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November 24, 2021

VIA FIRST CLASS MAIL
Shady Cove City Council
PO Box 1210
Shady Cove, OR 97539

RE: Applications submitted by Michael Kretzer and Scott Ferre

Dear Mayor and Honorable City Council:

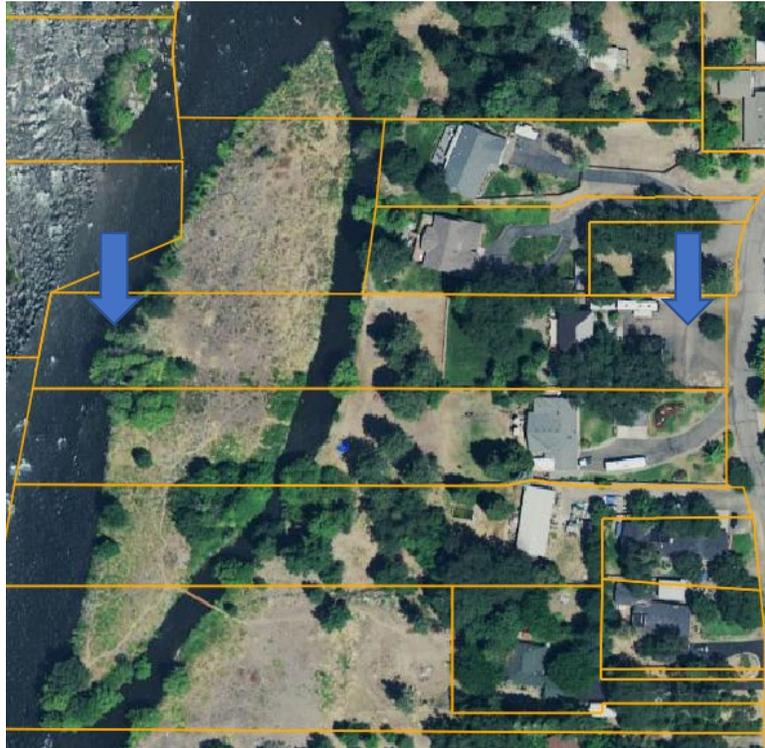
As you may recall, this law firm represents Michael Kretzer (the “applicant”) regarding his land use applications before the City of Shady Cove. I request that this document be entered into the record on both land use applications pending before the City.

The applications concern 128 Penny Lane, Shady Cove, more accurately escribed as Township 34 South, Range 1 West of the Willamette Meridian, Section 21AA, Tax Lot 2600 (the “subject property”). The subject property bifurcated by a small branch of the Rogue River, leaving approximately one third of the property inaccessible by foot and completely inaccessible to disabled persons. The inaccessible portion of the subject property is the largest island within the City limits—all others are several times smaller. Five neighboring owners own a portion of the island. A satellite photo is included on the next page.

Attached hereto as an exhibit is a copy of the deed for the subject property, which shows that the applicant is the property owner. The deed also clearly indicates that the subject property stretches from Penny Lane to the center line of the Rogue River—thereby encompassing a portion of the island. The small branch of the Rogue River that divides the subject property is not defined as a “navigable water” under the codified federal rules, *see* 33 CFR § 329.4, because it is so small and cannot reasonably be used to “transport interstate or foreign commerce”.

There are two separate applications pending before the City. On April 13, 2021, applicant submitted an application for an after-the fact permit for the placement of a pedestrian walkway across a branch arm of the Rogue River. This would enable the Kretzer Family, including disabled family members, to access approximately half an

acre of their land that is otherwise inaccessible. Notably, a neighboring property to the South already has a similar pedestrian walkway.



On May 11, 2021, City staff sent a letter to neighbor William Beerman stating that maintenance pruning of vegetation is permitted in this area. A copy of that letter is attached hereto. However, on August 5, 2021, City staff demanded that Michael Kretzer apply for a permit to conduct the same kind of vegetative maintenance. My client strongly urges the City to apply its ordinances equally to all residents—and to not force him to apply for permits that the City has already exempts others from needing to apply for.

On August 24, 2021, applicant submitted a second application, this time for ongoing vegetation maintenance of the subject property. Applicant proposes to maintain the subject property in the same manner and to the same degree that the previous owners of the property have done for the past several years. Applicant does not propose to clear cut the land. Applicant does not propose to remove any trees or vegetation from the subject property. The proposal is to conduct limited pruning of grasses once per year so that the grasses do not become so overgrown as to be a fire hazard and so that applicant’s family can walk across the subject property. Applicant does not propose to prune any grasses near trees or any vegetation along the riverbank.

Although land use applications normally go before the Planning Commission pursuant to Shady Cove City Code (“SCCC”) § 154.376, that procedure has been bypassed and the City Council is reviewing these applications in the first instance.

Although the City has consolidated these two applications into one hearing, the applications contain separate grounds for approval. The City must apply the criteria for each application to that specific application and not to the other. This means that if the City were to decide that there was insufficient evidence to approve one application, that does not mean that the other application must also be denied.

On October 7, 2021, the City Council held an initial evidentiary hearing. Because the applications had only been deemed “complete” by City Staff that same day, and because the staff report was issued mere hours before the hearing, the applicant requested that the hearing be continued to another time so that he could adequately respond to the staff report and provide the information that the staff report stated was missing. The City Council denied the applicant’s request for a continuance and denied the applications. Applicant has submitted a motion and objection to reopen the record pursuant to ORS 197.763 and SCCC § 154.379(D). This letter is submitted in anticipation of the City reopening the record.

The City must base its findings on the text of the SCCC and the evidence presented. In this hearing the City Council is acting as a quasi-judicial body and not as a legislative body. SCCC 154.379. As a result, the City cannot base its findings on irrelevant facts or opinions, out of a desire to punish or retaliate against the applicant, or out of a desire to make the applicant into an example to dissuade future applicants.

Below is a response to the Staff Report dated October 7, 2021. Applicant first discusses the proposed pedestrian walkway and then discusses the proposed vegetative maintenance.

Approval Criteria and Responses for Proposed Pedestrian Walkway

SCCC § 151.045 SITE IMPROVEMENTS AND SUBDIVISIONS.

“(A) All plans and permits for proposed new site improvements, subdivisions, and manufactured home parks shall be consistent with the need to minimize flood damage and ensure that building sites will be reasonably safe from flooding. The test of reasonableness is a local judgment and includes historical data, high water marks, photographs of past flooding, and the like.”

Applicant’s Response: Applicant has submitted more than substantial evidence that the proposal will minimize flood damage and ensure that any “building sites” will be reasonably safe from flooding. This includes photographs already in the record, as well as a No-Rise analysis prepared by licensed engineer Scott J. Ferre and RogueTech Civil Engineering. This engineering analysis demonstrates that the pedestrian walkway will minimize flood damage.

Given that the proposed pedestrian walkway is made up of cables, 2x4s, and 2x6s, it is highly improbable that a flood would cause the pedestrian walkway to cause anything exceeding minimal flood damage. In such an event, fallen trees and much larger items would be the things that caused—not the pedestrian walkway. For example, several neighboring properties have decks near the river that would cause for more damage than the proposed pedestrian walkway.

“(B) Building lots shall have adequate buildable area outside of regulatory floodways.”

Applicant’s Response: Applicant agrees that this provision is satisfied because the proposal does not include the division of land and because the existing lot has adequate buildable area outside of any regulatory floodway.

“(C) Site improvement proposals, subdivision development plans, and manufactured home park plans shall include the mapped flood hazard zones and regulatory floodway boundaries from the effective FIRM.”

Applicant’s Response: Applicant agrees that this provision is satisfied because applicant has provided adequate mapping to show flood hazard zones and regulatory floodway boundaries at the site.

“(D) Where base flood elevation data has not been provided or is not available from another authorized source, it shall be generated for subdivision proposals and other proposed developments which contain at least 50 lots or five acres (whichever is less).”

Applicant’s Response: Applicant agrees that this provision is satisfied because base flood elevations have been provided.

“(E) Site improvements, subdivisions, and manufactured home parks shall have public utilities and facilities such as sewer, gas, electric and water systems located and constructed to minimize or eliminate damage and infiltration of floodwaters. Replacement public utilities and facilities such as sewer, gas, electric and water systems, likewise shall be sited and designed to minimize or eliminate damage and infiltration of floodwaters.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application.

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“(F) New and replacement on-site waste disposal systems and sanitary sewerage systems shall be located and constructed to avoid functional impairment, contamination, or discharges from them, during flooding.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application.

“(G) Subdivisions and manufactured home parks shall have adequate drainage provided to reduce exposure to flood hazards.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application.

§ 151.046 DEVELOPMENT IN REGULATORY FLOODWAYS.

“(A) Except as provided in division (E) of this section, encroachments, including fill, new construction, substantial improvements, fences and other development are prohibited in the regulatory floodway unless certification by a registered professional engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that such encroachment will not result in any increase in flood levels during the occurrence of the base flood discharge.”

Applicant’s Response: Applicant agrees that this provision is satisfied and that the applicant’s engineer has submitted an acceptable “No Rise” analysis that substantially satisfies this requirement.

“(B) Any fill permitted to be placed in the regulatory floodway shall be designed to be stable under conditions of flooding, including rapid rise and rapid drawdown of floodwaters, prolonged inundation, and flood-related erosion and scour.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application because no fill is proposed as part of this development.

“(C) If permitted, fences shall not cause any rise in base flood elevation and are subject to the no-rise and CLOMR provisions of divisions (A) and (D) of this section.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application because no fences are proposed with this development.

“(D) Applicants shall obtain a Conditional Letter of Map Revision (CLOMR) from FEMA before an encroachment, including fill, new construction,

substantial improvement, fences, or other development, in the regulatory floodway is permitted that will cause any increase in the base flood elevation unless the development causes a temporary encroachment and the conditions in division (E) of this section are satisfied.”

Applicant’s Response: Applicant agrees that this provision is satisfied because the applicant’s engineer has provided a satisfactory engineering analysis that allows the development without a Conditional Letter of Map Revision. Further, there is no evidence that the proposal will cause any increase in the base flood elevation. Indeed, it would be absurd to conclude that a pedestrian walkway of this size (made up of two-by-fours, etc.) could cause an actual increase in base flood elevation. The proposed pedestrian walkway lacks the necessary mass to increase flooding.

“(E) Temporary encroachments in the regulatory floodway for the purposes of capital improvement projects (including other pedestrian walkways) may be allowed even if the encroachment results in an increase in flood levels during the occurrence of the base flood discharge, and without obtaining a CLOMR, when:

“(1) The project is limited as to duration with the days and dates that the structure or other development will be in the regulatory floodway specified in the development permit;

“(2) Accessory structures (i.e. construction trailers) are restricted from the regulatory floodway;

“(3) The project limits placement of equipment and material in the regulatory floodway to that which is absolutely necessary for the purposes of the project;

“(4) The project includes a flood warning system sufficient to allow equipment to be evacuated from the regulatory floodway and placed outside the area of special flood hazard in the event of imminent flood;

“(5) The project applicant identifies any insurable structures affected by temporary changes to the area of special flood hazard or base flood elevation and notifies owners of any increased risk of flooding; and

“(6) The project applicant is provided with written notification that they may be liable for any flood damages resulting from the temporary encroachment.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application because the proposal is not for a capital improvement project.

“(F) Projects for stream habitat restoration may be allowed without certification by a registered professional civil engineer provided:

“(1) The project qualifies for a Department of the Army, Portland District Regional General Permit for Stream Habitat Restoration (NWP-2007-1023);

“(2) A qualified professional (a registered professional engineer; or staff of Natural Resources Conservation Service; the county; or fisheries, natural resources, or water resources agencies) has provided a feasibility analysis and certification that the project was designed to keep any rise in 100-year flood levels as close to zero as practically possible given the goals of the project;

“(3) No structures would be impacted by a potential rise in flood elevation; and

“(4) An agreement to monitor the project, correct problems, and ensure that flood carrying capacity remains unchanged is included as part of the local approval.”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application because it is not for a stream habitat restoration project.

“(G) All permitted and substantial improvements shall comply with all applicable flood hazard reduction provisions of this chapter.”

Applicant’s Response: This criterion does not apply to the application because the proposed pedestrian walkway is not a “substantial improvement” as defined by the SCCC. The City’s Code at § 151.005 defines a “substantial improvement” as:

*“Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the “start of construction” of the improvement. * * *.”*

SCCC § 151.005. In turn, a “structure” is defined as:

“A walled and roofed building, a manufactured dwelling, a modular or temporary building, or a gas or liquid storage tank that is principally above ground.”

SCCC § 151.005. Because the proposed pedestrian walkway is not a “walled and roofed building,” it is not a “substantial improvement”, and therefore this criterion does not apply.

Nevertheless, if the City were to conclude that this criterion does apply to the application, the proposal complies with and shall continue to comply with all applicable flood hazard reduction provisions of this chapter.

Staff alleges that this provision is not satisfied because the application allegedly does not comply with SCCC § 151.049(E)&(G) (“ACCESSORY STRUCTURES”). Again, the proposed pedestrian walkway does not fall under the definition of a “structure” as defined by the City Code. *See* SCCC § 151.005 (explaining that a “structure” has both walls and a roof). As a result, this criterion not applicable.

As explained below, if the criteria of SCCC § 151.049(E)&(G) are applied this application, the proposal satisfies all of those requirements.

SCCC § 151.049 ACCESSORY STRUCTURES.

“Relief from the elevation or dry flood-proofing standards may be granted for new and replacement accessory structures containing no more than 200 square feet. Such a structure must meet the following standards:

Applicant’s Response: Applicant contends that these criteria are not applicable because it only applies to projects seeking relief from elevation or dry flood-proofing standards, which only apply to “structure[s]”. Further, the title for SCCC § 151.049 says “STRUCTURES”. However, as indicated above, the definition for a “structure” is a “walled and roofed building, a manufactured dwelling, a modular or temporary building, or a gas or liquid storage tank that is principally above ground.” SCCC § 151.005. Because the proposal is for a pedestrian walkway—not a “walled and roofed building”—the requirements of this section cannot apply to the proposal.

Below applicant addresses the sub-requirements of this section in the event the City were to conclude that this section does apply.

“(A) It shall not be subject to Specialty Codes;”

Applicant’s Response: To the extent this criterion applies, Applicant agrees that this provision is satisfied because this space is not open to the public, it is not a habitable structure, and it is not a structure with walls and a roof. Further, it does not require a building permit and is not subject to Oregon Building Code.

“(B) The accessory structure shall be located on a property, or an adjacent property with same owner, as a dwelling;”

Applicant’s Response: To the extent this criterion applies, Applicant agrees that this provision is satisfied because the proposal is on a property with a dwelling.

“(C) It shall not be used for human habitation and may be used solely for parking of vehicles or storage of items having low damage potential when submerged;”

Applicant’s Response: To the extent this criterion applies, Applicant agrees that this provision is satisfied because the proposal is not to be used for human habitation or storage of items.

“(D) Toxic material, oil or gasoline, or any priority persistent pollutant identified by the Oregon Department of Environmental Quality shall not be stored below BFE, or where no BFE is available lower than three feet above grade, unless confined in a tank installed in compliance with this chapter;”

Applicant’s Response: To the extent this criterion applies, Applicant agrees that this provision is satisfied because no storage is proposed in conjunction with the proposed use.

“(E) It shall be constructed of flood resistant materials;”

Applicant’s Response: To the extent this criterion applies, Applicant contends that the proposed pedestrian walkway is and shall be constructed of flood resistant materials. As indicated by the record, the pedestrian walkway consists of metal 6x19 cables and 2x4 and 2x6 wooded boards. The Flood Damage-Resistant Materials Requirements published by Federal Emergency Management Agency (“FEMA”), attached hereto as an exhibit, specifically list 2x4s and similar supports as acceptable flood resistant materials (Bulletin at 9). That same report repeatedly lists metal, like the cables, as being flood resistant. Examples of non-flood resistant materials include carpet, hollow doors, linoleum, and paper, which are clearly different than what the pedestrian walkway is constructed from. Therefore, Applicant contends that this criterion is satisfied.

“(F) It shall be constructed and placed on the lot to offer the minimum resistance to the flow of floodwaters;”

Applicant’s Response: To the extent this criterion applies, Applicant agrees that this provision is satisfied because the applicant has submitted a satisfactory “No Rise” analysis prepared by a registered Engineer.

“(G) It shall be firmly anchored to prevent flotation;”

Applicant’s Response: To the extent this criterion applies, Applicant contends that this provision is satisfied because the proposed pedestrian walkway is firmly anchored in cement with 3/4' deep seated eye bolts with 3/4' turnbuckles connected to 5/8' cables with 15,400 lbs breaking point. It is exceedingly improbable that the

walkway could float away in the event of an extreme flood.

“(H) Services such as electrical and heating equipment shall be elevated or flood-proofed to or above the base flood elevation; and”

Applicant’s Response: Applicant agrees that this provision is not applicable to the subject application because there are no electrical or other mechanical services associated with the proposal.

“(I) It shall be designed to equalize hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwater. Designs for complying with this requirement must be certified by a licensed professional engineer or architect or provide a minimum of two openings, on at least two sides, with a total net area of not less than one square inch for every square foot of enclosed area subject to flooding:

“(1) The bottom of all openings shall be no higher than one foot above the higher of the exterior or interior grade or floor immediately below the opening; and

“(2) Openings may be equipped with screens, louvers, valves or other coverings or devices provided they permit the automatic flow of floodwater in both directions without manual intervention.

Applicant’s Response: It does not make sense that the proposed pedestrian walkway, which has no walls, would need to comply with this section. To the extent it does apply, Applicant agrees that this provision is satisfied because applicant’s engineer has submitted a detailed analysis that satisfies this criterion.

Shady Cove Ordinance No. 279 Section III. Activities Within the Riparian Area.

*“This section of the ordinance attempts to meet the riparian corridor goals by excluding new structures from the riparian buffer areas around fish-bearing streams and associated wetlands. * * *. For cases of hardship, this section provides a procedure to reduce the riparian buffer.”*

Applicant’s Response: Section III of the Riparian Protection Ordinance is not applicable to the proposal because it applies to “new structures”. As explained above, the SCCC § 151.005 defines a “structure” as a “walled and roofed building.” The Riparian Ordinance further defines a “Structure” as a “building or other major improvement” but the proposed pedestrian walkway does not fall within the definition of a “building” or a “major improvement”.

To the extent this provision does apply to the application, and as explained below, the applicant requests a variance to allow the proposed pedestrian walkway.

“(A) Preexisting Activities within the Riparian Corridor.

“(1) Any use, sign, or structure, and the maintenance thereof, lawfully existing on the date of adoption of the provisions herein, is permitted within a riparian corridor. Such use, sign, or structure may continue at a similar level and manner as existed on the date of adoption of the provisions herein. Preexisting uses existing fully or partially within the riparian corridor may be expanded, provided the expansion does not occur within the riparian corridor.”

Applicant’s Response: Not applicable. Applicant does not contend that the proposed pedestrian walkway is a pre-existing use as of the date of the adoption of Ordinance No. 279.

“(2) The maintenance, alteration, and replacement of pre-existing landscaping is permitted within a riparian corridor as long as no additional riparian vegetation is disturbed. Any herbicide, pesticide, or fertilizer applications must strictly comply with the manufacturer’s label and avoid saturation, drift, or runoff to water bodies. Maintenance trimming of existing trees is permitted, but under no circumstances can the trimming maintenance be so severe as to compromise the tree’s health, longevity, and resource functions.”

Applicant’s Response: Not applicable. Applicant is not applying for the maintenance, alteration, or replacement of pre-existing landscaping through its application for the placement of a pedestrian walkway. Further, applicant does not propose to use herbicide, pesticide, or fertilizer in conjunction with the proposed pedestrian walkway.

“(3) The provisions of this section shall not be affected by any change in ownership of properties containing a riparian corridor.”

Applicant’s Response: To the extent this criterion applies, Applicant acknowledges that the provisions of this section are satisfied because this section will not be affected by any change in ownership of the subject property.

“(B) Allowed Activities within the Riparian Corridor:

“(1) Streets, roads, and private paths.

Applicant’s Response: Applicant agrees that this provision is satisfied. Applicant agrees with the City Staff’s reasonable interpretation that the pedestrian walkway is part of a “private path” that provides the property owners with access to a sizeable portion of the subject property. Indeed, “Path” is defined by Webster’s Third New International Dictionary (which is the official dictionary of the Oregon Court of Appeals) as “a track specially constructed for a particular use.” Path, Webster’s Third New Int’l Dictionary (unabridged), §1734 (2002). In turn, “track” is partly defined as a “way or road constructed and maintained for a specific purpose.” Track, Webster’s

Third New Int'l Dictionary (unabridged), §2420 (2002).

Below is a picture showing how the pedestrian walkway is a part of and connects the paths on the subject property:



Indeed, if a pedestrian walkway is not included in the definition of this section, then no future pedestrian walkways (including those funded with federal funds) over the Rogue River or its branches can be permitted within the jurisdiction of the City.

“(3) Water-related and water-dependent uses”

Applicant’s Response: Applicant contends that the proposal is a water-related use and/or a water-dependent use because there would be no need for a pedestrian walkway here if there was no water. Further, the proposal falls within the Riparian Protection Ordinance’s definition of “water-dependent use” because the proposed pedestrian walkway provides transportation across the water body. Further, the pedestrian walkway can only be carried out adjacent to and across the water area. Therefore, the proposed use also falls within the meaning of this section.

“(B)(6) Removal of non-native vegetation and replacement with native plant species.”

Applicant’s Response: To the extent this criterion applies, Applicant contends that this criterion is or can be satisfied with conditions of approval. While applicant acknowledges that a small amount of non-native vegetation (blackberries) were removed to construct the pedestrian walkway, the applicant is not applying for the removal of native vegetation through its proposal for the placement of a pedestrian walkway. Further, applicant agrees to replace the non-native vegetation with native plant species. The City should make the replacement with native plant species a condition of approval: as recommended by ODFW, applicant agrees to plant six (6) trees from the approved native tree list.

“(B)(7) Removal of vegetation necessary for the development of water-related or water-dependent uses.”

Applicant’s Response: To the extent this criterion applies, Applicant contends that this criterion is satisfied. Applicant’s proposal for the placement of a pedestrian walkway does not include the removal of vegetation other than the prior removal of a small amount of non-native blackberries, as explained above.”

“(8) Permanent alteration of the riparian area by placement of structures or impervious surfaces within the riparian corridor boundary established under subsection (II)(B) upon a demonstration that equal or better protection for identified resources will be ensured through restoration of riparian areas, enhanced buffer treatment, or similar measures including, stormwater controls that infiltrate stormwater and are characteristic of Low Impact Development or green infrastructure such as bioswales, rain gardens, and vegetated filter strips. In no case shall alterations occupy more than 50 percent of the width of the riparian area measured from the upland edge of the corridor. This adjustment affects only the Rogue River riparian area; it is not permitted along tributaries.”

Applicant’s Response: As explained above, the proposed pedestrian walkway does not fall within the definition of a “structure” under City Code.

However, if the City finds that this criterion does apply, Applicant agrees with staff that this criterion is or can be satisfied with conditions of approval. The City should make the planting of native plant species a condition of approval: as recommended by ODFW, applicant agrees to plant six (6) trees from the approved native tree list.

Shady Cove Ordinance No. 279 Section IV. Development Review Procedures.

“(C) Landscape Plan. A landscape plan will be required for newly disturbed areas in the riparian corridor prior to issuance of permits. The plan shall include the extent of vegetation removal proposed, characteristics of the existing vegetation (types, density), proposed riparian enhancement or restoration measures, proposed alterations of topography or drainage patterns, and existing uses on the property. The plan will be referred to the Oregon Department of Fish and Wildlife for recommendation.”

Applicant’s Response: Applicant’s landscape plan was previously submitted into the record. The plan, as it relates to the proposed pedestrian walkway, includes the removal of a non-native blackberry bush, six proposed trees for riparian enhancement and restoration if made a condition of approval, and no topographical or drainage pattern alteration. The existing use of the property include residential use, vegetation maintenance, and recreational and scenic uses. The plan has been referred to ODFW for recommendation. It should be noted that ODFW’s commentary on the submitted

plan is not determinative as to whether the Applicant's landscape plan complies with this provision.

Staff has noted that ODFW's initial comments were that the trees should all be planted on the eastern bank of the tributary or on the main stem of the Rogue River. The City can make this a condition of approval and the Applicant will comply with this modification to the landscape plan.

Shady Cove Ordinance No. 279 Section VII. Site Maintenance.

"The limitations imposed by this Section do not preclude the routine maintenance of structures and landscaped areas."

"(1) Maintenance and replacement of existing lawns, non-native riparian planted vegetation, or landscaping is allowed but shall not expand lawn areas or remove or damage any native nondangerous tree."

Applicant's Response: Applicant agrees that this criterion is satisfied. The proposed pedestrian walkway includes the replacement of a small amount of non-native blackberries. No expansion of lawn areas or the removal or damage of any native nondangerous tree is proposed in conjunction with the proposed pedestrian walkway.

"(3) Where replanting is done, vegetation shall be replanted with native species or approved alternatives, with the exception of continued Agricultural Uses."

Applicant's Response: Applicant agrees that this provision can be satisfied with conditions. The City should make the planting of native plant species a condition of approval: as recommended by ODFW, applicant agrees to plant six (6) trees from the approved native tree list.

"(4) Maintenance pruning of existing trees shall be kept to a minimum and shall be in accordance with the American National Standards Institute (ANSI) A300 standards for Tree Care Operations. Under no circumstances shall the maintenance pruning be so severe that it compromises the tree's health, longevity, and resource functions."

Applicant's Response: Applicant contends that this criterion is not applicable because tree pruning and maintenance is not proposed in conjunction with the pedestrian walkway. Further, the planting of new trees would not fall within the meaning of this section because they would be new trees, not "existing trees".

Contingent Request for Variance

In the event the City denies the requested proposed pedestrian walkway, applicant requests that a variance be granted. Because the proposed pedestrian walkway is for use by a disabled resident of the subject property, both Title II of the Americans with

Disabilities Act, codified as 42 U.S.C. § 6304, and the Fair Housing Amendments Act, codified as 42 U.S.C. § 3604(f)(3)(B), require the City to allow the applicant and the residents of the subject property use the pedestrian walkway. The U.S. Department of Justice's *Title II Technical Assistance Manual: Covering State and Local Government Programs and Services* says as follows:

“II-306000. Reasonable modifications.

“II-3.6100 General. A public entity must reasonably modify its policies, practices, or procedures to avoid discrimination. If the public entity can demonstrate, however, that the modifications would fundamentally alter the nature of its service, program, or activity, it is not required to make the modification.

“ILLUSTRATION 1: A municipal zoning ordinance requires a set-back of 12 feet from the curb in the central business district. In order to install a ramp to the front entrance of a pharmacy, the owner must encroach on the set-back by three feet. Granting a variance in the zoning requirement may be a reasonable modification of town policy.”

Here applicant is proposing a pedestrian walkway to enable the disabled residents, who have trouble walking and swimming due to underlying disabilities, to be able to access the entirety of the subject property.

This request is reasonably necessary to accommodate these disabilities because otherwise a large portion of the subject property is unusable by them. This request is also necessary to afford all residents of the subject property an equal opportunity to use the subject property and associated dwelling. To deny this request would further create less opportunity for the disabled residents of the subject property to live in this neighborhood—especially given that a neighbor a few houses down already has a pedestrian walkway of similar design to the proposed walkway. Nor will the proposed pedestrian walkway endanger public safety given that it is several feet above the ordinary high-water mark and because the channel is so small that it is rare for boaters to use this area. Applicant is willing to place a warning sign at the start of the small channel if made a condition of approval.

Further, pursuant to *Shady Cove Ordinance No. 279 Section VI*, strict adherence to the riparian setback and other applicable standards would effectively preclude any use of the island portion of the parcel, which precludes a substantial property right enjoyed by the neighboring landowners, who have full access to their properties.

Approval Criteria and Applicant's Responses for Proposed Ongoing Vegetation Maintenance

Below the Applicant discusses the proposed ongoing vegetation maintenance of the subject property. Applicant proposes trimming and pruning of vegetation. The Applicant does not propose to clear cut or mow the vegetation or removal of any trees.

Shady Cove Ordinance No. 279 Section III. Activities Within the Riparian Area.

“(A) Preexisting Activities within the Riparian Corridor.

“(A)(1) Any use, sign, or structure, and the maintenance thereof, lawfully existing on the date of adoption of the provisions herein, is permitted within a riparian corridor. Such use, sign, or structure may continue at a similar level and manner as existed on the date of adoption of the provisions herein. Preexisting uses existing fully or partially within the riparian corridor may be expanded, provided the expansion does not occur within the riparian corridor.”

Applicant's Response: Applicant has submitted substantial evidence into the record that the use of the island for recreational and scenic purposes has been occurring for several decades and also that the maintenance thereof has also been occurring for that same time. These activities fall within the meaning of a “use” under this provision and therefore Applicant respectfully contends that these uses may lawfully be continued. Further, the City has exempted neighboring property owners from having to apply for this same permit and the applicant respectfully contends that he should not have to apply for a permit when conducting the same activities.

The City should construe the application for ongoing vegetation maintenance as an application to verify existing non-conforming uses. Applicant proposes to continue the vegetation maintenance at the same level and in the same manner as the previous owners of the property before the ordinance was adopted.

“(A)(2) The maintenance, alteration, and replacement of pre-existing landscaping is permitted within a riparian corridor as long as no additional riparian vegetation is disturbed. Any herbicide, pesticide, or fertilizer applications must strictly comply with the manufacturer's label and avoid saturation, drift, or runoff to water bodies. Maintenance trimming of existing trees is permitted, but under no circumstances can the trimming maintenance be so severe as to compromise the tree's health, longevity, and resource functions.”

Applicant's Response: Applicant contends that the proposed plan for vegetation maintenance conforms to this criterion. No herbicides, pesticides, or fertilizer use is proposed.

“(A)(3) The provisions of this section shall not be affected by any change in ownership of properties containing a riparian corridor.”

Applicant’s Response: To the extent this criterion applies, Applicant acknowledges that the provisions of this section are satisfied because this section will not be affected by any change in ownership of the subject property.

*“(B) Allowed Activities within the Riparian Corridor
“(B)(1) Streets, roads, and private paths.”*

Applicant’s Response: Applicant agrees that this provision is satisfied. The proposed ongoing vegetative maintenance will occur in conjunction with private paths, which provide the property owner access around the subject property. A satellite photo showing the paths is included above.

(B)(6) Removal of non-native vegetation and replacement with native plant species.

Applicant’s Response: Applicant does not propose to remove any vegetation.

(B)(7) Removal of vegetation necessary for the development of water-related or water-dependent uses.

Applicant’s Response:

(B)(8) Permanent alteration of the riparian area by placement of structures or impervious surfaces within the riparian corridor boundary established under subsection (II)(B) upon a demonstration that equal or better protection for identified resources will be ensured through restoration of riparian areas, enhanced buffer treatment, or similar measures including, stormwater controls that infiltrate stormwater and are characteristic of Low Impact Development or green infrastructure such as bioswales, rain gardens, and vegetated filter strips. In no case shall alterations occupy more than 50 percent of the width of the riparian area measured from the upland edge of the corridor. This adjustment affects only the Rogue River riparian area; it is not permitted along tributaries.

Applicant’s Response: Applicant respectfully contends that this criterion is not applicable because the proposed ongoing vegetation maintenance does not include the placement of structures or impervious surfaces within the riparian corridor.

Shady Cove Ordinance No. 279 Section IV. Development Review Procedures.

(C) Landscape Plan. A landscape plan will be required for newly disturbed areas in the riparian corridor prior to issuance of permits. The plan shall

include the extent of vegetation removal proposed, characteristics of the existing vegetation (types, density), proposed riparian enhancement or restoration measures, proposed alterations of topography or drainage patterns, and existing uses on the property. The plan will be referred to the Oregon Department of Fish and Wildlife for recommendation.

Applicant's Response: Applicant's landscape plan was previously submitted into the record. The plan includes adding six proposed trees for riparian enhancement and restoration if made a condition of approval, and no topographical or drainage pattern alteration. The existing use of the property include residential use, vegetation maintenance, and recreational and scenic uses. The plan has been referred to ODFW for recommendation. It should be noted that ODFW's commentary on the submitted plan is not determinative as to whether the Applicant's landscape plan complies with this provision.

Staff has noted that ODFW's initial comments were that the trees should all be planted on the eastern bank of the tributary or on the main stem of the Rogue River. The City can make this a condition of approval and the Applicant will comply with this modification to the landscape plan.

Shady Cove Ordinance No. 279 Section VII. Site Maintenance.

(1) Maintenance and replacement of existing lawns, non-native riparian planted vegetation, or landscaping is allowed but shall not expand lawn areas or remove or damage any native nondangerous tree.

Applicant's Response: Applicant agrees that this provision is satisfied. The Applicant does not propose to remove any vegetation. The Applicant does not propose to expand lawn areas or to remove/damage any nondangerous trees.

(3) Where replanting is done, vegetation shall be replanted with native species or approved alternatives, with the exception of continued Agricultural Uses.

Applicant's Response: Applicant agrees that this provision can be satisfied with conditions. The City should make the planting of native plant species a condition of approval: as recommended by ODFW, applicant agrees to plant six (6) trees from the approved native tree list.

(4) Maintenance pruning of existing trees shall be kept to a minimum and shall be in accordance with the American National Standards Institute (ANSI) A300 standards for Tree Care Operations. Under no circumstances shall the maintenance pruning be so severe that it compromises the tree's health, longevity, and resource functions.

Applicant's Response: Applicant agrees that this provision can be satisfied with conditions requiring Applicant to comply with the standards for tree care operations as outlined in Ordinance 279. Applicant agrees to comply and will replace damaged trees with trees from the approved tree list.

Conclusion

In conclusion, Applicant respectfully contends that the two applications each fulfill all applicable the requirements of the Shady Cove City Code. Applicant also requests that a variance be granted for the proposed pedestrian walkway to enable the disabled residence of the property access to the island.

Yours sincerely,

O'CONNOR LAW, LLC

/s/ Garrett West

Garrett K. West, OSB No. 174890

west@oconnorlawgroup.net

GKW:



Jackson County Official Records	2019-019019
R-WD	
Strn=10 SHINGLJS	07/03/2019 10:34:30 AM
\$15.00 \$10.00 \$8.00 \$11.00 \$60.00	\$104.00
I, Christine Walker, County Clerk for Jackson County, Oregon, certify that the instrument identified herein was recorded in the Clerk records.	
Christine Walker - County Clerk	

RE-RECORDING COVER SHEET

Any errors in this cover sheet DO NOT affect the transactions(s) contained in the instrument itself.

AFTER RECORDING RETURN TO:

Name Michael Irvin Kretzer and Sherryl Roberts
Address 128 Penny Lane
City/State/Zip Shady Cove, OR 97539

RE-RECORDED TO Remove Sherryl Roberts Middle name

PREVIOUSLY RECORDED AS DOCUMENT 2019-017966

OR BOOK # _____ PAGE # _____

UNTIL A CHANGE IS REQUESTED, ALL TAX STATEMENTS SHALL BE SENT TO THE FOLLOWING ADDRESS (only for instruments conveying or contracting to convey fee title to any real estate):

Name:
Address:
City/State/Zip: No change

DOCUMENT TITLE): Statutory Warranty Deed

GRANTOR (DIRECT) or CLAIMANT (PLAINTIFF) Mark C. Rainey and Dahn M. Rainey

GRANTEE (INDIRECT) or DEBTOR (DEFENDANT) Michael Irvin Kretzer and Sherryl Roberts

TRUE AND ACTUAL CONSIDERATION PAID (only for instruments conveying or contracting to convey fee title to any real estate): \$593,000.00

THE AMOUNT OF THE CIVIL PENALTY OR THE AMOUNT, INCLUDING PENALITES, INTEREST AND OTHER CHARGES, FOR WHICH THE WARRANT, ORDER OR JUDGMENT WAS ISSUED: \$N/A

470319062554

RECORDING REQUESTED BY:



1555 E. McAndrews Road, Ste 100
Medford, OR 97504

GRANTOR'S NAME:
Mark C. Rainey and Dahn M. Rainey

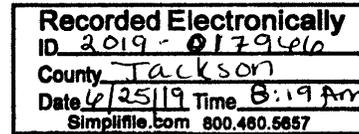
GRANTEE'S NAME:
Michael Irvin Kretzer and Sherryl Kay Roberts

AFTER RECORDING RETURN TO:
Order No.: 470319062554-MB
Michael Irvin Kretzer and Sherryl Kay Roberts, as tenants by the
entirety
128 Penny Lane
Shady Cove, OR 97539

SEND TAX STATEMENTS TO:
Michael Irvin Kretzer and Sherryl Kay Roberts
128 Penny Lane
Shady Cove, OR 97539

APN: 1-027399-9
Map: 34-1W-21-AA-02600
128 Penny Lane, Shady Cove, OR 97539

TICOR TITLE



SPACE ABOVE THIS LINE FOR RECORDER'S USE

STATUTORY WARRANTY DEED

Mark C. Rainey and Dahn M. Rainey, as tenants by the entirety, Grantor, conveys and warrants to Michael Irvin Kretzer and Sherryl Kay Roberts, as tenants by the entirety, Grantee, the following described real property, free and clear of encumbrances except as specifically set forth below, situated in the County of Jackson, State of Oregon:

Commencing at the Northeast corner of Section 21, Township 34 South, Range 1 West, of the Willamette Meridian, in the City of Shady Cove, County of Jackson and State of Oregon; thence East on the Section line, 277.5 feet, to the Westerly line of Crater Lake Highway; thence along said Highway line, South 24°42' West, 472.7 feet; thence West, parallel with the Section line 634.0 feet, to a point being on the North line of property described in Volume 272, Page 128, Deed Records of Jackson County, Oregon, said point being the true point of beginning; thence South, 96.1 feet, to the Northeast corner of that property described in Volume 397, Page 498, Mortgage Records of Jackson County, Oregon; thence West, on the North line of said property, to the center of the channel of the Rogue River; thence Northerly, along the center of the channel, to a point West of the true point of beginning, said point also being the North line of property described in Volume 272, Page 128, said Deed Records; thence East, along said North line, 696.5 feet, more or less, to the true point of beginning.

THE TRUE AND ACTUAL CONSIDERATION FOR THIS CONVEYANCE IS FIVE HUNDRED NINETY-THREE THOUSAND AND NO/100 DOLLARS (\$593,000.00). (See ORS 93.030).

Subject to:

Covenants, Conditions, Restrictions, Reservations, set back lines, Power of Special Districts, and easements of Record, if any.

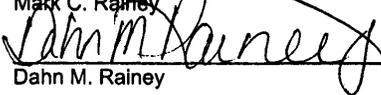
BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON TRANSFERRING FEE TITLE SHOULD INQUIRE ABOUT THE PERSON'S RIGHTS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010. THIS INSTRUMENT DOES NOT ALLOW USE OF THE PROPERTY DESCRIBED IN THIS INSTRUMENT IN VIOLATION OF APPLICABLE LAND USE LAWS AND REGULATIONS. BEFORE SIGNING OR ACCEPTING THIS INSTRUMENT, THE PERSON ACQUIRING FEE TITLE TO THE PROPERTY SHOULD CHECK WITH THE APPROPRIATE CITY OR COUNTY PLANNING DEPARTMENT TO VERIFY THAT THE UNIT OF LAND BEING TRANSFERRED IS A LAWFULLY ESTABLISHED LOT OR PARCEL, AS DEFINED IN ORS 92.010 OR 215.010, TO VERIFY THE APPROVED USES OF THE LOT OR PARCEL, TO DETERMINE ANY LIMITS ON LAWSUITS AGAINST FARMING OR FOREST PRACTICES, AS DEFINED IN ORS 30.930, AND TO INQUIRE ABOUT THE RIGHTS OF NEIGHBORING PROPERTY OWNERS, IF ANY, UNDER ORS 195.300, 195.301 AND 195.305 TO 195.336 AND SECTIONS 5 TO 11, CHAPTER 424, OREGON LAWS 2007, SECTIONS 2 TO 9 AND 17, CHAPTER 855, OREGON LAWS 2009, AND SECTIONS 2 TO 7, CHAPTER 8, OREGON LAWS 2010.

STATUTORY WARRANTY DEED
(continued)

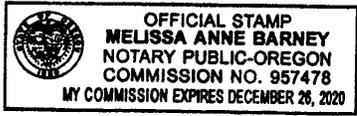
IN WITNESS WHEREOF, the undersigned have executed this document on the date(s) set forth below.

Dated: 6-24-19



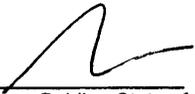
Mark C. Rainey


Dahn M. Rainey



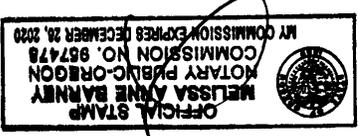
State of Oregon
County of Washington

This instrument was acknowledged before me on 6/24/19 by Mark C. Rainey and Dahn M. Rainey.



Melissa Anne Barney, Notary Public - State of Oregon

My Commission Expires: December 26, 2020





Mayor
Shari Tarvin

Councilors
Kathy Nuckles
Dick McGregor
Tim Evertt
(Vacant)

May 11, 2021

William Beerman,

Re: Complaint regarding 116 Penny Lane

Thank you for your written response regarding Riparian concerns regarding your property identified as 116 Penny Lane, or more accurately as Map Number 34-1W-21 AA Tax Lot 2300.

Maintenance pruning is permitted as long as it complies with the standards found in Ordinance 286 of the City of Shady Cove. As evidenced by your response, a full Riparian Permit is not required. However, a tree removal permit 'after the fact' is required.

Any tree removal within the 75 foot Riparian Protection Corridor requires a tree removal permit. Trees which are deemed a hazard may be removed prior to application for permit, but still require an 'after the fact permit' and require that each tree removed be replaced with one tree from the identified tree list (previously sent). The replacement tree shall be placed within the 75 foot Riparian Protection Corridor. As to deer resistance most of the broad leaf varieties in the list should be fairly resistant. The least resistant is likely Douglas Fir.

At this time the City asks that you complete a Tree Removal permit, you have already submitted photos, please additionally add a completed Permit (attached) and the proposed type of replacement tree, and the proposed location. Then once the tree has been planted please provide photographic evidence of the planting. The application for tree removal will need to be submitted to City Hall with a \$75 fee.

Thank you for your cooperation.

Sincerely,

Ryan Nolan
City Planner
541-423-1382, rnolan@rvcog.org



Flood Damage-Resistant Materials Requirements

for Buildings Located in Special Flood Hazard Areas in
accordance with the National Flood Insurance Program

Technical Bulletin 2 / August 2008



FEMA

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Revision to Table 2 footnote (*) made in October 2010.

Comments on the Technical Bulletins should be directed to:

Department of Homeland Security
FEMA Federal Insurance and Mitigation Administration
500 C Street, SW.
Washington, D.C. 20472

Technical Bulletin 2-08 replaces Technical Bulletin 2-93, *Flood-Resistant Materials Requirements for Buildings Located in Special Flood Hazard Areas in accordance with the National Flood Insurance Program.*

Introduction

Protecting buildings that are constructed in special flood hazard areas (SFHAs) from damage caused by flood forces is an important objective of the National Flood Insurance Program (NFIP). In support of this objective, the NFIP regulations include minimum building design criteria that apply to new construction, repair of substantially damaged buildings, and substantial improvement of existing buildings in SFHAs. The base flood is used to delineate SFHAs on Flood Insurance Rate Maps (FIRMs) prepared by the NFIP. The base flood is the flood that has a 1-percent chance of being equaled or exceeded in any given year (commonly called the “100-year” flood). Certain terms used in this Technical Bulletin are defined in the Glossary.

The NFIP regulations require the use of construction materials that are resistant to flood damage. The lowest floor of a residential building must be elevated to or above the base flood elevation (BFE), while the lowest floor of a non-residential building must be elevated to or above the BFE or dry floodproofed to the BFE.

All construction below the BFE is susceptible to flooding and must consist of flood damage-resistant building materials. The purpose of this Technical Bulletin is to provide current guidance on what constitute “materials resistant to flood damage” and how and when these materials must be used to improve a building’s ability to withstand flooding.

Table 1 describes five classes of materials ranging from those that are highly resistant to floodwater damage, to those that have no resistance to flooding. Materials are broadly described as structural materials and finish materials based on how they are used in normal construction practices. Table 2 lists materials by generic names, and notes whether the materials are acceptable or unacceptable for use below the BFE. All building materials are in some way fastened or connected to the structure. Fasteners and connectors, as described in this Technical Bulletin, also must be resistant to flood damage.

A brief description of the process used to identify or determine whether the materials listed are flood damage-resistant is provided, followed by some simplified examples with diagrams to illustrate the use of these materials below the BFE. Three additional circumstances where flood damage-resistant materials are used or recommended are described: accessory structures, limited use of wet floodproofing, and buildings outside of SFHAs.

Questions about use of flood damage-resistant materials should be directed to the appropriate local official, NFIP State Coordinating Office, or one of the Federal Emergency Management Agency’s (FEMA’s) Regional Offices.

Under the NFIP, the “lowest floor” is the floor of the lowest enclosed area of a building. An unfinished or flood-resistant enclosure that is used solely for parking of vehicles, building access, or storage is not the lowest floor, provided the enclosure is built in compliance with applicable requirements.

As used by the NFIP, an “enclosure” is an area that is enclosed on all sides by walls.

The NFIP defines a “basement” as any area that is below-grade on all sides. The regulations do not allow basements to extend below the BFE.

NFIP Regulations

The NFIP regulations for flood damage-resistant materials are codified in Title 44 of the Code of Federal Regulations, in Section 60.3(a)(3), which states that a community shall:

“Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding. If a proposed building site is in a floodprone area, all new construction and substantial improvements shall...(ii) be constructed with materials resistant to flood damage...”

Proposals for substantial improvement of existing buildings in SFHAs, and proposals to repair those that have sustained substantial damage, must comply with the requirements for new construction. As part of issuing permits, community officials must review such proposals to determine whether they comply with the requirements, including the use of flood damage-resistant materials. Refer to the “Classification of Flood Damage-Resistant Materials” section of this Technical Bulletin for additional details. Further information on substantial improvement and substantial damage is found in *Answers to Questions About Substantially Damaged Buildings* (FEMA 213).

The NFIP Technical Bulletins provide guidance on the minimum requirements of the NFIP regulations. Community or State requirements that exceed those of the NFIP take precedence. Design professionals should contact the community to determine whether more restrictive provisions apply to the building or site in question. All other applicable requirements of the State or local building codes must also be met for buildings in all flood hazard areas.

Required Use of Flood Damage-Resistant Materials

Flood Damage-Resistant Material

“Flood [damage]-resistant material” is defined by the NFIP as “any building product [material, component or system] capable of withstanding direct and prolonged contact with floodwaters without sustaining significant damage.” The term “prolonged contact” means at least 72 hours, and the term “significant damage” means any damage requiring more than cosmetic repair. “Cosmetic repair” includes cleaning, sanitizing, and resurfacing (e.g., sanding, repair of joints, repainting) of the material. The cost of cosmetic repair should also be less than the cost of replacement of affected materials and systems. In addition to these requirements, individual materials that are considered flood damage-resistant must not cause degradation of adjacent materials or the systems of which the material is a part.

The *International Building Code*® (IBC®), by reference to ASCE 24 *Flood Resistant Design and Construction*, and the *International Residential Code*® (IRC®), require the use of flood damage-resistant materials.

All building materials below the BFE must be flood damage-resistant, regardless of the expected or historic flood duration. For example, buildings in coastal areas that experience relatively short-duration flooding (generally, flooding with a duration of less than 24 hours) must be constructed with flood damage-resistant materials below the BFE. As noted in Table 2, **only Class 4 and Class 5 materials are acceptable for areas below the BFE in buildings in SFHAs.**

In some instances, materials that are not flood damage-resistant materials, such as wiring for fire alarms and emergency lighting, are allowed below the BFE if specifically required to address life safety and electric code requirements for building access and storage areas.

How Flood Damage-Resistant Materials Affect Flood Insurance Rates

Careful attention to compliance with the NFIP regulations for flood damage-resistant materials is important during design, plan review, construction, and inspection. Compliance influences both the building's vulnerability to flood damage and the cost of NFIP flood insurance. Flood insurance will not pay a claim for finish materials located in basements or in enclosed areas below the lowest floor of elevated buildings, even if such materials are considered to be flood damage-resistant. NFIP claims for damage below the BFE are limited to utilities and equipment, such as furnaces and water heaters.

Classification of Flood Damage-Resistant Materials

The information in this Technical Bulletin was initially developed based on information in the U.S. Army Corps of Engineers' *Flood Proofing Regulations* (1995), and has been updated based on additional information from FEMA-funded studies and reports, technical experts, and industry and trade groups. Table 1 classifies building materials according to their ability to resist flood damage.

Table 1. Class Descriptions of Materials

NFIP	Class	Class Description
ACCEPTABLE	5	Highly resistant to floodwater ¹ damage, including damage caused by moving water. ² These materials can survive wetting and drying and may be successfully cleaned after a flood to render them free of most harmful pollutants. ³ Materials in this class are permitted for partially enclosed or outside uses with essentially unmitigated flood exposure.
	4	Resistant to floodwater ¹ damage from wetting and drying, but less durable when exposed to moving water. ² These materials can survive wetting and drying and may be successfully cleaned after a flood to render them free of most harmful pollutants. ³ Materials in this class may be exposed to and/or submerged in floodwaters in interior spaces and do not require special waterproofing protection.
UNACCEPTABLE	3	Resistant to clean water ⁴ damage, but not floodwater damage. Materials in this class may be submerged in clean water during periods of flooding. These materials can survive wetting and drying, but may not be able to be successfully cleaned after floods to render them free of most ³ harmful pollutants.
	2	Not resistant to clean water ⁴ damage. Materials in this class are used in predominantly dry spaces that may be subject to occasional water vapor and/or slight seepage. These materials cannot survive the wetting and drying associated with floods.
	1	Not resistant to clean water ⁴ damage or moisture damage. Materials in this class are used in spaces with conditions of complete dryness. These materials cannot survive the wetting and drying associated with floods.

Notes:

1. Floodwater is assumed to be considered “black” water; black water contains pollutants such as sewage, chemicals, heavy metals, or other toxic substances that are potentially hazardous to humans.
2. Moving water is defined as water moving at low velocities of 5 feet per second (fps) or less. Water moving at velocities greater than 5 fps may cause structural damage to building materials.
3. Some materials can be successfully cleaned of most of the pollutants typically found in floodwater. However, some individual pollutants such as heating oil can be extremely difficult to remove from uncoated concrete. These materials are flood damage-resistant except when exposed to individual pollutants that cannot be successfully cleaned.
4. Clean water includes potable water as well as “gray” water; gray water is wastewater collected from normal uses (laundry, bathing, food preparation, etc.).

MODIFIED FROM: USACE 1995 *Flood Proofing Regulations*

Table 2 lists structural materials and finish materials commonly used in construction of floors, walls, and ceilings. For the purpose of this Technical Bulletin, structural materials and finish materials are defined as follows:

- **Structural materials** include all elements necessary to provide structural support, rigidity, and integrity to a building or building component. Structural materials include floor slabs, beams, subfloors, framing, and structural building components such as trusses, wall panels, I-joists and headers, and interior/exterior sheathing.

- **Finish materials** include all coverings, finishes, and elements that do not provide structural support or rigidity to a building or building component. Finish materials include floor coverings, wall and ceiling surface treatments, insulation, cabinets, doors, partitions, and windows.

Notes Regarding Classification of Materials

The classifications in Table 2 are based on the best information available at the time of publication. However, flood damage-resistance is determined by factors that may be a function of the specific application and by the characteristics of the floodwaters. Each situation requires sound judgment and knowledge of probable contaminants in local floodwaters to select materials that are required to resist flood damage. For materials and products that are listed in Table 2, manufacturers' use and installation instructions must be followed to ensure maximum performance. Masonry and wood products used below the BFE must comply with the applicable standards published by the American Society for Testing and Materials (ASTM), the American Concrete Institute (ACI), the Truss Plate Institute (TPI), the American Forest & Paper Association (AF&PA), and other appropriate organizations.

1. **Materials Not Listed:** Table 2 does not list all available structural materials and finish materials. For materials and products not listed, manufacturers' literature (i.e., specifications, materials safety data sheets, test reports) should be evaluated to determine if the product meets flood damage-resistance requirements. Materials and products that are not listed in Table 2 may be used if accepted by the local official. Acceptance should be based on sufficient evidence, provided by the applicant, that the materials proposed to be used below the BFE will resist flood damage without requiring more than cosmetic repair and cleaning.
2. **Unacceptable Materials:** Class 1, 2, and 3 materials are unacceptable for below-BFE applications for one or more of the following reasons:
 - Normal adhesives specified for above-grade use are water soluble or are not resistant to alkali or acid in water, including groundwater seepage and vapor.
 - The materials contain wood or paper products, or other materials that dissolve or deteriorate, lose structural integrity, or are adversely affected by water.
 - Sheet-type floor coverings (linoleum, rubber tile) or wall coverings (wallpaper) restrict drying of the materials they cover.
 - Materials are dimensionally unstable.
 - Materials absorb or retain excessive water after submergence.
3. **Impact of Material Combinations:** In some cases, the combination of acceptable structural and finish materials can negatively impact the classification of individual materials. This is illustrated by the following examples:

- Vinyl tile with chemical-set adhesives is an acceptable finish flooring material when placed on a concrete structural floor. However, when the same vinyl tile is applied over a plywood structural floor, it is no longer considered acceptable because the vinyl tile must be removed to allow the plywood to dry.
 - Polyester-epoxy or oil-based paints are acceptable wall finishes when applied to a concrete structural wall. However, when the same paint is applied to a wood wall, it is no longer considered acceptable. Recent FEMA-supported studies by Oak Ridge National Laboratory have found that low-permeability paint can inhibit drying of the wood wall.
4. **Impact of Long-Duration Exposure and/or Contaminants:** The classifications of materials listed in Table 2 do not take into account the effects of long-duration exposure to floodwaters or contaminants carried by floodwaters. This is illustrated by the following examples:
- Following Hurricane Katrina, FEMA deployed a Mitigation Assessment Team (MAT) to examine how building materials performed after long-duration exposure (2 to 3 weeks) to floodwaters (FEMA 549). The field survey revealed that some materials absorbed floodborne biological and chemical contaminants. However, it is not known at this time if a shorter duration flood event would have significantly altered the absorption rates of those contaminants.
 - Building owners, design professionals, and local officials should consider potential exposure to floodborne contaminants when selecting flood damage-resistant materials. For example, Table 2 lists cast-in-place concrete, concrete block, and solid structural wood (2x4s, etc.), as acceptable flood damage-resistant materials. However, experience has shown that buildings with those materials can be rendered unacceptable for habitation after being subjected to floodwaters with significant quantities of petroleum-based products such as home heating oil. Commonly used cleaning and remediation practices do not reduce the “off-gassing” of volatile hydrocarbons from embedded oil residues to acceptable levels that are established by the U.S. Environmental Protection Agency. Other materials, when exposed to these types of contaminants, may also not perform acceptably as flood damage-resistant materials.

Table 2. Types, Uses, and Classifications of Materials

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
	Floors	Walls/ Ceilings	Acceptable		Unacceptable		
			5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Asbestos-cement board		■	■				
Brick							
Face or glazed		■	■				
Common (clay)		■		■			
Cast stone (in waterproof mortar)		■	■				
Cement board/fiber-cement board		■	■				
Cement/latex, formed-in-place	■			■			
Clay tile, structural glazed		■	■				
Concrete, precast or cast-in-place	■	■	■				
Concrete block ¹		■	■				
Gypsum products							
Paper-faced gypsum board		■			■		
Non-paper-faced gypsum board		■		■			
Greenboard		■				■	
Keene's cement or plaster		■			■		
Plaster, otherwise, including acoustical		■				■	
Sheathing panels, exterior grade		■			■		
Water-resistant, fiber-reinforced gypsum exterior sheathing		■		■			
Hardboard (high-density fiberboard)							
Tempered, enamel or plastic coated		■				■	
All other types		■					■
Mineral fiberboard		■					■
Oriented-strand board (OSB)							
Exterior grade	■	■				■	
Edge swell-resistant OSB	■	■				■	
All other types	■	■					■
Particle board	■						■
Plywood							
Marine grade	■	■	■				
Preservative-treated, alkaline copper quaternary (ACQ) or copper azole (C-A)	■	■		■			

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
	Floors	Walls/ Ceilings	Acceptable		Unacceptable		
			5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Preservative-treated, Borate ²	■	■	■				
Exterior grade/Exposure1 (WBP – weather and boil proof)	■	■		■			
All other types	■	■					■
Recycled plastic lumber (RPL)							
Commingled, with 80-90% polyethylene (PE)	■		■				
Fiber-reinforced, with glass fiber strands	■		■				
High-density polyethylene (HDPE), up to 95%	■		■				
Wood-filled, with 50% sawdust or wood fiber	■				■		
Stone							
Natural or artificial non-absorbent solid or veneer, waterproof grout	■	■	■				
All other applications		■				■	■
Structural Building Components							
Floor trusses, wood, solid (2x4s), decay-resistant or preservative-treated	■	■		■			
Floor trusses, steel ³	■		■				
Headers and beams, solid (2x4s) or plywood, exterior grade or preservative-treated		■		■			
Headers and beams, OSB, exterior grade or edge-swell resistant		■				■	
Headers and beams, steel ³		■	■				
I-joists	■					■	
Wall panels, plywood, exterior grade or preservative-treated		■		■			
Wall panels, OSB, exterior grade or edge-swell resistant		■				■	
Wall panels, steel ³		■		■			

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
	Floors	Walls/ Ceilings	Acceptable		Unacceptable		
			5	4	3	2	1
Structural Materials (floor slabs, beams, subfloors, framing, and interior/exterior sheathing)							
Wood							
Solid, standard, structural (2x4s)		■		■			
Solid, standard, finish/trim		■			■		
Solid, decay-resistant ⁴	■	■	■				
Solid, preservative-treated, ACQ or C-A		■		■			
Solid, preservative-treated, Borate ²		■		■			
Finish Materials (floor coverings, wall and ceiling finishes, insulation, cabinets, doors, partitions, and windows)							
Asphalt tile ⁵							
With asphaltic adhesives	■				■		
All other types	■						■
Cabinets, built-in							
Wood		■				■	
Particle board		■					■
Metal ³		■		■			
Carpeting	■						■
Ceramic and porcelain tile							
With mortar set	■	■		■			
With organic adhesives	■	■				■	
Concrete tile, with mortar set	■		■				
Corkboard		■				■	
Doors							
Wood, hollow		■				■	
Wood, lightweight panel construction		■				■	
Wood, solid		■				■	
Metal, hollow ³		■		■			
Metal, wood core ³		■		■			
Metal, foam-filled core ³		■		■			
Fiberglass, wood core		■		■			
Epoxy, formed-in-place	■		■				

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
	Floors	Walls/ Ceilings	Acceptable		Unacceptable		
			5	4	3	2	1
Finish Materials (floor coverings, wall and ceiling finishes, insulation, cabinets, doors, partitions, and windows)							
Glass (sheets, colored tiles, panels)		■		■			
Glass blocks		■	■				
Insulation							
Sprayed polyurethane foam (SPUF) or closed-cell plastic foams	■	■	■				
Inorganic – fiberglass, mineral wool: batts, blankets, or blown	■	■			■		
All other types (cellulose, cotton, open-cell plastic foams, etc.)	■	■				■	
Linoleum	■						■
Magnesite (magnesium oxychloride)	■						■
Mastic felt-base floor covering	■						■
Mastic flooring, formed-in-place	■		■				
Metals, non-ferrous (aluminum, copper, or zinc tiles)		■			■		
Metals							
Non-ferrous (aluminum, copper, or zinc tiles)		■			■		
Metals, ferrous ³		■		■			
Paint							
Polyester-epoxy and other oil-based waterproof types		■		■			
Latex		■		■			
Partitions, folding							
Wood		■				■	
Metal ³		■		■			
Fabric-covered		■					■
Partitions, stationary (free-standing)							
Wood frame		■		■			
Metal ³		■		■			
Glass, unreinforced		■		■			
Glass, reinforced		■		■			
Gypsum, solid or block		■					■

Table 2. Types, Uses, and Classifications of Materials (continued)

Types of Building Materials	Uses of Building Materials		Classes of Building Materials				
	Floors	Walls/ Ceilings	Acceptable		Unacceptable		
			5	4	3	2	1
Finish Materials (floor coverings, wall and ceiling finishes, insulation, cabinets, doors, partitions, and windows)							
Polyurethane, formed-in-place	■		■				
Polyvinyl acetate (PVA) emulsion cement	■						■
Rubber							
Moldings and trim with epoxy polyamide adhesive or latex-hydraulic cement		■		■			
All other applications		■					■
Rubber sheets or tiles ⁵							
With chemical-set adhesives ⁶	■		■				
All other applications	■						■
Silicone floor, formed-in-place	■		■				
Steel (panels, trim, tile)							
With waterproof adhesives ³		■	■				
With non-waterproof adhesives		■				■	
Terrazo	■			■			
Vinyl asbestos tile (semi-flexible vinyl) ⁵							
With asphaltic adhesives	■		■				
All other applications	■						■
Vinyl sheets or tiles (coated on cork or wood product backings)	■						■
Vinyl sheets or tiles (homogeneous) ⁵							
With chemical-set adhesives ⁶	■			■			
All other applications	■						■
Wall coverings							
Paper, burlap, cloth types		■					■
Vinyl, plastic, wall paper		■					■
Wood floor coverings							
Wood (solid)	■						■
Engineered wood flooring	■					■	
Plastic laminate flooring	■					■	
Wood composition blocks, laid in cement mortar	■					■	
Wood composition blocks, dipped and laid in hot pitch or bitumen	■					■	

Notes*:

- 1 Unfilled concrete block cells can create a reservoir that can hold water following a flood, which can make the blocks difficult or impossible to clean if the floodwaters are contaminated.
- 2 Borate preservative-treated wood meets the NFIP requirements for flood damage-resistance; however, the borate can leach out of the wood if the material is continuously exposed to standing or moving water.
- 3 Not recommended in areas subject to salt-water flooding.
- 4 Examples of decay-resistant lumber include heart wood of redwood, cedar, and black locust. Refer to Section 2302 of the International Building Code® (IBC®) and Section R202 of the International Residential Code® (IRC®) for guidance.
- 5 Using normally specified suspended flooring (i.e., above-grade) adhesives, including sulfite liquor (lignin or "linoleum paste"), rubber/asphaltic dispersions, or "alcohol" type resinous adhesives (culmar, oleoresin).
- 6 Examples include epoxy-polyamide adhesives or latex-hydraulic cement.

* In addition to the requirements of TB 2 for flood damage resistance, building materials must also comply with any additional requirements of applicable building codes. For example, for wood products such as solid 2x4s and plywood, applicable building code requirements typically include protection against decay and termites and will specify use of preservative-treated or decay-resistant wood for certain applications. Applications that require preservative-treated or decay-resistant species include wood in contact with the ground, wood exposed to weather, wood on exterior foundation walls, or wood members close to the exposed ground. In some cases, applicable building code requirements (such as those in ASCE 24-05 and IRC 2006) do not reflect updated guidance in TB 2 and specify that all wood used below the design flood elevation be preservative-treated or naturally decay-resistant regardless of proximity to ground or exposure to weather. (Revision made in October 2010)

Fasteners and Connectors

The term "fasteners" typically refers to nails, screws, bolts, and anchors. The term "connectors" typically refers to manufactured devices used to connect two or more building components. Joist hangers, post bases, hurricane ties and clips, and mud-sill anchors are examples of connectors. Fasteners and connectors are materials and thus must be made of flood damage-resistant materials in order to comply with the NFIP requirements.

Table 2 does not specifically address fasteners and connectors. However, it is clear that the performance of buildings that are exposed to flooding is, at least in part, a function of the fasteners and connectors used to put the components together.

When preservative-treated woods are used, particular attention is required for fasteners and connectors because some treatments are more corrosive than others, which could shorten the service life of the fasteners and connectors. For example, alkaline copper quaternary (ACQ) treatments are more corrosive than traditional acid copper chromate (ACC) treatments. If corrosion occurs, buildings are less likely to withstand flood loads and other loads. Fasteners and connectors made of stainless steel, hot-dipped zinc-coated galvanized steel, silicon bronze, or copper are recommended for use with preservative-treated wood.

Specifications for fasteners and connectors used in buildings in SFHAs are in ASCE 24, a standard referenced by the IBC. Chapter 23 of the IBC has specific requirements for connections and fasteners used with wood, including preservative-treated wood. Similar specifications are in Chapter 3 of the IRC.

This Technical Bulletin, consistent with ASCE 24 and the International Code Series, recommends that stainless steel or hot-dip galvanized fasteners and connectors be used below the BFE in both inland (noncorrosive) and coastal (corrosive) areas. In coastal environments where airborne salts contribute to corrosion, it is recommended that corrosion-resistant fasteners and connectors be used throughout the building where they may be exposed. For

additional guidance, see Technical Bulletin 8, *Corrosion Protection for Metal Connectors in Coastal Areas*. Also see TPI/WTCA *Guidelines for Use of Alternative Preservative Treatments with Metal Connector Plates* for further guidance on metal plate connected wood trusses manufactured with preservative treated lumber (<http://www.sbcindustry.com/images/PTWGuidelines.pdf>).

Construction Examples

Buildings in Zones A, AE, A1-A30, AR, AO, and AH

Figure 1 illustrates a solid foundation wall (crawlspace) elevated to meet the minimum requirement that the lowest floor be at the BFE. Figure 2 illustrates framed walls that may be used for enclosures below the BFE that are used for parking of vehicles, building access, and storage.

To maximize allowable use of enclosures below the BFE, it is a common practice to extend the foundation a full story, even though that puts the lowest floor well above the BFE. In such cases, while the NFIP requirement is that flood damage-resistant materials be used only below the BFE, it is strongly recommended that such materials be used for all construction below the lowest floor. This will reduce flood damage to the enclosed area in the event flooding exceeds the BFE. For additional guidance on enclosures in A zones, see Technical Bulletin 1, *Openings in Foundation Walls and Walls of Enclosures Below Elevated Buildings in Special Flood Hazard Areas*.

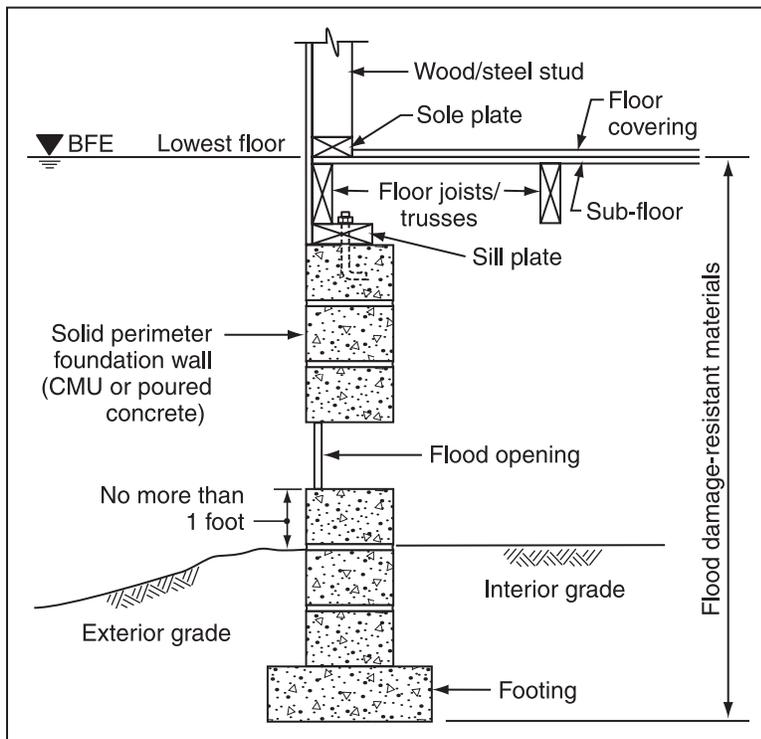


Figure 1. Building elevated on solid foundation walls meeting the minimum NFIP requirements for Zones A, AE, A1-A30, AR, AO, and AH

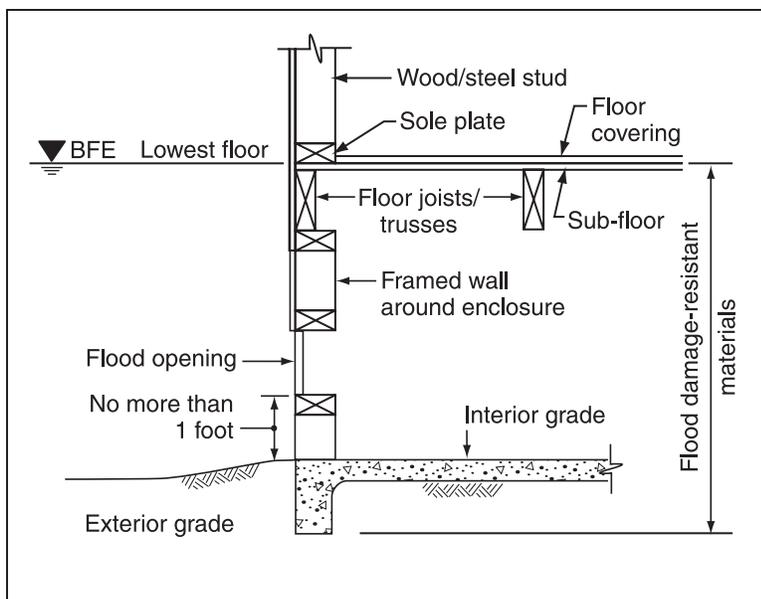


Figure 2. Framed enclosure under building elevated in accordance with NFIP requirements for Zones A, AE, A1-A30, A0, and AH

Buildings in Zones V, VE, and V1-V30

The NFIP regulations require that the bottom of the lowest horizontal structural member of the lowest floor (usually the floor beam or girder) of buildings in Zones V, VE, and V1-V30 be at or above the BFE. Therefore, all materials below the bottom of those members must be flood damage-resistant materials. This requirement applies to lattice work and screening, and also to materials used to construct breakaway walls that enclose areas below the lowest floor. Depending on the design parameters selected, breakaway walls may remain in place during low-level floods and must be flood damage-resistant so that they can be readily cleaned and not deteriorate over time due to wetting. Figure 3 illustrates the requirement. For additional guidance on breakaway walls used to enclose areas under buildings in V zones, see Technical Bulletin 9, *Design and Construction Guidance for Breakaway Walls Below Elevated Coastal Buildings*.

Additional Uses of Flood Damage-Resistant Materials

Accessory Structures

Accessory structures may be allowed in SFHAs provided they are located, installed, and constructed in ways that comply with NFIP requirements. Some communities allow accessory structures that are limited to the uses specified for enclosures below the BFE: parking of vehicles and storage. As with other buildings, accessory structures below the BFE are required to be constructed with flood damage-resistant materials. In addition, accessory structures must be anchored to resist flotation, collapse, and lateral movement and comply with other requirements based on the flood zone. For additional information and requirements, contact the appropriate community permitting office.

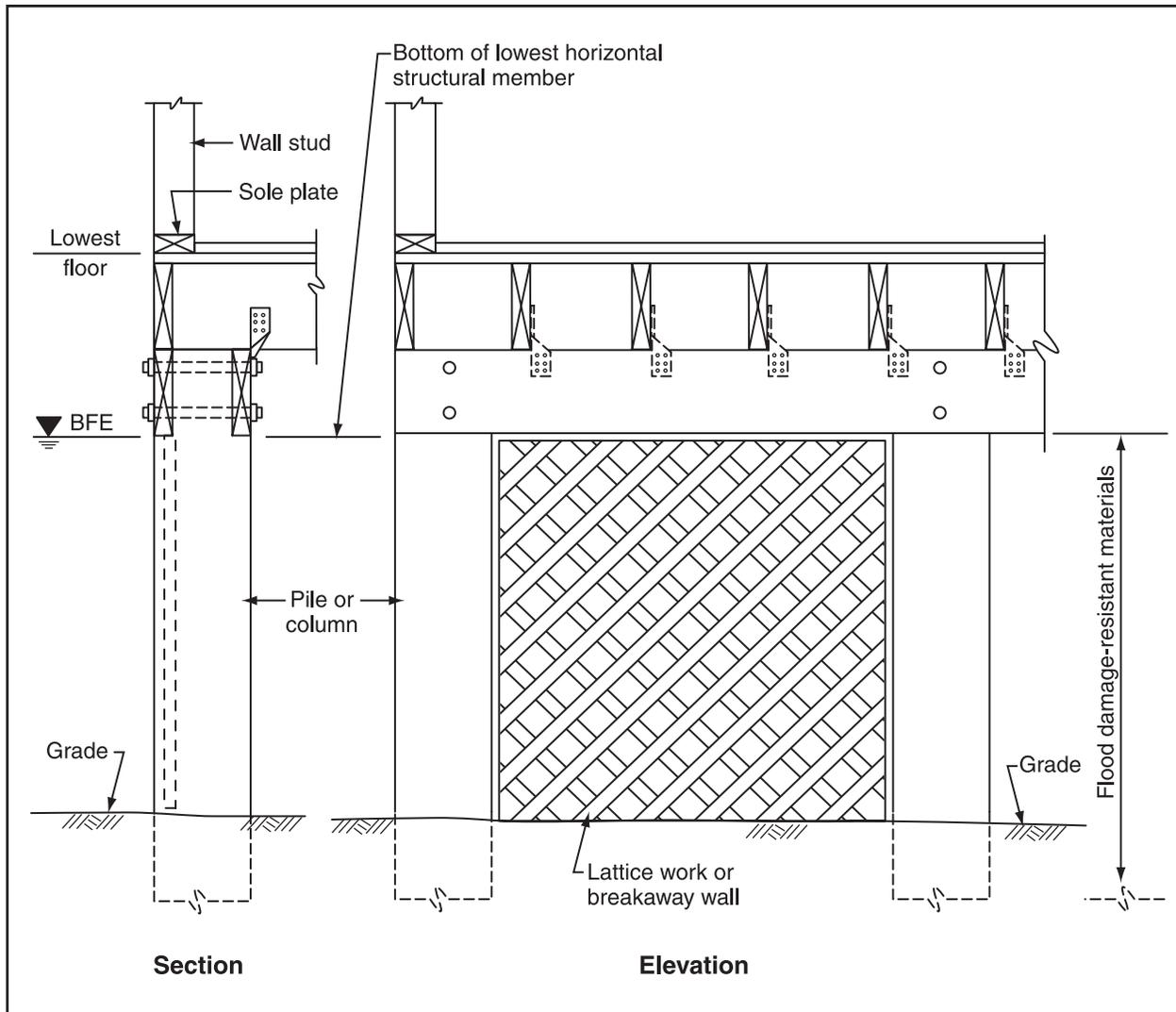


Figure 3. Flood damage-resistant building material requirements for buildings elevated in accordance with NFIP requirements for Zones V, VE, and V1-V30

Wet Floodproofing

Wet floodproofing is a method to reduce damage that typically involves three elements: allowing floodwaters to enter and exit to minimize structural damage, using flood damage-resistant materials, and elevating utility service and equipment. When a building is retrofitted to be wet floodproofed, non-flood damage-resistant materials that are below the BFE should be removed and replaced with flood damage-resistant materials. This will reduce the costs of repair and facilitate faster recovery.

Wet floodproofing is not allowed in lieu of complying with the lowest floor elevation requirements for new residential buildings (or dry floodproofing of nonresidential buildings in A zones). The exception is accessory structures, as noted on the previous page. Wet floodproofing may also be used to voluntarily retrofit buildings that are older than the date of the community's first FIRM (commonly referred to as "pre-FIRM"), provided the requirement to

bring such buildings into compliance is not triggered (called “substantial improvement”). Figure 4 illustrates some suggested retrofitting of interior walls in a pre-FIRM building. However, please note that the techniques illustrated in Figure 4 cannot be used to bring a substantially damaged or substantially improved building into compliance with the NFIP. For additional information on wet floodproofing, see Technical Bulletin 7, *Wet Floodproofing Requirements*.

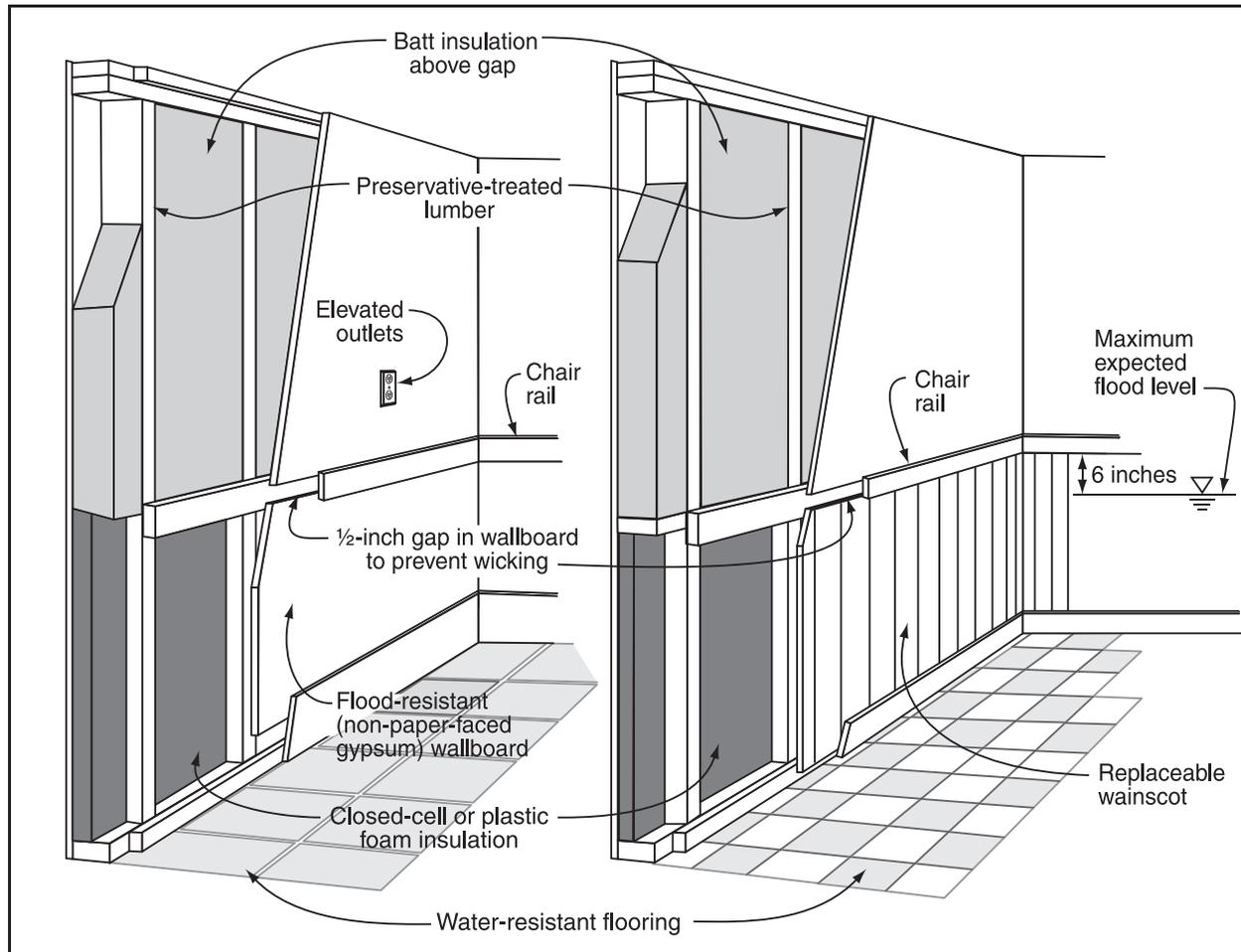


Figure 4. Partial wet floodproofing technique using flood damage-resistant materials for finished wall construction.

Buildings Outside of SFHAs

FEMA reports that up to 25 percent of NFIP flood insurance claims are paid on buildings that are outside of the mapped SFHA. This occurs for many reasons, including out-of-date maps and local drainage problems. In areas known to be prone to flooding that are not subject to the NFIP requirements, it is recommended that flood damage-resistant materials be used for construction of new buildings and for repair or renovation of existing buildings. Figure 4 illustrates some options.

The NFIP

The U.S. Congress established the NFIP with the passage of the National Flood Insurance Act of 1968. The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as protection against flood losses, in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the NFIP is based on an agreement between communities and the Federal Government. If a community adopts and enforces adequate floodplain management regulations, FEMA will make flood insurance available within the community.

Title 44 of the U.S. Code of Federal Regulations contains the NFIP criteria for floodplain management, including design and construction standards for new and substantially improved buildings located in SFHAs identified on the NFIP's FIRMs. FEMA encourages communities to adopt floodplain management regulations that exceed the NFIP criteria. As an insurance alternative to disaster assistance, the NFIP reduces the escalating costs of repairing damage to buildings and their contents caused by floods.

NFIP Technical Bulletins

This is one of a series of Technical Bulletins that FEMA has produced to provide guidance concerning the building performance requirements of the NFIP. These requirements are contained in Title 44 of the U.S. Code of Federal Regulations at Section 60.3. The bulletins are intended for use by State and local officials responsible for interpreting and enforcing the requirements in their floodplain management regulations and building codes, and by members of the development community, such as design professionals and builders. New bulletins, as well as updates of existing bulletins, are issued periodically, as necessary. The bulletins do not create regulations; rather, they provide specific guidance for complying with the requirements of existing NFIP regulations. Users of the Technical Bulletins who need additional guidance should contact their NFIP State Coordinator or the appropriate FEMA regional office. *The User's Guide to Technical Bulletins* (<http://www.fema.gov/pdf/fima/guide01.pdf>) lists the bulletins issued to date.

Ordering Technical Bulletins

The quickest and easiest way to acquire copies of FEMA's Technical Bulletins is to download them from the FEMA website (<http://www.fema.gov/plan/prevent/floodplain/techbul.shtm>).

Technical Bulletins also may be ordered free of charge from the FEMA Distribution Center by calling 1-800-480-2520, or by faxing a request to 1-240-699-0525, Monday through Friday between 8 a.m. and 5 p.m. EST. Please provide the FEMA publication number, title, and quantity of each publication requested, along with your name, address, zip code, and daytime telephone number. Written requests may be submitted by email to: FEMA-Publications-Warehouse@dhs.gov

Further Information

The following publications provide further information concerning the use of flood damage-resistant materials.

Algan, H. and Wendt, R. 2005. *Pre-Standard Development for the Testing of Flood-Damage-Resistant Residential Envelope Systems, Comparison of Field and Laboratory Results - Summary Report*, Oak Ridge National Laboratory, June 2005.

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California Integrated Waste Management Board. 2004. "Recycled Plastic Lumber," California Integrated Waste Management Board, web page, last updated June 22, 2004 (<http://www.ciwmb.ca.gov/Plastic/Recycled/Lumber>).

Department of Energy. 2005. *Energy-Efficient Flood-Damage-Resistant Home Reconstruction*, (http://www.ornl.gov/sci/res_buildings/FEMA-attachments/Flood_damage-reconstruction.pdf).

FEMA. 1991. *Answers to Questions About Substantially Damaged Buildings*, FEMA 213.

FEMA. 1993. *Wet Floodproofing Requirements*, Technical Bulletin 7-93, FIA-TB-7.

FEMA. 1996. *Corrosion Protection for Metal Connectors in Coastal Areas*, Technical Bulletin 8-96, FIA-TB-8.

FEMA. 2000. *Coastal Construction Manual*, FEMA 55CD (3rd edition).

FEMA. 2005. *Home Builder's Guide to Coastal Construction: Technical Fact Sheet Series*, FEMA 499.

FEMA. 2006. *Mitigation Assessment Team Report: Hurricane Katrina in the Gulf Coast*, FEMA 549.

FEMA. 2007. *National Flood Insurance Program: Flood Insurance Manual*, Revised October 2007.

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Simpson Strong-Tie. 2008. *Technical Bulletin: Preservative-Treated Wood*, Simpson Strong-Tie T-PTWOOD08-R, July 2008 (<http://www.strongtie.com/ftp/bulletins/T-PTWOOD08-R.pdf>).

TPI/WTCA. 2004. *TPI/WTCA Guidelines for Use of Alternative Preservative Treatments with Metal Connector Plates*, updated June 4, 2007, (<http://www.sbcindustry.com/images/PTWGuidelines.pdf>).

U.S. Army Corps of Engineers. 1984. *Flood Proofing Systems and Techniques*, U.S. Army Corps of Engineers, December 1984.

U.S. Army Corps of Engineers. 1995. *Flood Proofing Regulations*, Chapters 9 and 10, U.S. Army Corps of Engineers, EP 1165-2-314.

Wood Truss Council of America (WTCA). 2005. *The Load Guide: Guide to Good Practice for Specifying and Applying Loads to Structural Building Components*, (<http://www.sbcindustry.com/loads.php>).

World Floor Covering Association (WFCA). n.d., Anaheim, California (<http://www.wfca.org/index.html>).

Glossary

Accessory structure — A structure that is on the same parcel of property as a principal structure, the use of which is incidental to the use of the principal structure.

Base flood — The flood having a 1-percent chance of being equaled or exceeded in any given year, commonly referred to as the “100-year flood.” The base flood is the national standard used by the NFIP and all Federal agencies for the purposes of requiring the purchase of flood insurance and regulating new development.

Base flood elevation (BFE) — The height of the base (1-percent annual chance or 100-year) flood in relation to a specified datum, usually the National Geodetic Vertical Datum of 1929, or the North American Vertical Datum of 1988.

Basement — Any area of a building having its floor subgrade (below ground level) on all sides.

Enclosure or enclosed area — Areas created by a crawlspace or solid walls that fully enclose areas below the BFE.

Federal Emergency Management Agency (FEMA) — The Federal agency that, in addition to carrying out other activities, administers the National Flood Insurance Program.

Federal Insurance and Mitigation Administration (FIMA) — The component of FEMA directly responsible for administering the flood hazard identification and floodplain management aspects of the NFIP.

Flood Insurance Rate Map (FIRM) — The official map of a community on which FEMA has delineated both the special flood hazard areas (SFHAs) and the risk premium zones applicable to the community.

Floodprone area — Any land area susceptible to being inundated by floodwater from any source.

Lowest floor — The lowest floor of the lowest enclosed area of a building, including a basement. Any NFIP-compliant unfinished or flood-resistant enclosure usable solely for parking of vehicles, building access, or storage (in an area other than a basement) is not considered a building's lowest floor, provided the enclosure does not render the structure in violation of the applicable design requirements of the NFIP.

Registered Design Professional — An individual who is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws of the State or jurisdiction in which the project is to be constructed.

Special Flood Hazard Area (SFHA) — An area delineated on a FIRM as being subject to inundation by the base flood and designated as Zone A, AE, A1-A30, AR, AO, AH, A99, V, VE, or V1-V30.

Substantial damage — Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. Structures that are determined to be substantially damaged are considered to be substantial improvements, regardless of the actual repair work performed.

Substantial improvement — Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure (or smaller percentage if established by the community) before the “start of construction” of the improvement. This term includes structures that have incurred “substantial damage,” regardless of the actual repair work performed.