

Neil Flanagan Testimony

Commissioners,

I encourage this commission to approve this project because of the important precedent it will set in regard to the Height of Buildings Act of 1910. Since its inception, and in particular since the law's amendment in 2014, the Zoning Commission and the Zoning Administrator have adhered to a literal reading of subsection (h) of the law, at the expense of architectural creativity. In endorsing the highly colloquial definition of a "dome," proffered by the applicant and approved by the zoning administrator, this Commission will open the door to a new era of rooftop variety and an end to the monotonous uniformity of DC's skyline, profoundly relaxing obsolete provisions of the Height Act.

If the zoning administrator's determination were challenged in court, I am skeptical that a judge would find their argument persuasive. The proposed stadium encloses itself with a striking lightweight roof. However, it not a dome in the structural sense. Geometrically, this roof is properly described as a circular section of a hyperbolic paraboloid, or hypar. Its mechanism of balancing loads is fundamentally different from the structural sense of a dome. In a nutshell, a dome is a way of spanning space by balancing compression loads against each other, and the hypar is a way of balancing tension loads against each other. Both mechanisms of function lead to distinctive geometries. A dome must have a synclastic, or same-curve shape with a single axis of rotational symmetry and its high point must be at the center. A hypar structure must have an anticlastic shape wherein two perpendicular axis of symmetry (or more if secondary axes are diagonal) balance tension in each other and its high point must necessarily be at the edge of its primary gravity bearing structure.

It is not necessary for a hypar roof to be circular. This is usually done for the reason provided in the applicant's design: to anchor the roof's loads using a compression ring. Domes have historically functioned in the opposite way, with the perimeter under tension. In fact, a central problem in the design of domes has been the management of perimeter tension. Historical solutions have progressed from resisting the tension through mass, tensile rings, and hybridization with conical structures. In both their basic function and their design challenges, domes and hypar roofs are profoundly functionally distinct. Approving this project will radically blur the lines of what can be permitted under the Height Act, removing structural function from consideration in approvals.

The Zoning Administrator and the Applicant are correct that the term dome has come to mean, in a very colloquial sense, any structure that covers a stadium. However, in addition to not being structural domes, several of the examples provided in the applicant's exhibit to show that the definition has changed are also not formally referred to as "domes" "or domed." They are hypars or vaults and they are not called domes. Of their examples, only the Astrodome, a true dome, calls itself a dome in any legal sense. Historically, the Zoning Commission and the Zoning Administrator have rejected this broadening of the sense. In

particular, in Zoning Case 08-13, the Commission specifically disallowed an applicant from building a glass barrel vault structure in excess of the dome. They did so because it was not a "spire, dome, or minaret" in any strict or traditional sense. This and other precedents have restricted what can be done to enliven and activate the tops of buildings in DC.

The Zoning Administrator invokes Merriam-Webster's dictionary to permit this interpretation of the word "dome," finding: "a roofed sports stadium" after five other definitions that emphasize the hemispherical nature of the structure. It is unclear to me why the Zoning Administrator has drawn this definition. It is true that section B0100.1 of the DC Zoning Regulations refers all undefined words to "Webster's Unabridged Dictionary" for the purposes of zoning decisions. However, questions of conformance with the Height Act of 1910 are not zoning questions, and they are not subject to rules of zoning procedure. Instead, this Commission and any courts that may be asked to review its decisionmaking, must instead clarify whether the law (not the regulation) can accept such colloquial definitions, rather than treating a dome as a term of art within the architecture and engineering fields. This is not a question of zoning.

Finally, neither Congress and the District of Columbia Council have shown intent to exempt this project from the provisions of Height Act, despite passing various acts to enable its construction. Indeed, subsection (h) mostly consists of exceptions that were granted through the ordinary legislative process. The clear textual authorization was not always necessary, but it was done to preserve the strict interpretation of subsection (h).

Approval of this project, if it is not overturned in court on the grounds of its dubious definition of the term "dome," will set an exciting precedent for the District. It would dramatically widen the range of what is permitted to be constructed on the roofs of buildings, allowing for the use of colloquial terms to define what is acceptable, including structures shaped like human heads or large pyramids, both definitions provided for "dome" or "spire." I think all of DC of DC should welcome this change, after a century of being constrained to a dull, monotonous skyline.

Thank you.