

**CITY OF MALIBU
FIRE REBUILD —COASTAL ENGINEERING GUIDELINES
(v2. April 23, 2026)**

INTRODUCTION

The City of Malibu Community Development Department has prepared these guidelines to assist property owners in safely and expeditiously rebuilding their fire-damaged properties. This update presents minor clarifications to the prior version and presents a Technical Addendum for wave uprush reports to clarify technical standards for the consultants. This update DOES NOT represent a change in how fire rebuild policies or design standards are applied to beachfront fire rebuilds.

All design requirements are governed by the Malibu Municipal Code (MMC) (primarily sections 15.20, 15.40 and 15.42 for beachfront properties), the Local Area Management Plan (LAMP), Los Angeles County Code Sections 110 and 111, California Building Code, ASCE 24 and FEMA regulations. Malibu has adopted modifications to Zoning Code affecting beachfront rebuilds dated .

Summary of City Council adopted policies and Technical Addendum:

1. Subsequent to Version 1 (published 4-18-2026) of the Coastal Engineering Fire Rebuild Guidelines, City Council has adopted Zoning Fire Rebuild Policies and Codes that adapt Section 17.40.040 Residential Development Standards Section A.5.b which governs minimum required building Finished Floor Elevations (FFE) with respect to wave uprush, specifically for Palisades Fire rebuilds. The minimum design FFE required is governed solely by FEMA Design Flood Elevation (BFE +1), and while wave uprush may inform recommended design elevations, it does not determine the minimum required by the City.
2. An addendum table has been added to clarify the ranges of technical design parameters and recommended design considerations that were developed by the Los Angeles County Coastal Engineering Department in the 1970's, used by the many practicing coastal engineering consultants in preparing wave uprush studies. These standards still apply for fire rebuilds.

To summarize recommended design elevations:

- The minimum design FFE and limitations on allowable height of beachfront homes rebuilt under Planning Verification entitlement (PFPF) are governed by the adopted Malibu City Council [Rebuild Policies](#) of October 2025. Only FEMA flood regulations will apply to the primary structure, as required by federal law. Wave uprush studies may inform design recommendations for FFE but are not required for the primary structure.
- The design of Onsite Wastewater Systems (OWTS) and Shoreline Protection Devices (SPD) are governed by Malibu Municipal Code Chapter 15 (which requires coastal engineering reports), the LAMP and wave uprush elevations govern the design of these elements. Although a wave uprush report is required for this development, no additional sea level rise requirements will be imposed by the City. Instead positions and elevations of these understructure elements will be at the recommendation of the applicant's stamped coastal engineering report and reviewed by the City for conformance with the LAMP and the MMC. This is in line with the adopted Rebuild Policies linked above.

- Effectively the minimum design elevations for the primary structure (FFE) and the understructure (OWTS and SPD) are governed by 2 different standards. Where recommended and minimum design elevations conflict, the Community Development Department may consider modifications on a case-by-case basis.

COASTAL ENGINEERING REPORTS FOR BEACHFRONT PROPERTIES 4-21-26 (v2.)

For all beachfront property rebuilds, a Coastal Engineering report is required that conforms to the City of Malibu *Guidelines for the Preparation of Coastal Engineering Reports* and applicable sections of the Codes listed above. In addition, the following limitations and restrictions apply for beachfront fire rebuilds:

- If the property has an existing seawall that is NOT damaged, and is proposed to be re-used as is, the seawall must be demonstrated to be adequate to serve the structures it is intended to protect through for a specified time frame as determined through an assessment conducted by a structural and coastal engineer.
- If the property has an existing shoreline protection device that is damaged and proposed to be repaired and reused, a Coastal Engineering or Structural Evaluation of the existing ~~seawall~~ shoreline protection device must be performed in accordance with the City of Malibu's guidelines, Foundation Feasibility report for Fire Damage Structures or other applicable standards. The repair or modification must bring the structure into conformance with current code.
- All projects must conform to FEMA Floodplain requirements as codified in the Malibu Municipal Code, including Appendix G of the California Building Code – Flood Resistant Construction.
- No timber piles are allowed to be used or reused for any structure.
- Foundations for seawalls in FEMA VE Zones shall not be structurally connected to structural support for the house.

Applicable Code Sections

While the Governor's Order suspends Fire Rebuilds from the City's Local Coastal Program, this suspension of the Coastal Act does not allow for to the Building Code or the Malibu Municipal Code to be waived, specifically the following sections related to both buildings and onsite wastewater treatment systems on the beachfront:

1. 15.40.110 Shoreline Protection Devices, <https://ecode360.com/44336047> and
2. 15.42.030 Siting criteria, <https://ecode360.com/44336095> (has setback Table **15.42.030(E)**)
3. 15.42.140 OWTS. <https://ecode360.com/44336287>
4. 15.20.150 Coastal high Hazard Areas (Zone VE). <https://ecode360.com/44335784>
5. California Building Code (2022 or latest adopted edition) Appendix G Flood Resistant Construction.

Coastal Engineering Report Requirements(See links under References below).

- City of Malibu codes and guidelines for beachfront parcels—and OWTS standards require a coastal engineering report (wave uprush study) to determine that the proposed structures meet the building code and MMC.
- The coastal engineering report must be prepared by a California licensed civil engineer specializing in coastal engineering. Engineers qualified to prepare these reports are governed by Professional Engineers Act (*Business and Professions Code §§ 6700 – 6799*) and the accompanying *Board Rules and Regulations Relating to the Practices of Professional Engineering and Professional Land Surveying (California Code of Regulations, Title 16, Division 5 §§ 400-476)*.
- Reports must conform to the adopted Guidelines for Preparation of Coastal Engineering Reports (2014).

- It is recommended that potential impacts due to Sea Level Rise be evaluated in the wave uprush analyses, but sea level rise is not required to be included by the City. For reference, the current California Coastal Commission Guidelines recommend the use of Intermediate to High Sea level rise, where feasible, but indicate Intermediate is acceptable to evaluate sea level rise impacts.
- For Fire Rebuilds, it is recommended but not required that both Intermediate and Intermediate to High Sea Level Rise scenarios should be evaluated for a 100-year period from the time a project is anticipated to be complete, based on Table F-11-- Sea Level Scenarios for Santa Monica in the CCC 2024 Guidance. However, less than the 100-year period may be allowable depending on the findings in the coastal engineering report as determined by the Malibu City Council Rebuild Policies.
- Intermediate sea level rise has been accepted for use in design provided there are feasible future adaptations to the structure or on the property to mitigate greater sea level rise, should it occur.
- All reports should include recommendations for inspection and monitoring of the Shoreline Protection Device.

The Building Code and the policy and guidelines that address implementation of the code are about life safety and protection of property. In the event that there is a section of the code that requires interpretation, all final decisions rest with the Building Official.

Governors Executive Orders

The guidelines are intended to address the Governor's Executive Orders and include the Council Rebuild Policies (while also ensuring adherence adopted Building Codes which is not waived by the Governor or the Council) to allow affected property owners to quickly rebuild their fire-damaged structures. The Executive Order regarding construction of ADUs may be limited by other codes and regulations.

Code and Policy References

City of Malibu, *GUIDELINES FOR THE PREPARATION OF COASTAL ENGINEERING REPORTS AND PROCEDURES FOR REPORT SUBMITTAL*

<https://www.malibucity.org/DocumentCenter/View/5600/Coastal-Engineering-Guidelines?bidId=>

Malibu Municipal Code <https://ecode360.com/44342329>

Regulations, Policies & Guidelines for Rebuilding, <https://maliburebuilds.org/regulations-policies-guidelines-for-rebuilding/>

TECHNICAL ADDENDUM – Coastal Engineering Technical Parameters

The purpose in providing this addendum is to clarify design parameters and provide technical background for coastal engineering reports prepared by consultants, and minimum standards against which the reports will be reviewed. The technical parameters used by practicing coastal engineers in the County of Los Angeles, and the City of Malibu, were developed in the 1980s by the County (principally John Hale, PE) and published in July 1983 as the Beachfront Construction Policy for the Malibu Regional Office of Los Angeles County Engineer-Facilities. That policy specified the technical parameters used in coastal engineering reports required under the section Bulkhead Design and Construction, performed in accordance with the Shoreline Protection Manual (SPM) prepared by United States Army Corps of Engineers Coastal Engineering Research Center (USACE-CERC, 1984).

While the SPM has been updated and republished as the Coastal Engineering Manual (CEM) in April 2002, the methodologies for evaluating wave uprush are the same. The development of the technical parameters were documented in peer-reviewed papers (referenced below) published between 1974 and 1983. Subsequent documentation of the effects the coastal storms experienced in 1983 and 1988 also inform the recommended technical parameters. Other technical design parameters may be analyzed, and in the future these standards may be re-evaluated and updated in a comprehensive manner, however these parameters have proven successful for the last 50 years.

In addition to these parameters, standard practice is now to include sea level rise based on NOAA’s *Global and Regional Sea Level Rise Scenario’s for the United States* (February 2023) as adopted by the State of California Ocean Protection Council in the *Sea Level Rise Guidance, 2024 Science and Policy Update* (November 2024). Although these standards typically require full review of sea level rise scenarios, the coastal engineering guidelines have been crafted to meet the policies adopted by the Malibu City Council and the Executive Orders of the Governor of California to expedite fire rebuilds.

Coastal Engineering Design Technical Parameters for Fire Rebuilds⁽¹⁾

Design Parameter	Recommended Values	Comments
Elevations	All elevations shall be presented in NAVD88.	Required by Malibu Municipal Code.
Design Wave Heights and periods	H’o= 9.3 to 11.7 foot wave, 10s period H’o= 2.3 to 3.3 foot wave, 18s period	LA County standards
Design Tide	<ul style="list-style-type: none"> 6 ft MLLW minimum 	Can be adjusted in conjunction with storm surge and sea level rise to achieve reasonable Design Still Water Level.
Storm Surge	<ul style="list-style-type: none"> 0 to 1 ft 	Can be adjusted in conjunction with tide and sea level rise to achieve reasonable Design Still Water Level. Generally speaking, storm surge is not significant.
Design beach profile⁽²⁾	<ul style="list-style-type: none"> LA County Beach profiles Fugro Survey 2001, 2005 (reoccupied AL County profiles) FEMA 2012 Transects (as applicable) 	Order of preference, consider documentation and proximity of data.
Maximum scour depth	4 to 10 feet depending on beach and storm conditions	Consider beach composition and presence of cobble layers

Sea Level Rise ⁽³⁾	Evaluate at 40 and 100 yrs, conditions, and potential impacts	Should reference Santa Monica as representative. If using Santa Barbara, provide rationale.
Rock Revetment Design	<ul style="list-style-type: none"> Rock Revetment SPD analysis and design should use a minimum friction value of "r" = 0.50 to 0.55 per Table 7-2 of the SPM. Rock Revetment Face shall not have a steeper slope than 1-1/2 Horizontal to 1 Vertical (1.5 H : 1.0 V). 	Reference Army Corps of Engineers Shore Protection Manual, Table 7-2.

Notes:

⁽¹⁾Adopted from the standards developed by Los Angeles County Coastal Engineering Division as defined in the Beachfront Construction Policy adopted July 1983. Because the coastal fire rebuilds are primarily along the eastern 4.5 miles of Malibu, the variation in wave conditions is not expected to be significant. Additionally, consultants should consider weighted or factored probabilities when selecting parameters.

⁽²⁾ **Beach Profile Information:** The City is in the process of gathering all the beach profile data to make available to all coastal engineering consultants. Documented survey data that can be referenced to current survey data is preferable over more recent but poorly documented or secondary data. Over the years various agencies have obtained this information in both hard copy and digital format, and the City has only been provided a limited data set or none at all.

- Older LA County Beach Profiles are available in existing coastal engineering reports on file in OnBase.
- In 2001 and 2005 , under contract to USACE, Fugro Survey reoccupied LA County beach stations and profiles were resurveyed. This information is not readily available at this time, and the City is in the process of trying to obtain these surveys in simple digital format.
- 2012 FEMA Transects are infrequent and do not cover all beach conditions or typical profiles. They are not readily available or in a format that is easily geo-referenced.
- Offshore LiDAR data is available for 2012 and later but requires data processing and geo-referencing.
- Where beach profile data is limited or not available, coastal engineers may use the method of predicting erosion and foreshore slope movement based documented by John Hale, FASCE, LA County Coastal Engineering Section in *Coastal Sediments, Los Angeles County* (Coastal Sediments, ASCE, 1977), pp. 461-474. This method is based on use of Historical Mean High Tide Line (MHTL) data from surveys, maps, and photographs to determine past Historical Beach Foreshore Slope locations in the statistical determination of the Design Beach Profile.

⁽³⁾**Sea Level Rise and adaptive strategies:** Recommended design elevations based on sea level rise less than 100 years must be accompanied by adaptive recommendations, and conditions that trigger implementation. Recommendations should be incorporated into the Shoreline Protection Monitoring program.

Technical References

Armstrong, George, and Reinhard Flick (1989). *Storm Damage Assessment for the January 1988 Storm Along the Southern California Shoreline* in Shore and Beach, October 1989, pp. 18-34.

Hale, John S. (1974). *Wave Statistics for Surfzone Structures* in Proceedings of the International Symposium on Ocean Wave Measurement and Analysis, Vol1, September 9-11, 1974, pp. 454-466, ASCE.

Hale, John S. (1975). *Modeling the Ocean Shoreline* in Shore and Beach, Journal of the American Shore and Beach Preservation Association, Vol. 43, No.2, pp. 35-41.

Hale, John S. (1977). *Coastal Sediments, Los Angeles County* in *Coastal Sediments '77*, pp. 460-475, ASCE.

Hale, John S. (June 1983). *Coastal and Ocean Management* in *Coastal Zone '83* (vol. III), Proceedings of the Third Symposium on Coastal and Ocean Management, pp. 2387-2400, ASCE.

National Research Council. 1984. *California Coastal Erosion and Storm Damage During the Winter of 1982-83: A Reconnaissance Report*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/19391>.

State of California Sea Level Rise Guidance, 2024 Science and Policy Update

<https://documents.coastal.ca.gov/assets/slr/guidance/2024/2024AdoptedSLRPolicyGuidanceUpdate.pdf>