

# AUSTIN CITY HALL

**Location:** Downtown Austin

**Project type:** Institutional

**Year installed:** 2005

**Description:** The Austin City Hall green roof is comprised of two publicly accessible green roof systems: the first is a plaza on top of underground parking, the second is a terrace over occupied space. Construction is cast-in-place concrete. Maintenance is contracted at once per week.



Photos courtesy of M. Knox, R. Manning, E. Jarger, A. Wong

**Awards:** Green Roof Award of Excellence from Green Roofs for Healthy Cities in 2008 for the Intensive Institutional Category; Certificate of Exceptional Merit from National Wildlife Federation; 1st LEED Gold Project in Austin

**Green roof area:** Over parking garage: 11,145 square feet; over occupied space: 2,480 square feet

**Green roof type:** Intensive, monolithic, 3 feet of soil depth

**Reason for green roof:** Sustainability, educational model, wildlife habitat, aesthetic, amenity

**Green roof components:** Garden Roof Assembly, American Hydrotech

**Vegetation:** Native trees, shrubs, and groundcover

**Water Use:** Efficient irrigation technologies such as stream bubblers and drip irrigation to minimize water use by applying water directly at the plant roots. No potable water was used due to the availability of ground water as the source.

**Amenities:** Waterfall uses HVAC condensation

**Lessons learned:** Construction scheduling issues need thorough review and coordination. Maintenance needs to be tailored to green roof considerations.

# AUSTONIAN CONDOMINIUMS

**Location:** Downtown Austin

**Project type:** High-rise residential condominium

**Year installed:** 2010

**Description:** The Austonian green roof is a privately accessible terrace serving as a backyard for residents of the building. The terrace offers a place to relax, cook, entertain and swim. The terrace is more than 12,000 square feet in size. It sits on the top of the building's ten-story pedestal. Construction is cast-in-place concrete.



Photos courtesy of Thomas McConnell

**Green roof area:** 6,420 square feet

**Green roof type:** Extensive, monolithic, 4 – 7 inches soil depth (616 square feet) and intensive, monolithic, 16 – 18 inches soil depth (5,804 square feet) with two tree wells 5 feet deep.

**Reason for green roof:** Aesthetic, amenity, reduce ambient temperature

**Green roof components:** Garden Roof Assembly, American Hydrotech

**Vegetation:** Over 65 native and adaptive drought-tolerant plants including two clusters of Red Oak trees, ground cover, lawn, shrubs, and an herb garden.

**Water use:** Pressurized irrigation system using HVAC condensation collected in eight 1,600 gallon tanks.

**Amenities:** Pool, fountain, cooking area, dog park, passive gathering spaces

**Lessons learned:** Sun/shade modeling and calculating solar reflectivity from adjacent tower glazing systems are important to determine appropriate plant species and location. Garden will be monitored during the first year and modified accordingly to assess plant growth and reflectivity throughout the year. Future high-rise development may affect the sun/shade aspect of the garden and its microclimate requiring modifications to plant types and locations.

# DELL CHILDREN'S MEDICAL CENTER of CENTRAL TEXAS

**Location:** North Central Austin

**Project type:** Institutional

**Year installed:** 2007

**Description:** The Dell Children's Medical Center site houses two publicly accessible green roofs: a 3,950 sq. ft. Conference Center Garden and a 7,015 sq. ft. garden serving the Chapel, Inpatient Therapy, Patient, Board room and balcony. Roof membrane construction is poured-in-place concrete over high-density rigid foam.



Photos courtesy of TBG Partners

**Awards:** 1st LEED Platinum hospital in the world

**Green roof Area:** 10,965 square feet

**Green roof type:** Intensive, monolithic, 18 inch soil depth

**Reason for green roof:** Sustainable design principles, aesthetics, addition of an accessible amenity, provide comforting natural area for patients

**Green roof components:** Garden Roof Assembly, American Hydrotech

**Vegetation:** Native and adapted drought-tolerant plants

**Water Use:** Irrigation with City of Austin reclaimed water

**Amenities:** Outdoor courtyards

**Lessons Learned:** Increased soil depth for greater moisture holding capacity. Plant loss due to shading by tall buildings and from reflection of heat from windows into courtyards. Owner commitment to ongoing maintenance is important to successful ongoing performance.

# ESCARPMENT VILLAGE

**Location:** Southwest Austin

**Project type:** Retail center

**Year installed:** 2005



2005



2010

Photos from Growers and Green Grid Roofs.com

**Description:** First publicly visible green roof to be installed in Austin for a retail center striving for the latest technologies in green building. The green roof provides a view from the mezzanine level of the coffee shop seating area.

**Green roof area:** 8,000 square feet

**Green roof type:** Semi-intensive, modular tray system, 6 inch soil depth

**Reason for green roof:** Sustainability, energy savings, aesthetic amenity

**Green roof components:** Weston Solutions Green Grid System

**Vegetation:** Native grasses and shrubs and other plants

**Water use:** Spray irrigation system using potable water

**Amenities:** Enhanced view (roof is not accessible)

**Lessons learned:** A modular tray system was chosen to minimize difficulty of roof maintenance and repair. However, the modular system proved unsuitable for the Central Texas climate. (Monolithic systems have proved to be successful.) A problematic spray irrigation system contributed to nutrient rich potable water runoff. Maintenance by a party knowledgeable of green roof best practices is an important step to improved understanding of ways to improve plant health and minimize nutrient water use and nutrient export.

## HILL COUNTRY RESIDENCE

**Location:** Southwest Austin

**Project type:** Residence

**Year installed:** 2005

**Description:** Residential green roof to serve as an outdoor room that would help restore disrupted ecosystem services, offer views of the hill country, create habitat and beauty, be an extension of the prairie grass meadow on the property, and require little to no maintenance.



Photos provided by Kathy Zarsky

**Green roof area:** 1,125 square feet

**Green roof type:** Monolithic, extensive to semi-intensive, 6-8 inches soil depth

**Reason for green roof:** Aesthetic, ecological, amenity, thermal insulation

**Green roof components:** American Hydrotech system, soil media locally formulated and supplied.

**Vegetation:** Native drought-tolerant plants

**Water use:** No irrigation, hose bib for infrequent hand watering

**Amenities:** Small stone paver patio

**Lesson learned:** A green roof can be a very low-maintenance landscape if plants are allowed to come into their own balance and evolve without much interference. The overall assembly selected, as well as plants, has everything to do with the owner's expectations, budget, sustainability objectives, etc. Careful attention to flashing details should be thought through, regardless of roof type and expectations, as metals will leach. Stormwater runoff from roof is higher in nutrients than undeveloped land and should be directed to ground level vegetation rather than allowed to discharge directly into creeks. (Stormwater runoff quality and quantity of this roof is currently monitored by City of Austin.)

**Location:** Central East Austin

**Project type:** Studio office

**Year installed:** 2009

**Description:** This extensive green roof covers a rectangular studio office space using a non-proprietary system designed for a 1:12 pitch shed roof.



Photos provided by Stanley Studio - Architects

**Green roof area:** 525 square feet

**Green roof type:** Extensive, monolithic, 4-5 inches of soil depth

**Reason for green roof:** Explore shallow depth limit for this region, insulation (thermal, sound), ambient cooling, educational/demo, aesthetic, wildlife habitat

**Green roof components:** Non-proprietary system of waterproof layer, aluminum edging, drainage/water retention layer, growth media, and plants

**Vegetation:** Native prairie grasses, wildflowers, ground covers (drought/heat tolerant)

**Water use:** Intermittent light irrigation during periods of heat and drought; system for using harvested sources (rain and AC condensate) nearing completion

**Amenities:** Adjacent PV array acts as awning and rainwater catchment for irrigation

**Lessons learned:** Settling of growth media over time reduces overall depth, mulching key component for moisture retention, prairie grasses prove hardy in extreme conditions, irrigation must occur within narrow dry/moist threshold.