?
- Jeff: Intent is to exempt onsite rainwater harvesting this from submetering requirements.

**Motion Passes: Motion to approve as written: Christy (11 votes yes, 0 vote no, 1 abstained) Eric second**

d. [#139](#) 601.3.9 Drought Resiliency

Summary

- Looking for ways to improve drought resiliency. Watersense labels and internal pressure regulators on irrigation sprinklers heads. Commercially manufactured waterless toilets in private restrooms and some applications of public restrooms. Follow NSF standards. Address high usage such as swimming pools – add covers to prevent evaporation, no chemical pool covers. Commercial kitchens and spray rinse valves. Covers variety of topics to address as much water efficiency as possible.

Public Comment

□ Committee Questions/Comments

- Eric asks if compliance is required with 2 of 3 sections in 601.3.9.1, high water end use applies to small fraction. Seems restrictive, is this the intent since few pools and commercial kitchens. Kristen clarifies that this was to encourage going beyond sprinklers and is open to changes.
- Jeff asks how this is different from spray sprinkler body requirements passed by state last year. Want to be consistent with that language. Kristen acknowledges sell-through stock that may be allowed, which could provide an out until it's sold.
- Jeff comments that property managers had an issue with safety on pool covers. Kristen, not sure how to handle this one. Eric says that pool fencing or covers must meet particular ASTM standard. They would be complementary to net type covers.
- Austin asks if there is willingness to go to high efficiency nozzles on sprinkler bodies themselves. Denver water rebates are available for 5 or 6 high efficiency nozzles. Kristen agrees.
- Cheryl asks Are any waterless toilets currently in use in Denver? Are there any additional regulatory or code measures that would have to be put in place for the use of waterless toilets? For example, would the IPC have to be modified? Would a permit for waste removal have to be acquired? Eric agrees these are good questions but don't have the answers, will look. Keith says there are some waterless urinals at the City and County building in permit department. IPC does have some language for urinals that don't think would need to be modified for that.
- Cheryl asks If a project doesn't have any sprinklers, are they required to comply with the two other measures or do they automatically get credit for not having sprinklers? Christy says they would not get credit for something that doesn't apply to a project so would need to look at other options.

- Keith how do we handle whether they need to be changed out, piping has to be installed. Kristen confirms that plumbing rough in is addressed in the proposal language.
    - Kristen reports that there is no sell through possible in Colorado. Replace language to address nozzle in lieu of internal pressure regulators since they are already required by code.
    - Courtney replaces language with nozzle, struggling with how many points are required for this. Would rather building on top of existing law, 1 out of 3 or 2 out 3? Kristen suggests adding waterless urinals, how do we encourage going for more valuable but challenging items.
    - Waterless urinal language from 601.3.2.1 Plumbing Fixtures & Appliances proposal will be moved over as a 4<sup>th</sup> option.
  - **Motion Passes: Motion to Modify: Courtney (10 votes yes, 0 vote no, 1 abstained) Second by Eric.**
    - Courtney motions to adjust sprinkler efficiency to accommodate Denver Water nozzles (will share list of criteria)
    - Jeff suggests criteria instead of products. Can draft this with Austin via subcommittee.
    - Keith asks to change language to say 2 of the 4 or 3 of the four. Kevin asks group what the consensus is. Courtney says 2 of 4. Eric seconds changes.
  - **Motion to approve as amended Passes: Eric (11 votes yes, 0 vote no, 1 abstained) Second by Christy.**
    - **Subcommittee is Austin and Jeff**
- e. [#112b](#) 901.6.1 Design for Deconstruction
- **Summary**
    - Builds off of deconstruction proposal hear earlier. Supports future aspects of deconstruction.
  - **Committee Questions/Comments:**
    - Eric asks about 901.6.5, it's not clear how this correlates with the deconstruction proposals. Kristen clarifies this can offset the cost to balance and create a market for reusing finishes

- Renee comments in LEED world, have never been able to reach this threshold to earn the credit. Can we reduce the threshold or include the value of reused buildings? Is the basis for this around embodied carbon. Kristen, yes in next hearing there is one from NBI. Agree 5% is fairly aggressive. Needs incentive. Open to adding language to reuse the entire building.
- Cheryl asks in regard to 9.6.4, how exactly will compliance be judged or qualified? Who decides what does or doesn't qualify as a prefabricated element? What is the definition of standardized fastening systems? These are just 2 examples, but I see ambiguity with the majority of the criteria (a through h). How do we provide more clarity to the requirement? Kristen answers part of this defined by design team. Certain things can be in multiple categories. There is some ambiguity and need to work out with the city.
- Scott asks for clarification on initial language. Struggling to understand what 10 is. Kristen clarifies ten design elements. E.g., 10 cradle to cradle materials
  - Second question: was Portland able to show that some of these actually made disassembly easier? Kristen clarifies that Portland did not do items 1-4. Having data to support four, having conversations with demo contractors, it's easier to pull apart elements that are not glued together.
- Scott comments to caution discouraging not using sealants and adhesives because of VOC content and envelope issues.
- Jonathan proposes adding BIM model to language for records. Eric asks if there may be proprietary issues? Jonathan thinks there is less of an issue now than used to be. Giving owners and facility managers the ability to have it, there is a way to strip back the model but agree some firm owners may not go for it.

□ **Motion Passes: Motion to Modify: Renee (13 votes yes, 0 vote no, 2 abstained) Second by Adam.**

- Renee motions to add building reuse to section on salvaged material.

- Cheryl - to follow-up on Renee's point on the difficulty of achieving 9.6.5, I don't think that should be included in this proposal. Design for Deconstruction is a good concept, but the salvage requirement may make it impossible to be achieved.
  - Scott likes big picture of this but would make motion to take away salvaged materials and durability until we can provide evidence for how it helps the deconstruction.
  - Courtney supports this for new construction. Is there a way to incentivize reusing a whole building for adaptive reuse?
  - Kristen asks if quantities are in BIM model and if that would help with #3. Cheryl says there is no current standard of care for BIM models. You will get different products from different teams. Jonathan says no.
  - Adam adds that cradle to cradle certified materials, don't like having a specific one certification. Want to add "or equivalent"
- Motion Fails: Motion to Modify: Cheryl (6 votes yes, 6 vote no, 2 abstained) Second by Scott**
- Motion to strike 9.6.4 and 9.6.5.
  - Eric understands intent of the motion but wants to reiterate this code is meant to drive teams above and beyond. 5% is aggressive but should leave it.
  - Daniel, would you consider moving five into a separate credit? Cheryl and Scott approve. Will vote on these in separate discussion.
- Motion Passes: Motion to move 906.5 to separate credit: Daniel (12 votes yes, 0 vote no, 2 abstained) Second by Scott and Cheryl**
- Motion Passes: Motion to approve 906.2, 906.3, 906.4: Eric (11 votes yes, 1 vote no, 1 abstained) Second by Daniel**
- Kristen suggests amending to 2 of 3 items instead of 3 of 4.
- Motion Passes: Motion to approve 906.5: Eric (13 votes yes, 1 vote no, 1 abstained) Second by Renee**
-