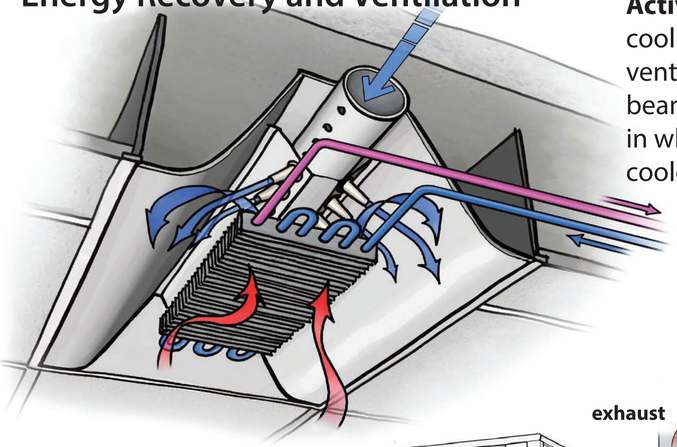
Project Description

This new 65,000 gross square foot addition addresses immediate space limitations, meets growing demand for instructional, research, and collaborative spaces for the science, technology, engineering, and math (STEM) disciplines, and creates engineering-specific instructional and research laboratories. As regional, state, and national labor markets call for greater numbers of qualified STEM graduates, this building expansion will enable the University of Michigan-Flint to deliver the highest quality education to ever-increasing numbers of students pursuing degrees in STEM disciplines.

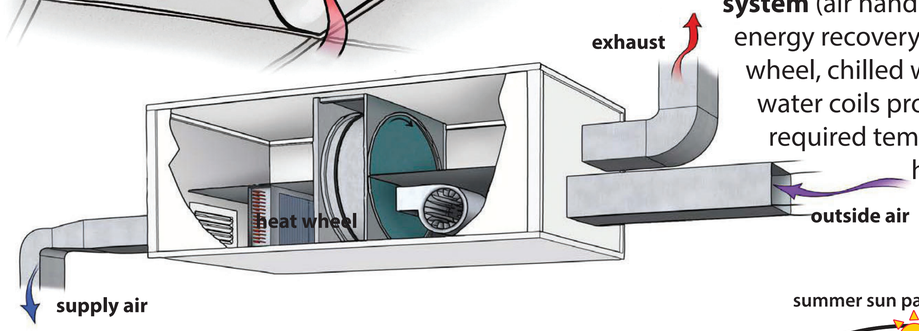
LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN — LEED SILVER — 2022

Energy Recovery and Ventilation



Active chilled beams provide cooling, heating and ventilation; ventilation air forced through the beam produces an induction effect in which warm room air rises and cooler air drops into the space

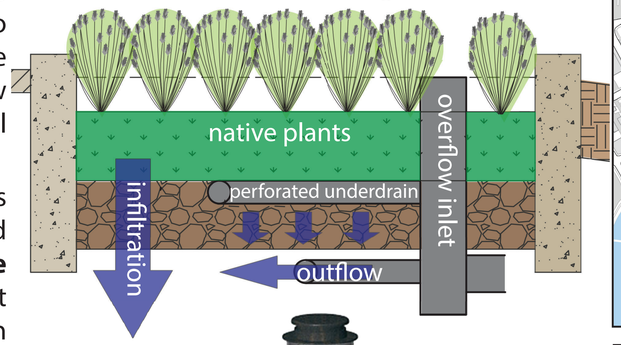
Ventilation is provided by a 100% outside air **energy recovery system** (air handler) with an energy recovery wheel, desiccant wheel, chilled water and hot water coils providing air at the required temperature and humidity

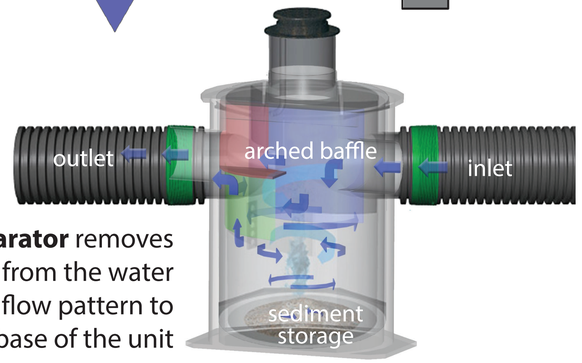


Stormwater Management

Roof water runoff is directed to a **bioswale** to slow it down, remove suspended solids, and allow infiltration into the soil

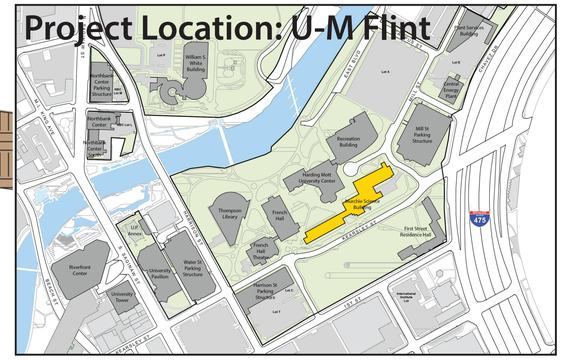
Runoff from sidewalks and plazas is directed through **permeable concrete** for treatment and infiltration





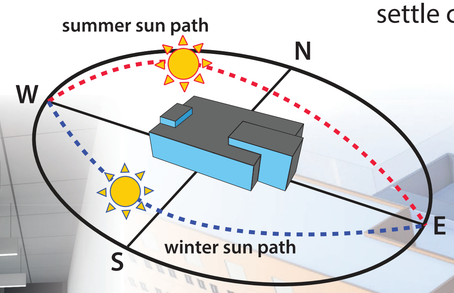
A **hydrodynamic separator** removes coarse sediment and debris from the water runoff, using a circular flow pattern to settle contaminants at the base of the unit

Project Location: U-M Flint



Daylight

Transparent partitions and interior glazing allow daylight to penetrate farther into the building, while daylight controls automatically adjust electric light levels



Building Orientation

The long axis runs east-to-west to provide a bright, daylit interior while taking advantage of direct winter sun for radiant heat

View from south

Sustainability Facts

William R. Murchie Science Building Expansion

Building Use	Classroom /Laboratory Building
Location	Flint, Michigan
Size	63,000 Gross Square Feet
Number of Occupants	490 Daily Average

LEED version		v2009
	LEED certification level	Silver
ASHRAE 90.1 version		2007
	Energy cost savings compared to ASHRAE baseline	24%
Total energy savings		$33,034 / year
	Total electrical savings	207,334 KWh / year
	Total gas savings	15,055 Therms / year
	CO2 emissions avoided	227 metric tons
Water fixture baseline		2015 Michigan Plumbing Code
	Total water savings	36%
Construction/Demolition waste diverted from landfill		93%
Insulation (R-Value)*	Code	Project
	Wall assembly - above grade	15.6	24
	Wall assembly - perimeter slab edge	0	10
	Roof assembly	20	34
Glazing - Fixed assembly		
	U-value**	0.55	0.34
	Solar Heat Gain Coefficient (SHGC)**	0.4	0.39
Glazing - Visible Light Transmittance (VT)***			0.60

Project Team	
Owner	University of Michigan - Flint
Architect	Harley Ellis Devereaux
Engineer	Harley Ellis Devereaux
Contractor	Commercial Contracting Corporation
Commissioning Authority	Fishbeck
Project Management	U-M AEC

Design Period: 07/2017 - 09/2018

Construction Period: 03/2019 - 01/2021

* The higher the R-value the better the insulating quality

** The lower the U-value and SHGC the more energy efficient the window

*** The higher the VT value the more daylight in the space. VT is measured between 0 and 1

planet blue — UNIVERSITY OF MICHIGAN

FACILITIES & OPERATIONS
ARCHITECTURE, ENGINEERING AND CONSTRUCTION
UNIVERSITY OF MICHIGAN

1001630
U-M Building Number

ISSUE DATE: 04-07-2022

William R. Murchie Science Building Expansion

P00011193
U-M Project Number