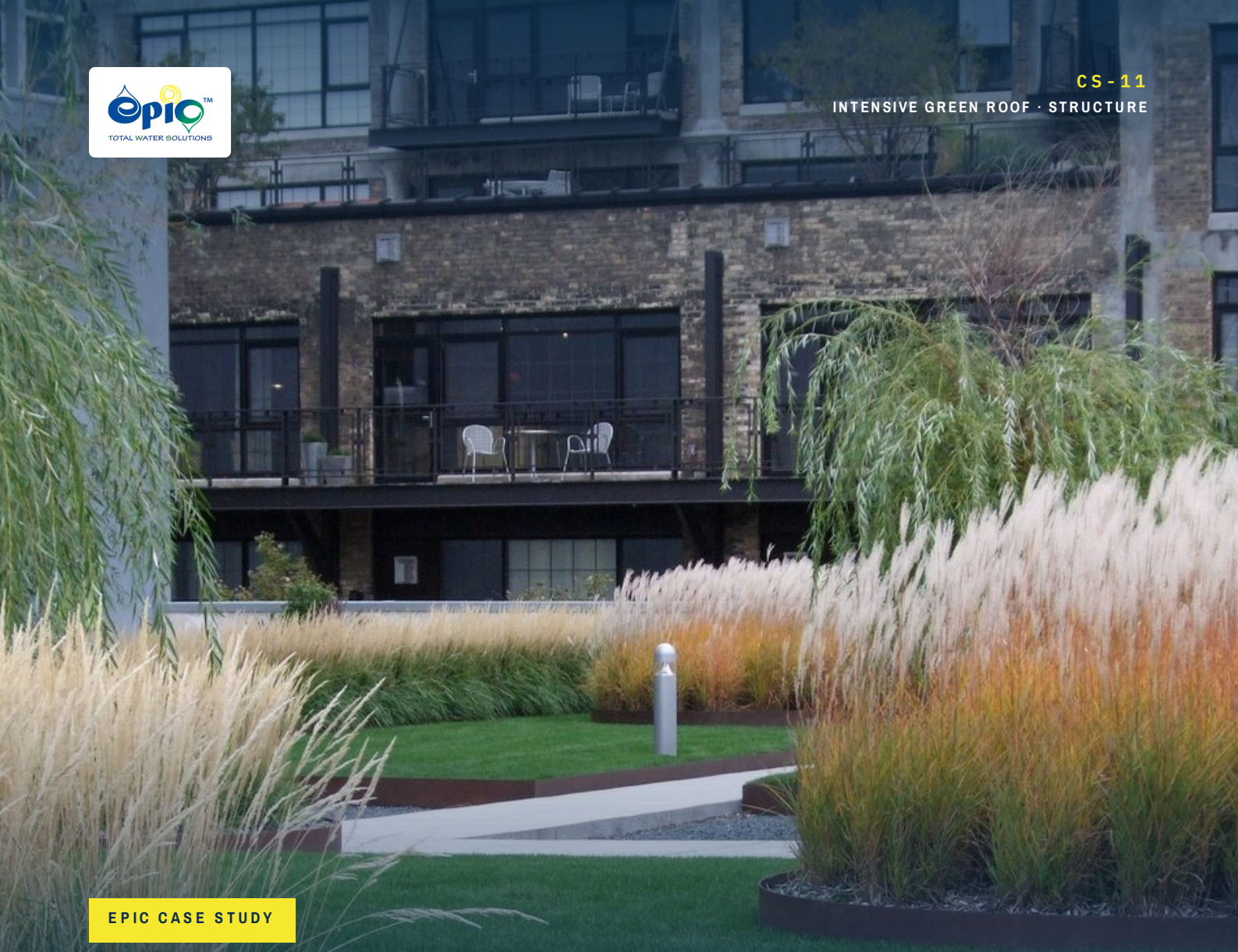


EPIC CASE STUDY

BOOKMEN STACKS PARK PLAZA

MINNEAPOLIS, MINNESOTA, USA · A PARK-LIKE INTENSIVE GREEN ROOF

A park on top of a parking garage, inside a weight budget of 60 to 80 pounds per square foot saturated, and every apartment facing it sold.

60 to 80
LB/SQ FT SATURATED
Weight ceiling

10,000
GALLON STORMWATER
Detention, reused

2005 to 2016
DATED PHOTOGRAPHIC RECORD
2005 installation → October 2016

EVIDENCE LEVEL

DOCUMENTED · Design constraint, system spec and a 2005 to 2016 photographic arc · commercial outcome as stated by EPIC

The intensive green roof above the parking garage, Bookmen Stacks Park Plaza, Minneapolis, October 2016.

PROJECT RECORD

LOCATION	Urban core of Minneapolis, Minnesota, USA
BUILDING	A multi-storey development needing to maximise the use of any open space
LANDSCAPE ARCHITECT	Oslund and Associates
WEIGHT CONSTRAINT	The subsurface parking garage roof-weight capacity of 60 to 80 pounds per square foot, saturated
SYSTEM	The patented Muellner Green Roof™: an engineered profile using the EPIC System™ as passive irrigation and drainage
STORMWATER	Detained in a 10,000 gallon tank and reused safely
MATERIALS	Recyclable, made from local materials and post-consumer waste
PHOTOGRAPHIC RECORD	2005 installation · 2005 · 2007 · October 2016

THE PROBLEM

A multi-storey development in the urban core of Minneapolis needed to maximise the use of any open space it had. On this building, the open space available was the roof of the subsurface parking garage.

That set a hard structural ceiling: whatever went on top had to stay within a roof-weight capacity of 60 to 80 pounds per square foot when saturated. Saturated is the operative word; a green roof is heaviest exactly when it rains.

> "There was an extensive search to provide an intensive park-like green roof system that supports plant diversity, water management goals and has light weight characteristics."
>
> EPIC case study, Bookmen Stacks Park Plaza

WHAT EPIC BUILT

EPIC implemented its patented Muellner Green Roof™, an engineered profile that uses the EPIC System™ as a passive irrigation and drainage system, in collaboration with the landscape architecture firm Oslund and Associates.

The result is an intensive, park-like green roof: it increases usable structure space, provides water management opportunities, enhances roof membrane longevity and decreases site hard surfaces.

Stormwater is detained in a 10,000 gallon tank and reused safely. The Muellner Green Roof™ profile is recyclable and made from local materials and post-consumer waste.



2005 Installation: the EPIC profile going down on the roof membrane.



Growth in the first year.

60 to 80	10,000	2005 to 2016
LB/SQ FT SATURATED WEIGHT CEILING	GALLON STORMWATER DETENTION, REUSED	DATED PHOTOGRAPHIC RECORD

THE RECORD

The design constraint, the stormwater system and the outcome, as recorded for the project.

	AS RECORDED
Roof-weight capacity respected	60 to 80 lb/sq ft saturated
Stormwater detention	10,000 gallon tank, water reused
Commercial outcome	Every unit facing the green roof sold out; units facing elsewhere were 75% vacant
Photographic record	2005 installation → October 2016, eleven years

The commercial outcome is as stated in EPIC's case study for the project.

THE COMMERCIAL RESULT

“Additionally, Bookmen Stacks sold out every unit facing the green roof while units facing elsewhere were 75% vacant. The enhanced usability, function and aesthetics of this green space resulted in increased occupancy.”

EPIC case study, Bookmen Stacks Park Plaza



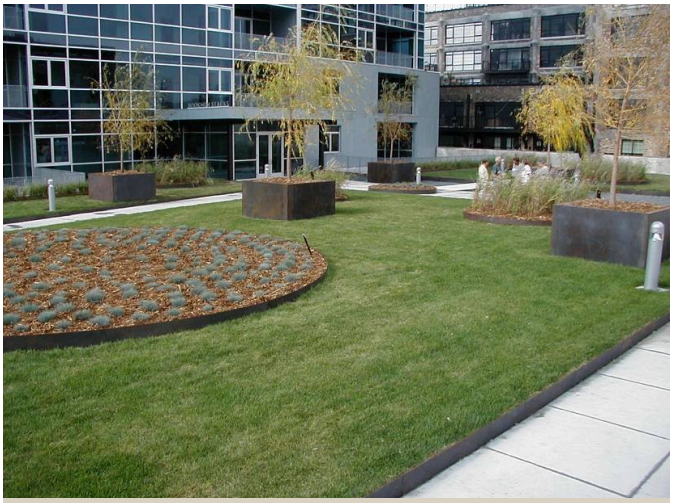
Oct 2016 The plaza over the parking garage.



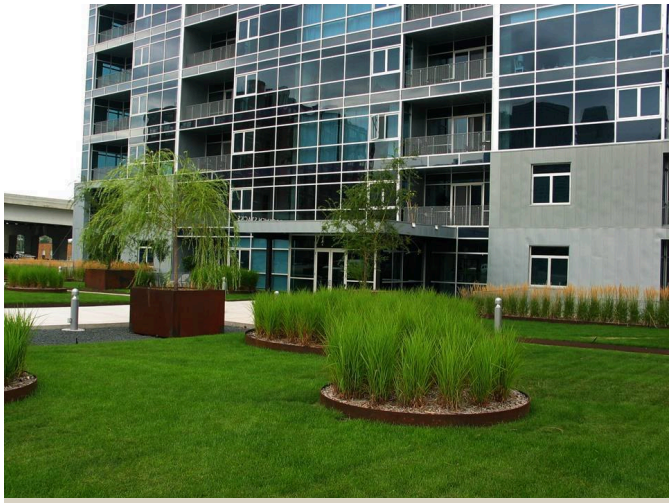
Intensive planting inside a 60 to 80 lb/sq ft budget.

ALSO ON THE RECORD

- **What an intensive roof buys.** “Our park-like, intensive green roof increases usable structure space, provides water management opportunities, enhances roof membrane longevity and decreases site hard surfaces.”
  EPIC case study, Bookmen Stacks Park Plaza
- **Eleven years.** Dated photographs of this roof run from the 2005 installation through 2005 and 2007 to October 2016, an unusually long visual record for a green roof.
- **Materials.** “Muellner Green Roofs™ are recyclable and made from local materials and post-consumer waste.”
  EPIC case study, Bookmen Stacks Park Plaza



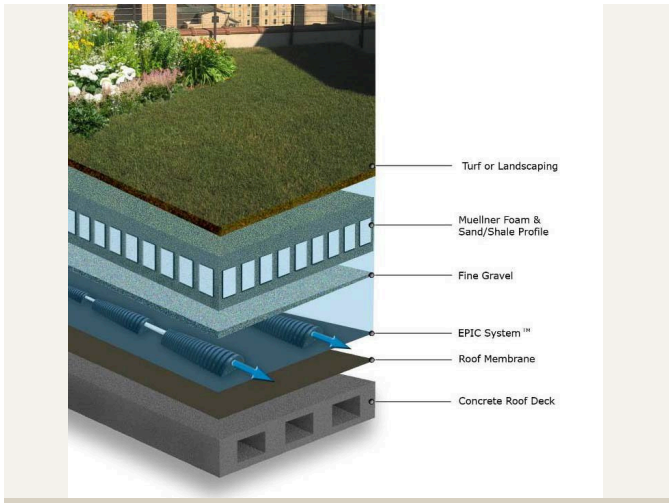
2005 The roof landscape.



2007 The same roof.



Oct 2016 Pathways through the plaza.



The green roof profile: turf or landscaping, Muellner foam and sand/shale profile, fine gravel, EPIC System™, roof membrane, concrete roof deck.

RECORDS EPIC case study for Bookmen Stacks Park Plaza; dated site photographs of the roof, 2005 installation to October 2016; EPIC green roof cross-section diagram.