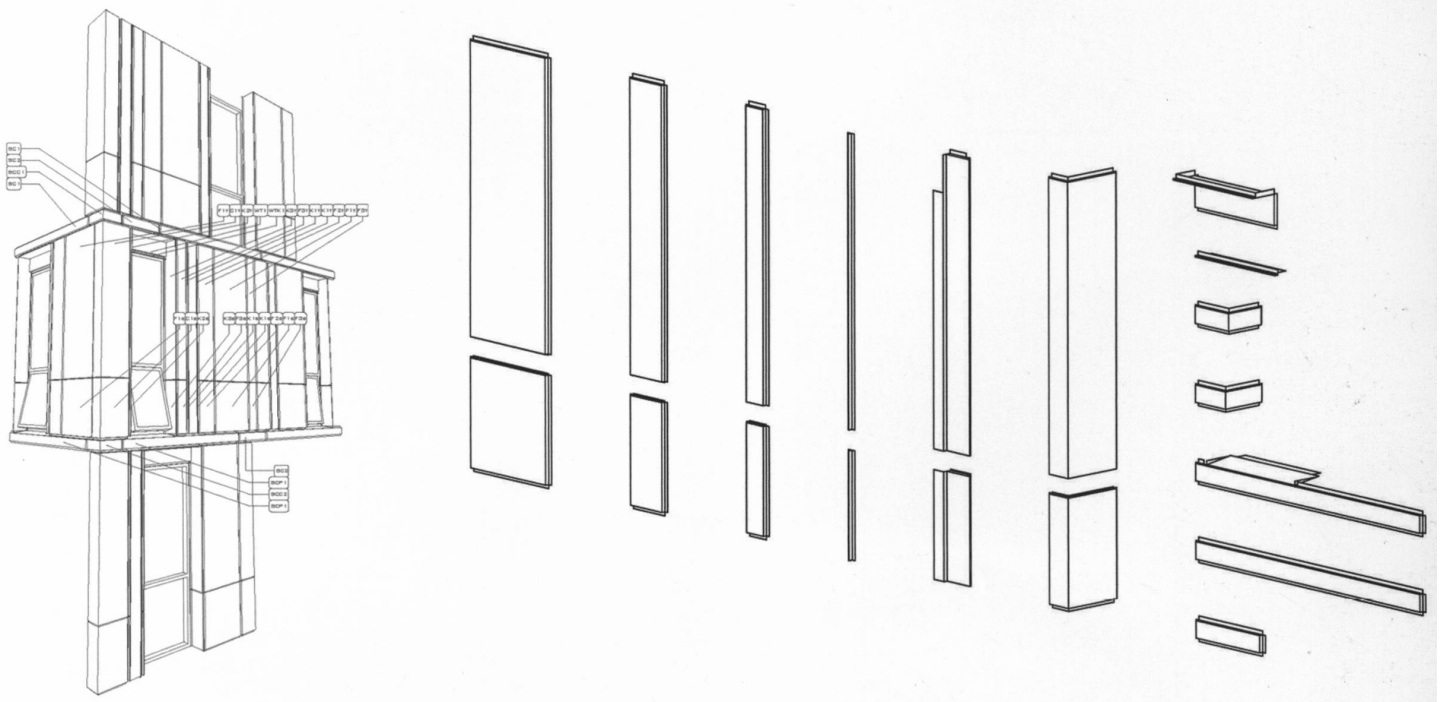
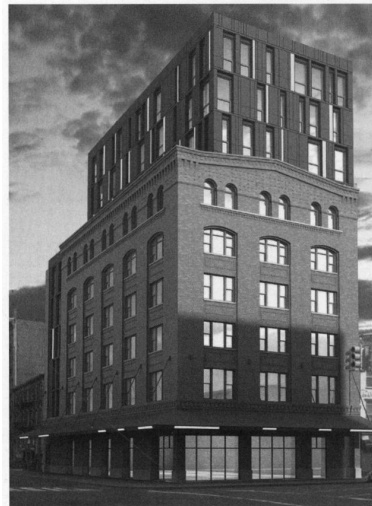


COMPLEXITY AND CUSTOMIZATION: THE PORTER HOUSE CONDOMINIUM SHARPLES HOLDEN PASQUARELLI (SHoP)



With backgrounds spanning art to business administration, New York architects Sharples Holden Pasquarelli (SHoP) bring a unique set of skills to each of their projects. As a result, creative problem solving has become a kind of signature. Where Eero Saarinen once called for a “style for the job,” SHoP instead offers a “solution for the job.” In the case of the recently completed Porter House Condominium, this attitude generated a design that incorporates innovative contemporary materials into a project with a limited budget by using and reconceptualizing technology - both material and digital.

The Porter House is an addition to an existing warehouse in the Meatpacking district of Manhattan, which adds 15,000 square feet and four stories to the original yellow-brick structure. Working with developer Jeffrey M. Brown, SHoP bought the air rights from the adjacent building lots, enabling them to cantilever the addition eight feet to the south of the existing structure. While adding valuable square feet, this cantilever also helps define the new construction as an independent volume, rendered in a distinctive skin of zinc panels, floor-to-ceiling windows and translucent light boxes, which illuminate automatically each evening.

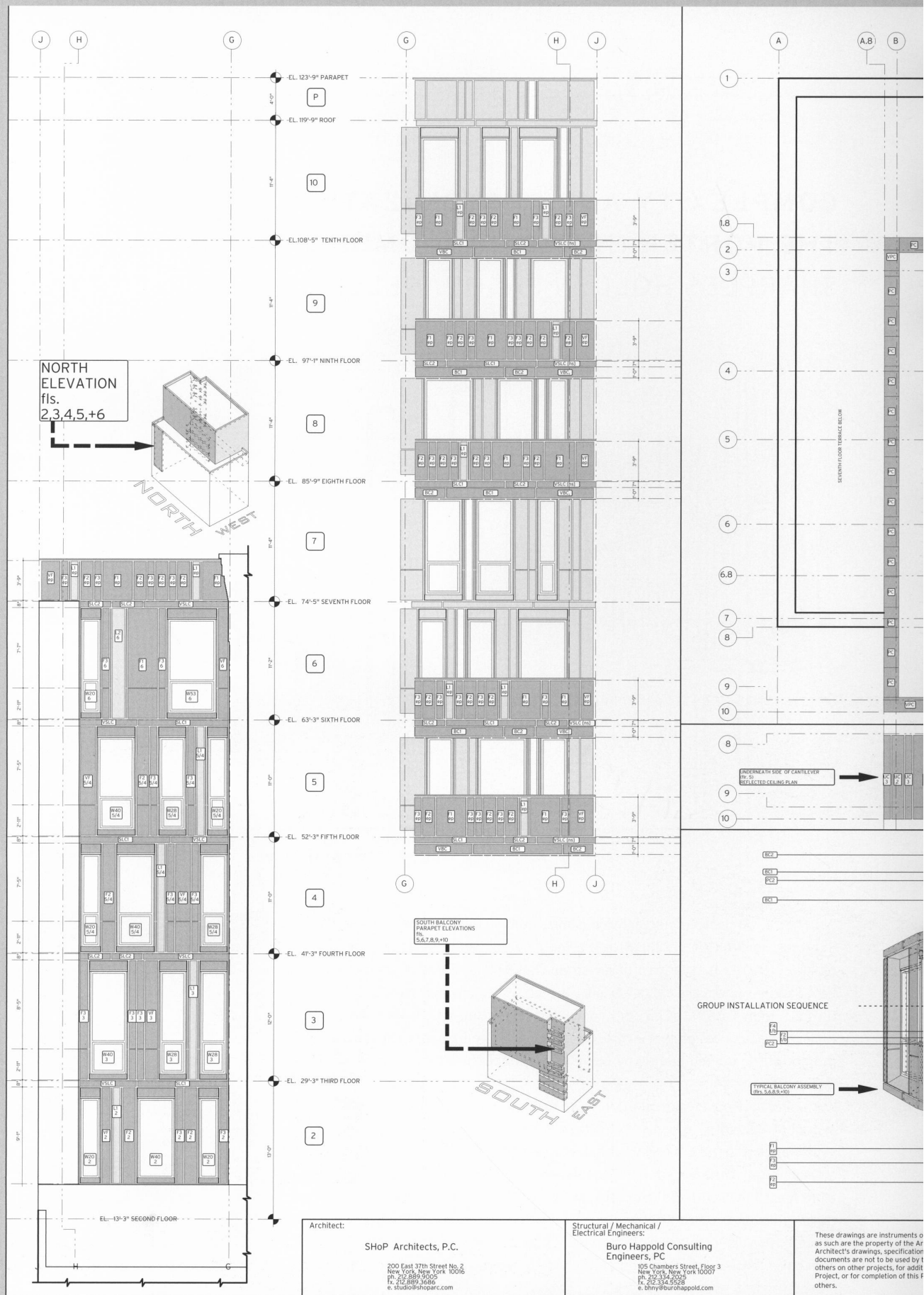


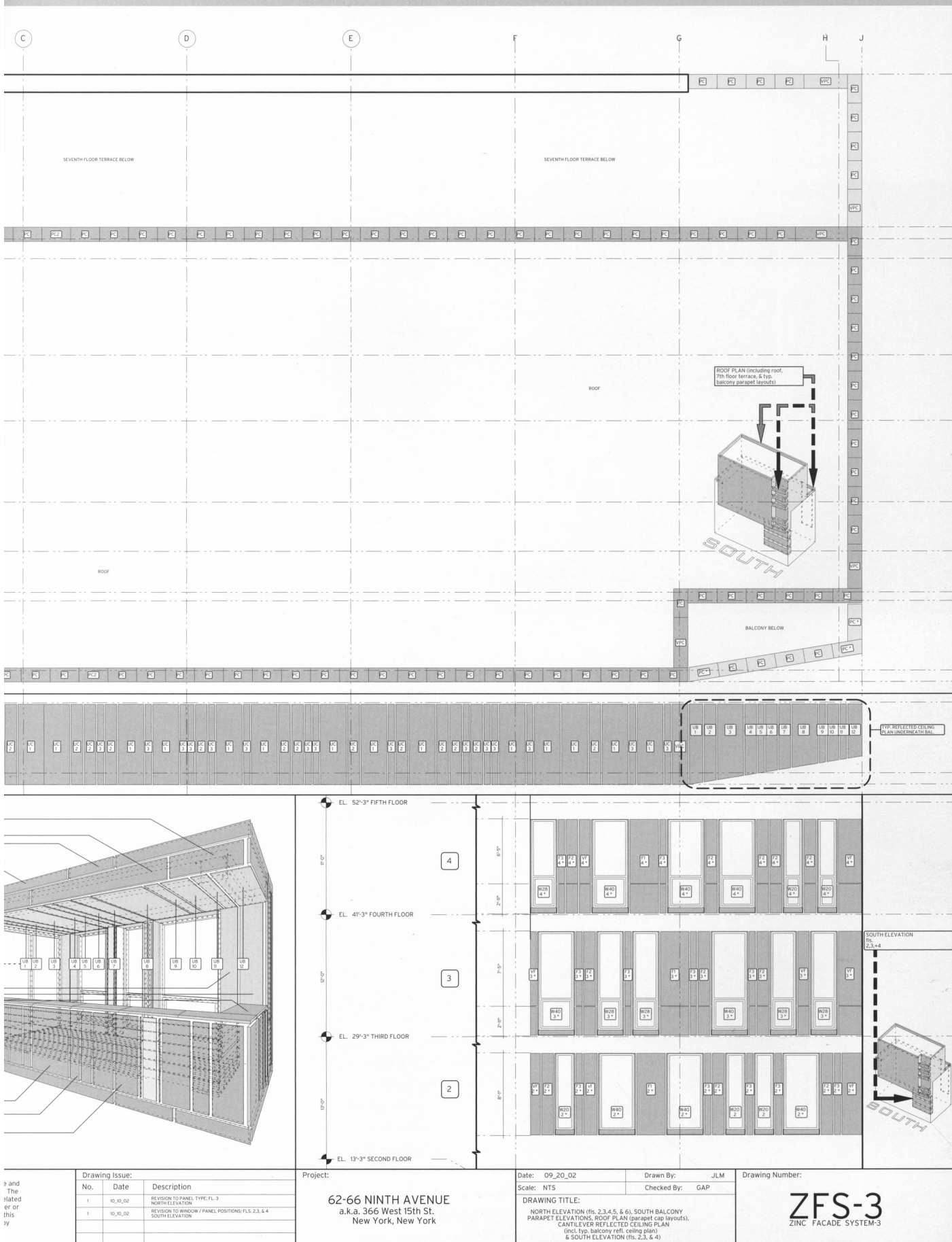
FACING PAGE: The building façades are comprised of a variable grid of zinc panels, floor-to-ceiling windows, and light boxes.

ABOVE: An axonometric detail of a building corner describes the different panel sizes, as well as their installation sequence and location.

LEFT: The addition is cantilevered to the south of the existing structure, adding four stories and 15,000 square feet to the original brick warehouse building.

RIGHT: An installation map for the zinc façade system. Assembly was facilitated by laser-scoring each panel with its part name, and by cutting a particular hole layout in the panel to ensure that it was fastened in the correct location.





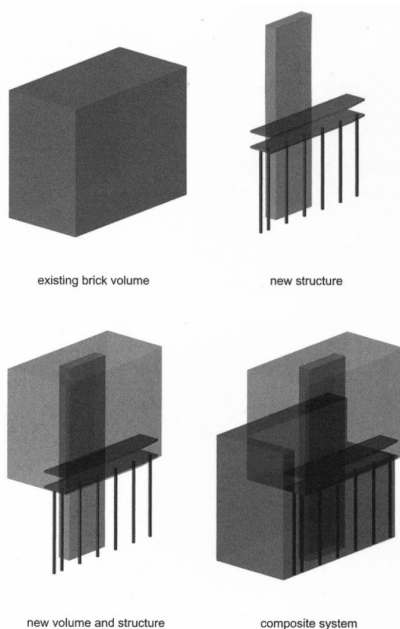


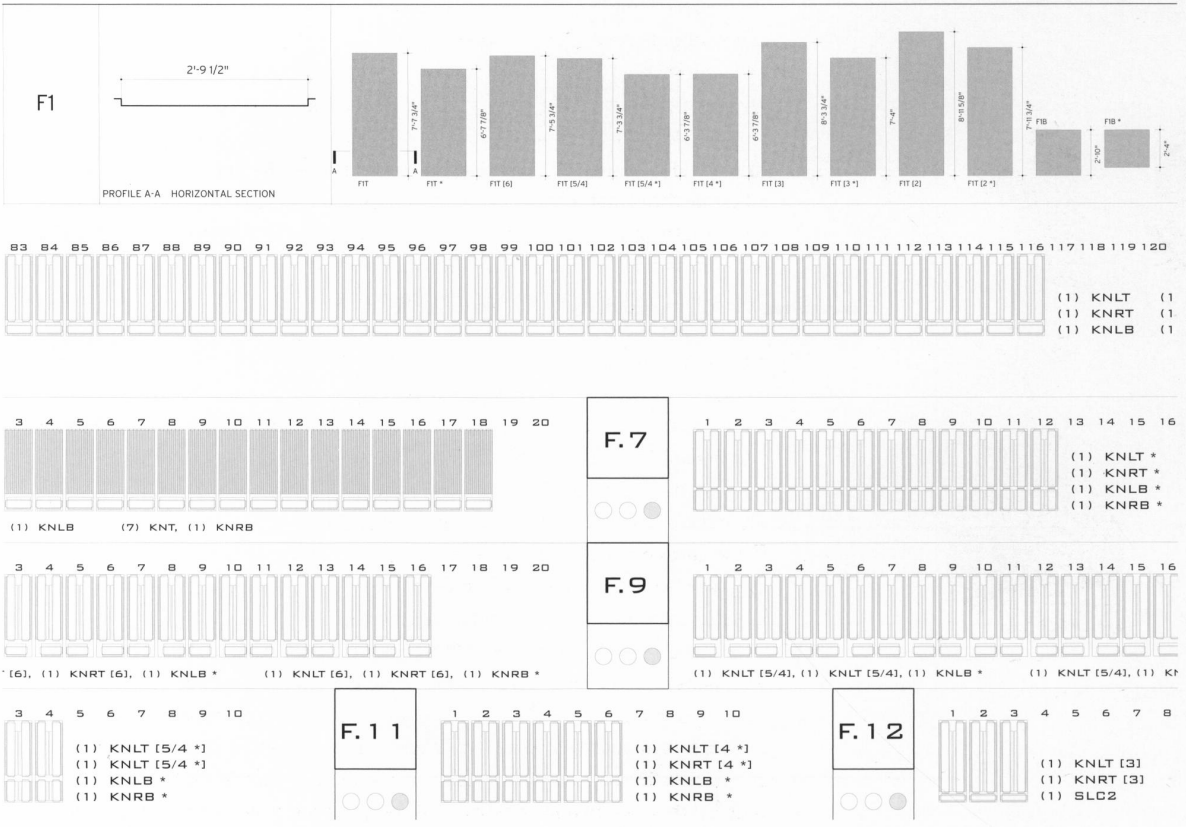
This zinc panel system was custom-designed in collaboration with the engineer Buro Happold. Zinc was chosen for its high durability and rich material qualities, as well as its industrial aesthetic. A sharp contrast to the yellow brick of the original structure, zinc also appears on a new awning designed at street level.

After SHoP learned that outsourcing fabrication would be prohibitively expensive, they decided to manufacture the panels themselves. Beginning with a standard one meter by three meter sheet of zinc material, SHoP devised a system of three typical panel widths, such that the original zinc sheet could be cut into either one large, two medium sheets, or three small sheets. From this seemingly simple starting point, 4,000 uniquely shaped panels were generated to accommodate various design specificities. Many of the panels were bent to perform three-dimensionally (as return profiles at windows, or as parapet caps, etc.) while others were designed to account for the varying floor heights and idiosyncrasies of the existing building.

Perhaps the most significant aspect of the entire design and construction process was the absence of traditional shop drawings. Instead of transferring the design to dimensional drawings which describe each piece to be fabricated—an impossible task given the number and variation of parts—the design was instead transferred directly to the cutting machine through various software programs. SHoP first modeled the project in RHINO, then brought their design into Solidworks, a program that can remodel a three-dimensional object when new dimensions are added into an excel worksheet. Finally, a different software program was used to 'nest' the dimensions onto panels, optimizing the amount of material used from each panel and allowing the firm to purchase nearly exact amounts of the relatively expensive zinc material.

As it was ultimately realized, the Porter House façade is composed of a matrix of zinc panels (three widths), floor to ceiling windows (four widths), and lightboxes (two widths); this design and construction was possible only through innovative use of digital and material technologies. —AMANDA REESER ☐



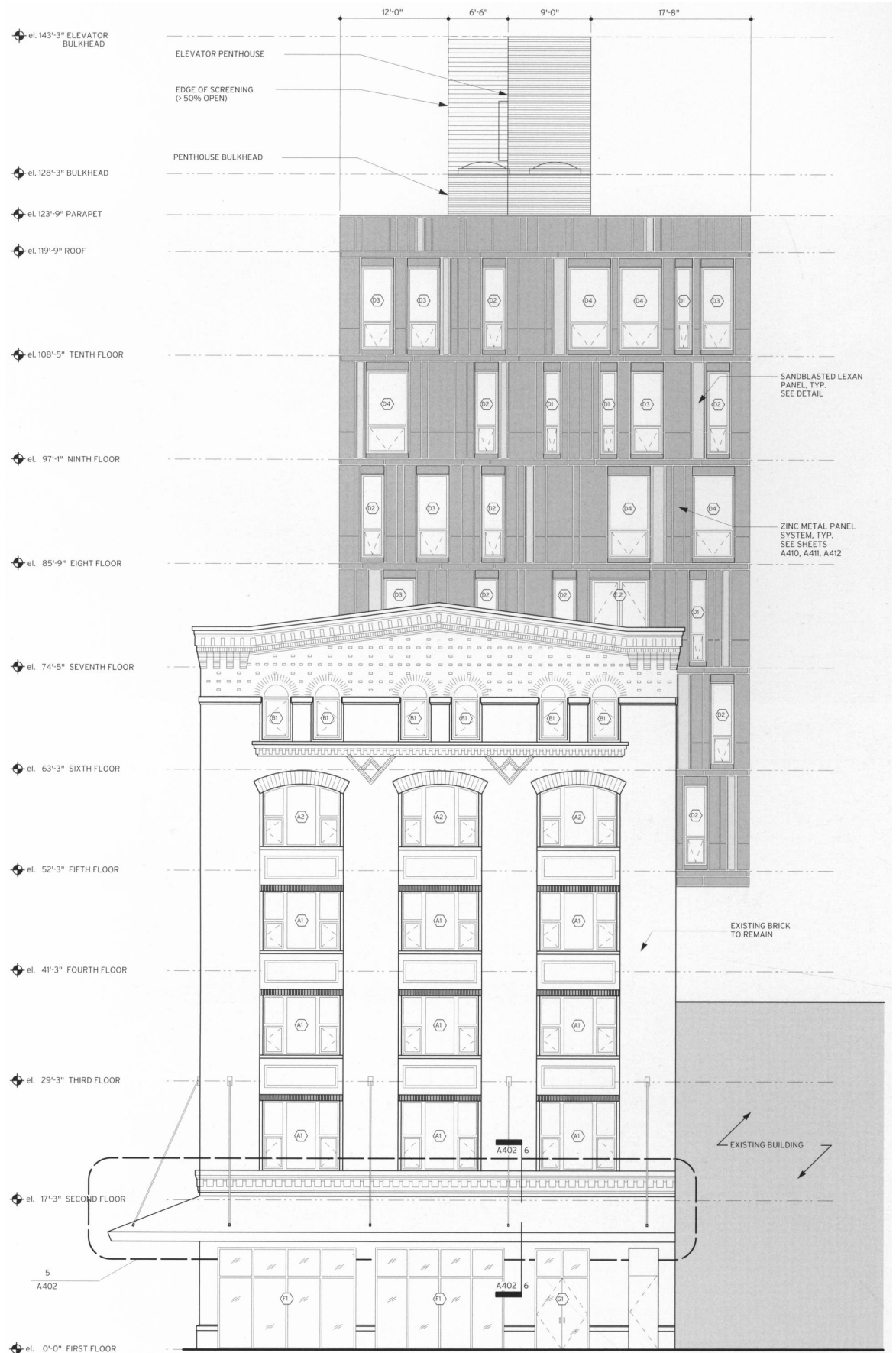


ABOVE: Photos show the panel installation process, which was completed in less than ten weeks.

LEFT: By designing the unfolded panels to fit with maximum efficiency on the sheets of raw material (one foot by three foot zinc panels), SHoP was able to use 94% of the material.

RIGHT: The east elevation shows the façade of the 1902 brick warehouse, with SHoP's new addition cantilevered to the south.

FACING PAGE: The unusual shifting floor plates of the design resulted in eight different unit types within the 22 condominiums. The varying glazing and light boxes obscure the program and structure behind, in contrast to the Italian Renaissance Revival Structure below.





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Bethel Construction

COMPLETION DATE

October 2003

BUDGET

\$25 Million