



THE
GEORGIAN
GROUP

Aaron M. Helfand, 'Inspired by Gibbs:
Reconstructing Peter Harrison's lost designs
for the steeple of King's Chapel at Boston,
Massachusetts', *The Georgian Group Journal*,
Vol. XXVII, 2019, pp. 205-218

INSPIRED BY GIBBS: RECONSTRUCTING PETER HARRISON'S LOST DESIGNS FOR THE STEEPLE OF KING'S CHAPEL AT BOSTON, MASSACHUSETTS

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In 1754, builders finished work on one of colonial Boston's most prominent landmarks: King's Chapel, designed by Peter Harrison (Fig. 1). However, the building was far from complete. Due to lack of funds, Harrison's impressive steeple design was never executed. Furthermore, none of the original drawings have survived, leaving subsequent generations to wonder what his steeple might have looked like (Figs. 2–3). This article re-examines historical evidence and combines eighteenth-century design principles with 21st-century technology to produce the most detailed vision of the missing steeple to date.

Peter Harrison (1716–1775) is widely considered to be the most important architect of the colonial period in America. Though he made his living as a sea captain, he designed numerous buildings, including major residential, civic, and religious structures in Newport, Rhode Island, and Boston and Cambridge, Massachusetts. In the context of colonial New England, these buildings are noted for their exceptional architectural sophistication and reflect Harrison's extensive knowledge of European classicism.

Despite leaving a significant architectural legacy, many aspects of Harrison's career remain a



Fig. 1. King's Chapel, Boston, interior looking east. (Photo courtesy King's Chapel)



Fig. 2. King's Chapel, west front. (*Aaron Helfand*)

mystery. We know that he was born and raised in Yorkshire, and that even after settling in Newport in 1740, he maintained strong social and commercial relationships in England. In 1766, these connections helped him obtain an appointment to the lucrative post of customs collector in New Haven, Connecticut. In the years leading up to the American Revolution, however, this high-profile position made Harrison and his family a target of harassment by those opposed to British rule. Harrison died in April 1775, shortly after learning of the outbreak of war with England, and later that year his family's house was sacked by a violent mob of revolutionaries. Among other belongings, the attackers destroyed his impressive architectural library, as well as his drawings and other personal papers.¹ As a result,

we have little archival material to document the accomplishments of British North America's first architect, leading to much speculation as to the extent of his architectural activity.

Of the buildings that can definitely be attributed to Harrison, perhaps the most prominent is King's Chapel. Planning for this project began in the 1740s, when the Boston's Anglican congregation, under the leadership of Rev. Henry Caner, decided to replace their ageing wood building of 1688 with a new structure to be built of stone. The choice of materials is telling, as other New England churches to date had been constructed of wood or, in a few cases, brick. The congregation of King's Chapel, however, regarding their place of worship as the 'first Church of England built in English America',² seemingly



Fig. 3. The tower and portico from Cambridge Street. (*Aaron Helfand*)

desired something less provincial than the typical New England meeting-house.

With this in mind, in April of 1749, they turned to Peter Harrison for a design. Having received early architectural training in England, travelled extensively throughout Europe, and amassed a large library of architectural books, Harrison was well qualified to satisfy the ambitions of the Boston congregation.³ At the time of their request, he was busy overseeing the construction of his design for the Redwood Library in Newport (a design inspired by Palladio's *S. Giorgio Maggiore*). Nonetheless, he agreed to take on the Boston project as well. In September, Harrison sent drawings for the first of two designs he would ultimately provide for the new building. He explained in the accompanying letter

that 'The Body of the Building (as you directed) is as plain as the Order of it will possibly admit of, but the Steeple is fully decorated, and I believe will have a beautiful Effect'.⁴

Although no copies of these drawings are known to have survived, they resulted in one of the few pieces of evidence we do have by which to reconstruct the original design, a construction estimate from a perhaps surprising source. Rev. Caner, still trying to raise funds for the project, sent a copy of Harrison's drawings to Ralph Allen, the prominent English philanthropist and owner of the quarry that famously supplied the handsome limestone used to build much of the city of Bath. Caner hoped that Allen would be willing to make a donation towards the building campaign, and he

was not disappointed. Impressed with the design, Allen offered to supply, free of charge, all of the stone that would be necessary for the building's carved ornament: the portico, interior architectural elements, and the steeple; the body of the church would be built out of local granite, but this was too hard to be used for carved features.

Allen pointed out in his reply, however, that there were no skilled stone carvers in the colonies, and that the congregation would need to import workmen from England and pay them to carve and install the elaborate stonework. He helpfully identified a team of masons who were available to travel to Boston to undertake the project, and went so far as to itemize the likely labor costs for carving each architectural element shown in the drawings.⁵ This meticulously detailed estimate lists all of the carved stone components, along with quantities and dimensions. Although we have no documentation to show us precisely how those pieces were to be assembled, we can reconstruct the design with reasonable confidence by looking at Harrison's extant work and by following the Georgian architectural conventions with which Harrison was familiar.

The second piece of written evidence we have to consider is a brief description of the intended design, published by Thomas Greenleaf and Edmund Freeman in the 1784 *Geographical Gazetteer of the Towns of the Commonwealth of Massachusetts*. It is interesting to note that this piece was written thirty years after the initial building campaign and almost a decade after Harrison's death. By this time, the congregation of King's Chapel had been much reduced by the Revolution, during which many of its members (generally loyal Tories) fled Boston for England or Canada. However, those who remained were still attempting to complete Harrison's design. They succeeded in building the portico in 1787 (out of wood rather than stone), but they were never able to erect the steeple. What is clear from the 1784 description is that it outlines a different design from than the one that Ralph Allen saw. Nonetheless

Greenleaf and Freeman purport to describe the 'original design of the architect.' So Harrison must have made a second version of the design at some point after the first one was sent to Allen (though the reasons for this are not documented).

In 1961 the art historian John Coolidge published an article in which he proposed reconstructions of each of the two designs, based on these historical documents.⁶ His illustration of the first design (Fig. 4) is a simple line drawing, which accurately accounts for the items listed in Allen's estimate. For the second design, Coolidge included a loose but evocative sketch by architect A. Lawrence Kocher (Fig. 5).⁷ Though attractive, this drawing is unfortunately inaccurate. While the 1784 description is not nearly as detailed as Allen's estimate, several fundamental aspects of the description are misrepresented in Kocher's sketch.

Here, I present updated drawings and digital models of Harrison's two designs. I have redrafted Coolidge's illustration in greater detail and digitally modeled it, using technology unavailable to Coolidge, in order to provide a more vivid illustration of what it would have looked like. In addition, I have generated a revised version of the second design that is consistent with the historical evidence, along with a digital model to enable comparisons with the first design. Using these models as a counterpoint to Coolidge's reconstructions, I provide a brief summary of Coolidge's methodology for reconstructing the first design, followed by a critique of Kocher's sketch and an analysis of what can be plausibly inferred of the second design from the 1784 description.

While it may seem surprising that a complex and elaborate design such as a church steeple could be recreated from a written construction estimate, we are aided in this endeavor by Harrison's stylistic habits. He was, like many of his contemporaries, a close adherent of the Renaissance classical design language as delineated by Palladio. At the time of his death, his library included an English translation of

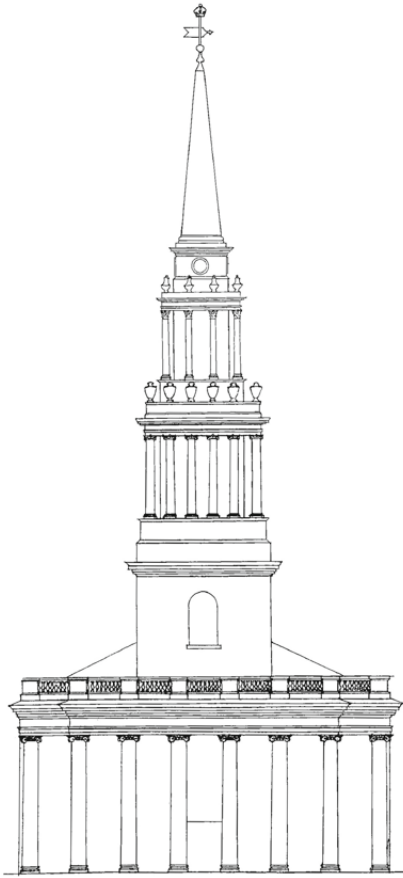


Fig. 4. Coolidge's reconstruction of Harrison's first design.

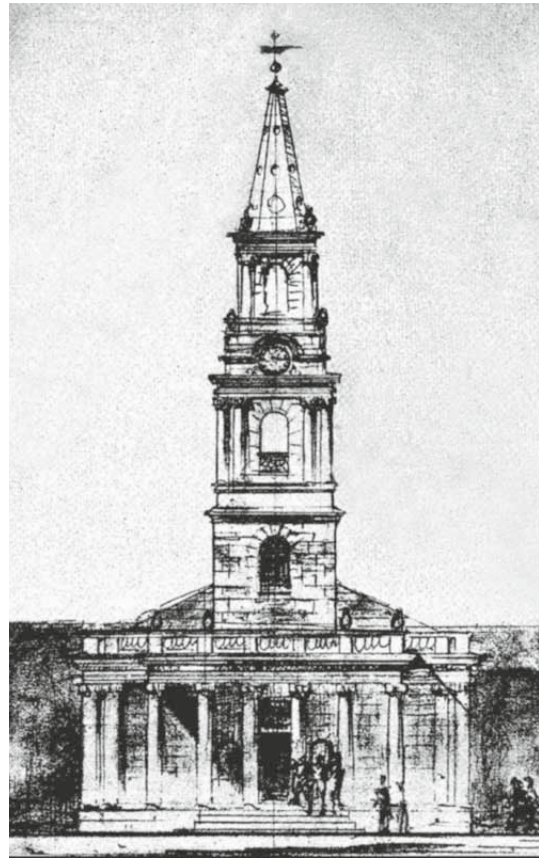


Fig. 5. Kocher's reconstruction of Harrison's second design.

Palladio's *Quattro Libri*, as well as books by Gibbs (Fig. 6), Kent, Swan, and other English Palladians.⁸ His built works all reflect a careful study of these sources, and he consistently favored Gibbs's proportions and detailing of the classical orders, which in most cases closely follow Palladio's. King's Chapel itself has large-scale examples of both the Corinthian and Ionic orders, the same two orders that appear in the descriptions of the steeple. The Corinthian of the interior and the cornice of the Ionic on the exterior were completed during the initial building campaign, and both conform very closely to Gibbs. The remainder of the exterior

Ionic order was completed in 1787 and continues the Gibbsian detailing, including the Scamozzi-type Ionic capital (Fig. 7).

Thus, when Allen's estimate refers, for example, to '20 Ionick Columns 15 feet high,' with '96 feet of entablature over D^o 3 feet high,' we can be confident that this indicates a module (basal column diameter) of about 20 inches, and the entire order can be reconstructed based on Gibbs' prescriptions (a scaled-down version of the portico's Ionic order).⁹ Since the tower is square, the 96 feet of entablature are divided by four to give us 24 feet per side (measured from the outermost extent of the cornice),



Fig. 6. Steeple designs for St Martin-in-the-Fields, from Gibbs' *Book of Architecture*, p. 30.



Fig. 7. King's Chapel portico detail. (*Aaron Helfand*)

and this in turn dictates the spacing of the columns. The same process can be applied to the smaller Corinthian order above.

Coolidge lays out the logic of his reconstruction of Harrison's first design with admirable clarity and transcribes Allen's estimate in its entirety.¹⁰ In addition to the two tiers of columns with their entablatures, Allen lists an unspecified amount of 'superficial plain work,' '200 feet of circular plain work,' '432 feet of superficial moulding,' and '148 feet of circular moulding.' He also lists '32 Urns or Vases' (corresponding with the total number of columns) and '4 Windows in the Spire.' The pedestals and parapets, as Coolidge draws them,

account for the 432 feet of superficial mouldings that Allen lists, and I have speculatively added rings to the cone of the spire, which, along with the circular pedestal below, correspond with Allen's 148 feet of circular moulding.

The only likely flaw in Coolidge's drawing concerns the '4 Windows in the spire.' He places these near the very top, at the base of what we would consider the 'spire' (the tapered portion above the square tiers of columns). But Allen also describes the twenty Ionic columns (the lowest tier of the steeple) as being 'in the spire,' so it is clear the windows could be at any level. Given how small the interior space would be at the top, it seems more likely that

the windows occurred lower down, perhaps behind the Ionic columns. Such an arrangement would permit the zone where Coolidge shows windows to be circular in plan, rather than square, which would provide a more natural base for the cone above and would better accommodate the amount of 'circular mouldings' called for in the estimate. I have shown this in my version and have omitted the windows altogether, since there is no indication of their size, shape, or location. If they were in fact behind the Ionic columns, their visual impact would be minimal. It is even possible that Allen is referring to stone surrounds at the four windows that exist today in the granite portion of the tower, below the Ionic level; it is worth noting that the cost of the four windows together is equivalent to a single lineal foot of the Ionic entablature, which suggests that the windows were not a highly ornate design element. Beyond these details, I have changed little of Coolidge's proposed restoration, other than to draft and render it in greater detail.

My reconstruction of Harrison's second design (Figs. 8–9), however, is a more radical departure from the reconstruction he presents, drawn by Kocher. The 1784 description alone would not give us quite enough information for a reconstruction of this design:

'Upon [the tower] is intended to be erected an elegant and lofty steeple of two square stories and an octagonal spire. The first story to be of the Ionick order, with 16 fluted coupled columns and pilasters, 19 inches in diameter. The second story, of the Corinthian order, formed of 8 fluted single columns, 14 inches in diameter. The spire rising above, to be finished in the richest manner. The columns with their entablature, which project from the body of the steeple, to support highly finished and ornamental urns.'¹¹

Taken together with Allen's estimate for the first design, it becomes clear that the two designs had enough in common that the two descriptions can be used, to a degree, to inform and supplement each

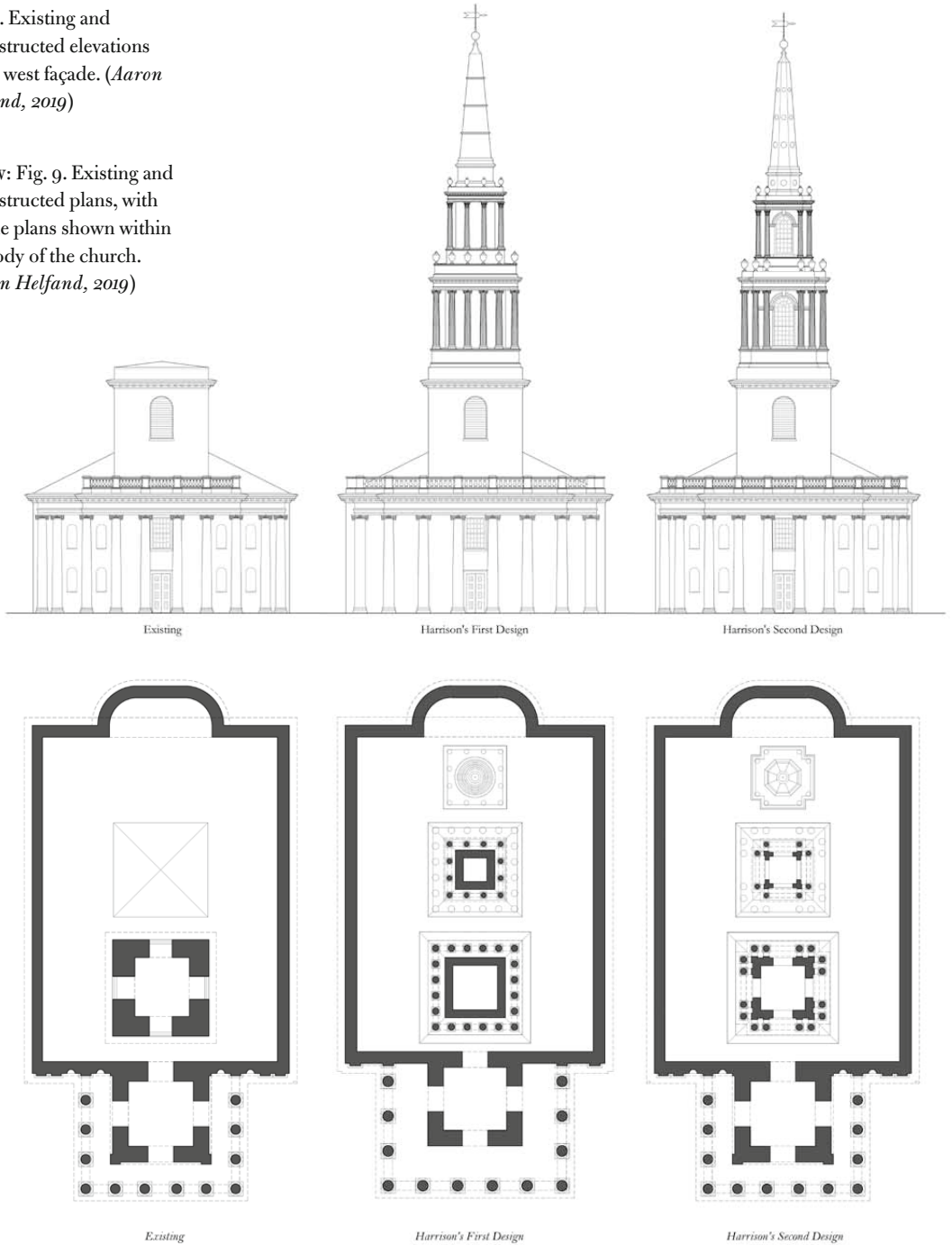
other. For example, the geometry of the existing tower and the quantity of columns given for the first design strongly suggest that it was comprised of two square storeys. The description of the second design makes that explicit, suggesting that the overall conception of the two schemes was similar, and that the second design represented a modification of the first rather than a completely new idea. Additionally, whereas Allen lists column heights, Greenleaf and Freeman give the column diameters. These numbers again indicate, assuming Palladian proportions, that the scale of the orders in each case was the same, or very nearly the same.¹² Finally, it can be surmised based on the numerical correspondence in the first scheme that the urns were located one over each column; again, this arrangement is explicit in the description of the second design.

Given the evident commonalities between the two designs, it seems reasonable in reconstructing the second, to take the first as a starting point, modifying it as necessary to align it with the 1784 description. Indeed, the only identifiable design discrepancies between the two documents concern the geometry of the uppermost stage of the spire (octagonal instead of circular) and the number of columns: In the second design there are only sixteen Ionic columns, down from twenty in the first design, and eight Corinthian columns, down from twelve. The only plausible way of achieving this reduction is to eliminate the four corner columns in each tier, so that the corners of the entablatures are indented. This reinforces the sense of the columns and their entablatures 'projecting' from the body of the steeple on each of the four sides, as Greenleaf and Freeman describe.

In addition to the reduction in quantity, the Ionic columns in the second design are said to be 'coupled,' an arrangement which leaves a large void between the center two columns on each side. Although there is no mention in 1784 of what fills this void, the presence of an arched window there is strongly suggested by the similar motif found in

Fig. 8. Existing and reconstructed elevations of the west façade. (*Aaron Helfand, 2019*)

BELOW: Fig. 9. Existing and reconstructed plans, with steeple plans shown within the body of the church. (*Aaron Helfand, 2019*)



KING'S CHAPEL, BOSTON

RECONSTRUCTIONS BY
AARON M. HELFAND, 2019

some of Gibbs's steeples that Harrison would have seen in London and in his copy of the 1728 *Book of Architecture*. Such an arrangement is also indicated by the extensive use of arched windows elsewhere in King's Chapel, including those in the existing tower. In fact, an arched window of the same width as the others fits precisely into the space resulting from the coupling of the Ionic columns.¹³

Kocher likewise assumes that arches would be inserted between the columns; however, his reconstruction is flawed by an inaccurate column count. The elevation he shows implies twelve Ionic columns (rather than sixteen) and four Corinthian columns (rather than eight). Additionally, his insertion of the clock is appealing, but no mention of a clock is made in the 1784 description. In addition to correcting these elements, I have adjusted the pitch of Kocher's octagonal spire to conform more closely to that found in most of the Gibbs examples (as well as that of other eighteenth-century Boston church spires), and I have included the octagonal pedestal, as in the first design, another typical Gibbs feature. Admittedly, no-one can know what Greenleaf and Freeman meant when they described the spire being 'finished in the richest manner.' Kocher's speculative series of oculi (as at St Martin-in-the-Fields) seems as likely as any form of embellishment, and I have retained them in my drawings.

To summarize, then, the major components of each design are dictated by the contemporaneous written descriptions combined with the detailing and proportions of Gibbs, which Harrison had already employed in the completed portions of King's Chapel. Nonetheless, there is a certain margin of error in these reconstructions. The greatest room for variation in each reconstruction is in the detailing of the tapered spire that rises above the Corinthian tier. For this, I have relied (as Harrison probably did) on drawings by Gibbs and on local New England examples. Another point of flexibility is in the pedestal levels of the Ionic and Corinthian orders, which could have been stretched to give

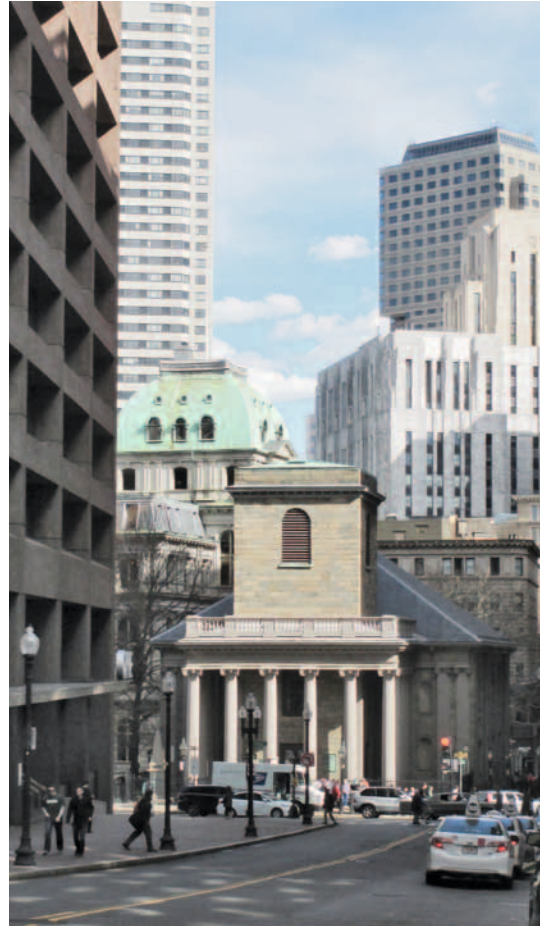


Fig. 10. King's Chapel from Beacon Street in 2018. (Aaron Helfand)

the steeple greater verticality. This had been done recently in the steeples of Trinity Church, Newport (1726) and Christ Church, Boston (1723; steeple completed c.1740),¹⁴ both of them Anglican churches familiar to Harrison.¹⁵ The windows in the second version might have been either glazed or louvred, and it is possible that the upper window was slightly narrower than the lower one, which opens the possibility for a very slight adjustment of the column spacing at that level. As previously noted, we do not know the shape or location of Allen's '4 windows



Fig. 11. Rendering of Harrison's first design as seen from Beacon Street. (*Aaron Helfand*)

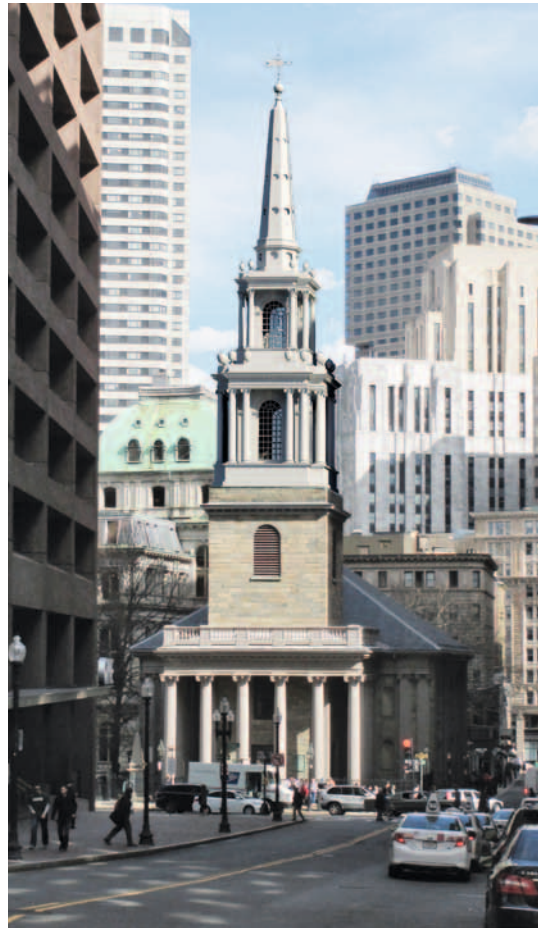


Fig. 12. Rendering of Harrison's second design as seen from Beacon Street. (*Aaron Helfand*)

in the spire.⁷ Lastly, we do not know the exact type of urn that Harrison specified (I have used one of many patterns drawn by Gibbs). In the context of the overall design, though, these variables are relatively minor, and the current reconstructions are able to achieve a surprising degree of specificity in visualizing Harrison's intentions.

A comparison of the two steeple designs (Figs. 10–12) raises the question as to why Harrison made the revision at all. It is tempting to hypothesize that Harrison's second design was an attempt to cut

costs, since we know the congregation struggled (and ultimately failed) to raise the funds necessary to build the steeple. The columns (which were reduced in number for the second version) were certainly the most expensive features of the steeple, and the curved moldings and plain work of the conical portion of the spire were more costly than the flat moldings that would be employed in the later octagonal version. Indeed, an analysis of Allen's estimate reveals that the reduction in the number of columns from 32 to 24 would have lowered the total

labor costs for the steeple from £278 to about £240, a decrease of fourteen per cent. However, it must be noted that the second design adds a pilaster to correspond with each of the remaining columns. In the case of the portico and interior, Allen estimates labor costs for a pilaster at a little over half that of a column of the same size and order, so the addition of 24 pilasters more than makes up the cost saved by omitting the eight columns. Savings from transforming the conical portion of the spire into an octagonal one would have been minimal, as costs for running moldings and plain work were only a small fraction of those associated with columns, pilasters, and urns.¹⁶ Thus, cost must be ruled out as an impetus for the redesign.

The present reconstructions, however, suggest the possibility of a stylistic motivation for the redesign. The conception of Harrison's first design displays notable similarities to Wren's 1704 steeple of Christ Church Newgate Street. The composition of the second version, meanwhile, comes closer to the more recently completed churches of Gibbs, especially St Mary-le-Strand (1723), as well as to other recent Anglican churches in New England. Perhaps either the King's Chapel congregation (or Harrison himself) was unsatisfied with the slightly outdated severity of the first design and simply wished for something more fashionable, in keeping with the predominant conventions being adopted by neighboring churches. The combination of arches and re-entrant corners proposed in the reconstructed second design are also present in Harrison's subsequent design for Christ Church, Cambridge, Massachusetts (1761),¹⁷ suggesting that Harrison saw promise in the architectural possibilities of this form.

The precise reasons for the redesign of the steeple will probably remain a mystery, and, unless the original drawings turn up, we cannot know with certainty how close we have come to reconstructing Harrison's intentions. Given the dearth of historical documentation regarding this important early American architect, though, we

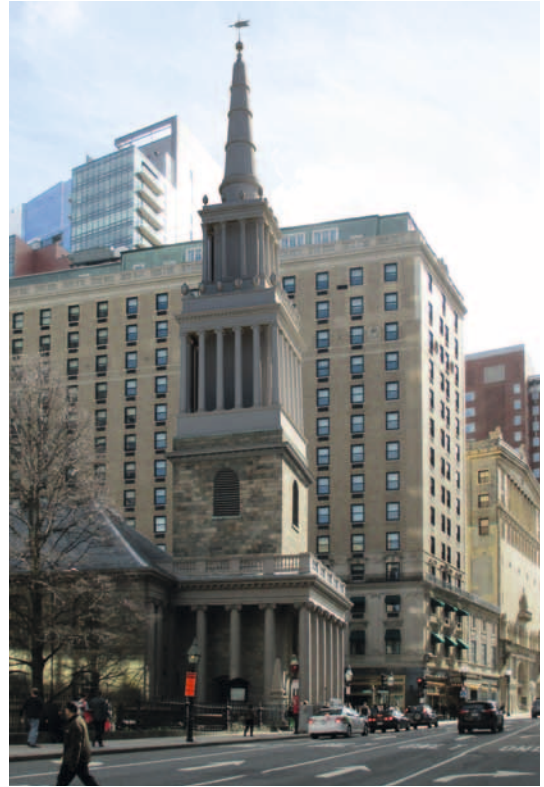


Fig. 13. Rendering of Harrison's first design as seen from Cambridge Street. (*Aaron Helfand*)

must make the most out of the evidence we have. These reconstructions provide a valuable means by which to enhance our understanding of Peter Harrison's skill and sensitivity as a designer. Although his most ambitious designs have never been fully realized, they surpass anything else built in colonial New England, and King's Chapel with its steeple completed would have been his greatest accomplishment of all.

Not only do these drawings document what would have been the most impressive feature of colonial Boston's skyline, they offer a tantalizing glimpse of how it would interact with the city in its present form. Were it completed today, the steeple would compete for attention with the dozens of

modern high-rises that now overshadow King's Chapel. Yet the renderings demonstrate that what the steeple might now seem to lack in size, it makes up for in refinement. From the standpoint of urban design, it would play an undiminished role as a visual beacon from the major thoroughfares of Tremont Street to the south, Cambridge Street and City Hall Plaza to the north, and Beacon Street to the east. In this way it would dramatically transform the currently understated presence of King's Chapel in downtown Boston (Fig. 13).¹⁸

A NOTE ON THE TECHNICAL METHODS USED
FOR THESE DRAWINGS AND RENDERINGS:

To create these reconstruction renderings, I first measured the existing dimensions of King's Chapel and digitally drafted the plan and principal (west) elevation in AutoCAD. I then drafted the two versions of Harrison's steeple designs, as outlined above. These drawings appear in Figures 8 and 9. I then modeled these designs in Sketchup and rendered them in 3DS Max. This program allowed me to calibrate the lighting to the geographic location and time of day that matched photographs I had taken of King's Chapel, and to set up model views corresponding to the same location (Fig. 14). Thus, I was able to use Photoshop to superimpose the digitally rendered steeple model over the photograph, which resulted in the final renderings.¹⁹ (Figs. 11–13) Note that I have rendered the steeples as a solid color matching the painted wood of the existing portico and interior. Had King's Chapel been able to secure funding in 1750, all of these elements would have been carved out of honey-coloured Bath stone from Ralph Allen's quarries. Likewise, in the renderings I have shown the steeple columns un-fluted, to match the portico columns as built, though Harrison's original design called for all columns to be fluted (as shown in my elevation drawings).²⁰



Fig. 14. Detail of computer model of Harrison's second design. (*Aaron Helfand*)

ENDNOTES

- 1 C. Bridenbaugh, *Peter Harrison, First American Architect* (Chapel Hill, 1949), pp. 157–8.
- 2 H. W. Foote, *Annals of King's Chapel from the Puritan age of New England to the Present Day* (Boston, Mass., 1882), p. 90.
- 3 For a discussion of the stylistic relationship between King's Chapel and various contemporary English churches with which Harrison would have been familiar, see P. Metcalf, 'Boston before Bulfinch: Harrison's King's Chapel', *Journal of the Society of Architectural Historians*, 13/1 (March, 1954), pp. 11–14.
- 4 Foote, *op. cit.*, p. 83.
- 5 *Ibid.*, p. 95. These costs proved to be more than King's Chapel could afford, so the congregation was forced, regrettably, to turn down Allen's generous offer.
- 6 J. Coolidge, 'Peter Harrison's First Design for King's Chapel, Boston', in M. Meiss (ed.), *De Artibus Opuscula XL: Essays in Honor of Erwin Panofsky* (New York, 1961), pp. 64–75.
- 7 Originally printed in C. Bridenbaugh, *Cities in Revolt* (New York, 1955).
- 8 Bridenbaugh, *Peter Harrison*, pp. 168–70.
- 9 The 5:1 ratio of column height to entablature height also conforms to Gibbs' (and Palladio's) version of the order, as opposed to Vignola, for example, who advocated a ratio of 4:1.
- 10 Coolidge, pp. 67–8; also in Foote, pp. 95–6.
- 11 T. Greenleaf & E. Freeman, *Geographical Gazetteer of the Towns of the Commonwealth of Massachusetts* (Boston, Mass., 1784). Coolidge cites the October 1788 issue of *American Magazine* as the source for this description; it was, however, reprinted there from the 1784 *Gazetteer*.
- 12 It is interesting to note that the column diameters given by Greenleaf and Freeman are slightly narrower than what we might expect, based on the heights Allen lists and the proportions prescribed by Palladio and Gibbs: 19 inches instead of 20 for the Ionic order and 14 inches instead of 14.5 for the Corinthian. Thus, either Harrison's columns are slightly attenuated in their proportions, or the orders in the second design were slightly smaller than those of the first design.
- 13 John Millar has come to a similar conclusion about the disposition of the columns and arches: *Peter Harrison 1716–1775 Drawings* (Williamsburg, VA, 2015) p. 105. However, it should be noted that his subtle stepping forward of the central two Ionic columns on each side to support a pediment is only feasible when the change in plane can be achieved with engaged columns and pilasters. It is not possible in the case of King's Chapel, with its freestanding columns.
- 14 Now known as the 'Old North Church'.
- 15 Some have even speculated that Harrison may have had a hand in the designs of these steeples, though no definitive evidence for this has surfaced.
- 16 Allen estimated labor for curved moldings at one shilling per lineal foot, while straight moldings cost eight pence per foot, and curved 'plain work' was eight pence per foot, compared with sixpence per foot for straight moldings. However, the total labor cost for 'circular superficial mouldings' and 'circular plain work' was only about £14, out of the total of £278, and changing these to flat mouldings and plain work would have only reduced the total labor costs by about one per cent.
- 17 It appears likely that the steeple of this church also may be an incomplete version of what Harrison designed, as pilasters are absent, yet strongly suggested by the existing detailing.
- 18 A future completion of the steeple is not as far-fetched a prospect as it may seem, considering that Harrison's portico design was executed from 1785–7, a decade after his death, and the balustrade was reinstated in the twentieth century. Boston's nearby Episcopal cathedral, St Paul's, a notable neoclassical design by Alexander Parris, has recently attempted to increase its visual presence by adding a neon-blue illuminated nautilus design filling the tympanum of its main pediment.
- 19 I am indebted to Jim Righter, Jacob Albert, John Tittmann, and J. B. Clancy of ART Architects in Boston, for their support and for the use of their drafting and rendering software, as well as to my colleague there, D. J. Arthur, who showed me how to use the rendering program 3DS Max.