

## City and County of Denver FLOODPLAIN PERMIT SUBMITTAL REQUIREMENTS

<b>Authority:</b>	<ul style="list-style-type: none"> <li>◆ <a href="#">Denver Revised Municipal Code (DRMC), Chapter 56, Article V - Floodplain Management</a>, Sec. 56-200 – 56-206.</li> <li>◆ <a href="#">Department of Transportation and Infrastructure Rules &amp; Regulations</a>, Chapter 12 - Floodplain Management.</li> </ul>
<b>Document Date:</b>	September 11, 2024
<b>Document Purpose:</b>	Define additional, specific submittal requirements for obtaining a Sewer Use and Drainage Permit (SUDP) for construction and work in the regulatory floodplain.
<b>Floodplain Permit Overview:</b>	All construction (including interior or exterior work on existing buildings and temporary impacts) in a regulatory floodplain designated as Zone A, AE, AH, or AO requires an SUDP for Floodplain Use, often referred to as a Floodplain Permit. All projects that require a floodplain permit shall submit through the electronic SUDP process using <a href="#">E-Permits</a> .
<b>Customer Interface:</b>	<p><b>Most communications with the City and County of Denver will be through:</b></p> <ul style="list-style-type: none"> <li>◆ Community Planning and Development/Development Services: <a href="#">E-permits</a></li> <li>◆ Department of Transportation and Infrastructure (DOTI)/SUDP: 720-865-3060 / <a href="mailto:wastewaterpermits@denvergov.org">wastewaterpermits@denvergov.org</a> / <a href="http://www.denvergov.org/sudp">www.denvergov.org/sudp</a></li> <li>◆ Denver Floodplain Management Group: 720-865-3215 / <a href="mailto:floodplain@denvergov.org">floodplain@denvergov.org</a></li> </ul> <p>We recommend coordination with the Denver Floodplain Management Group prior to an initial submittal if you need clarification on the requirements outlined in this document.</p>
<b>Fees:</b>	<b>Floodplain Permit Review and SUDP Fees:</b> See <a href="#">Consolidated Fee Schedule</a>
<b>Resources:</b>	<ul style="list-style-type: none"> <li>◆ See <a href="http://www.denvergov.org/flood">www.denvergov.org/flood</a> for floodplain maps, regulations, and related resources.</li> <li>◆ The Floodplain Ordinance and Rules and Regulations linked in the Authority section above.</li> <li>◆ Flood Insurance Studies (FIS), Flood Insurance Rate Maps (FIRM), and associated GIS data can be obtained from FEMA’s <a href="#">Map Service Center</a> website.</li> <li>◆ <a href="#">FEMA National Flood Insurance Program Technical Bulletins</a></li> </ul>
<b>Considerations:</b>	<p><b>Most work in the floodplain will require the services of a Colorado Professional Engineer (PE). Services from a Professional Land Surveyor and/or Licensed Architect may also be needed.</b></p> <ol style="list-style-type: none"> <li>1. Most construction within the floodway is prohibited. New buildings are NOT allowed in the floodway.</li> <li>2. Basements (enclosed spaces below exterior grade more than 24 inches on all sides) are NOT allowed in the floodplain.</li> <li>3. The Base Flood Elevation (BFE) is the elevation of the 1%-annual-chance flood, also known as the 100-year flood.</li> <li>4. The Flood Protection Elevation (FPE) is minimum required elevation for flood protection. FPE equals BFE plus 18 inches of freeboard (24 inches of freeboard for critical facilities).</li> <li>5. Residential construction within the floodplain must elevate the lowest floor, attendant utilities, and all associated machinery and equipment, to a minimum of the FPE. Engineered wood products (e.g., floor joists) must also be above FPE.</li> <li>6. Commercial or industrial development must elevate and/or dry floodproof the lowest floor, attendant utilities, and all associated machinery and equipment, to a minimum of the FPE. Dry floodproofing (non-residential only) should be avoided if possible and has specific, extensive submittal requirements that will impact the review and approval schedule.</li> <li>7. A finished construction Elevation Certificate is required prior to the Final Floodplain Inspection for new buildings (includes garages and sheds), substantially improved buildings, and lateral additions to existing building in the regulatory floodplain. The current version of FEMA’s Elevation Certificate form must be used.</li> <li>8. A Final Floodplain Inspection must be passed prior to requesting a Certificate of Occupancy. Installation must conform to all DOTI, Wastewater Management Division (WMD) &amp; FEMA standards regarding workmanship and materials. The inspection will confirm finished construction matches the approved plans and permitting documents.</li> </ol>

## FLOODPLAIN PERMIT SUBMITTAL REQUIREMENTS

	<p>9. Grading to areas in the floodway or riverine work may require a FEMA Conditional Letter of Map Revision (CLOMR) and/or a Letter of Map Revision (LOMR). CLOMR/LOMR processes have significant cost and schedule implications.</p>
<p><b>Permit Application Requirements:</b></p>	<p>See <a href="#">SUDP website</a> for basic SUDP submittal requirements and how to apply. The following items are in <b>ADDITION</b> to the basic SUDP requirements.</p> <p><b>Plans sealed by a Colorado-licensed PE or Architect are required for all work in the regulatory floodplain. For buildings in the floodplain, this includes all building construction drawings (architectural, civil, structural, mechanical, electrical, plumbing, etc.). All building drawings must be submitted at each review cycle.</b></p> <ol style="list-style-type: none"> <li>1. The regulatory floodplain and floodway boundaries with flood zone(s) labeled must be shown on at least one drawing for each discipline. Specify the FIRM panel and effective date on the drawings showing floodplain boundaries.</li> <li>2. Show and label the BFE and FPE on all Architectural Elevations, profiles, and applicable wall sections. Remember that the FPE is 18 inches above the BFE to account for freeboard. Elevation information shall be based on the NAVD 1988 vertical datum and calculated as follows:             <ol style="list-style-type: none"> <li>a. In Zone AE: the BFE shall be calculated from the FIS profile.</li> <li>b. In Zone AO: the BFE shall be calculated from the highest adjacent grade (HAG), which is the highest pre-construction ground elevation, plus the Zone AO depth shown on the FIRM.</li> <li>c. In Zone AH: the BFE is typically a static elevation, but the FIS profile shall be used if a profile exists.</li> <li>d. In Zone A: the BFE shall be calculated using the best available information. Contact the Denver Floodplain Management Group for guidance.</li> </ol> </li> <li>3. Basements are NOT allowed in the regulatory floodplain. Buildings with enclosed areas below the FPE, such as crawl spaces (less than four feet high) and garages shall have flood openings/vents in conformance with FEMA’s Technical Bulletin 1.</li> <li>4. Show and label existing and proposed exterior machinery and equipment (including HVAC, electrical panels/meters, gas meters, switches, etc.) on the appropriate drawing(s). New and modified existing exterior machinery and equipment must be elevated above the FPE. New transformers that are elevated more than 12 inches above finished grade require Xcel Energy’s approval.</li> </ol> <p><b>Improvements to an existing building, including remodels, tenant finish, additions, repairs (even for damage caused by “acts of God”), etc. require:</b></p> <p>A determination whether the project is a Substantial Improvement (construction cost of more than 50% of the current market value of the existing building). If the proposed building improvements constitute a Substantial Improvement, then the entire project, including the existing structure, must be brought into compliance with FEMA and City &amp; County of Denver flood protection standards. Provide the following for a Substantial Improvement determination:</p> <ol style="list-style-type: none"> <li>1. Market value of the <u>existing building</u> by either:             <ol style="list-style-type: none"> <li>a. Assessed value from the City Assessor’s Office (listed as “Actual Value” of Improvements on the <a href="#">City Assessor’s website</a>), <b>OR</b></li> <li>b. Market value appraisal of the property prepared by a professional appraiser according to standard practices of the profession. The value of the building(s) and land must be calculated and specified separately. <i>Be aware that separation of building and land values is a non-standard request for an appraisal. Contact the Denver Floodplain Management Group for more information.</i></li> </ol> </li> <li>2. A detailed cost estimate prepared, signed, and dated by a Colorado-licensed Professional Architect, Professional Engineer, or qualified contractor for the proposed improvements/repairs to the building only. Contractor estimates are preferred for more accurate cost data. Verification of actual construction costs may be required prior to issuance of a Certificate of Occupancy. FEMA guidance regarding the types of work to be included and excluded can be found here: <a href="#">Substantial Improvement Included vs. Excluded Costs</a></li> </ol> <p><b>A detailed Grading Plan, sealed by Colorado-licensed PE, is required for new or substantially improved buildings, lateral additions, new or modified exterior machinery and equipment, and/or grade changes that impact the regulatory floodplain, and must include the following:</b></p> <ol style="list-style-type: none"> <li>1. Specify a City and County of Denver benchmark (NAVD 1988).</li> <li>2. Show existing grades/contours, proposed grades/contours, and Finished Floor Elevations (FPEs).</li> <li>3. Show spot elevations of the existing/natural ground along the foundation of the proposed building or lateral addition with the lowest adjacent grade (LAG) and HAG labeled.</li> <li>4. Show drainage paths around and away from proposed building foundations.</li> </ol>

## FLOODPLAIN PERMIT SUBMITTAL REQUIREMENTS

	<p><b>Wet floodproofing for parking, access, and limited storage areas (enclosed areas such as garages and crawlspaces) below the FPE requires:</b></p> <ol style="list-style-type: none"> <li>1. Walls must have flood openings/vents in conformance with FEMA’s Technical Bulletin 1, <i>Openings in Foundation Walls and Walls of Enclosures</i>. Show openings/vents on the foundation plan and building elevations and label them “Flood openings/vents typical”. Plans must specify make, model, and coverage area of all flood vents. Flood vents must have current International Code Council (ICC-ES) certification.</li> <li>2. Drawings must specify all flood damage resistance materials in conformance with FEMA’s Technical Bulletin 2, <i>Flood Damage-Resistant Materials Requirements</i>.</li> <li>3. A Final Floodplain Inspection by the Denver Floodplain Management Group must be passed before the Certificate of Occupancy can be issued. Some of the most common non-compliant items found during a Final Floodplain Inspection include paper-faced drywall, batt insulation, engineered wood products (TJIs), and electrical items (switches, lights and duplex outlets) below the FPE.</li> </ol> <p><b>Dry floodproofing, which is only allowed for non-residential buildings and non-residential portions of mixed-use buildings:</b></p> <ol style="list-style-type: none"> <li>1. Typically adds significant cost to the project.</li> <li>2. Shall be designed per Denver’s <a href="#">Non-Residential Dry Floodproofing Requirements</a> and FEMA’s Technical Bulletin 3, <i>Non-Residential Floodproofing Requirements and Certifications</i>. Anticipate obtaining the following reference: ASCE 24-14, or newer version.</li> <li>3. Typically adds months to the design review schedule (contact Denver Floodplain Management Group).</li> <li>4. Post-construction testing and certification typically adds weeks, if not months, to the close-out schedule before Certificate of Occupancy can be issued.</li> <li>5. Shall be certified by a Colorado PE using the current version of FEMA’s <i>Dry Floodproofing Certificate for Non-Residential Structures</i>.</li> </ol>
<b>Standard Notes:</b>	<p><i>The following standard notes shall be added to the construction drawings, as applicable. Choose one of the following Floodplain Notes based on the applicable flood zone. (Complete missing information specific to the project and remove instructions).</i></p> <p><b>FLOODPLAIN NOTE:</b> THIS PROJECT PROPOSES WORK IN ZONE A/AE/AH (select one) FLOODPLAIN OF XXXXX (provide name) RIVER/GULCH/CREEK (select one) AS SHOWN ON FEMA FIRM, MAP NUMBER 080046#### (provide panel number), MAP REVISED DATE (provide date shown on FIRM).</p> <p><b>OR FLOODPLAIN NOTE:</b> THIS PROJECT PROPOSES WORK IN ZONE AO FLOODPLAIN, DEPTH ## (provide depth number shown on FIRM) OF XXXXX (provide name) RIVER/GULCH/CREEK (select one) AS SHOWN ON FEMA FIRM, MAP NUMBER 080046#### (provide panel number), MAP REVISED DATE (provide date shown on FIRM).</p> <p><b>MACHINERY &amp; EQUIPMENT NOTES:</b></p> <ol style="list-style-type: none"> <li>A. BASE FLOOD ELEVATION (BFE) = 5###.# (NAVD 88).</li> <li>B. FLOOD PROTECTION ELEVATION (FPE) = 5###.# (NAVD 88).</li> <li>C. ALL NEW EXTERIOR MACHINERY AND EQUIPMENT SHALL BE ELEVATED ABOVE THE FPE TO PREVENT FLOOD DAMAGE. THIS INCLUDES BUT IS NOT LIMITED TO: ALL ELECTRICAL EQUIPMENT (TRANSFORMERS, ELECTRIC METERS, ELECTRICAL PANELS, JUNCTION BOXES, SWITCHES, RECEPTACLES, ETC.), MECHANICAL EQUIPMENT (HEAT PUMPS, AC UNITS, DUCTWORK, ETC.), GAS FACILITIES (GAS METER AND REGULATOR), AND COMMUNICATIONS EQUIPMENT (PANELS, PEDESTALS, ETC.).</li> <li>D. CONTRACTORS SHALL MARK MINIMUM ELEVATIONS FOR UTILITY COMPANY INSTALLERS AND COORDINATE SAID INSTALLATIONS. IT IS CRUCIAL THAT UTILITY COMPANIES (XCEL, COMCAST, CENTURYLINK, ETC.) ARE NOTIFIED OF ELEVATION REQUIREMENTS WHEN CALLING IN SERVICE REQUESTS. EXTERIOR MACHINERY AND EQUIPMENT THAT IS INSTALLED BELOW THE REQUIRED ELEVATION WILL BE REQUIRED TO BE RELOCATED AT THE CONTRACTOR'S EXPENSE.</li> </ol> <p><b>WET FLOODPROOFING NOTE:</b> CONSTRUCTION MATERIALS USED BELOW THE FLOOD PROTECTION ELEVATION (FPE) SHALL BE RESISTANT TO FLOOD DAMAGE IN CONFORMANCE WITH FEMA’S TECHNICAL BULLETIN 2, FLOOD DAMAGE-RESISTANT MATERIALS REQUIREMENTS.</p>