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THE DREDGE CHASE

Adventures in shifting terrain

JOE BROWN

On EDAW, AECOM, and small thinking

NEWARK'S NEW WALK

A bright riverfront park by Lee Weintraub

ALL FOR GOOD

Making social-impact design practicable



ROOF
TO
TABLE



**CROPS ARE POPPING UP ON GREEN ROOFS
FIRST BUILT FOR STORMWATER.**

BY LAUREN MANDEL, ASSOCIATE ASLA

ABOVE
The McCormick Place Rooftop Farm overlooks Chicago's skyline.

INSET
Rooftop farmers and trainees harvest fresh vegetables.

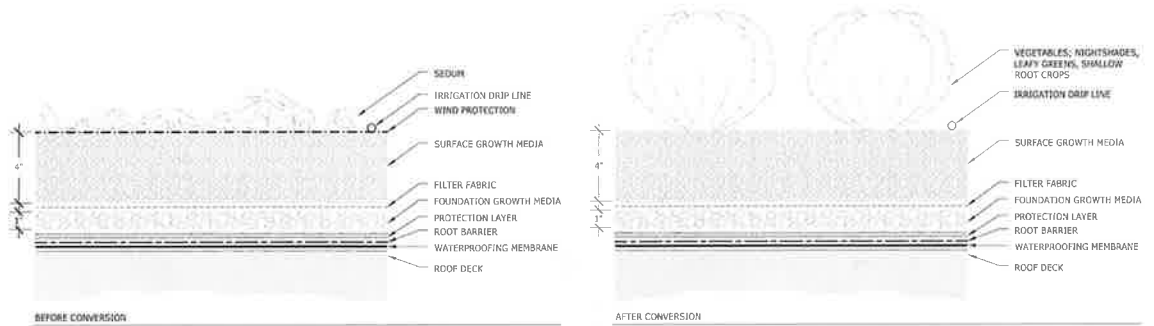
In downtown Chicago, the city's convention center, McCormick Place, dominates the landscape with 27 acres of rooftop. The facility's West Building has more than three acres of thin, or extensive, green roof, which was installed in 2007 to meet city requirements. In recent years, a lack of maintenance has caused the roof's *Sedum* species to decline, which gave employees of SAVOR, the in-house food service provider at McCormick Place, an idea that these highly visible vegetated planes could be used for a more productive purpose. The result is the McCormick Place Rooftop Farm.

Green roof infrastructure has matured to the point that the intended use for some older roofs may no longer be relevant. In Chicago, New York, and Toronto, there are projects to turn some of these roofs into fields of food. In the past decade, cities with progressive stormwater management policies have incentivized or even required green roofs on new construction, creating a veneer of vegetation across many urban skylines. But as with any landscape, the project matures and the needs of the users change.

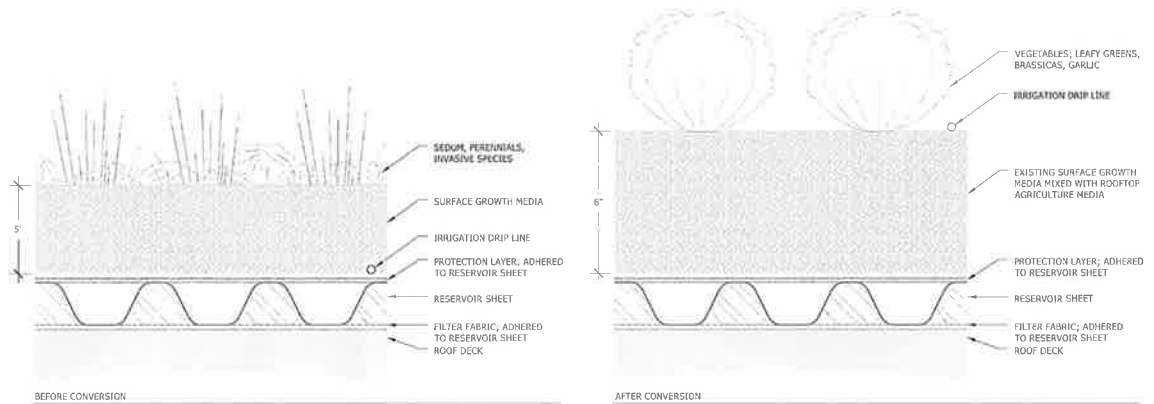
In 2013, a partnership between SAVOR and Windy City Harvest—an urban agriculture program run by the

Chicago Botanic Garden—began to replace 20,000 square feet (half an acre) of McCormick Place's *Sedum* with rows of colorful vegetable starts. The farm's drip-irrigated nightshades, leafy greens, and shallow root crops are now harvested and sold to SAVOR at a low cost for use in the convention center. Angela Mason, the director of urban agriculture programs for the Chicago Botanic Garden, says SAVOR "gets truly local food." The rooftop farm also serves as a job training site. The farm coordinator, Darius Jones, estimates that the 2014 season will yield 18,000 pounds of produce for convention center guests.

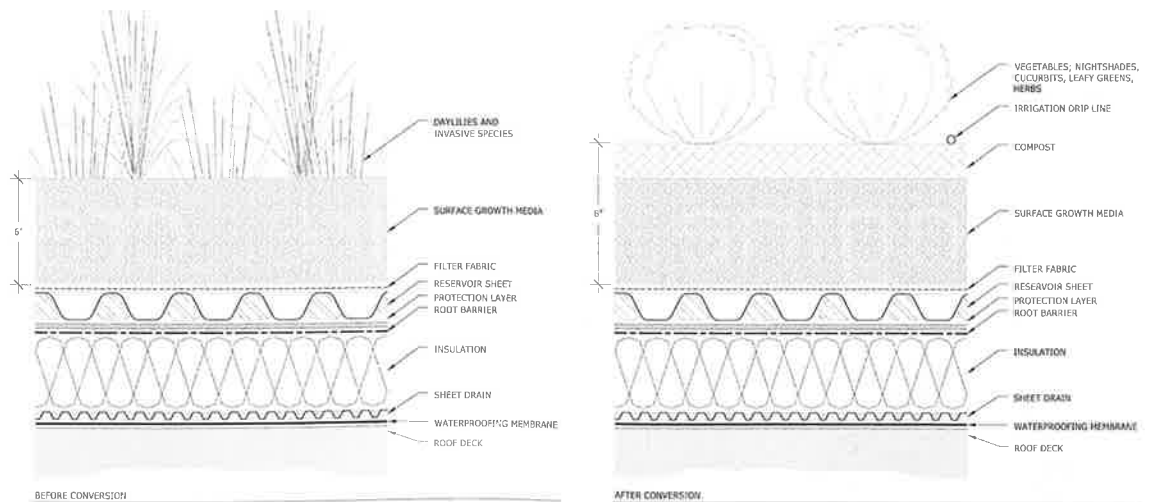
MCCORMICK PLACE ROOFTOP FARM



STATEN ISLAND FERRY TERMINAL ROOFTOP FARM



RYERSON UNIVERSITY ROOFTOP FARM



A team in New York City has begun repurposing the rooftop of the Staten Island Ferry Terminal in St. George, Staten Island. The building's extensive green roof was installed in 2005 and suffered from a dwindling maintenance budget, a defunct irrigation system, and a takeover by volunteer species. Adrian Wilton, the project's director, from the New York-based edible landscape company Living Restoration, LLC, says that funding from the Staten Island Borough President's Office enabled the initial conversion of 1,200 square feet of green roof into vegetable beds. Volunteers pulled weeds and added soil to increase the growth media from five inches to between seven and eight inches. Living Restoration plans to convert additional acreage to bring 9,000 square feet, about one-fifth of an acre, into production of leafy greens and *Brassica* for local food pantries. "It's a great way to educate everyone about uses for green roofs," Wilton says.

In Toronto, the extensive green roof on Ryerson University's George Vari Engineering and Computing Centre was installed in 2004 to moderate indoor temperature, manage stormwater, and give students a living research platform. The roof, six inches thick, originally was planted with widely spaced daylilies (*Hemerocallis* spp.) and became a veritable blank slate



ABOVE
The Ryerson University Rooftop Farm and its squash bloom.

BELOW
Ryerson University's green roof transformation.

BOTTOM RIGHT
Volunteers remove invasive species atop the Staten Island Ferry Terminal.

where more than 30 volunteer species, including trees, took root. Nine years later, the university's edible gardening group, Rye's HomeGrown, converted a small test plot into edible plants and is currently converting additional acreage for a total of 11,000 square feet, or about a quarter acre. Students, faculty, and volunteers cut vegetation, laid tarps for several weeks to kill remaining root systems, spread two inches of compost, and installed a drip irrigation system. The 2013 season produced 500 pounds of nightshades, cucurbits (squash, melons, etc.), leafy greens, and herbs. Rye's HomeGrown anticipates 7,500 pounds during the 2014 season. The roof-fresh produce is eaten within the school's cafeteria and sold to a local farmers' market and patrons of community-supported agriculture.

Cities are increasingly adopting progressive stormwater policies, and the uses for existing green roofs are changing. Designers will need to understand the technical considerations of skyline retrofits. To convert ornamental green roofs to agricultural roofs, they'll have to consider loads, fall protection (i.e., guardrails or sufficiently tall parapets), waterproofing membrane protection, and performance of long-term growth media. Some of these considerations require structural and architectural coordination. Early conversations with rooftop farmers should revolve around the growth media and nutrients. It's important that the growth media remain "structurally stable" over time, meaning it's designed with few small particles, which can cause compaction, and little organic mat-

ter, which can break down and also cause compaction. When supplementing an existing green roof with agricultural media, it's best to include slightly more organic matter than traditional green roofs have and develop a lightweight nutrient addition strategy (think compost tea) with the farmer. Be sure the farmer also understands which tools may be used to avoid puncturing the waterproofing membrane or, better yet, include a shovel guard toward the base of the system if the budget allows. ●

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VINCENT JIN ET AL. AFFILIATE ASLA. GREEN ROOFS FOR HEALTHY CITIES. TOP AND BOTTOM LEFT, ADRIAN WILTON. BOTTOM RIGHT