The Green Roof Initiative

The Denver, Colorado Code of Ordinances: Title I, Chapter 10, Article XIII

Jean C. Arnold, Esq.
Constructing Legal Solutions
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The Green Roof Initiative – Ballot Title Passed by 54% of Denver's Voters

Shall the voters of the City and County of Denver adopt a measure that requires every building and any roof replacement of a building with a gross floor area of 25,000 square feet or greater, or a building addition that causes the building to become 25,000 square feet or greater, constructed after January 1, 2018, shall include a green roof or combination of green roof and solar energy collection; while also requiring proper permits and maintenance plans, establishing construction standards and a technical advisory group, and publishing construction guidelines and best practices; also allowing for exemptions and requiring enforcement with violations and penalties?

A Green Roof



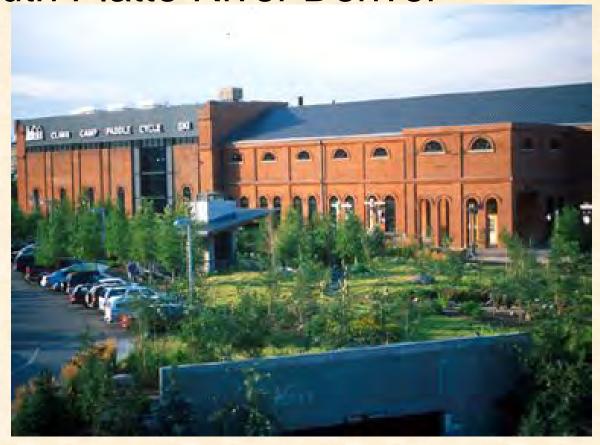
BRYAN LOPEZ, COLORADO JUDICIAL DEPARTMENT

The green roof on the Ralph L. Carr Colorado

Judicial Center over Lincoln Street and 14th Avenue
in Denver.

Denver's Green Roofs

REI – South Platte River Denver



Arnold & Arnold, LLP Attorneys at Law

EPA Region 8



Little Raven Parking Structure



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Denver Botanic Gardens



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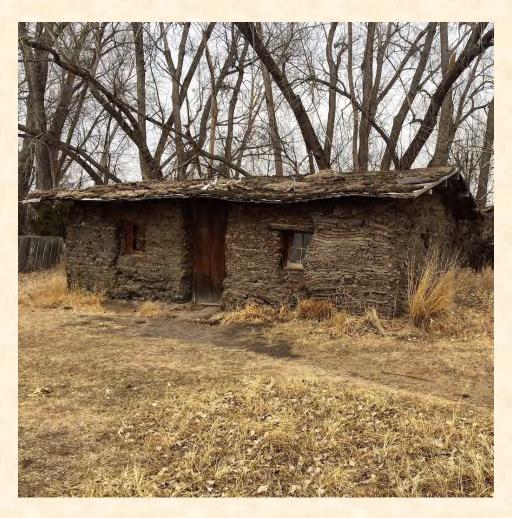
What is a Green Roof?

"A green roof is a living landscape above a structure – it doesn't matter if it's at the ground, or above the ground, or below the ground – it just needs to sit above a structure," Leila Tolderlund, Assistant Professor CU Denver's College of Architecture and Planning.

"A green roof is any living plant material above a living or parking space. It's 'green,' meaning it has plants on it, over a waterproofing membrane – but hat membrane could be over an underground parking garage. It can be on a rooftop or on top of as skyscraper." Andy Creath, Boulder-based Green Roofs of Colorado.

Source: Denver Business Journal (March 9, 2018)

Since the 1800's - Sod Houses



Arnold & Arnold, LLP Attorneys at Law

Current Exemptions

- Existing buildings needing major structural work.
- Residential buildings upt to four stories.

Variances

 Planning Board may grant a variance but applicant must:

pay a cash-in-lieu fee of \$25/SF for each SF of coverage of available roof space that is no longer required to provide a green roof or green roof combination.

Proposed Rules and Regulations

Proposed Rules and Regulation--Public Review Draft December 26, 2017

Table 1

Gross Floor Area	Coverage of Available Roof Space
(Size of Building or Addition)	(Size of Green Roof)
25,000—49,999 square feet	20%
50,000—99,999 square feet	30%
100,000—149,999 square feet	40%
150,000—199,999 square feet	50%
200,000 square feet or greater	60%

Licensing and Permitting Changes

Created two new licenses

- Green roof installer
- Irrigation for greywater or green roof

Buildings 25,000 sq ft or larger must:

submit for a roofing permit over the counter or via email if they are requesting that the building qualifies for an exemption as outlined in the ordinance

Task Force

Department of Public Health and Environment

- The Green Roofs Task Force meeting since January: 20-member task force of stakeholders – collaborative/consensus based
- Green Roof Technical Advisory Group:
 - 10-member body appointed by Mayor
 - Appointees have expert knowledge.
 - Identify technical issues.
 - Possible amendments.

City Council Action 9 Votes to change

- Final recommendations to City Council May 23, 2018 by Task Force.
- The initiative can be changed with the support of 2/3's of the city council: 9 Votes.
- July 2018: The City Council will meet to review Task Force recommendations.

Denver's climate:

Compared to other cities, Denver has "higher temps and a drier climate than where [green roofs are] typically built around the world — so they'll need extra irrigation." Andy Creath, Boulder-based Green Roofs of Colorado. Source: Denver Business Journal (March 9, 2018)

Roof membrane – "There's the myth that having a green roof will make your roof leak more. It's actually the exact opposite, because green roofs protect the membrane." Andy Creath, Boulder-based Green Roofs of Colorado. Source: Denver Business Journal (March 9, 2018)

Cost

Upfront, building a green roof these days can add anywhere from \$18 to 25 per square foot to the standard cost of a roof, depending on the type of access to the roof and the plants that re used. Andy Creath, Boulder-based Green Roofs of Colorado.

The EPA figured the roof added an extra \$12 per foot to the roof cots, or about \$240,000 for a 20,000-square-foot roof (2007 figures).

Source: Denver Business Journal (March 9, 2018)

Water

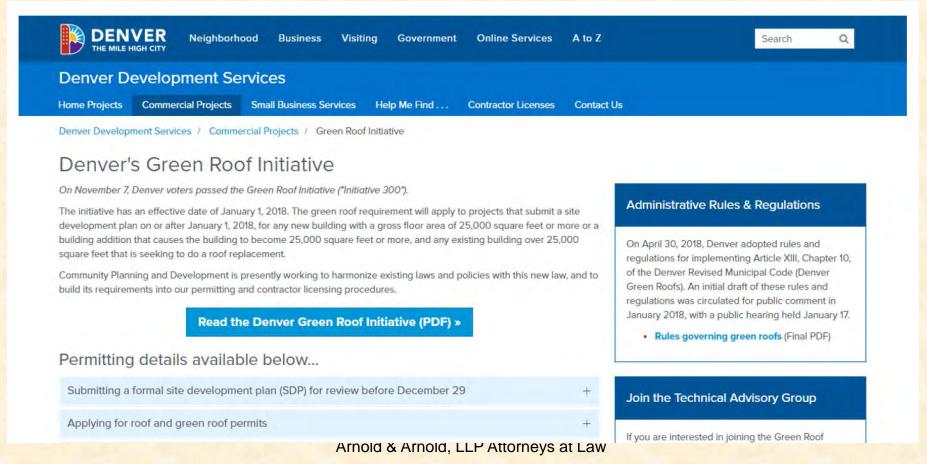
- 2013 EPA Study found that plants could capture and hold about 77 percent of the water an snow that fell – reducing the runoff from the building.
- State water law conflicts with the requirement to retain and reuse water captured.
- Smaller stormwater vaults cost saving; but
- o Less water in the stromwater system.

Good for Denver?

- Lowers the temperature above the immediate building.
- Collectively lowers the temperature above the City.
- Adds Green spaces.

Stay up to Date

See www.denvergov.org/greenroofs



Dennis the Menace by Hank Ketcham



"You mean you went to school for all those years, an' you still don't know all the answers?"

Experience isn't something you get until just after you need it.

~Mark Twain