Navigating Commercial and Multifamily Permitting

Denver Community Planning and Development
January 8, 2020
Thank you!

• ATS Rocky Mountain, Matt Kwiatkowski

• Group14 Engineering, Taylor Roberts

Please sign in for AIA/ICC credit for this course.
Agenda

- E-permits
- Inspections
- Sewer Use and Drainage Permits (SUDP)
- Zoning Code Updates
- Site Development Plans (SDP)
- Large Development Review (LDR) & Infrastructure Master Plans (IMP)
- 2019 Building Code Adoption & Highlights
- Green Buildings Ordinance
- Denver Green Code
- Q&A
HAVE YOU CHECKED OUT E-PERMITS?

www.denvergov.org/epermits
Online Services

• Submit any building permit application, with fewer forms than before!
• Get a quick, 2-day review of smaller residential projects (interior remolds, new decks/sheds/fences, etc.)
• Have your general contractor AND trade contractors “pick up” issued permits virtually
• Submit site plans, transportation engineering plans (TEPs), storm and sanitary plans (SSPRs), and more
• Apply for fire permits
• Pay review and permitting fees
• Schedule inspections and see when inspections are completed
• Submit requests for administrative modifications
**Resubmittals**

### Applications and Permits 2019-SDP-0000414:

**Formal Site Development Plan**

**Record Status: Resubmittal Required**

<table>
<thead>
<tr>
<th>Record Info</th>
<th>Payments</th>
</tr>
</thead>
</table>

- **Record Details**
- **Processing Status**
- **Related Records**
- **Attachments**

View Additional Locations>>
Paying for Permits

Applications and Permits 2019-ELEC-0015575:

Electrical Permit

Record Status: Ready to Pay

Record information may be expanded or collapsed by clicking on any black triangle. You may view and print a copy of the permit by clicking the "Reports" link above.
Printing Permits

Denver's Permitting Center

Permits and Licenses (1): ACA Building Permit

Home  Development Services  Business Licenses  Contractor Licensing  Right-of-Way
Conveyance  Fire

Apply for a Permit  Search Applications and Permits

Applications and Permits 2019-ELEC-0015500:

Electrical Permit

Record Status: Permit Finaled
Applying Electronic Signatures & Stamps

- The electronic signature must be visible on the plan cover page and the seal must be visible on each sheet.
- Create a “self-signed digital ID.”
- Use your digital ID to sign a file in Adobe Acrobat or BlueBeam Revu.
- Once your document is signed, your signature will appear on the document and the file will show that the signature is valid.
- Any changes made to the file from this point on will invalidate the signature.
Welcome to E-permits

Before entering e-permits, check these helpful resources:

- **Contractors:** Protect your account by making sure you have a valid email on file with Contractor Licensing.
- Use the **DevelopDENVER map** to check your site's landmark/historic status. Exterior work (including roofs) in a landmark/historic area cannot be permitted online.
- Use the **Assessor's database** to make sure your address is in Denver. Online payments cannot be refunded.
- Is the work eligible for a **quick permit**? Or do you need to **add yourself as a contractor or subcontractor** to a project that has approved plans?

[Enter e-permits portal]

All e-permits are either reviewed by plan review staff, or in the case of quick permits, are inspected in the field. Work that exceeds the **scope of a quick permit**, or that is not allowed under your contractor's license type, may result in the suspension or revocation of your contractor's license in Denver.

[View FAQs]

[Download tutorial (PDF)]

If you use assistive technology and need help accessing or reading the content in any e-permits tutorials linked above, please contact CPDCommunications@denvergov.org.

Contact

For help with e-permits, call Denver 311:
- Within Denver, dial 3-1-1
- Outside of Denver, dial 720-913-1311

311's hours are 7 a.m.-8 p.m. (M-F) and 8 a.m.-5 p.m. (Sat/Sun).

www.denvergov.org/epermits
E-permits is continuing to evolve

What’s coming this year?

• See inspection times
• Apply for commercial zoning permits
• Apply for additional Development Services permits
• TCO / CO process
Commercial & Multifamily Projects:

New Construction, Major Additions (3,875 in 2019)

- Project Concept Review
- Formal SDP and Zoning Approval/Permit Issuance
- Building Review & Permit Issuance
- Construction & Inspections
- Inspections and Final Acceptance/Occupancy

Alterations, Minor Additions (6,723 in 2019)

- Zoning Review & Zoning Permit Issuance
- Building Review & Permit Issuance
- Construction & Inspections
- Inspections and Final Acceptance/Occupancy

Walk-throughs (Plan Review at Counter)
4,046 in 2019

Quick Permits (No Plan Review)
46,397 in 2019
Inspections
TCO / CO Process Improvements

• Current state

• Certificate of Occupancy pilot process for large phased developments
  o Reduced conflict with lenders
  o More rapid deployment of affordable housing
  o Ensure safe, secure, functional housing that meets Denver’s codes
  o Compliance with federal, state, and local regulations

• Electronic TCO/CO process
Tips from Inspectors

• Ensure work is complete and ready for inspections

• Install the same equipment that was noted in the plans

• Inspection routes are set between 8-8:30 am. When checking your inspector’s ETA... 8:30 a.m. is the busiest time to call.
Visit the website for

- Online inspections scheduling
- Roofing Guide and Checklist
- Zoning Inspection Checklist
- Special inspection requests
- and more

www.denvergov.org/BuildingInspections
Sewer Use and Drainage Permits (SUDP)

Do not apply separately for SUDP

- Going digital has allowed us to streamline submittals
- Submit plans through e-permits
- Concurrent reviews
- Faster SUDP review times for many customers
What to submit to Building Log In for SUDP

• A utility site plan showing the size, type, and location of water, storm, and sanitary sewer lines

• Any other project-specific SUDP documents you would normally submit

• Submit building plans online at www.denvergov.org/epermits

• SUDP resubmittals to wastewaterpermits@denvergov.org
Grease Interceptor Design and Sizing

• Sizing

• Design

• Variances for Existing Buildings

• Questions? Email: Tarl.Bohnet@denvergov.org

Photo credit: https://wieserconcrete.com/product/grease-oil-interceptors/
Metro Fees Changed

Metro Reclamation Fees that SUDP collects have gone up $70.00 per Single Family Residential Equivalent (SFRE).

New Fee Change Breakdown

<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>SFRE</th>
<th>2019</th>
<th>2020</th>
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<tr>
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<td>86</td>
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More information at [www.denvergov.org/SUDP](http://www.denvergov.org/SUDP)
Effective January 1, 2020, the Department of Public Works is now the Department of Transportation and Infrastructure.

Visit: www.denvergov.org/DOTI

Denver’s Department of Transportation & Infrastructure (DOTI) is a modern agency focused on increasing mobility and safety while reducing congestion and fighting climate change.
Zoning Code Updates
Updates to the Denver Zoning Code (DZC)

• **2019 Major DZC Updates Adopted:**
  o Large Development Review (new process – supersedes GDP process)
  o Temporary Tiny Home Villages (new use)

• **2020 Updates In Progress:**
  o Group Living (group homes, shelters, halfway houses)
  o Golden Triangle – zoning and design guidelines
  o Stadium District – zoning and design guidelines
  o “Streetcar Commercial” Overlay Zone District (Old South Pearl, Tennyson, Santa Fe)
  o Affordable Housing Incentives in Zoning

• **2021 Updates In Progress:**
  o Residential Infill (focus on design and expanding housing options)
Changes to Zoning Inspections – Marijuana Licensing

• 2019 Policy Changes:
  o No zoning inspections upon MJ license for change of MJ business name/owner only
  
  o No zoning inspections upon MJ modification of premises except when:
    - Changing amount of MJ center/store space in an I-B Zone
    - Changes to a Nonconforming MJ business (use no longer allowed in zone) – Plant Husbandry outside I-A and I-B industrial zones
    - Addition or expansion of extra space
    - Modification results in address change (e.g., expansion or removal of units)
Rezoning (a “Map Amendment”)

- [www.denvergov.org/rezoning](http://www.denvergov.org/rezoning)
- A public process to amend the city’s official zoning map
- Changes rules for structures, uses, and parking
- Does NOT approve a specific development

An overview of a typical rezoning process.

**Timeframe**

1. 2 weeks
2. varies
3. 2 weeks
4. 4 weeks (varies)
5. 3-4 weeks
6. 1 week
7. 1 week
8. 4 weeks
9. 4-6 Months *
10. Public Hearing

*This is a typical timeframe estimate. Unique circumstances and/or rezoning complexity will adjust the timeframe.
Coordinated, multi-agency reviews for complex projects:

- New commercial construction
- New multifamily construction (3+ units)
- Major additions
- Tenant-finish/remodel projects that have a change of occupancy and
  - Complex land use situations, or
  - Need review by multiple agencies
About Site Development Plan (SDP) Review

- Reviews by dozens of agencies are facilitated by a project coordinator
  - Land use
  - Traffic, parking, sidewalks, alleys
  - Storm water, sewer capacity
  - Emergency services access
  - View planes (protected views)
Referral Agencies
Development Review Process

1. Propose and discuss your concept
2. Submit a formal Site Development Plan (SDP)
3. 3-5 SDP review cycles; With approval, apply for building permits
4. Permits issued, construction starts
5. Permit deferred items
6. Inspections and final C/O
What type of information is submitted during site development plan review?

- Concept application and plan
- Formal Site Development Plan (SDP)
- Transportation Engineering Plan (TEP)
- Utility and Grading Plan (Consolidate and use for SDP and SUDP!)
- Design Review Submittals (as applicable)
- Storm and Sanitary Plan Review (SSPR)
- Erosion Control
- Vacation and Dedications of Right-of-Way/Easements

*Avoid duplicate work –*

Use this information to make future permit applications easier (SUDP, zoning use permits for tenants)
Tips from CPD Project Coordinators

• Submit your Concept Phase Submittal – Don’t Delay!
• Don’t forget to complete your SDP before pulling building permits
• The SDP is the basis for future zoning permits for tenants. No need to revisit complicated shared parking requirements. Mark up the SDP site plan and floor plan to submit with tenant-finish zoning applications.

• **ALL Plans must match!** – SDP, TEP, SSPR, Building LOG

• We are here to help.
Large Development Review (LDR)
Large Development Review Overview

• To **implement** City Council adopted plans, and resulting public infrastructure, open space, and public parks, on sites that are large or otherwise require a more coordinated inter-agency development review process.

• To provide an early opportunity to **identify issues** and the **development's relationship** with significant public infrastructure improvements, facilities, and publicly accessible parks and open spaces.

• To create a process framework for coordinating development, infrastructure improvements, and regulatory decisions before site-specific development proceeds within the subject area.
Large Development Review Purposes

• A replacement for the GDP process
• An implementation tool, not a planning tool
• Continue with Development Review Committee (DRC) as decision making authority
• Use existing development review systems (i.e., don’t reinvent the wheel)
• Better facilitate early interagency coordination to achieve community benefits (e.g., street connections, affordable housing plan, etc.)
• Address mixed open space outcomes
What Projects are Subject to LDR?

- An adopted plan recommends LDR, Infrastructure Master Plan, or General Development Plan
- The development is larger than 5 acres or three city blocks
- Establishing, extending, expanding, or changing:
  - the arterial or collector street grid, or
  - regional stormwater systems, or
  - publicly accessible parks and open space.
Current LDR Projects

- Loretto Heights
- River Mile
- Stadium District
- Denver Connections
- Denargo Market
- 50 S. Kalamath
Code Adoption Updates + Timeline

- Denver’s 2019 building and fire code amendments were adopted on Dec. 26

- The four-month transition period will end on April 26
Code Highlights

- Tiny Homes
- Group Living
- Home Daycare
- Tall Wood Buildings
- 2021 IECC including Electric Vehicles
- Radon
Denver Community Goals,
Green Buildings Ordinance,
Denver Green Code

Christy Collins / Green Buildings Ordinance Specialist - City and County of Denver: Community Planning & Development
Denver Community Goals
Denver Community Goals + Priorities

- Equity
- Respond to Climate Change
- Affordability
- Resiliency
- Health
- Inclusive
- Connected
- Safe
- Accessible
- Economically vibrant
- Active
- Authentic neighborhoods
Denver 80x50 Plan

GHG emissions 80% below 2005 levels by 2050
Denver 2035 NZE New Buildings

- Five code cycles
- Implementation plan 2020
- IECC amendments
- Denver Green Code
- Green Buildings Ordinance
- Community stakeholders
Homes + buildings = 63% of Denver’s GHG Emissions
40% new by 2050

12% GHG

51% GHG
Existing Building: Energize Denver+

Separate effort

Community stakeholders
Green Buildings Ordinance: Project Requirements
Green Buildings Ordinance: Essentials

Mandatory

New + existing buildings 25,000GSF+

20 page document

Mainstream: Achievable for mainstream today
Green Buildings Ordinance: Essentials

Stakeholders, Denver Department of Public Health & Environment, Community Planning & Development

Voter initiated

Shaped Green Roof Initiative to fit Denver community goals

Informs where base code can go
Green Buildings Ordinance: Essentials

Compliance options (9)

Focus:
- Holistic:
  LEEDv4 Gold / Silver
- Energy efficiency
  (12% / 10-15%)
- Renewables
- Green space
Goal
- honor the Green Roof Initiative vote
- modestly exceed code
- prioritize design goals
- address urban heat island, rain water management, green experiences, GHG emissions
Support our Denver community’s goals + the health + welfare of Denver’s citizens

Honor the vote
Green Buildings Ordinance: Essentials

- Mandatory if 25,000 GSF+
- Applies to:
  - Existing buildings
  - New buildings
  - Additions
  - Campuses

All projects must address two areas of compliance:
- 1 Cool roof +
- 2 Additional green building options

- Denver specific
- Adopted November 2, 2018
- Modest improvements over base code through:
  - green space
  - energy efficiency
  - renewables
  - broad sustainability
Green Buildings Ordinance: 1. Cool Roof

- Mandatory
- Solar reflectance (white, tan, gray)
- Covering, pavers, (Membrane, metal, rock, concrete, clay, ceramic, glass)
- Condensation - air barrier - vapor retarder - ventilation
- Exceptions
GBO New Buildings: Nine Options

Cool roof +

a. Green space: at grade or vegetated roof
b. On-site renewables
c. Off-site renewables
d. Energy efficiency (12%)
e. Building certification
f. Green space + on-site renewables
g. Green space + off-site renewables + energy efficiency (2.5%)
h. Green space + energy efficiency (5%)
i. Off-site green space
GBO Existing Buildings: Nine Options

**Cool roof +**

a. Green space: at grade or vegetated roof  

b. On-site renewables  

c. Building certification  

d. Energy Program  
   1. Energy Star 85  
   2. Building certification  
   3. On-site renewables  
   4. Off-site renewables  
   5. Energy efficiency  

e. Off site green space
GBO Exemptions

Full (Cool roof + Options)
- < 25,000 GSF
- One + two family IRC
- 3+ connected 3 story dwellings
- Temporary, air supported, or greenhouse structures

Partial: Cool roof
- Character defining
- Covered or shaded
- Ballast
- Visible (up to 10%)
- Some recovers with approval

Partial: Options
- Recover
- 5 story 62.5’ residential
- Wind/fire emergency
- Hail – no longer
- Ext’g vegetated roof
Details: GBO

At-Grade Green + Vegetated Roofs

New buildings
• 10% GFA or
• 60% total roof area or
• All available roof

Existing buildings
• 2% GFA or
• 18% total roof area or
• All available roof
Details: GBO Vegetated Roofs

*Check Rules + Regs for specifics related to:*
- Irrigation
- 80% coverage
- Plant selections
- PVs + vegetation
- Trees + groundcover
- Maintenance plan
- 4” growing media

- Landscape architect
- Licensed green roof contractor
Details: GBO Vegetated Roofs

Check Rules + Regs for specifics related to:

- IBC, IFC, IPC, Denver amendments
- Standpipes
- Fire zones
- Fire clearances
- Exit stairs
- Wind + Gravity loads
Green Buildings Ordinance
Clearances:

Section 4.02(d)(ii)2(i)-(v)
Requirement:

3’ wide vegetation free border zones at non-combustible rooftop structures, roof joints, and penetrations.
A 6’ wide area covered with stone ballast or concrete pavers where vegetative roof systems abut combustible vertical surfaces and when terminating at a fire-resistance rated wall.
Green Buildings Ordinance

Clearances:

Section 4.02(d)(ii)2(i)-(v)

Requirement:

A 13’ wide area that meets Class A fire classification requirements shall divide vegetated roofs into areas not exceeding 15,625 SF or 125’ in length or width.
Green Buildings Ordinance
Clearances:

Section 4.02(d)(ii)2(i)-(v) Requirement:

In buildings less than 4 stories in height, there shall be a minimum 8’ wide clear perimeter around the edges of the roof when existing stairway and fixed permanent ladders are not provided.
Green Buildings Ordinance
Clearances:

Section 4.02(d)(ii)2(i)-(v)
Requirement:

In buildings 4 stories or more in height, all roofs containing vegetated areas shall be afforded access via exit stairways and fixed permanent ladders to upper roofs.

Access points shall be separated by a minimum of 10’ from vegetated areas.
Green Buildings Ordinance
Clearances:

Section 4.02(d)(ii)(3)b
Requirement:
Required clearances for fire protection.

Where the building requires a standpipe system, it shall extend to the roof.

The hose outlet shall be located within 230’ of all vegetated areas.
Details: GBO At-grade green space

Check Rules + Regs for specifics related to:

- Trees + groundcover
- Zoning
- Water quality treatment
- Right of way
- Must be new
- Soil quality
- Drainage
- Tree standards
- Turfgrass
- Urban agriculture
Details: GBO On-site renewables

New buildings
• 70% total roof or
• 100% energy

Existing buildings
• 5% GFA or
• 42% total roof or
• 100% energy

Requirements
• 16% efficiency – will update this in the GBO as technology advances
• Energy model
• Other renewable equivalency to solar output if applicable
• Clearances
Details: GBO Off-site renewables

New buildings
- 70% total roof or
- 100% energy AND
- 6% decreased energy

Existing buildings
- 100% energy or
25,000-50,000 GFA:
- 10% energy + 5% decreased energy
50,000+ GFA
- 15% energy + 7.5% decreased energy

Requirements
- Energy model
- Five year contracts
- Life of building (new)
- 20 years / roof replacement (ext’g)
- Available programs limited
- Zero net energy complies
Details: GBO Building Certification

New buildings
• LEED BD+C Gold
• Enterprise Green Communities
• National Green Building Standard Gold
• Other with approval

Existing buildings
• LEED BD+C or O+M Silver
• Enterprise Green Communities
• National Green Building Standard Silver
• Other with approval
Details: GBO Reduced energy consumption

New buildings
• 12% below code or
• 5% below code + green space

Existing buildings
• >25,000SF
  <50,000SF
  10% decrease
• >50,000SF
  15% decrease
Details: GBO Green + on-site renewables

- New buildings only

- Green space:
  - 3% GFA or
  - 18% total roof or
  - 30% available roof

  AND

- On-site renewables
  - 7% GFA or
  - 42% total roof or
  - 70% available roof
Details: GBO Green + off-site renewables

• New buildings only

• Green space:
  - 3% GFA or
  - 18% total roof or
  - 30% available roof

AND

• Off-site renewables
  - 7% GFA or
  - 42% total roof or
  - 70% available roof

AND

• 2.5% energy decrease
Details: GBO Green + reduced energy

- New buildings only
- Green space:
  - 3% GFA or
  - 18% total roof or
  - 30% available roof
AND
- 5% energy decrease
## Green Buildings Ordinance: Early Trends

### Options
- 17 new + 32 existing building permits
- 30-70 in queue
- All options except off-site solar
- Energy efficiency

### Cool roof
- Low + steep sloped roofs
- Character defining roofs

### Average review cycle:
- 2.17 new
- 2.38 existing
Green Buildings Ordinance: Approval!

How to succeed:

• Consider all options early
• Engage the Owner
• Download, read + understand the GBO, Rules + Regs
• Follow guidance in SDP comments
• Communicate responsibility within team
• Seek clarification from the City
• Gain familiarity
Green Buildings Ordinance: FAQs

• Do steep sloped roofs need to meet cool roof requirements? **Yes.** *Requirements differ from flat roofs, + allow for special materials.*

• Does the roofing permit submittal trigger a second round of GBO review? **No.** *Include LOG or COMMCON # on roof permit app for smoother review process.*

• Are there exceptions? **Yes.** *They are identified in the GBO and Rules + Regulations.*
Green Buildings Ordinance: What’s Next?

One year in

- GBO Technical Advisory Committee
- Not changing content
- Clarifying
- Implementing
- Supporting
- Reporting to City Council + community
- Learning strengths + opportunities
- Shaping base code
- GBO inspector
- Feedback
Green Buildings Ordinance: Submittals

Information provided is a high level summary and not fully complete and comprehensive. Submittals must include all information required to illustrate full compliance with all applicable provisions of the Green Buildings Ordinance and Rules and Regulations.
Existing Buildings!

Part 1a  General
Part 1b  Cool Roof
Part 2  Additional Green Buildings Options
GBO Submittals: Existing Buildings: Part 1a: General

For roof permit

- Green Building Declaration Form
- Roof plan with area indicated on it
- Roof assembly / detailed scope description
- Exemptions: substantiation
- Show compliance

Include this form with permit applications for a roof replacement/recover on buildings of 25,000 square feet or more in gross floor area (GFA) and for additions of 25,000 — 49,999 square feet to an existing building. For additions of 50,000 square feet or more, use the “New Buildings” form available at www.denvergov.org/greenroofs.

Log number: ____________________________

I. Project Description

☐ Roof recover only  ☐ Roof replacement  ☐ Addition (25,000 - 49,999 ft² of GFA)

Address: ______________________________

II. Cool Roof Requirement

Submit all requirements for cool roofs, character-defining roofs, and condensation analyses are listed in the Rules and Regulations at www.denvergov.org/greenroofs. Include that documentation with this application to ensure a timely start to your review. Attach additional pages if more space is needed.

☐ Exempt: This is a roof recover only, and an analysis of the roof system shows a cool roof will cause condensation.

☐ Exempt: This roof replacement/recover is for 5% or less of the total roof area or section in any calendar year.

☐ Other exemption as listed in Article III of the Rules and Regulations. List and submit appropriate documentation:
GBO Submittals: Existing Buildings:
Part 1b: Cool Roof

For roof permit
- Cool roof covering + paver product data with solar reflectance value identified
- Air barrier + vapor retarder product data when applicable
- Steep sloped roof ventilation detailing when applicable
- Condensation considerations:
  - prescriptive assembly / details, or
  - dewpoint analysis by registered professional, or
  - note stating replacing existing cool roof
- Partial exemption(s): substantiation
- Show compliance
a. Green space

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For roof permit

- Site Development Plan minor modification
  - If at-grade green space, maintenance note per GBO R+Rs Section 4.02(b)(v)
  - Statement signed by landscape architect stating design is per GBO
  - Required green space calculations + diagrammatic plan (identical to landscape CDs)

- Landscape Construction Documents by a licensed landscape architect
  - Detailed calculations of green space required including dimensioned roof plan(s) if applicable
  - If at-grade green space: dimensioned site plan illustrating green space + detailed calculations outlining what’s taken credit for
  - General note underscoring applicability of GBO landscape requirements
  - If vegetated roof: roof plan identifying + dimensioning all GBO R+Rs required clearances
  - If vegetated roof: details + system specification or manufacturer’s product data
  - Additional materials as required to illustrate compliance with GBO R+Rs Section 4.02(a) through (e)
  - Irrigation, plumbing + fire protection plans

- Separate CD submittals / permits when applicable
  - Fire protection systems
  - Plumbing / backflow preventer
  - Irrigation system
  - Zoning
  - Vegetated roof system – include a maintenance plan
b. On-site solar

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For roof permit

- SDP minor modification
  - Required PV coverage calculations + diagrammatic site and/or roof plan (identical to CDs)
  - Last year’s energy use data if applicable

- Construction Documents
  - Detailed calculations of PV coverage required including dimensioned roof plan(s) and last year’s energy use data if applicable
  - Dimensioned roof plan illustrating PV coverage provided + detailed calculations
  - Roof plan identifying + dimensioning all GBO R+Rs required clearances
  - PV panel product data including efficiency rating + system capacity (kW)
  - Additional materials as required to illustrate compliance with GBO R+Rs Section 4.03(a)(ii) through (v) + (viii)

- Separate CD submittals / permits
  - Fire protection systems
  - Photovoltaic system
  - Zoning

System must be installed and inspected within 12 months of roof final inspection.
c. **Building certification**

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For *roof* permit

- **USGBC documentation** *(LEED BD+C Silver or O+M Silver or higher)* or
- **Enterprise documentation** *(Enterprise Green Communities certification)* or
- **Home Innovation Research Labs documentation** *(National Green Building Standard Silver or higher)* or
- **Third party certification documentation** *(Building official approved LEED equivalent)*
GBO Submittals: **Existing Buildings:**

**Part 2: Additional Green Buildings Options**

**d-1. Energy Program: Energy Star Score 85+**

*All requirements from Part 1a General + Part 1b Cool Roof, plus:*

**For roof permit:**
- Enrollment using the Green Building Declaration Form

**Within five years + annually for 20 years or until next roof replacement:**
- Denver benchmarking data in Energy Star Portfolio Manager proving compliance
- If Energy Star score of 85+ cannot be maintained every year, annual submittal showing compliance with one of the other four Energy Program options
d-2. Energy Program: Building Certification

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For roof permit:
- Enrollment using the Green Building Declaration Form
- USGBC documentation (LEED BD+C Silver or O+M Silver or higher) or
- Enterprise documentation (Enterprise Green Communities certification) or
- Home Innovation Research Labs documentation (National Green Building Standard Silver or higher)
- Third party certification documentation (Building official approved LEED equivalent)
d-3. Energy Program: On-site solar

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For roof permit:
• Enrollment using the Green Building Declaration Form

Within five years
• Documentation meeting DDPHE Energy Program requirements. Coordinate directly with Energy Program lead to define precise submittal requirements, which will be similar to those for option b. on-site solar.
• If on-site solar system is removed, annual submittal showing compliance with one of the other four Energy Program options thereafter
GBO Submittals: Existing Buildings:

Part 2: Additional Green Buildings Options

**d-4. Energy Program: Off-site solar**

*All requirements from Part 1a General + Part 1b Cool Roof, plus:*

For *roof* permit:
- Enrollment using the Green Building Declaration Form

Within five years + maintained for 20 years or until next roof replacement:
- Copy of 5 year+ contract, renewed + resubmitted upon expiration and/or building sale
- If off-site solar contract is terminated, annual submittal showing compliance with one of the other four Energy Program options
d-5. Energy Program: Energy Use Reduction

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For roof permit:

- Enrollment using the Green Building Declaration Form

Within five years + maintained for 20 years or until next roof replacement:

- Denver benchmarking data in Energy Star Portfolio Manager proving required energy savings, or
- Proof of completion of energy efficiency improvements with estimated energy savings + proof of savings within two years. Coordinate directly with Energy Program lead to define precise submittal requirements, or
- If decreased energy consumption cannot be maintained, annual submittal showing compliance with any Energy Program option
GBO Submittals: Existing Buildings:
Part 2: Additional Green Buildings Options

e. Payment into green building fund

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For roof permit

- Detailed calculations of green space required including dimensioned roof plan(s) if applicable
- Payment when roof permit is pulled
New Buildings!

Part 1a  General
Part 1b  Cool Roof
Part 2  Additional Green Buildings Options
**GBO Submittals: New Buildings:**

**Part 1a: General**

For *superstructure construction* permit

- Green Building Declaration Form
- Roof plan with area indicated on it
- Roof assembly section detail
- Exemptions: substantiation
- Complete Site Development Plan – details of what needs to be included in the SDP vary with additional green buildings option selected. *All SDPs must include identification of GBO compliance path and any full or partial exemptions taken on the cover sheet.*
- Show compliance
GBO Submittals: New Buildings:
Part 1b: Cool Roof

For *superstructure construction* permit

- Cool roof covering + paver specification(s) with solar reflectance identified
- Steep sloped roof ventilation detailing when applicable
- Partial exemption(s): substantiation
- Show compliance
GBO Submittals: New Buildings:
Part 2: Additional Green Buildings Options

a. Green space

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For superstructure construction permit

- Site Development Plan
  - If at-grade green space, maintenance note per GBO R+Rs Section 4.02(b)(v)
  - Statement signed by landscape architect stating design is per GBO
  - Required green space calculations + diagrammatic plan (identical to landscape CDs)

- Construction Documents by a licensed architect + landscape architect
  - Detailed calculations of green space required including dimensioned roof plan(s) if applicable
  - At-grade green: dimensioned site plan illustrating green space + detailed calculations outlining what’s taken credit for
  - General note underscoring applicability of GBO landscape requirements
  - If vegetated roof: roof plan identifying + dimensioning all GBO R+Rs required clearances
  - If vegetated roof details + system specification
  - Additional materials as required to illustrate compliance with GBO R+Rs Section 4.02(a) through (e)
  - Irrigation, plumbing + fire protection plans

- Separate CD submittals / permits when applicable
  - Fire protection systems
  - Plumbing / backflow preventer
  - Irrigation system
  - Zoning
  - Vegetated roof system – include a maintenance plan
b. On-site solar

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For superstructure construction permit

- Site Development Plan
  - Required PV coverage calculations + diagrammatic site and/or roof plan (identical to CDs)
- Construction Documents
  - Detailed calculations of PV coverage required including dimensioned building and/or roof plan(s) as applicable
  - Dimensioned site and/or roof plan illustrating PV coverage provided with detailed calculations
  - Roof plan identifying + dimensioning all GBO R+Rs required clearances
  - PV panel product data including efficiency rating + system capacity (kW)
  - Energy model data showing estimated annual average electricity usage including pEUI
  - Statement identifying limiters to energy model accuracy + ROM estimate for swing in accuracy of pEUI
  - Additional materials as required to illustrate compliance with GBO R+Rs Section 4.03(a)(i), (iii) through (iv), (vi), (vii) + (viii)

- Separate CD submittals / permits
  - Fire protection systems
  - Photovoltaic system
  - Zoning

System must be installed and inspected within 12 months of roof final inspection.

Net zero energy projects must submit actual energy use data 12 months after certificate of occupancy, showing actual use to be within 10% of predicted.
c. Off-site solar

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For superstructure construction permit
- Energy model data showing estimated annual average electricity usage including pEUI
- Statement identifying limiters to energy model accuracy + ROM estimate for swing in accuracy of pEUI
- Letter of commitment signed by project Owner stating that an off-site solar contract will be procured

For certificate of occupancy
- Copy of 5 year+ contract or
- If tenant contracts will contribute, submittal of required aggregation of 5 year+ tenant contracts within 18 months of certificate of occupancy

For life of project
- Renewal + resubmittal of copy of 5 year+ contract upon expiration and/or building sale
GBO Submittals: New Buildings:
Part 2: Additional Green Buildings Options

d. **12% decreased energy consumption**

*All requirements from Part 1a General + Part 1b Cool Roof, plus:*

**For superstructure construction permit**
- Energy model data showing estimated annual average electricity usage including pEUI
- Statement identifying project features included above those to achieve code compliance to which additional savings for GBO compliance might be attributed
- Statement identifying limiters to energy model accuracy + ROM estimate for swing in accuracy of pEUI
- Additional materials as required to illustrate compliance with GBO R+Rs Section 4.04

**For certificate of occupancy**
- Preliminary commissioning report for systems and features included for GBO compliance
e. Building certification

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For superstructure construction permit

• Scorecard showing all targeted credits under one of the certification systems listed below, illustrating that the project as designed is tracking towards achievement of GBO required level of certification

Within 18 months after certificate of occupancy

• USGBC documentation (LEED BD+C Gold or higher) or
• Enterprise documentation (Enterprise Green Communities certification) or
• Home Innovation Research Labs documentation (National Green Building Standard Gold or higher)
• USGBC documentation (LEED Core & Shell Gold with 2+ points using Optimize Energy Performance Option 1 in Energy + Atmosphere). Include energy model.
GBO Submittals:  New Buildings:

Part 2:  Additional Green Buildings Options

f. Combination green space + renewable energy

All requirements from Part 1a General + Part 1b
Cool Roof, plus,

• All requirements from Part II Additional Green Buildings Options a. Green space, plus
• All requirements from Part II Additional Green Buildings Options b. On-site solar
All requirements from Part 1a General + Part 1b Cool Roof, plus,

- All requirements from Part II Additional Green Buildings Options a. Green space, plus
- All requirements from Part II Additional Green Buildings Options c. Off-site solar
GBO Submittals: New Buildings:
Part 2: Additional Green Buildings Options
h. Combination green space + 5% decreased energy

All requirements from Part 1a General + Part 1b Cool Roof, plus,
• All requirements from Part II Additional Green Buildings Options a. Green space, plus
• All requirements from Part II Additional Green Buildings Options d. 12% decreased energy consumption (adjusted to 5%)
GBO Submittals: New Buildings:

Part 2: Additional Green Buildings Options

i. Payment into green building fund

All requirements from Part 1a General + Part 1b Cool Roof, plus:

For superstructure construction permit

- Detailed calculations of green space required including dimensioned building and/or roof plan(s) where applicable
- Payment when construction permit is pulled
Green Buildings Ordinance
Review Timeline + Process
Yes, Denver is enforcing the Green Buildings Ordinance!

- Plans review (Community Planning + Development)
- Inspections (Community Planning + Development)
- Post occupancy (Climate Team)
GBO Review Timeline: Existing Buildings

Project team defines 2 days 10 days Project team defines 2 days 5 days Project team defines 2 days 5 days 2 days

*days* = business days

Project team prepare submittal for permit
*confirm clear on GBO + submittal requirements*

First review+ comments if needed

Re-review+ comments if needed

Project team prepare resubmittal if needed

Re-review+ comments if needed

Project team prepare resubmittal if needed

Intake if needed

Intake if needed

Intake if needed

Roof permit

Permit conveys key facets to inspections team
GBO Review Timeline: New Buildings

- **Intake**
  - Project team defines
  - 2 days
  - First review+ comments

- **Project team prepare submittal for permit**
  - 20 days
  - Project team defines

- **Re-review+ comments if needed**
  - 2 days
  - Project team defines

- **Re-review+ comments if needed**
  - 10 days
  - Project team defines

- **Intake if needed**
  - 2 days
  - Project team defines

- **Superstructure construction permit**
  - 10 days
  - Project team achieve all CD approvals

- **Permit conveys key facets to inspections team**

* "days" = business days

*confirm clear on GBO + submittal requirements

Project team prepare resubmittal if needed

Project team prepare resubmittal if needed
What’s Next
Supporting Denver’s Goals
Denver 2035 NZE New Buildings

1. Energy efficiency
2. Renewables
3. Electrification
4. Grid Stabilization

Collectively
2018 IECC Denver Amendments

Commercial
2019 Denver Green Code

Voluntary

Preview

Energy, water, waste, wellness

Design, construction, post-occupancy

Outcomes
Aesthetics + Performance

Balance
Concept
Cohesive
AIA National
Market + Regulations

Accountability + defined responsibilities

Regulations

Market
IECC + Denver Green Code
Supporting Denver’s Success
### IECC Amendments: Opportunities

<table>
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<tr>
<th>2035 ZNE new buildings implementation plan</th>
<th>IECC opportunities</th>
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<tbody>
<tr>
<td>1. Energy efficiency</td>
<td>• Envelope</td>
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<td>2. Renewables</td>
<td>• Mechanical + service hot water</td>
</tr>
<tr>
<td>3. Electrification</td>
<td>• Lighting</td>
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<tr>
<td>4. Grid stability</td>
<td>• Testing, measurement, disclosure</td>
</tr>
</tbody>
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#### Unknowns
- Five code cycles / 16 years
- New technologies

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- Renewables
- Accessories
- Outcomes
Denver Green Code: Opportunities

Holistic
• Energy
• Water
• Waste
• Life cycle
• Materials
• Embodied energy
• Consumption emissions
• Outcomes

DGC opportunities
• Buildings
• Sites
• Sourcing
• Carbon
• Use
• Maintenance
• Operation
• Health
• Full impact
2019 Denver Green Code
Green Buildings Ordinance

Mandatory

New + existing buildings 25,000 GSF+

20 page document

Mainstream: Achievable for mainstream today

Denver Green Code

Voluntary

All new buildings

IgCC code book

Leadership: Achievable for motivated today
### Green Buildings Ordinance

**Stakeholders, DDPHE, CPD**

**Voter initiated**

**Shaped Green Roof Initiative to fit Denver community goals**

**Informs where base code can go**

### Denver Green Code

**Stakeholders, DDPHE, CPD, DOTI, New Buildings Institute, Mozingo Code Group**

**CPD + DDPHE initiated**

**Shaped 2018 IgCC to fit Denver community goals**

**Informs where base code can go**
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<td>Compliance options (9)</td>
<td>Compliance options (4)</td>
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<td><strong>Focus:</strong></td>
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<td>LEEDv4 Gold / Silver</td>
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<td>(12% / 10-15%)</td>
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<td>- Green space</td>
<td>4. Passive house + DGC non-energy chapters</td>
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<td>Green Buildings Ordinance</td>
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<td><strong>Goal</strong></td>
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<tr>
<td>- honor the Green Roof Initiative vote</td>
<td>- base code preview for future success</td>
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<tr>
<td>- modestly exceed code</td>
<td>- far exceed code</td>
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<tr>
<td>- prioritize design goals</td>
<td>- introduce outcome focus</td>
</tr>
<tr>
<td>- address urban heat island, rain water management, green experiences, GHG emissions</td>
<td>- zero net energy new buildings by 2035 as part of 80% reduced GHG emissions by 2050</td>
</tr>
</tbody>
</table>
Support our Denver community’s goals + the health + welfare of Denver’s citizens
## Denver Green Code Purpose

- Denver community priorities
- Base code preview
- Stretch code
- Support NZE new buildings 2035
- Leadership
Denver Green Code Incentives

- Five (5) commercial pilots
- Residential
- Recognition
- Expedited permitting
- Fee reduction
Denver Green Code Opportunities

- Learning strengths + opportunities
- Evaluating potential resources
Denver Green Code Development

2018 IgCC

Community stakeholders

Denver specific
Denver Green Code Requirements

- Chapter specific
- Mandatory + options
- Prescriptive or performance
- Denver achievable
Denver Green Code: Compliance Options

Commercial + Residential

1. Denver Green Code
2. LEED Platinum
3. Net Zero Energy
4. Passive House + Non-energy DGC
Denver Green Code + Green Buildings Ordinance

Satisfies GBO compliance requirement
Find current green building information at www.denvergov.org/greenroofs
Stay in the Loop!

• Make sure you receive our zoning/building emails (~1-2 emails/month)
• Sign up at www.denvergov.org/DS
• Choose the “Code and Policy Alert” email list
• Share with your colleagues/contractors

Questions?

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