

Building Performance and Midtown Rezoning **An (Un)Modern Proposal**

The recently released [Terrapin Bright Green Midcentury \(Un\)Modern study](#) (Terrapin study) contrasts the costs and benefits of retrofitting single-glazed post-modern NYC buildings against demolition and replacement with new, ultra-energy efficient buildings makes for compelling reading for anyone interested in urban planning, real estate development, building performance or historic preservation. At first glance, the study conclusions seem to support Department of City Planning's (DCP) mid-town east rezoning proposal, but careful reading indicates that the study's conclusions do not align with or constitute an underlying rationale to support rezoning. The Terrapin study relates solely to the energy efficiency of a narrow band of Midtown Manhattan's buildings—fewer than 107 single-glazed office buildings constructed between 1958 and 1974 – and *not* the 300 “older” buildings that the City wishes to phase out through changed zoning.

The Study convincingly demonstrates that extensive retrofits cannot correct structural shortcomings of (un)modern “first generation” single-glazed buildings such as low ceilings, tightly-spaced columns and structurally weak facades incapable of bearing the weight of double or triple glazed replacement windows that would be required to increase energy efficiency. For a number of practical and financial reasons, it may well be that this narrow band of single-glazed 1950-1970's buildings are not good candidates for retrofitting, although they may merit preservation for reasons of design or historical importance.

Terrapin Study not a Rationale for Rezone/Replace

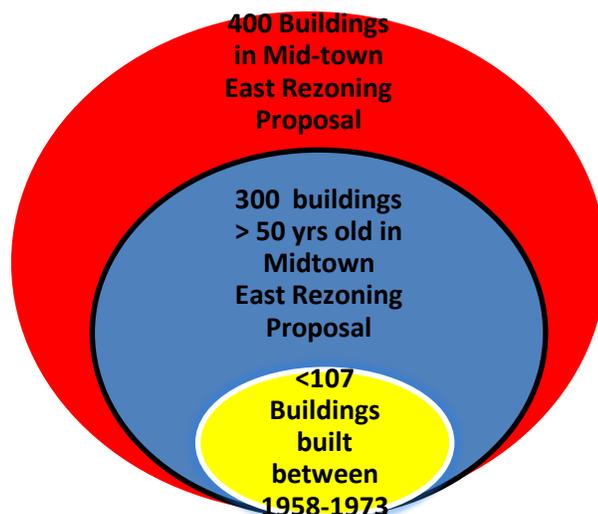
Concurrent with the release of the report, DCP is proposing to rezone the area in Midtown Manhattan bounded by 2nd and 5th avenues, and 39th-57th streets to compete with other international business hubs such as Singapore and London. This rezoning would set the stage for the demolition of as many as 400 buildings to make way for at least 4.4 million sf of development and almost 50,000 more workers and residents within the 78 midtown-east blocks slated for rezoning.

Leaving aside whether New Yorkers *want* to look and feel like other cities or whether our City's place as a key international center is truly threatened, New Yorkers need to be careful not to be hoodwinked into buying in to the notion that “older” buildings are “bad” buildings that do not merit retrofitting. Careful reading of the Terrapin report shows that a case is made *only* for demolition of first generation, single-glazed buildings built between 1958 and 1973 and *not* “older” buildings as defined by DCP—that is, those built prior to 1963. Furthermore, only a handful of the 107 single-glazed buildings targeted by Terrapin are located in the Mid-town East rezoning—nothing close to the 300 “older” buildings the city targets for demolition.

The distinction between the buildings referred to by Terrapin and the city's rezoning proposal was lost in a recent [Crain's article](#) which regurgitates Terrapin's findings but extends them far beyond those studied: “According to the report, a building that is torn down can be rebuilt with 44% more square footage and still use 5% less energy” suggesting that *any* building can be rebuilt larger (and thus, more profitably) and still

reduce the overall carbon footprint. If such inaccurate misapplications of the study findings are accepted unquestioned, wholesale demolition can occur under the false guise of energy-efficiency.

The confusion is rooted in a blurring of the building structure and vintage that DCP on the one hand and Terrapin on the other, are targeting: Terrapin conclusions relate solely to the “bad” buildings built between 1958 and 1973—single-glazed windows with low ceiling-floor heights, poor day-lighting, tightly packed columns and inefficient cooling and heating systems; the City defines the “bad” buildings with a much broader brush—it seeks to phase out the 80% of all buildings in the area that are “older” --those built more than 50 years ago. The implication is made by the city that these culprit buildings are the ones that have “outdated structural features like low ceilings and interior columns” using much the same language that is used in the Terrapin report, despite the fact that they are referring to different building typologies and ages.



Contrary to DCP’s assertion but borne out by the Terrapin report, “older” buildings, built before WWII generally have *higher* ceilings that permit more daylighting and are *more* energy efficient than buildings built from the 1950s to the mid-1970s¹ (even before retrofitting). Terrapin sees these buildings as entirely suitable for retrofitting:

“...buildings with high ceilings and the potential for effective daylighting, and even natural ventilation, make excellent candidates for repositioning through retrofitting efforts.... Much can be learned from the “mass wall” buildings – with smaller but higher windows, and good opportunities for natural ventilation – that have survived in New York City from previous centuries, and whose energy performance may be better than that of postwar buildings.” (p. 5)

¹ See Appendix H on page 32 of Terrapin Green’s report—the National Average of Energy Use Intensity by Vintage, data extracted by Terrapin from the Department of Energy’s *Building Energy Data Book* tool.

An appendix in the report utilizing a Department of Energy modeling tool of energy use intensity (EUI) by vintage bears out the fact that, on average, pre-war buildings consume less energy than post-war buildings. The difference in source energy (the amount of raw fuel that is needed to generate the energy to be used), as opposed to site energy (the actual consumption)², even more dramatically belies the myth that older buildings—prewar buildings—are generally less energy efficient than newer ones.

Increasing density via floor area ratio (FAR) formulae features prominently in both the Terrapin report and the DCP proposed rezoning—the difference is that the City sets few conditions on the new buildings that would be built other than that the replacement building must create “a superior relationship to other buildings” and “contribute” to the skyline, while the Terrapin report’s added FAR hinges on the lower carbon footprint of the replacement building. The inescapable conclusion is that the City aims to incentivize skyscrapers regardless of environmental impact.

Rezoning and Historic Preservation: Friends or Foes?

Much of the discourse surrounding the implications of the proposed rezoning revolves around the well-founded fear that the rezoning will lead to the demolition of some of the city’s historic and iconic buildings. Unfortunately, the historic preservation field is left to fight for designation of just a few particularly significant buildings that would be threatened by the rezoning. To date, the Landmarks Commission is considering designating only 12 of the 17 buildings that the Municipal Art Society recommends for evaluation while the Historic Districts Council recommends the consideration of 33 buildings with an additional 47 noted as being significant. Thus, only 12 of the 80 buildings deemed significant by HDC stand a chance of protection, sealing the fate of so many buildings that feature carvings, texture, warmth and diverse character that are scattered throughout the area.

“Green” Zoning

Terrapin lauds the benefits of incorporating design that reinforces the connection of human beings with nature and cites studies finding that productivity, decreases in absenteeism and health care costs are associated with biophilic design, such as high ceilings, daylighting and green roofs. While many studies suggest that just *looking* at green reduces stress and improves health the proposed rezoning does not touch the concept of establishing a Green Area Ratio (GAR) as a criterion to be factored into the demolition and replacement of the “older” structures they wish to phase-out through demolition.

The Terrapin preconditions for demolition, while more environmentally sound than the City’s, has its shortcomings. It does not prescribe an “ultra-green” protocol or suggest LEED or any particular standard or criteria that the developer would have to follow in order to qualify for the bonus incentives. Many questions arise as we consider the policy implications and the practical measures that should be encouraged to maximize the building performance of the City’s buildings. In order to qualify for a height bonus based on energy efficiency, what design and performance criteria would be extracted in return?

² http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_benchmark_comm_bldgs

Can we “spot zone” on the basis of a building’s energy efficiency? Even if building performance criteria for demolition were clarified, how would such building performance be guaranteed in the future? Since site consumption is highly dependent on the occupancy and use of the space and these factors shift over time, it is entirely feasible that an energy-efficient replacement building will become less so with change of use, so the city would provide the bonus without the assurance of high-building performance over time.

The Downside of Over-Interpreting Evidence-Based Analysis

The importance of Terrapin’s study should not be overlooked—but the evidence-based analysis must be distinguished from the innuendo; conclusions reached about the high carbon footprint of post-modern buildings should not be extended to broad overstatements about *older* buildings (that is, pre-war structures)—which are, in fact, more energy-efficient than *newer* buildings (that is, 1950-80s structures).

The moral of the story is: do not fall prey to interpretations of the Terrapin report that suggest that wholesale demolition of “older” buildings can be justified on the basis of energy performance. We might just well end up being like Singapore and pay a price in quality of life, a reduction in diversity of richness of building stock *and* an increased carbon footprint.