Chautauqua Hall

Building Assessment

162 16th Street, Pacific Grove, California 93950

FINAL

January 18, 2024

WJE No. 2019.2238.0

PREPARED FOR:

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PREPARED BY:

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INTRODUCTION

Chautauqua Hall, located at 162 16th Street in Pacific Grove, California, is a historic wood-framed community meeting hall built in 1881. In 1970 it was listed as California Registered Historical Landmark No. 839 and is currently owned and managed by the City of Pacific Grove and rented out for classes, events, and used by the Boy Scouts.

The City of Pacific Grove (City) engaged Wiss, Janney, Elstner Associates, Inc. (WJE) to provide a building assessment of Chautauqua Hall. The intent of this assessment is to provide initial guidance for consideration when planning for maintenance and future use, including potential interior improvements.

This building assessment is divided into four parts that build upon each other. The first part contains our observations and condition assessment of the building. WJE contracted Asbuilt Services to perform a site visit on July 19, 2023, to document overall dimensions and layout of the property. WJE followed Asbuilt Services with our own site visit on August 23, 2023, to document the building and perform a visual condition survey. Our observations and condition assessment considered the exterior walls, roofs, windows, and doors, as well as primary interior spaces and features of significance. Our survey and assessment also addressed visible and accessible components of the structural systems, which were examined from the exterior and interior. Civil, mechanical, plumbing, electrical, fire protection, life safety issues, and accessibility for the buildings were not included in the assessment.

Following our observations and condition assessment is a historical evaluation that summarizes Chautauqua Hall's significance and chronological history. This information is then used in conjunction with the building observations to develop a list of character-defining features of the building.

A limited structural evaluation then provides an assessment and conceptual-level recommendations for the existing structural systems.

The data outlined in these three parts culminates in the recommendations section, which includes a recommended treatment approach and specific treatment items for architectural elements and structural strengthening.

PHYSICAL DESCRIPTION AND CONDITION ASSESSMENT

Chautauqua Hall is a one- and two-story, wood-framed community meeting hall (Figure 1 and Figure 2). It is rectangular in plan, measuring approximately 112 feet by 50 feet and separated into two main volumes: the main hall to the east and ancillary rooms to the west. The primary entrance is located on the east facade. The west facade has two entry porches leading to ancillary rooms. There are two additional minor entrances on the south facade, and one on the north. The building is supported by cripple walls on concrete footings. The walls are clad with painted wood board and batten siding. There are two main roof volumes. The roof of the main hall is a simple gable running east west. The roof of the ancillary rooms is lower than the main hall and is primarily gabled with a partial hipped roof at the west end. There is a lower shed roof covering the west porches. The roofs of the main hall and ancillary spaces has 3-foot overhangs with open eaves, and the roofing material is asphalt shingles.

Figure 1. East facade of Chautauqua Hall (photo taken in 2019).

Figure 2. West facade of Chautauqua Hall (photo taken in 2019).

The interior of the main hall is a double-height space, approximately 18 feet 7 inches from the floor to the top of the side walls, with exposed roof framing and partially exposed wall framing. The ancillary rooms consist of a kitchen, two bathrooms, a storage/mechanical room, and two multipurpose rooms at the northwest and southwest corners of the building. The multipurpose rooms open to covered porches to the west. One multipurpose room is used by the Boy Scouts, and the other is currently unoccupied. The kitchen opens to the main hall and to the south. A hallway connects the kitchen, bathrooms, storage/mechanical room, and multipurpose rooms. Above the kitchen and bathrooms is a split-level mezzanine used by the Boy Scouts. It is accessed by two sets of stairs: one in the main hall and the second leading from the hallway.

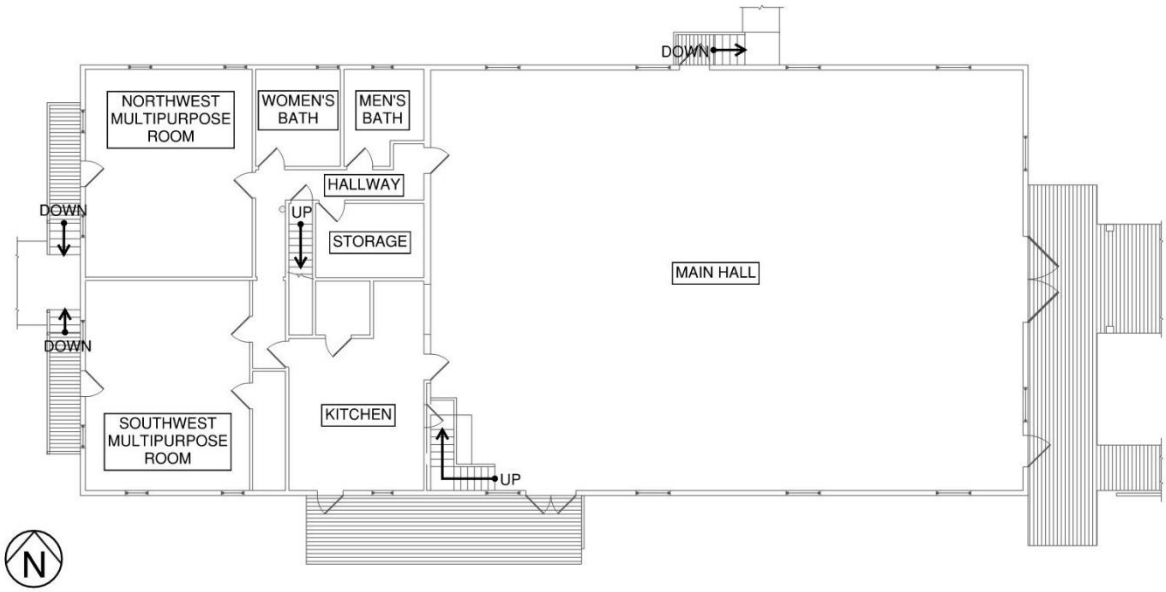

Figure 3. Existing first-floor plan.

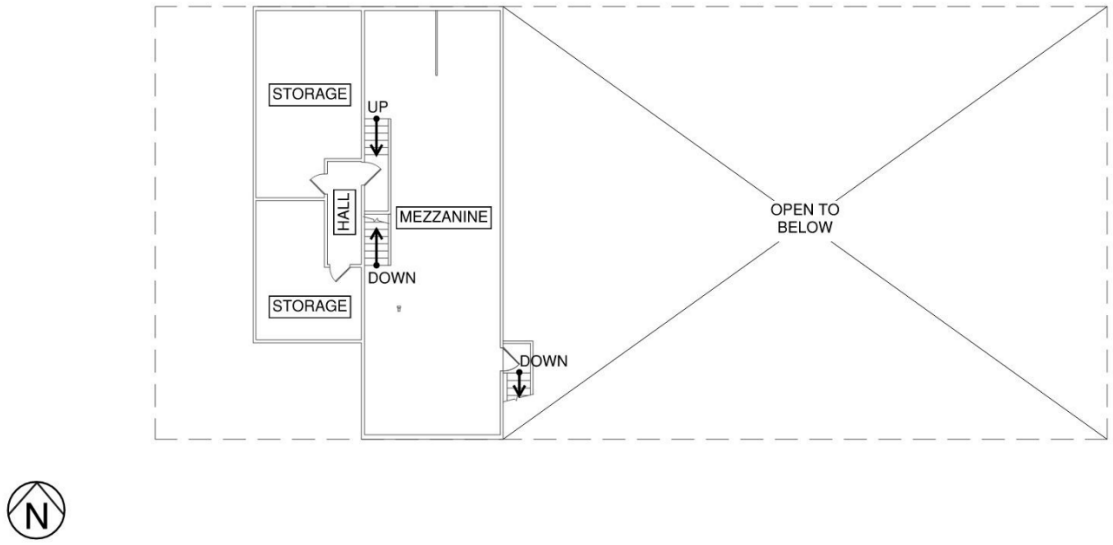

Figure 4. Existing mezzanine plan.

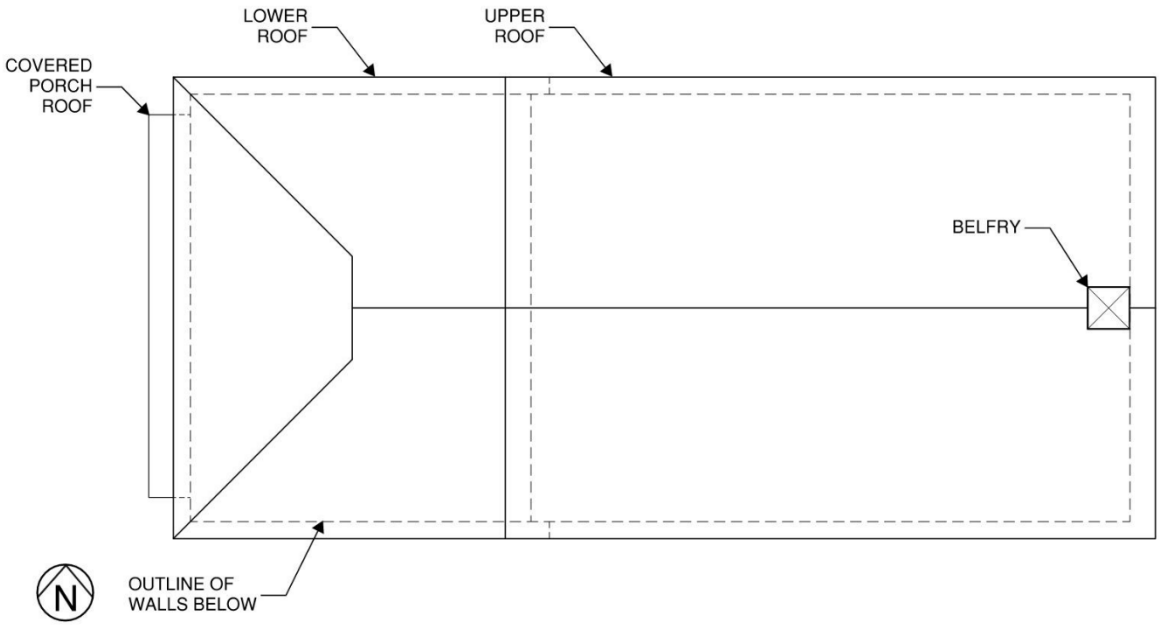

Figure 5. Existing roof plan.

Site, Porches, and Decks

Site

Chautauqua Hall is located on a site sloping down towards Central Avenue to the north. There is a short, site retaining wall, separate from the building, to the south of the main hall constructed from railroad ties and metal spikes (Figure 6).

WJE observed the following site conditions:

- The site appears to slope down to the south face the building.
- One of the retaining wall timbers has rotated inward and another is displaced (Figure 6).

Figure 6. View of the short retaining wall along the south facade of the main hall. Note also the rotated and displaced retaining wall timbers (arrows).

Porches and Decks

The main, east entrance is accessed from the sidewalk by a low, partially painted, wood deck constructed from 2x6 boards (Figure 7). The deck is supported by 2x4 joists spaced at 16 inches on-center and a ledger

at the building's east cripple wall. The eastern edges of the deck appear to be supported by a short concrete foundation wall (Figure 8). The northern edge of the deck is protected by a wood guard rail (Figure 9). The southwest edge of the deck is elevated above grade by 20 inches. While the regular code does not require edge protection at this height, a wood bulletin board has been installed along the elevated edge (Figure 10).


Figure 7. East entrance deck.


Figure 8. View of framing and foundation beneath the east deck.


Figure 9. Wood guard rail at the north edge of the east deck. Note the paint remnants at the deck boards closest to the building.


Figure 10. The back face of a bulletin board at the exposed edge at the southwest corner of the east deck.

Another low, wood deck along the south facade provides access from emergency exits from the main hall and the kitchen to grade (Figure 11). It is constructed from painted 2x6 boards. The deck is supported by 2x4 joists spaced at 16 inches on-center that are supported on a 6x10 beam to the north and a short

concrete foundation wall to the south (Figure 12). The south edge of the deck is in contact with grade. The east and west edges of the deck are protected by wood guard rails bolted to the deck framing.

Figure 11. View of the south deck.

Figure 12. View of framing and foundations beneath the south deck.

Each of the two west facade entrances are accessed by their own painted, wood porches (Figure 13). The porch framing is supported by what are believed to be wood-framed walls with cladding, supported on a short concrete perimeter wall. The wood framing supporting the porches is covered by horizontal wood cladding boards and could not be observed. The walking surface of the porches is constructed from 3 1/8 inch wide tongue and groove boards with solid wood boards at stair treads. The exposed edges of the stairs and porches have wood cross-braced guardrails. A shed roof protects both porches and is supported by beams spanning between wood posts with corbels.

Figure 13. Example of one of the covered west porches.

There is a small wood landing and stair leading from the north emergency exit of the main hall to grade (Figure 14). The stair and landing are supported by a concrete foundation wall, wood posts, and 2x10 joists (Figure 15). The south edge of the landing is supported by the building's wood-framed cripple wall. The exposed edges of the landing and stair have wood guard rails.

Figure 14. The north landing and stair leading from the main hall.

Figure 15. Framing and foundations beneath the north landing and stair.

WJE observed the following conditions at the decks and porches:

- There are many loose nails and wood boards on the east and south decks that create tripping hazards. The south deck has especially loose/unsupported and severely weathered deck boards creating more dangerous tripping and egress hazards (Figure 16 and Figure 17).
- There is a loose guardrail post at the southernmost west porch, which creates a potential falling hazard (Figure 18).
- There is loose, missing, or peeling paint at painted wood elements (Figure 19). There is significant paint loss on the east and south decks.
- One of the corbels at the top of a post supporting the shed roof over the deck has evidence of localized crushing (Figure 20). The cause could not be determined. WJE probed the wood and did not detect soft material typically found at decayed wood.
- A wood garden fence along the south edge of the east deck has a loose post (Figure 21).
- There is loose skirting trim at the southernmost west porch (Figure 22).


Figure 16. Loose deck board at the south deck.


Figure 17. Sagging deck boards at the south deck.


Figure 18. Porch with loose guard rail post.


Figure 19. Example of loose, flaking, and missing paint at painted wood elements, including walking surfaces.


Figure 20. Crushing at corbel at west porch.


Figure 21. Loose garden wall post (arrow).

Figure 22. Loose skirting trim at a west porch (arrow).

Architectural Systems

Building Envelope

Cladding

The exterior walls of the main hall and ancillary rooms are clad with vertical, painted board and batten siding fastened directly to wood framing (Figure 23). There is no sheathing or weather barrier. The boards are 12 inches wide and 5 feet 10 inches to 10 feet 4 inches tall. The battens are 3 7/8 to 4 1/4 inches wide. The cripple walls are clad with painted horizontal wood boards. There is metal flashing at the water table below the vertical board and batten siding at the cripple wall of the main hall (Figure 24). There is no flashing at the water table of the ancillary rooms (Figure 25).

WJE observed the following conditions at the cladding:

- Less than 6 inches of clearance between the soil and the bottom of wood cladding.
- Missing, weathered, and peeling paint throughout, especially near the base of board and batten walls (Figure 25 and Figure 26).
- Split or damaged boards (Figure 27).
- Soft wood and biological growth at the base of vertical boards, likely caused by prolonged exposure to moisture (Figure 28).
- Carved graffiti.
- Isolated areas of staining from corroded fasteners.

Figure 23. Typical board and batten siding.

Figure 24. Metal flashing (arrow) at water table on south facade of main hall.

Figure 25. No metal flashing at water table along south facade of ancillary spaces (line near top of water table trim is a small wire). Also note the loose and peeling paint.

Figure 26. Example of weathered and peeling paint typical throughout the cladding. Also note the splitting boards.

Figure 27. Example of splitting board and batten cladding.

Figure 28. Example of deteriorating board and batten cladding at base of the wall.

Windows

The windows at the main hall are wood, 8/8 double-hung windows with sash chains (Figure 29). The south windows of the main hall have been replaced and are no longer operable as evident by missing sash chains.

The ancillary rooms have wood, double-hung windows with sashes that vary; some are 6/6, one is 4/1, and others are 1/1 (Figure 30 through Figure 32). Not all the windows are operable, as evident by broken or missing sash cords.

The glass lites of all windows are single pane.

Some sashes have been replaced, likely over multiple repair campaigns, evidenced by varying sash muntin widths. The thinnest muntin width is 5/8 inches wide; these are likely original window sashes. Other muntin widths observed include 3/4 inches and 1 inch wide. Sashes with the thicker muntins are likely replacements. Although not original, the replacements are historically compatible.

WJE observed the following conditions at the windows:

- At the south windows of the main hall:
  - Sashes are in serviceable condition, including intact paint and glazing putty at the sashes (Figure 33).
  - Window sills have missing, weathered, and peeling paint (Figure 33).
- At all other windows:
  - Missing, weathered, and peeling paint is common, especially at window sills and bottom rails of window sashes (Figure 34).
  - Isolated areas of soft, deteriorated wood at window sills (Figure 35).
  - Isolated areas of damaged window sashes (Figure 36).
  - Isolated areas of damaged or missing muntins (Figure 37).
  - Missing or cracked glazing putty is common (Figure 37).
  - Isolated areas of cracked or damaged glass lites (Figure 38).

Figure 29. Original 8/8 double-hung wood window at the main hall.

Figure 30. Original 6/6 double-hung wood window at one of the west multipurpose corner rooms.

Figure 31. A 4/1 double-hung wood window at the men's bathroom.

Figure 32. 1/1 double-hung wood window found at ancillary spaces.

Figure 33. A south window of the main hall in serviceable condition with peeling paint at sills.

Figure 34. Deterioration and peeling paint at bottom rails of sashes and at window sills.

Figure 35. Example of isolated areas of wood deterioration at wood sills.

Figure 36. Example of damaged window sash.

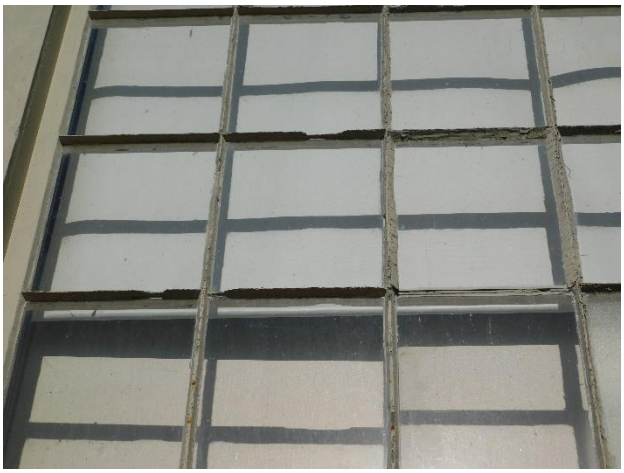

Figure 37. Example of damaged or missing muntins. Note also the cracked and missing glazing putty.

Figure 38. Example of cracked window lite (arrow).

Exterior Doors

The typical exterior doors are wood framed-and-braced doors or framed-and-ledged doors (Figure 39 and Figure 40). The exceptions are the exit doors of the main hall which are flush doors with exterior vertical wood boards or board and batten cladding (Figure 41 and Figure 42). These doors also have emergency egress hardware. Although not original, the flush doors of the main hall are historically compatible.

WJE observed the following conditions at exterior doors:

- Missing, weathered, and peeling paint is typical, especially at the bottom of door leaves (Figure 43).
- Areas of soft, deteriorated wood at the bottom of door leaves are typical to exterior doors (Figure 43).
- There is a large visible gap between the double leaf exit doors of the main hall on the south facade (Figure 44). There is no astragal between the doors and daylight is visible through the large gap. This condition can allow air loss and wind-driven rain into the interior spaces of the main hall.
- The large double leaf doors on the east facade (Figure 39) have isolated areas of splitting tongue-and-groove beadboard that have been previously repaired with sealant (Figure 45). The astragal between the doors is partially damaged and daylight is visible between door leaves, which can allow air loss and can allow wind-driven rain into the interior spaces of the main hall.

Figure 39. Example of a framed-and-braced exterior door at the large double-leaf doors on the east facade.

Figure 40. Example of a framed-and-ledged door at the west facade.

Figure 41. Example of a flush door with emergency exit hardware at the main hall.

Figure 42. Exterior view of an emergency exit door at the main hall.

Figure 43. Deteriorated paint and wood boards at the bottom of an exterior wood door.

Figure 44. Daylight between a double-leaf door in the main hall.

Figure 45. Previous sealant repairs at the large-double leaf doors on the east facade. Also note the daylight visible between the stile and the bead boards.

Roofing and Roof Drainage

WJE observed the roof and belfry of the main hall from a ladder at the south facade. WJE could not safely access the north half of the main hall roof from a ladder, so we observed it from grade level with limited, obscured views between leafed-out trees. The north half of the main hall roof was reportedly replaced in 2022-2023 (see discussion in the Historic Evaluation section). The roof of the ancillary spaces was observed from a ladder from the south, west, and north facades.

The roof of the main hall is asphalt shingles over plywood over skip sheathing, supported by wood rafters and trusses at a slope of approximately 6:12 (Figure 46). WJE could not visually confirm the presence of roofing underlayment. There are painted wood fascia and barge boards at roof edges (Figure 47). Half-round copper gutters along the eaves drain to copper rain leaders (downspouts) (Figure 48). The roof

sheathing and framing is exposed at the interior, and at roof eaves and gable ends (Figure 49). The roof of the ancillary rooms abuts the wall of the main hall and is constructed with similar materials, detailing, and slope (Figure 50).

WJE observed the following conditions at the roofs and roof drainage systems:

- The areas of shingles observed are generally in serviceable condition, with signs of minor weathering and biological growth.
  - There is greater biological growth on the north side of the roof of the ancillary rooms and at shaded areas of the roofs (Figure 51).
  - At the roof over ancillary spaces, the nails of the ridge and hip shingles are exposed and unsealed (Figure 52). The ridge shingles are also lapped unfavorably relative to the prevailing winds.
- Missing, weathered, and peeling paint is common at wood facia, barge boards, and exposed roof sheathing and framing (Figure 53).
- Gutters have several observed conditions:
  - Gutters are filled with debris near overhanging trees (Figure 54).
  - The gutter hangers are fastened through the roof shingles at the eaves and the fasteners are unsealed (Figure 55).
  - There are isolated areas of loose, bent, or detached gutter straps (Figure 56). The gutter straps appear to be fastened to gutter spacers that are not designed with the appropriate thickness, as evident by several bent spacers.
  - There are gutter straps spaced at 48 inches on center which exceeds the current recommended spacing of 12 to 30 inches on center.[1]
  - Rain leaders from the higher main hall roof discharge onto the lower roof of the ancillary spaces adjacent to a side wall. WJE observed a side wall flashing with a kick-out at the north wall (Figure 57) but could not identify one at the south wall (Figure 58).
  - Most of the leaders discharge water directly adjacent to the building's perimeter without directing it away from the building. In some locations, lower sections of leaders may be missing and they terminate a foot or two above grade and expose the building wall to rainwater discharge (Figure 59 and Figure 60).
- One of the large roof vents is missing a cap which exposes it to infiltration from water and debris (Figure 51).

[1] *The NRCA Roofing Manual: Architectural Metal Flashing and Condensation and Air Leakage Control* (Rosemont: National Roofing Contractors Association, 2022), 100.

Figure 46. Condition at the south half of the main hall roof.

Figure 47. Example of painted barge boards at gable ends.

Figure 48. Copper gutters and rain leaders.

Figure 49. Exposed roof eaves, framing, and skip sheathing.

Figure 50. Condition of the roof over ancillary spaces.

Figure 51. Biological growth seen at shaded areas of the roof and a missing cap over the large vent.

Figure 52. Exposed fasteners (arrows) and unfavorable direction of lap of ridge shingles at roof over ancillary spaces.

Figure 53. Example of loose and missing paint at roof framing.

Figure 54. Debris collecting in gutters, exposed and loose fasteners, and bent gutter spacers.

Figure 55. Exposed gutter strap fasteners through roofing and bent gutter spacers (arrow).

Figure 56. Example of loose gutter strap and bent spacer.

Figure 57. Sidewall flashing with kick-out (arrow) at north wall of main hall. Also note the exposed roofing nails at the hip shingles.

Figure 58. Missing kickout flashing at south wall of main hall. Also note the exposed roofing nails at the hip shingles.

Figure 59. Example of typical rain leader discharging adjacent to the building and its foundation.

Figure 60. Example of a rain leader discharging high above grade. Note the greater amount of biological growth, wood deterioration, and paint loss around this area (dashed red line).

Belfry

The belfry, which still houses a bell, is wood framed and clad in painted plywood and wood battens to resemble board and batten siding (Figure 61). Its small, hipped roof is framed with wood and covered with a shingle roof similar to the main hall roof.

WJE was not able to observe the belfry up-close due to the difficulty in accessing it. We observed the following conditions at the belfry from photos taken from a ladder:

- There is missing, weathered, and peeling paint at cladding, facia, and exposed roof sheathing and framing (Figure 62).
- There is significant biological growth on the wood elements of the belfry (Figure 61).

- There is wood deterioration at the base of the belfry (Figure 63).

Figure 61. View of the belfry from the southwest. Note the significant biological growth on the west facade.

Figure 62. Detail view of missing, weathered, and peeling paint.

Figure 63. Detail view of deterioration at the base of the belfry.

Interiors

The main hall's primary entrance is on the east facade. The hall is a large, open room with a small portable stage, long benches along the perimeter walls, and a basketball hoop at each gable end (Figure 64 through Figure 66). The main hall has a hardwood floor with a glossy transparent finish. Most of the wall areas are unfinished with painted, exposed framing and exterior cladding. On the north and south walls, the bottoms of the walls are finished with painted wood boards up to 6 feet tall. On the east and west walls, the bottoms of the walls are finished with painted boards up to 20 feet tall. At the south wall the wood paneling consists of a mix of 3 1/4-inch-wide tongue and groove boards and 7 1/4-inch-wide tongue and groove boards with a V-groove. The roof framing and sheathing is exposed and painted. The ridge beam features a corbel detail at each end (Figure 67). There are four exits to the exterior, and three doors along the west wall leading to the mezzanine, the kitchen, and the hallway to additional ancillary spaces. The windows are 8/8, wood, double-hung windows.

Figure 64. View in the main hall, looking east (photo taken in 2019).

Figure 65. View in the main hall, looking west.

Figure 66. View in the main hall, looking north.

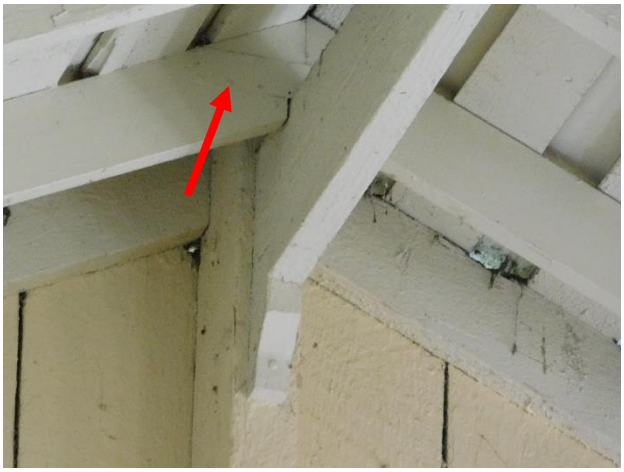

Figure 67. Corbel detail at ends of ridge beam. Also note the strapping at the ridge of the new additional rafters for the reconstructed belfry (arrow).

A stairway at the southwest corner of the main hall leads to a mezzanine-level room used by the Boy Scouts (Figure 68). The door to the main mezzanine level is a painted wood framed-and-ledged door. There are no windows in the main mezzanine level. There are small hatches that provide access to the exterior, under the eaves (Figure 69 and Figure 70). The room is finished with painted wood flooring, painted board and batten wall finishes, and has exposed, painted roof framing and sheathing. There are several ducts from the kitchen that are exposed in the south end of the room (Figure 70). Along the west wall there is a stairway that leads down to the hallway on the first floor and a half-stair that leads up to additional storage rooms over the northwest and southwest multipurpose rooms (Figure 71). At the southwest corner of the main mezzanine there is a small access door to the attic of the hipped roof above the northwest and southwest multipurpose rooms, separate from the additional storage rooms from the main mezzanine.

Figure 68. Stair from the main hall leading to the main mezzanine.

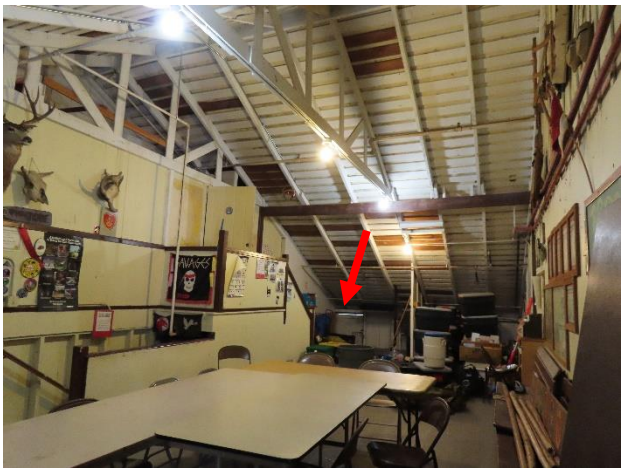

Figure 69. View of main mezzanine looking north. Note the small hatch to the eave (arrow).

Figure 70. View of the main mezzanine looking south. Note the exposed kitchen ventilation ducts. Note the small hatch to the eave (red arrow) and the access door to the attic space above the multipurpose rooms (yellow arrow).

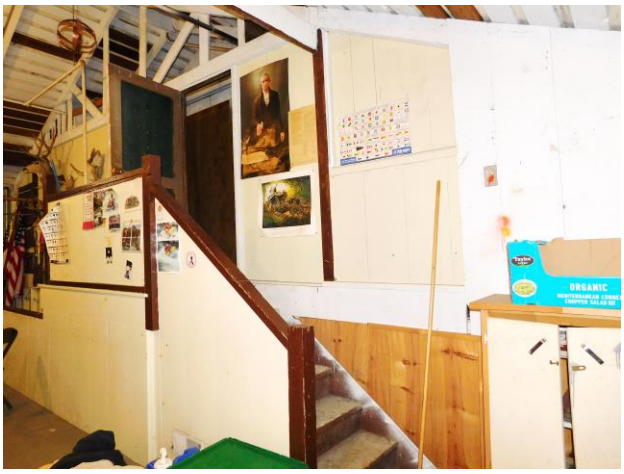

Figure 71. Half-stair leading from the main mezzanine to the mezzanine storage rooms.

North of the stair to the mezzanine on the first floor, in the main hall, is a door leading to a kitchen. Also connecting the main hall to the kitchen is a shuttered pass-through opening (Figure 72). The kitchen is finished with a quarry tile floor and wall base and gypsum board walls and ceiling (Figure 73). There is a door leading to the storage room and a door that exits to the south side of the building. On the south wall there is one 1/1, double-hung wood window that is obscured by kitchen equipment.

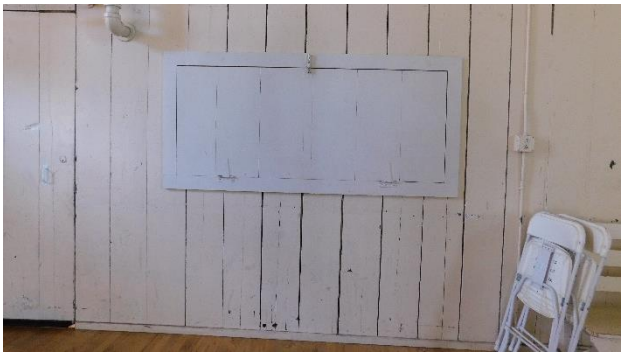

Figure 72. Pass-through between kitchen and main hall, as viewed from the main hall.

Figure 73. View of kitchen looking southeast.

A small central hallway leads from the northwest corner of the main hall to additional ancillary spaces (Figure 74). The hallway is finished with faux-terrazzo sheet flooring, painted wood baseboards, painted board and batten walls, and a painted gypsum board ceiling.

The men's and women's restrooms accessed from the hallway are finished with tile floors, a faux-stone wainscoting, and painted gypsum board walls and ceiling (Figure 75). The doors are painted wood stile-and-rail doors. There is a 4/1, double-hung wood window in the men's restroom and a 1/1, double-hung wood window the women's restroom (Figure 75 and Figure 76). Both windows have a frosted glass light in the lower sash and are partially obscured by the wainscoting.

The storage/mechanical room accessed from the hallway and kitchen is finished with a faux-terrazzo sheet flooring, a resilient wall base, and painted gypsum board walls and ceiling.

Figure 74. View of central hallway.

Figure 75. View of men's bathroom with 4/1, wood, double-hung window.

Figure 76. View of women's bathroom with a 1/1, wood, double-hung window.

The northwest multipurpose room, used for various classes, is finished with a painted wood floor, painted wood baseboard, stained board and batten walls, and a white tongue-and-groove bead board ceiling (Figure 77). The windows are 6/6, wood, double-hung windows. The southwest multipurpose room, used for Boy Scout activities, is finished with carpeted floors, painted board and batten walls, and a painted bead board ceiling (Figure 78). The windows are a mix of 1/1 or 6/6, wood, double-hung windows.

Figure 77. View looking northwest of northwest multipurpose room.

Figure 78. View looking southwest of southwest multipurpose room.

WJE observed the following conditions at interior spaces:

- There are isolated areas of deteriorated floor finish in the main hall near the primary entrance on the east facade. (Figure 79)
- The access hatch to the crawlspace beneath the main hall has been sealed shut. Access to the crawlspace of the main hall is limited to an exterior hatch on the north facade of the ancillary spaces.
- The exposed framing and sheathing in the mezzanine level have isolated areas of water staining, indicative of water intrusion (Figure 80).

- There are gaps between ends of boards throughout the ceiling of the northwest and southwest multipurpose rooms (Figure 81 and Figure 82). The ceiling of the northwest multipurpose room exhibits the largest gaps.
- There is a small area of water staining at an abandoned ceiling penetration in the northwest multipurpose room that is indicative of water intrusion (Figure 83).

Figure 79. Peeling floor finish in the main hall.

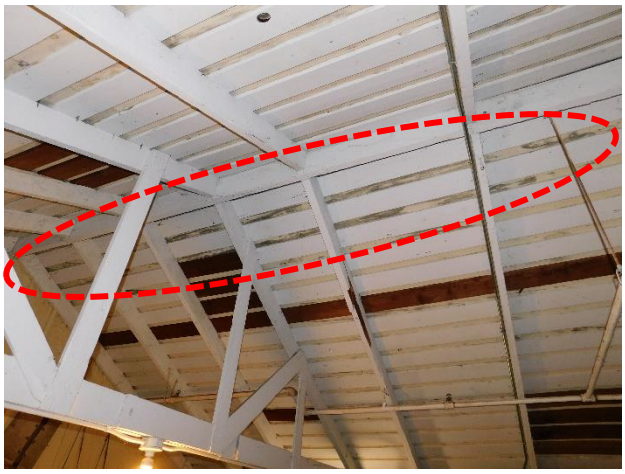

Figure 80. Staining at roof in the mezzanine.

Figure 81. Large gaps between ceiling boards in the northwest multipurpose room.

Figure 82. Smaller gaps between ceiling boards in the southwest multipurpose room.

Figure 83. Water staining around abandoned vent in the northwest multipurpose room.

Structural Systems

The structural system for Chautauqua Hall is light-framed wood construction. Lumber appears to be typically full dimension rather than nominal dimensions (e.g., a 2 inch by 4 inch element is 2 inches by 4 inches instead of 1 1/2 inches by 3 1/2 inches).

The main hall roof system consists of 2 inch by 6 inch rafters spaced at approximately 3 feet on center, supported by a ridge beam at the peak of the gable roof and a strongback halfway down the slope of the roof on either side (Figure 84). Three trusses, spaced at approximately 18 feet, span across the gable and support the ridge beam and strongbacks. The trusses consist of 4 inch by 8 inch top chords, a double 3 inch by 6 inch bottom chord, steel tie rod inner diagonal members, and 4 inch by 4 inch wood diagonal members (Figure 85).

Figure 84. Roof system in the main hall. A ridge beam (red arrow) and strong backs (blue arrows) support roof rafters and span between trusses.

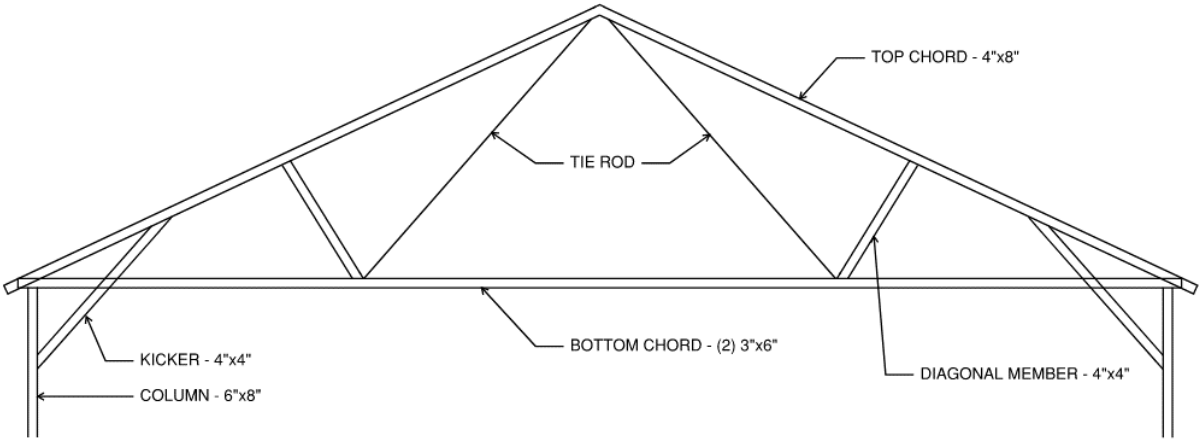

Figure 85. Conceptual elevation of roof truss.

At each end, the truss is vertically supported on a 6inch by 8 inch column, with a pair of 2 inch by 6 inch kickers in the plane of the wall and a 4inch by 4 inch kicker in the plane of the truss. The top and bottom chords of the truss continue past the column and wall framing to the outside of the building. The heel connection where the two intersect appears to consist of two to three face nails on each side of connection (Figure 86).

Figure 86. Heel connection of truss just outside the exterior wall of the main hall (arrow).

The wall framing in the main hall consists of a 4 inch by 9 inch top plate, 4 inch by 8 inch "studs" on either side of windows and doors, and 4inch by 8 inch intermediate horizontal elements (girts) at third points up the wall height (Figure 87). Exterior vertical 1 inch by 12 inch siding boards extend from the floor to the roof and are nailed to the top and bottom wall plates and the girts. These vertical boards also appear to be the primary lateral force-resisting system for the main hall.

Figure 87. Typical wall framing in main hall.

At the western ancillary rooms, more of the framing is concealed than in the main hall. The roof structure for the western area consists of 2 inch by 6 inch rafters at approximately 30 inch spacing with a ridge board, exterior walls, and strongbacks halfway down the gable sides. Every third or fourth pair of rafters is stiffened by additional wood boards in an approximation of a truss (Figure 88). The ceiling joists were not accessible, but are presumed to match the 2 inch by 8 inch floor joists in the attic used by the Boy Scouts.

Figure 88. Roof framing in Boy Scout attic area.

WJE could not directly observe wall framing in the ancillary rooms due to wall finishes, but we assume that it is generally similar to conventional wood construction with 2x studs, top, and bottom plates. The interior and exterior finishes in much of the ancillary rooms consist of vertical lumber boards similar to those in the main hall. These vertical boards appear to be the primary lateral bracing system for the western area of the building.

The floor framing in both areas of the building is typically 2 inch by 6 inch joists at 16 inch spacing. The joists span between 6 inch by 8 inch beams spaced approximately 5 to 6 feet apart, supported on wood posts and isolated shallow concrete footings (Figure 89). A shallow concrete strip footing is present around the perimeter of the building, with a partial height wood framed wall (cripple wall) that varies between approximately 12 and 30 inches in height (Figure 90). No concrete strip footing was observed below the full height wall that divides the main hall from the ancillary rooms.

Figure 89. Typical joists, beams, and posts supported on shallow concrete piers.

Figure 90. Exterior cripple wall framing

Structural System Conditions

WJE visually assessed typical conditions of the Chautauqua Hall's structural elements in readily accessible areas. We did not perform a systematic inspection of the building and several elements and areas of the structure were observed from a distance due to access constraints.

In general, the structural elements of Chautauqua Hall that were observed did not have evident damage or deterioration. No widespread or systematic decay was observed in the roof, wall, or floor framing. One rafter in the mezzanine was observed to be fractured (Figure 91). The conditions in the crawlspace under the building were generally damp and biological growth was present on the soil and some posts, beams, and joists. Several wood posts did not have the code-recommended 8-inch separation from grade (Figure 92).

Figure 91. Fractered roof rafter in the main mezzanine.

Figure 92. Water staining and damp soil in the crawl space of Chautauqua Hall.

Discussion of Observed Conditions

General

- Paint protects wood from damage from ultraviolet light and can reduce its exposure to liquid moisture.[2]
  - Ultraviolet light causes surface degradation to bare, exposed wood. While not obvious, surface degradation can occur at bare wood that is exposed to sunlight for as little as one week. The longer the exposure to sunlight, the greater the surface degradation. Surface degradation reduces future paint adhesion and service life unless extensive sanding of the bare wood is performed prior to applying paint.[3]

[2] *Wood Handbook: Wood as an Engineering Material* (Madison: Forest Products Laboratory, 2021), pages 16-9 and 16-12, https://www.fpl.fs.usda.gov/documnts/fplgtr/fplgtr282/fpl_gtr282.pdf

[3] *Wood Handbook,* pages 16-9 and 16-28.

- Wood with prolonged exposure to excessive moisture (wood with a moisture content greater than 20%) can create ideal conditions for fungal decay or insect attack.[4] Repeated swelling and shrinking cycles from wetting and drying of wood can also lead to degradation of the wood and premature paint failure.[5]

Site, Porches, and Decks

- The design of the guardrails at the west porches and north stair and landing do not meet the (current) 2022 California Building Code (CBC) requirements. We expect this includes both dimensional configuration requirements and structural loading requirements. However, the California Historical Building Code (CHBC) allows for them to remain at "their historical height and spacing unless a distinct hazard has been identified or created by a change in use or occupancy."[6]

Foundations and Crawlspace

- WJE suspects the persistent moisture in the crawl spaces may be partly from existing site drainage conditions that are further exacerbated by roof drainage discharging adjacent to the building foundation. While we did not observe obvious signs of wood decay in our limited observations, the conditions observed are conducive to the development of decay, and some may exist already in areas we did not observe.

Building Envelope

Cladding

- Sealing splits in boards with sealant, like that observed at the large double-leaf doors of the east facade is not a durable repair. However, if paintable sealant is used to seal splits in individual wood boards, it can help reduce air leakage and wind-driven rain infiltration without impacting the historic integrity of the building.

Roofing and Roof Drainage

- Exposed and unsealed fasteners through roofing can lead to water intrusion into the roof assembly and resulting deterioration and damage. This includes roof shingle fasteners, gutter fasteners, etc.
  - Asphalt shingle roof nails should be concealed by the overlying shingle, including ridge shingles. At the last ridge or hip shingle of a run, the shingle should be set in roofing cement and exposed fasteners sealed with elastomeric sealant.[7]
- Ridge shingles should be installed so that they lap away from prevailing winds.[8] Unsealed or exposed fasteners can lead to water intrusion into the roof assembly. Shingles lapped towards prevailing winds can also lead to water intrusion or even failure from wind uplift.

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[4] *Wood Handbook*, pages 5-44, 14-6, 14-13, and 16-5.

[5] *Wood Handbook*, pages 4-7 and 16-5 through 16-6.

[6] *California Historical Building Code*, California Code of Regulations, Title 24, Part 8, §8-504 (July 2022).

[7] *The NRCA Roofing Manual: Steep-slope Roof Systems* (Rosemont: National Roofing Contractors Association, 2021), 55 and 103; *Asphalt Roofing Residential Manual: The Asphalt Roofing Manufacturers Association Design and Application Methods* (Washington: The Asphalt Roofing Manufacturers Association, 2006), 22 and 80.

[8] *Asphalt Roofing Residential Manual*, 80.

- The absence of sidewall flashing with a kick-out increases risk of water infiltration and resulting deterioration of materials at the vulnerable sidewall-to-roof transition.
- Gutters filled with debris can reduce the capacity of the drainage system, lead to clogs, and can deteriorate the gutters and leaders themselves. Uncontrolled water runoff adjacent to the building can create or exacerbate deterioration of building materials, especially at wood elements if it leads to cyclical wetting and drying or prolonged high moisture content.
- Gutter spacers and gutter straps secure and support the front edge of the gutter. If straps and spacers are used together (where the strap is fastened to a spacer), the spacers should be sized to have the same thickness as the straps.[9] The observed gutter anchorage conditions can reduce the function of the drainage system and could create a potential overhead falling hazard.
- Rain leaders that discharge water adjacent to the building's perimeter and high above grade have caused premature wood deterioration at the cladding. They also likely contribute to the persistent moisture observed in the crawlspaces, since water is not directed away from the building foundation.

Belfry

- WJE could not fully confirm that the existing anchorage of the belfry matches the 1990 construction documents provided. The new additional 2x6 rafters shown on the drawings are visible at the interior. Some strapping could be observed at the ridge of the new rafters, but it differed from the drawings (Figure 67). Other strapping shown in the drawings could not be observed due to obstructions and limited access.
  - It is unclear how the belfry is waterproofed and integrated with the roofing, especially where straps and fasteners for plate anchors are shown on the 1990 construction documents as penetrating the roofing.

Interiors

- The exact sources of water intrusion to cause the observed staining at the mezzanine roof and northwest multipurpose room ceiling is not known, or if the water intrusion is active during rain events.
- The kitchen vents through the mezzanine create tripping hazards, are exposed to impact damage, and could leak kitchen exhaust air into the space.

HISTORIC EVALUATION

This section summarizes Chautauqua Hall's historic significance and construction chronology which informs the building's character-defining features listed later in this section.

The information in this section is based on observations from the field and documents provided to WJE by the City and the Heritage Society of Pacific Grove (the Heritage Society), including reports, articles, drawings, and photos relevant to the history and alterations to the building. Other documents available

[9] *Architectural Sheet Metal Manual* (Chantilly: Sheet Metal and Air Conditioning Contractors' National Association, Inc., 2012), 1.44.

online, such as scans of historical newspapers and Sanborn Maps, and secondary resources were also consulted. A full list of the documents referenced is included in the Works Cited at the end of this report.

Overview of Significance and History of Use

Prior to its incorporation in 1889, the City of Pacific Grove originated as a Christian seaside conference resort in 1875, established in part by the Methodist Episcopal Church. During the 1870s, the area known as the Pacific Grove Retreat was primarily used as a campground and meeting place to host conferences and meetings.[10]

One of the attendees of one of the early conferences held at Pacific Grove Retreat, John Heyl Vincent, formed a Sunday school conference near Chautauqua Lake in New York. By 1878, the conference eventually grew to include the Chautauqua Literary and Scientific Circle (CLSC), a four-year adult-education reading course. The CLSC quickly grew within a few years to become a national movement known as the Chautauqua Movement. The movement is significant for providing education for self-improvement to adults throughout the United States through popular education via assemblies and circuits hosting public lectures, concerts, and dramatic performances.[11] In 1879, the CLSC established its western branch in Pacific Grove.[12] The presence of their western branch and assemblies strongly influenced the early development of Pacific Grove and its cultural fabric.[13]

The building currently known as Chautauqua Hall was built in 1881 as a Methodist-Episcopal Church.[14] Utilitarian in design and situated among a retreat encampment, it also had a variety of other uses besides a church, including a schoolhouse, meeting hall, and storage for tents in the off-season. It was the primary meeting place for Pacific Grove residents and visitors until the new Methodist Church and Assembly Hall was constructed in 1889.[15] After 1889, the meeting hall became known as the "Old Chapel", according to 1892, 1897, and 1905 Sanborn maps[16]

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[10] "City of Pacific Grove Historic Context Statement" (Final draft, City of Pacific Grove, 2011), 48-52, https://files.cityofpacificgrove.org/Document_Center/Departments/Community%20Development/Housing/Historic%20Resources/PG%20HCS_2011.10.31-FINAL.pdf

[11] "Historic Context Statement," 56.

[12] Kent Seavey and the Heritage Society of Pacific Grove, *Images of America: Pacific Grove* (Charleston: Arcadia Publishing, 2005), 30.

[13] "Historic Context Statement," 57.

[14] Seavey, *Images of America*, 30; *Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California* (Sanborn Map Company, April 1888), Map, https://www.loc.gov/item/sanborn00743_001/.

[15] "Historic Context Statement," 57; "Methodist Church Dates Back to Founding of P.G.," *Pacific Grove Tribune,* December 20, 1932, 12.

[16] *Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California* (Sanborn Map Company, March 1892), map, https://www.loc.gov/item/sanborn00743_002/; *Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California* (Sanborn Map Company, May 1897), map, https://www.loc.gov/item/sanborn00743_003/; *Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California* (Sanborn Map Company, May 1905), map, https://www.loc.gov/item/sanborn00743_004/.

By the 1890s, the Old Chapel was also known as "Chautauqua Hall" for its frequent use by the Pacific Grove CLSC.

By the 1920s, the Chautauqua Movement had started to peter out.[17] At some point between the 1890s and 1914, Chautauqua Hall saw use as a gymnasium for the local high school, as noted in newspaper records and the 1914 Sanborn Map.[18]

In 1921, a group of Pacific Grove citizens interested in scouting purchased the building from the Del Monte Properties company and then transferred the ownership to the City of Pacific Grove in 1922. The intended use for the building was for the Boy Scouts and other organizations for young people. [19] It then became known as Boy Scout's Hall. Based historic photographs it was known as Recreation Center and Scout Hall through the 1950s (Figure 93). When the building became known as Chautauqua Hall again could not be determined though historical records.

[17] Andrew Rieser, *The Chautauqua Moment: Protestants, Progressives, and the Culture of Modern Liberalism (*New York: Columbia University Press, 2003), 286.

[18] "Shall We Have a Gymnasium?" *Pacific Grove Tribune*, December 20, 1932, 5; *Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California* (Sanborn Map Company, March 1914), map, https://www.loc.gov/item/sanborn00743_005/.

[19] "Pioneer Tells of Grove in Eighties," *Pacific Grove Tribune,* December 20, 1932, 12; "History of Boy Scout Building Traced as Meet Plans Are Made," *Pacific Grove Tribune,* February 16, 1934, 4.

Figure 93. Photo of "Recreation Center and Scout Hall" ca. 1951. Photo courtesy of the Heritage Society of Pacific Grove.

In 1970, Chautauqua Hall was listed on the California Register of Historic Places as California Registered Historical Landmark No. 839 for its association with the first Chautauqua of the West and the early development of Pacific Grove.[20]

Construction Chronology

Based on the existing documents reviewed as part of this study, our supplemental research, and physical evidence documented in the field, the following chronology summarizes the Chautauqua Hall's construction development.

1881 –Chautauqua Hall's reported original construction. Original construction drawings were not available to WJE.

1885 – A photograph dated approximately 1885 shows a small, shorter section of the ancillary building attached to the west facade of the main hall that is two window bays deep, smaller in size than today.[21] This suggests that some of the ancillary spaces that exist today are either part of the original 1881 construction or are a very early addition. Note also that there is no belfry in the photo.

1888 – A Sanborn map shows a west ancillary volume adjacent to the main hall volume. The roofs are indicated to be shingles. The ancillary volume is shown smaller in size than today. No western porches or a belfry are shown.[22]

1892-1905 – Sanborn maps begin showing the belfry in 1892. The building footprint remained unchanged during this period. The roofs were also still shown as shingles.[23]

1914 – This is the first time a narrow projection at the west end of the building is shown on a Sanborn map. It is not clear if this represents an early version of the west covered porches or an enclosed addition. The belfry no longer appears on the map. Roofs remain shown as shingled.[24]

1934 – According to an article in the *Pacific Grove Tribune*, the building was the subject of a Civil Works Administration (CWA) project and saw some of its most major alterations since its original construction (Figure 94).[25]

- The hall was moved roughly 25 feet to the south to accommodate the widening of then Grove Street (now Central Avenue). Additional structural improvements included "raising the structure and putting in a cement foundation and a new base."[26]

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[20] "California Historical Landmarks by County: Monterey," California State Parks Office of Historic Preservation, accessed December 8, 2023, https://ohp.parks.ca.gov/?page_id=21441

[21] Seavey, *Images of America*, 30.

[22] *Sanborn Fire Insurance Map,* April 1888.

[23] *Sanborn Fire Insurance Map,* March 1892; *Sanborn Fire Insurance Map,* May 1897; *Sanborn Fire Insurance Map,* May 1905.

[24] *Sanborn Fire Insurance Map,* March 1914.

[25] "History of Boy Scout Building."

[26] Ibid.

- As part of the move, the building was also expanded. The west portion of the building was separated from the main hall and moved to the west by approximately 20 feet. The space between the two parts was then infilled with new construction. Additional work associated with the expansion included re-wiring, re-shingling, and the addition of plumbing to the building.[27]
- The 1934 *Tribune* article also noted future plans for a new floor so the building could be used as a basketball court and the addition of kitchen equipment so that meals could be prepared and served at the hall. WJE was unable to confirm when these additional improvements were performed, however, it likely explains the existence of the current kitchen space.[28]
- WJE believes the northwest and southwest multipurpose rooms are part of the original construction that was moved west 20 feet and that the bathrooms and kitchen are part of the 1934 expansion.
  - The distance between the main hall and the northwest and southwest multipurpose rooms is approximately 20 feet. This 20-foot-wide area includes the kitchen, storage room, hallways, bathrooms, and mezzanine.
  - The details of the window sash construction in the ancillary spaces further supports this theory. WJE noted thinner window muntins in some of the sashes of the northwest and southwest multipurpose rooms. Sashes throughout the building with 5/8-inch thick muntins are likely original. The windows in the bathrooms and kitchen are typically smaller 1/1 double hung window sashes. The expansion also explains why the windows presumably associated with the expansion do not quite match the size or proportion of the windows seen in the 1885 photograph.

[27] Ibid.

[28] Ibid.

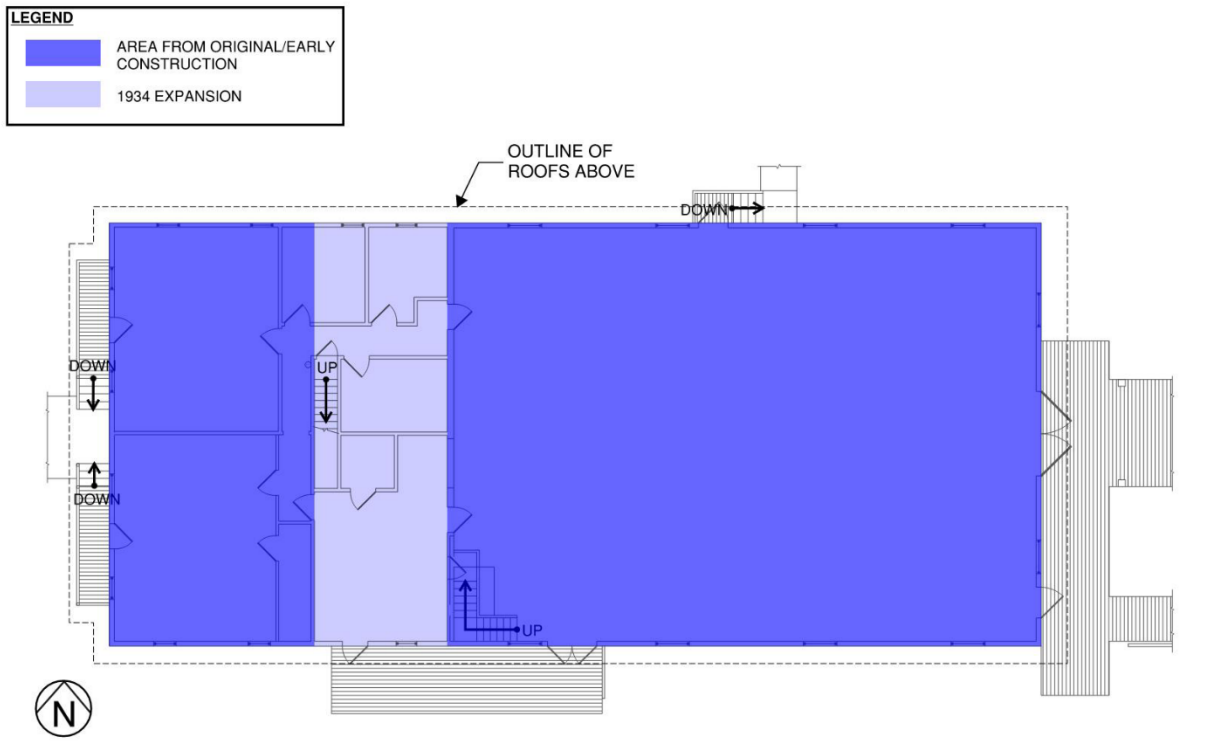

Figure 94. Diagram of the different construction phases of Chautauqua Hall overlaid onto the current first floor layout.

1980s – Chautauqua Hall underwent repairs, including repainting the exterior, restoring windows, and "renew the interior." The windows had been previously boarded up to reduce vandalism. The kitchen and bathrooms were renovated, and a new entrance was "designed."[29]

1991 – The belfry added sometime between 1888-1892, and lost some time before 1914, was reconstructed from wood framing, plywood, and wood battens.[30]

Approximately 2004 – A set of water damage repair drawings were issued for city distribution.[31]

- The drawings indicate repairs to the floor framing along the south wall, a section of the north wall by the wood stairs, and the southeast corner of the building. WJE observed new framing in the crawlspace in these general areas. The exact extent of repairs is unknown.
- A wood deck along the south facade is shown to be removed up to the third structural bay from the east. WJE's field observations confirm its removal.

[29] "Volunteers to Refurbish P.G.'s Chautauqua Hall," Heritage Society of Pacific Grove, unknown newspaper clipping dated September 26, 1983, https://www.archiveinabox.com/home.html?q=VmhHYkcvY3hLckN1azhuSEdPQjhiYU5XRGtzQ3RjRlhiMTZOUnNOVmEvVT0=

[30] William E. Bredthauer, *New Belfry for Chautauqua Hall,* July 29, 1991, architectural drawings, Heritage Society of Pacific Grove.

[31] Jeanne C. Bryce, FAIA, Architects, *Repair Water damage and Replace Walkway for Chautauqua Hall,* September 21, 2004, architectural drawings, Heritage Society of Pacific Grove.

- The drawings also show a new concrete walkway along the south facade of the building, but this is noted as "not in contract," which is further evident from our field observations.
- Along the south facade, the drawings also call for repairs to an existing French drain and installation of a new, below-grade solid drainpipe connected to the rain leaders that would daylight at the street gutter on 17th Street. WJE's field observations could not confirm that these drains exist. Several of the existing rain leaders discharge directly adjacent to the building and not into a below-grade solid drainpipe.

Approximately 2005 – WJE received a copy of an architectural plan stamped as "RECEIVED" by the Community Development Department on January 25, 2005.[32] Only the first-floor plan was available. Sheet numbering and a note on the drawing suggest there are at least 5 sheets to the set. The work shown on the first-floor plan that was provided calls for the following and coincides with WJE's field observations, except where noted otherwise:

- New windows along the full length of the south facade to match the existing windows opposite on the north wall. This typically coincides with WJE's field observations at the main hall. However, the configuration of the windows on the south facade of the southwest multipurpose room (1/1 double-hung windows) do not match the windows on the north facade (6/6 double-hung windows).
- The existing windows in the bathrooms to receive new obscure glass in the lower sash.
- General reconfiguration of the ancillary rooms.
  - New accessible bathrooms. The bathrooms have since been reconfigured.
  - The east wall of the northwest multipurpose room was moved to accommodate the new bathroom configurations and a new hallway. New framing and footings were to be installed under the new wall.
  - Reconfigured kitchen.
  - All rooms except the northwest and southwest multipurpose rooms were to receive vinyl sheet flooring with rubber cove bases. WJE could not confirm if the flooring and wall bases we observed were from this work.
- Installation of new gas heaters over the windows of the main hall. WJE observed two presumed gas heating units, one each in the northwest and southeast corners of the main hall, though it is not clear when they were installed (Figure 95).
- New hardware at existing exterior exit doors from the main hall.
- "Reactivate" the large, central, double leaf doors of the east facade using existing hardware.

[32] "Floor Plan", January 25, 2005, architectural drawing, Heritage Society of Pacific Grove.

Figure 95. Gas heater in the northwest corner of the main hall.

2022-2023 – The City reported that the roofing at the north half of the main hall was replaced in 2022-2023. No drawings were available to WJE, however a "Request for Proposals for Roof Replacement at Chautauqua Hall" dated September 26, 2022, was provided.[33] The Request for Proposals (RFP) outlines the scope and desired materials and proposes the north half of the main hall roof to be replaced with a new layer of self-adhering underlayment, new 30-year asphalt shingles to match the existing roof, and new metal flashings.

August 2023 – Layouts of bathrooms were in the process of being reconfigured and refinished with new finishes.

Date Unknown

- It is not clear when the basketball hoops were added to the interior of the main hall. Based on historic photographs, they were added sometime after 1898.[34] They may have been installed in

[33] "Request for Proposals for Roof Replacement at Chautauqua Hall," City of Pacific Grove, September 26, 2022.

[34] Seavey, *Images of America*, 30.

1930s as evident by the 1934 *Tribune* article noting future plans for a new floor so the building could be used as a basketball court.[35] However there is no definitive date of when they were installed or any modifications since their installation.

- The City reported that isolated areas of the south roof near the kitchen ventilation penetrations were patched, but no date or further information was provided.

Character-defining Features

The historic nature of significant buildings and structures is defined by their character, which is embodied in their identifying physical features. Character-defining features can include the shape of a building; its materials, craftsmanship, interior spaces, and built-in elements; and aspects of its surroundings.[36]

In general, the features associated with Chautauqua Hall's original 1881 construction are most significant, including the northwest and southwest multipurpose rooms. Features associated with the 1934 expansion (kitchen bathrooms, mezzanine, and storage spaces) do not contribute to the building's significance as part of the early development of the Pacific Grove Retreat and the Chautauqua Movement. However, they are significant in that they reflect the development of Pacific Grove during the 1930s and its use by the Boy Scouts and local community.

The following lists identify the specific existing character-defining features of Chautauqua Hall, organized by significance, and exterior and interior features. Features included under "Very Significant" are those of greatest importance to preserve and are typically from the original construction. Features included under "Significant" are those of importance to preserve the history of the building, but do not contribute to the historical significance of the original construction. Features included under "Contributing" are not original but are historically compatible with the building and contribute towards its overall historic integrity. Features included under "Non-Contributing" are those that are outside the period of significance and 1934 alterations, and their removal or alteration will not impact the historic integrity of the building.

Very Significant

Massing

- Gable roof of the main hall.
- Gable and partial hipped roof of the ancillary spaces.

Exterior Features

- Board and batten siding.
- The original multi-light, double-hung wood windows or sashes with 5/8-inch wide muntins.
- The large framed-and-braced double leaf doors on the east facade.
- Open roof eaves.

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[35] "History of Boy Scout Building."

[36] Lee H. Nelson, FAIA, *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character* (Washington: National Park Service, Technical Preservation Services, 1988), https://home1.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm

Interior Features

- Open floor plan of the main hall.
- Partially exposed wall framing and exterior cladding of the main hall.
- Vertical board interior finishes in the main hall.
- Exposed, light, roof rafters, framing, and skip sheathing of the main hall.
- Exposed wood and metal trusses of the main hall.
- Corbelling details at ridge beam ends in the main hall.

Significant

Exterior Features

- The smaller, double-hung wood windows, associated with the kitchen and bathroom spaces.
- Horizontal cladding at the cripple walls.

Interior Features

- Kitchen pass-through.
- West porches.
- Basketball hoops.
- Vertical board and board and batten finishes in the main mezzanine.
- Eave hatches in the main mezzanine.
- Exposed roof and wall framing in the main mezzanine and mezzanine storage rooms.

Contributing

Exterior Features

- Asphalt shingle roofing.
- Reconstructed belfry.
- Non-original wood double-hung windows and replacement sashes (sashes with 3/4-inch and 1-inch wide muntins).
- Egress doors from the main hall.
- The wood stairs on the north facade.

Interior Features

- Painted wood flooring in the northwest multipurpose room.
- Board and batten wall finishes in the multipurpose rooms and hallway.
- Bead-board ceiling finishes in the multipurpose rooms.
- Main hall flooring.
- Framed-and-braced and ledged-and-braced wood interior doors.

Non-Contributing

Exterior Features

- The wood decks on the east and south facades.

Interior Features

- Main hall flooring.
- Heaters in the main hall.
- Kitchen finishes, cabinetry, fixtures, and equipment.
- Hallway layout and floor finishes.
- Bathroom layout, fixtures, and finishes.
- Carpeting in the southwest multipurpose room.

STRUCTURAL EVALUATION

WJE conducted a limited structural evaluation of Chautauqua Hall comparing the load carrying capacity of typical portions of the existing structure to the building code requirements for qualified historic buildings as found in the 2022 CHBC. The purpose of the evaluation was to investigate potential vulnerabilities of the structure that could impact its longevity or safety under specific load types. As a qualified historic building continuing in its current use, retrofit is not mandated by code, but it may be prudent in order to provide a reasonable level of confidence in its safety for continued use.

The structural evaluation considered portions of the structure that, in our experience, are the most vulnerable or the least conforming to modern building standards. The following describes the parameters used for the evaluation and summarizes the results.

Loads

The structural evaluation considered four different types of loads: dead load, which encompasses the weight of the building components themselves; live load, such as load from occupants or moveable contents; wind load; and seismic load. The dead loads considered are based on observed conditions and construction of the Hall from our site visit and documents provided by the Heritage Society. The live, wind, and seismic loads considered are based on the provisions of the CHBC. The wind loading considered in the evaluation consists of both lateral wind load on the building's lateral force resisting system (LFRS) and uplift on the roof system. Both sets of wind loads were derived from the main wind-force resisting system directional procedure in ASCE 7-16 *Minimum Design Loads and Associated Criteria for Buildings and Other Structures* (ASCE 7-16). The LFRS was evaluated for seismic loads per the CHBC and ASCE 7-16.

Material Properties

The wood elements in Chautauqua Hall are typically painted, making it difficult to evaluate the species and approximate grade of the framing. We believe based on the location and age of the structure that the wood is likely either Douglas fir or redwood. Because of this uncertainty, the structural evaluation considers a range of wood capacity values from current reference standards, such as the 2018 National Design Standard (NDS) from the American Wood Council, and from the 1927 Uniform Building Code

(UBC), the earliest widely followed building code in the country. Some considered wood capacity values are presented in Table 1 below. Grades shown in Table 1 were selected based on our best judgement and experience with buildings of a similar age and construction.

Table 1. Considered Wood Capacity Values (Unadjusted allowable or reference design values)

Species and Design Basis	Bending Stress (Extreme Fiber)	Shear Stress	Compression Stress Parallel to Grain	Modulus of Elasticity
Douglas Fir, Coast Region, Common Grade (1927 UBC)*	1200 psi	72 psi	880 psi	1,600,000 psi
Redwood, Common Grade (1927 UBC)*	960 psi	56 psi	800 psi	1,200,000 psi
Douglas Fir/Larch No. 1 (2018 NDS)	1000 psi	180 psi	1,500 psi	1,700,000 psi
Redwood No. 1 (2018 NDS)	775 psi	160 psi	900 psi	1,100,000 psi

psi = pounds per square inch

*1927 UBC values allow a 33 percent increase when used to resist wind or seismic loads, similar to the 60 percent increase allowed in the current NDS.

Because the grade and species are unknown, there is considerable uncertainty in the capacity of some of the structural elements. Further, more detailed evaluation of certain elements such as the roof trusses, may be warranted to reduce the uncertainty prior to undertaking any widespread strengthening. This further investigation could include field evaluation of the lumber grade and removing areas of coatings to identify species.

Main Hall Roof System

The roof trusses, ridge beam, and strongbacks that comprise much of the main hall roof system were assessed in relation to anticipated dead and live loads, as well as wind uplift loads. Table 2 provides a summary of the evaluation results for the roof elements, including the governing demand-to-capacity (D/C) ratios for each element and the governing stress. Values below 1.0 are generally considered "good", as the capacity is adequate to meet the anticipated structural demands within the CHBC, while values above 1.0 are considered insufficient.

Table 2. Evaluation Summary of Roof Elements

	Dead and Live Load		Dead and Wind Load	
Element or Connection	**D/C**	**Governing Stress**	**D/C**	**Governing Stress**
Roof truss top chord	0.2	Compression	0.7 to 1.4	Combined tension/bending
Roof truss bottom chord	0.5 to 1.0	Tension	2.2 to 4.4	Combined compression/bending
Roof truss heel connection	20	Fastener Shear	1.5 to 11	Fastener Shear
Ridge beam and strongback beam	7 to 14	Bending	0.9 to 3.6	Bending

The truss top chord and intermediate diagonal elements were found to be adequate or close to adequate for the anticipated loads. The bottom chord is currently not braced out-of-plane except at the ends. This causes an instability problem under wind uplift loads when the bottom chord goes into compression. We recommend that bracing be installed between trusses at the bottom chords to address this deficiency. If the bottom chord were to be braced at quarter points along its span, the element itself is largely adequate for the anticipated loads.

The connections between truss elements are very significantly overstressed. While the heel connection between the top and bottom chord at each truss is specifically mentioned in Table 1, overstress occurs throughout the roof connections including within the trusses, between rafters and strongbacks or ridge beams, and between the strongbacks or ridge beam to the trusses. Based on our understanding of the truss configuration from this preliminary evaluation, the additional capacity needed at the truss heel connection to resist typical code-level loads would require significantly more fasteners than can be installed in the space available within the current configuration. Retrofit to improve the connection capacity may require a broader rework of the truss system and will very likely impact the visual appearance of the trusses. However, further evaluation of the truss system may allow for creative strengthening solutions that minimize the effect on the character-defining features of the hall. Some of the other connections, such as those at the strongbacks and ridge beams could likely be retrofit with fasteners or framing clips.

The strongbacks and ridge beam were also found to be inadequate for roof live load, as would be anticipated during construction or maintenance work on the roof. Because of the difficulty of access to the roof framing higher up in the system, the sizes of the members used for our evaluation were estimated. Due to the uncertainty of the element size compounded with the uncertainty from the unknown wood species and grading, we recommend further evaluation of ridge beam and strongbacks. Further evaluation could include better access to the higher areas of the roof, and some of the further investigation discussed in the Material Properties section.

More broadly, the roof system in the main hall is extremely lightly framed and the truss configuration is incompatible with current understandings of wind loading and typical construction loads. The building is therefore more at risk of damage or collapse under these types of loads than is permitted for buildings conforming to a regular code such as the California Existing Building Code (CEBC). That said, Chautauqua Hall has stood for almost 140 years and we observed no visual indications of adverse effects from past loading. Nonetheless, it may be prudent to explore strengthening options when considering the longevity and continued use of the building by the public.

Lateral Force Resisting System

The LFRS was evaluated in two orthogonal directions for horizontal wind and seismic loads per the CHBC and ASCE 7-16. A summary of the criteria used for the evaluation is provided in Table 3. Relevant ASCE 7 Criteria. Seismic loads governed in both directions, with a calculated base shear of 57 kips using the equivalent lateral force procedure. The seismic forces are larger than wind because the bracing system is largely provided by the board and batten siding, which is not considered a ductile system by ASCE 7.

Table 3. Relevant ASCE 7 Criteria

Criterion	Value	Description
S_{DS}	1.62	Mapped short period spectral acceleration for a design-level earthquake
Site Class	D – Default	Soil type currently unknown
R	2.0	Earthquake response modification coefficient
Basic Wind Speed	92 mph	Mapped wind speed for a design-level event
Exposure Category	C	Measure of density of nearby buildings and proximity to open water or flat plains

The lateral system of both portions of the building appears to consist primarily of a plywood roof diaphragm and full-height vertical board siding on the exterior of the building and on the interior at the ancillary rooms on the western end. The plywood roof sheathing was not able to be fully assessed due to the presence of the roofing, but it is believed likely adequate for CHBC level lateral loads.

The vertical board siding capacity was estimated by analyzing a mechanics model of a board and the nails fastening it to the top and bottom plates and two girts. The resulting allowable capacity is approximately 25 pounds per linear foot (plf) for the main hall siding and 75 plf for the siding in the ancillary rooms, which have siding boards on the inside and outside faces of the walls. These values are lower than those specified in the Special Design Provisions for Wind and Seismic (SDPWS) by the American Wood Council, the reference standard for wood-framed lateral systems, which assumes cross-members at between 16 and 24 inch spacing; more than what exists at Chautauqua Hall.

The existing board siding capacity is not adequate to resist CHBC level seismic forces by a factor of about six in the longitudinal direction and nine in the transverse direction, making it very vulnerable to damage and possible collapse in wind and earthquake events. An alternate lateral system is recommended to bring the building up to the lateral strength level outlined in the CHBC. In a similar vein as the discussion of the roof system in the main hall, the building has stood for nearly 140 years with little evidence of damage due to past events; however, strengthening may be prudent when considering the longevity and continued use of the building by the public.

Below the floor line, the vertical sheathing transitions to horizontal board sheathing over the crawlspace cripple wall. The cripple wall is unbraced apart from the horizontal board sheathing, which historically does not perform well as a bracing element. The sill plate does not appear to be bolted to the foundation. With the unbraced cripple wall and lack of foundation anchorage, the building is vulnerable to failing at the cripple walls and sliding off the foundation.

Elements Not Evaluated

The following elements were visually assessed but not included in the limited structural evaluation:

- The floor system in either the main hall or ancillary rooms,
- The roof joists and sheathing,
- The exterior walls under out-of-plane loading,
- The roof system in the ancillary rooms,

- And the individual components of the exterior elements (walls, windows, roof) under concentrated wind gust loads, often referred to as components and cladding loads.

In WJE's experience evaluating buildings of this age and construction, the elements listed above are typically not the areas of greatest concern and do not tend to have performance issues. Moreover, the visually accessible portions of the building were surveyed as part of WJE's site work, and the elements listed above typically appeared to be in good, serviceable condition.

RECOMMENDATIONS

Based on our observations and historic assessment, the following recommendations are intended to maintain, repair, and structurally strengthen the building for its continued and future use while preserving as much of the building's historic integrity as feasible.

To achieve this goal, we recommend applying the provisions of the CHBC to any future repair or maintenance work. The intent of the CHBC is to "facilitate the preservation and continuing use of qualified historic buildings… while providing reasonable safety for the building occupants and access for persons with disabilities."[37] The CHBC combined with the CEBC, CBC, and other regular California building codes provides for the application of reasonable equivalents to current code requirements, the ability to undertake voluntary and partial seismic upgrading, and often no formal 'upgrade triggers' when voluntary upgrading is being undertaken. It is generally considered the most flexible building code standard for historic structures. Property owners can elect to apply the CHBC for work necessary for the repair, preservation, and continued use of qualified historical buildings.[38] Since Chautauqua Hall is listed as a State of California Historical Landmark, it is qualified to use the CHBC. Any new additions or alterations to the building however will be subject to the "regular code" as defined by the CHBC, such as the CEBC or the CBC.

Standards for the Treatment of Historic Properties

Projects that are limited to work on historic buildings can be categorically exempt from the California Environmental Quality Act (CEQA) if the work of the project will meet the Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary of the Interior's Standards). The Secretary of the Interior's Standards are also recognized and typically used in all levels of jurisdiction (federal, state, and local levels) as reference standards for guiding work on historic properties. The Secretary of the Interior's Standards consist of four major treatment approaches: preservation, rehabilitation, restoration, and reconstruction.

Based on the City's stated intent for the building's continued use as a community hall and based on the Historic Evaluation, of the four treatment approaches, WJE finds Rehabilitation to be the most appropriate approach:

[37] *California Historical Building Code*, §8-101.3 (July 2022).

[38] *California Historical Building Code*, §8-102.1 (July 2022).

> **"Rehabilitation** is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values."[39]

Rehabilitation is similar to the Preservation treatment in that historic materials and character-defining features are protected and maintained. It departs from other treatment approaches by providing greater flexibility towards replacing extensively deteriorated, damaged, or missing features with the same material or compatible substitute material. It is also the only treatment approach that allows alterations and construction of new additions if necessary for a continued or new use for the building.[40]

The Secretary of the Interior's Standards establish a set of standards and guidelines for each treatment option. The standards for Rehabilitation are as follows:[41]

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible

[39] "The Secretary of the Interior's Standards for the Treatment of Historic Properties: Rehabilitation as a Treatment and Standards for Rehabilitation," National Park Service, last modified June 20, 2023, accessed December 8, 2023, https://www.nps.gov/articles/000/treatment-standards-rehabilitation.htm

[40] "Rehabilitation as a Treatment and Standards for Rehabilitation."

[41] "Rehabilitation as a Treatment and Standards for Rehabilitation."

with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

General Recommendations

Overall Approach

- Design and perform work in compliance with the CHBC and in compliance with the standards and guidelines for Rehabilitation as defined by the Secretary of the Interior's Standards.
  - Retain and preserve the main hall and its character-defining features. The main hall is the oldest documented space of the building, is the most public facing space and facade, and retains much of its historic integrity.
    - If alterations to the building are elected to be performed, such as layout reconfigurations or changes in finishes, limit them to the spaces within the 1934 extension that have undergone several changes since the expansion's construction.
- When repairing damage caused by decay, first address the moisture issue that led to the damage before repairing or replacing the damaged material; otherwise, the decay may reoccur.[42]

Additional Whole Building Studies

- The scope of services for this building assessment does not include hazardous materials identification, sampling, or the development of recommendations related to hazardous materials. WJE recommends engaging an industrial hygienist to identify, sample, and document locations of hazardous materials at the property and develop recommendations for the handling and disposal of hazardous materials that will be disturbed by future work.
- The scope of services for this building assessment does not include a formal code study. Consider engaging an architect and/or fire safety engineer with experience in historic properties to perform a code study using the CHBC to better understand existing code deficiencies, such as accessibility or emergency egress.
- The scope of services for this building assessment does not include building systems such as fire protection, plumbing, electrical, heating, or cooling. Consider engaging design professionals with experience in historic properties for assessments of the building's existing fire protection and building systems.

General Approaches to the Building Envelope

- Due to its construction, Chautauqua Hall likely experiences greater air leakage than modern buildings. This may impact occupant comfort and energy efficiency. Minor efforts to reduce isolated areas of air leakage may be performed without impacting the historic integrity if they conform with Secretary of the Interior's Standards. However, we do not necessarily recommend significant building envelope upgrades to improve air leakage performance. Significant building envelope upgrades, such as the

[42] *Wood Handbook*, page 14-8.

addition of modern insulation, air barriers, vapor barriers, or weather barriers could significantly alter the building's historic, character-defining features, especially those related to the wall and roof construction. It could also introduce new moisture control issues into the building. If improving occupant comfort or energy efficiency is desired to keep the building in viable use, consider engaging an architect and mechanical engineer specializing in historic preservation to study the building's performance and make recommendations for improvements while minimizing the impact to the building's historic integrity, understanding that this building may still not perform as efficiently or maintain occupant comfort as effectively as a modern building. Hygrothermal modeling and monitoring of the building's humidity may be necessary to develop these additional enclosure recommendations.

- Retain and preserve board and batten siding.
- Retain and preserve the existing wood windows. Repair damaged windows rather than replace them. If replacement is necessary, replace in-kind with new wood windows to match the existing.
  - We do not recommend replacing wood windows with replacement vinyl, composite (such as fiberglass), or metal windows, even if energy efficiency is a goal. Replacement windows of these types typically have different sash and muntin profiles by nature of their materials, which changes the overall character of a building facade. They are typically not in-kind to original wood windows. Replacement vinyl, composite, or metal windows are also harder to repair and typically need to be replaced more frequently than traditional wood windows.
  - If greater energy efficiency of windows is desired, consider installing interior storm windows to retain the exterior appearance of the windows.
- Retain and preserve the framed and braced wood double leaf doors on the main east facade.
- Retain shingle roofing. When the existing asphalt shingles reach the end of their service life and need to be replaced, consider reroofing with wood shingles instead of asphalt shingles to restore the historic wood shingled appearance of the roof. Where fire-resistant roofing is required, the CHBC has provisions for the use of wood shingles.[43] At a minimum the wood shingles must meet a Class B fire rating. With the increasing risk of fires in California, WJE recommends a new wood shingle roof assembly that achieves a California Fire Marshal listed Class A fire rating while maintaining the wood shingle historic appearance.[44] In general, this involves a specific mineral cap sheet installed over the roof sheathing before installing fire retardant shingles. A Class A wood shingle roof is of minimal cost increase compared a Class B roof for the greater benefit of improved fire resistance and has a relatively minimal aesthetic impact to the building.

General Approaches to the Interiors

- Limit access and use of the mezzanine levels to light-weight storage until a more detailed assessment and analysis of its structure and continued use can be performed. WJE does not recommend their use as occupiable space until a study is performed and any mitigation efforts are completed. At the

[43] *California Historical Building Code*, §8-408 (July 2022)

[44] California Department of Forestry & Fire Protection, Office of the State Fire Marshall, Fire Engineering – Building Materials Listing Program, *Listing No. 4150-1735:0101*, July 1, 2022, 1, http://www.firesmartroofing.com/pdf/1735-0101.pdf

mezzanine storage rooms, WJE recommends refraining from using them altogether. There is no code compliant accessible route for people with disabilities to the main mezzanine level or its storage rooms. There are also several exposed kitchen ventilation ducts through the mezzanine. The concealed structural system and capacity of the mezzanine and its storage rooms are unknown.

Specific Recommendations

The following recommendations for future maintenance and improvements to the property are based on the findings of our site observations and historic evaluation. Recommendations have been prioritized by urgency.

High Priority – perform within the next 1-2 years

General

- At exterior wood elements, remove loose and flaking paint, prepare surfaces, prime, and repaint. Do not leave bare wood exposed for more than one week. If left exposed for longer than one week, sand wood prior to repainting per the recommendations in Chapter 16, page 9, of the free, downloadable, *Wood Handbook: Wood as an Engineering Material* by the Forest Products Laboratory.[45]

Site, Porches, and Decks

- Engage a civil engineer to perform a more detailed assessment of the site drainage and develop measures to direct water around and away from the building.
- Repair or replace the wood decks, especially the deck at the south facade that is part of the emergency egress path from the main hall and kitchen.
- Repair the loose guard rail post at the west porch.

Roofing and Roof Drainage

- Seal exposed roofing fasteners at roof ridges.
- Install missing sidewall flashing with a kick-out where the south wall of the main hall interfaces with the roof of the ancillary spaces.
- Replace missing vent cap. If vent is abandoned in place and no longer used, consider removing it and patching the roof.
- Clean biological growth from shingles.
- Re-attach the gutters with appropriately sized and spaced brackets, straps, and/or spacers according to the recommendations in the Sheet Metal and Air Conditioning Contractors' National Association's (SMACNA) *Architectural Sheet Metal Manual* and the National Roofing Contractors Association's (NRCA) *NRCA Roofing Manual: Architectural Metal Flashing and Condensation and Air Leakage Control*. Attach straps such that their fasteners are lapped under the roofing system or consider brackets that fasten to facia boards.[46]

[45] *Wood Handbook,* page 16-28.

[46] *Architectural Sheet Metal Manual*, 1.34, 1.44, and 1.51.

- Install rain leader extensions to direct rainwater discharge away from the building cladding and foundations. Install splash blocks or landscaping stone to control runoff and prevent erosion.
- Replace or sister the fractured rafter at the mezzanine gable roof.

Belfry

- Consult a licensed historic architect and engineer to perform a more detailed assessment of the belfry to confirm the configuration of the structural anchorage and related waterproofing.

Interiors

- Perform a more detailed assessment to confirm the framing and structural capacity of the mezzanine and the storage rooms over the northwest and southwest multipurpose rooms.
- Unseal the crawl space access hatch at the main hall. If air infiltration is a problem, install weatherstripping or gaskets to reduce or prevent air infiltration.

Medium Priority – perform within the next 5 years

Site, Porches, and Decks

- Remove and replace crushed wood corbel at the west porch roof framing.
- Reattach or replace loose porch trim at the west porch.

Cladding

- Replace split or damaged board and batten siding and horizontal board siding in-kind.
  - Alternatively, seal splits in boards with a paintable sealant. Note if this repair is performed, the sealant becomes a maintenance item that will need reoccurring monitoring and/or replacement.

Windows and Doors

- Engage a qualified historic architect to perform a more detailed window survey and develop formal repairs for the wood windows. Repairs may include dutchman patching, epoxy repairs, splices, or in-kind replacement. Refer to the National Park Service's *Preservation Brief 9: The Repair of Historic Wooden Windows* for more detailed information.[47]
  - Repair deteriorated wood at window sills. At small areas not at joints, remove deteriorated material, apply a biocide, wood consolidant, and patch with epoxy patching compound or perform a dutchman patch repair. At larger areas consider replacing the sill in-kind.
  - Repair or install new sash weights and cords or chains (whichever is most in-kind) if restoring sash operability is desired.
  - Repair damaged sashes. Repair or replace damaged muntins, stiles, and rails in-kind. In general, remove as little original material as possible and use replacement material as close to the original as possible in terms of wood species, wood quality, and grain pattern. Consider dutchman or splice repairs instead of epoxy repairs to retain historic material. Do not use epoxy at joints between sash components because it can restrict the necessary wood movement and cause damage. For slender members or individual sash components with significant damage, consider in-kind replacement of the damaged components.

[47] John H. Myers, *Preservation Brief 9: The Repair of Historic Wooden Windows* (Washington: National Park Service, Technical Preservation Services, 1981), https://home1.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm

    - While we did not observe windows with extensive damage, if extensive damage is found in the future, in-kind replacement could be considered over repairs.
  - Replace damaged glass lites in-kind.
  - Remove and replace cracked or missing glazing putty.
  - Remove loose and flaking paint, prepare surfaces, prime and repaint windows.
- Replace deteriorated or split wood boards in-kind at exterior doors.
- Install historically compatible astragals and weatherstripping at double-leaf doors.

Roofing and Roof Drainage

- Replace roofing at the south roof area of the main hall and at the ancillary spaces roof. See earlier discussion on roofing material options.

Lower Priority – perform within the next 10 years

- Repair ceilings of multipurpose rooms.

Reoccurring Maintenance

- Clean debris from gutters and rain leaders.
- Remove localized areas of loose and flaking paint at exterior wood elements, prepare surfaces, prime, and repaint.
- Keep vents to crawl space clear to promote ventilation.
- After site drainage is improved, monitor moisture conditions in the crawlspace, and survey for decay biannually until the crawlspace moisture issues are resolved.
  - If conditions conducive to decay persist (such as excessive, prolonged moisture as noted in the Discussion of Observed Conditions section), consider engaging a civil engineer, structural engineer, and architect, each specializing in historic properties, to evaluate the crawlspace, its foundations, posts, and cripple walls in detail and develop mitigation measures to further address the conditions conducive to decay.

Structural Strengthening Recommendations

As previously discussed in the Structural Evaluation section, Chautauqua Hall has been standing for almost 140 years and shows no visible signs of adverse effects from past loading. Strengthening the building is not required by code or by ordinance if the structure continues to be used in the same manner. However, both the roof structure and lateral force resisting system are well outside the bounds of what would be considered adequate for a building today, and some elements of each system are vastly overstressed under CHBC-level loading. The following are recommendations for structural strengthening to address deficiencies in capacity relative to loads outlined in the CHBC.

Some of the recommendations below are shown schematically in Appendix A of this report, and keynote numbers on the drawings correspond to numbers referenced in the text below.

- Strengthen the roof system to address deficiencies relative to dead, live, and wind uplift loads.
  - Perform a more detailed assessment of the roof trusses and their connections. Evaluate the desired performance or load capacity of the roof system for the City's needs. Strengthen and

brace trusses as required to achieve desired performance or load capacity. Strengthening may require reconfiguration of portions of the truss, which would impact the character-defining features of the main hall, but the level and impact of strengthening is not known based on this preliminary assessment and it may be possible to achieve with minimal impact on the main hall's characteristic features. Overall, more investigation is required to better understand the truss system, its connections, and how they can potentially be strengthened to a level more in line with code-level loading (This item is not shown in Appendix A.)

- Install an alternative lateral force resisting system in the building to resist wind and seismic loads.
  - Install a new concrete strip footing below the gable end wall at the west end of the main hall (Item 1).
  - In the western area where there are interior wall finishes, install a system of plywood shear walls by removing the interior finish, installing the shear wall, and reinstalling the finish, thereby hiding the presence of the plywood (Item 2).
  - In the main hall, WJE recommends two options for a lateral system. Each will have varying levels of impact to the character-defining features of the hall:
    - Option 1: Install a series of eight to ten steel cantilevered columns spanning from the foundation to the roof level (Item 3). Preliminary analysis suggests the columns could be on the order of 8-inches square and could be placed adjacent to the columns supporting the trusses. This option would also require new foundations adjacent to the existing foundations to support the columns. WJE anticipates that this option will have the least impact to the character-defining features of the hall. It more closely reflects the original post-and-beam structural system and does not interrupt the open construction of the walls of the main hall.
    - Option 2: Install a series of steel tie rods in an "X" configuration in each full height wall bay (between studs). The tie rods would likely be fairly light weight, but they would be visible across nearly all of the open walls in the main hall. (This option is not shown in Appendix A.)
- If a larger-scale lateral force-resisting system retrofit of the building is not undertaken:
  - Retrofit the cripple wall in the crawlspace by bracing with plywood and adding regularly spaced epoxied anchor bolts with adequate plate washers. If the plywood is installed on the inside face of the studs, additional work may be required to address existing gaps in the building envelope at the horizontal siding. Otherwise, moisture may build up in the newly created wall cavity and cause accelerated deterioration of the wall framing and sheathing. (This item is not shown in Appendix A.)

If the strengthening recommendations above are not implemented, we recommend the City consider limiting or prohibiting the use of the building during storms anticipated to have high wind speeds to mitigate the risk to the public.

Next Steps

Should the City decide to proceed with the recommendations described above, many items, especially those listed under Reoccurring Maintenance and High Priority, can be implemented by a qualified maintenance person with experience in historic properties and do not require further input from design professionals. However, due to the historic significance of the building, any work, including maintenance

work, should be historically compatible and consider guidance from a qualified historic architect or engineer.

Implementation of some recommended items will require engagement of qualified design professionals with experience in historic properties and development of further reports or construction documents. The following are services that may be required as next steps for the recommendations described above:

- Identification of hazardous materials at the property by an industrial hygienist.
- Assessment and design work to improve site drainage by a civil engineer.
- Detailed evaluation of the mezzanine structural system to determine its capacity. Development of structural and architectural construction documents to strengthen the mezzanine to support occupied or ancillary uses.
- Structural assessment of the capacity of the mezzanine and storage rooms over the northwest and southwest multipurpose rooms.
- Study of existing code deficiencies, especially those related to accessibility, emergency egress, or fire protection.
- Window survey and architectural construction documents for repairs by a licensed historic architect.
- Detailed evaluation of the roof system by a structural engineer and recommendations for strengthening.
- Detailed evaluation of the structural anchorage and waterproofing of the belfry with potential architectural and structural construction documents by a licensed historic architect and engineer.
- Development of structural and architectural construction documents for a retrofit of the building to resist wind and seismic loads.
- While we do not recommend significant building envelope upgrades to improve air leakage performance, if improving occupant comfort or energy efficiency is desired to keep the building in viable use, consult a licensed architect and mechanical engineer with experience in building science and historic preservation to study the building's existing performance and develop mitigation measures to improve occupant comfort without impacting the historic integrity. Hygrothermal modeling and monitoring of the building's humidity may be necessary to develop these additional enclosure recommendations.
- Assessment of building systems such as, fire protection, plumbing, electrical, and heating and cooling.

WORKS CITED

Architectural Sheet Metal Manual. Chantilly: Sheet Metal and Air Conditioning Contractors' National Association, Inc., 2012.

Asphalt Roofing Residential Manual: The Asphalt Roofing Manufacturers Association Design and Application Methods. Washington: The Asphalt Roofing Manufacturers Association, 2006.

Bredthauer, William E. *New Belfry for Chautauqua Hall,* July 29, 1991. Architectural drawings. Heritage Society of Pacific Grove.

California Department of Forestry & Fire Protection, Office of the State Fire Marshall, Fire Engineering – Building Materials Listing Program, *Listing No. 4150-1735:0101*, July 1, 2022, 1, http://www.firesmartroofing.com/pdf/1735-0101.pdf

California Historical Building Code, California Code of Regulations, Title 24, Part 8, (July 2022).

"California Historical Landmarks by County: Monterey," California State Parks Office of Historic Preservation, accessed December 8, 2023, https://ohp.parks.ca.gov/?page_id=21441

"City of Pacific Grove Historic Context Statement." Final draft, City of Pacific Grove, 2011. https://files.cityofpacificgrove.org/Document_Center/Departments/Community%20Development/Housing/Historic%20Resources/PG%20HCS_2011.10.31-FINAL.pdf

"Floor Plan." January 25, 2005. Architectural drawing. Heritage Society of Pacific Grove.

"History of Boy Scout Building Traced as Meet Plans Are Made." *Pacific Grove Tribune,* February 16, 1934.

Jeanne C. Bryce, FAIA, Architects. *Repair Water damage and Replace Walkway for Chautauqua Hall,* September 21, 2004. Architectural drawings. Heritage Society of Pacific Grove.

"Methodist Church Dates Back to Founding of P.G." *Pacific Grove Tribune*, December 20, 1932.

Myers, John H. *Preservation Brief 9: The Repair of Historic Wooden Windows*. Washington: National Park Service, Technical Preservation Services, 1981. https://home1.nps.gov/tps/how-to-preserve/briefs/9-wooden-windows.htm

Nelson, Lee H., FAIA. *Preservation Brief 17: Architectural Character: Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character*. Washington: National Park Service, Technical Preservation Services, 1988. https://home1.nps.gov/tps/how-to-preserve/briefs/17-architectural-character.htm.

The NRCA Roofing Manual: Architectural Metal Flashing and Condensation and Air Leakage Control. Rosemont: National Roofing Contractors Association, 2022.

The NRCA Roofing Manual: Steep-slope Roof Systems. Rosemont: National Roofing Contractors Association, 2021.

"Pioneer Tells of Grove in Eighties." *Pacific Grove Tribune,* December 20, 1932.

"Request for Proposals for Roof Replacement at Chautauqua Hall." City of Pacific Grove, September 26, 2022.

Rieser, Andrew. *The Chautauqua Moment: Protestants, Progressives, and the Culture of Modern Liberalism*. New York: Columbia University Press, 2003.

Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California. Sanborn Map Company, April 1888. Map. https://www.loc.gov/item/sanborn00743_001/.

Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California. Sanborn Map Company, March 1892. Map. https://www.loc.gov/item/sanborn00743_002/.

Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California. Sanborn Map Company, May 1897. Map. https://www.loc.gov/item/sanborn00743_003/.

Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California. Sanborn Map Company, May 1905. Map. https://www.loc.gov/item/sanborn00743_004/.

Sanborn Fire Insurance Map from Pacific Grove, Monterey County, California. Sanborn Map Company, March 1914. Map. https://www.loc.gov/item/sanborn00743_005/.

Seavey, Kent and the Heritage Society of Pacific Grove. *Images of America: Pacific Grove*. Charleston: Arcadia Publishing, 2005.

"Shall We Have a Gymnasium?" *Pacific Grove Tribune*, December 20, 1932.

"The Secretary of the Interior's Standards for the Treatment of Historic Properties: Rehabilitation as a Treatment and Standards for Rehabilitation." National Park Service. Last modified June 20, 2023. Accessed November 13, 2023. https://www.nps.gov/articles/000/treatment-standards-rehabilitation.htm

"Volunteers to Refurbish P.G.'s Chautauqua Hall." Heritage Society of Pacific Grove, unknown newspaper clipping dated September 26, 1983. https://www.archiveinabox.com/home.html?q=VmhHYkcvY3hLckN1azhuSEdPQjhiYU5XRGtzQ3RjRlhiMTZOUnNOVmEvVT0=

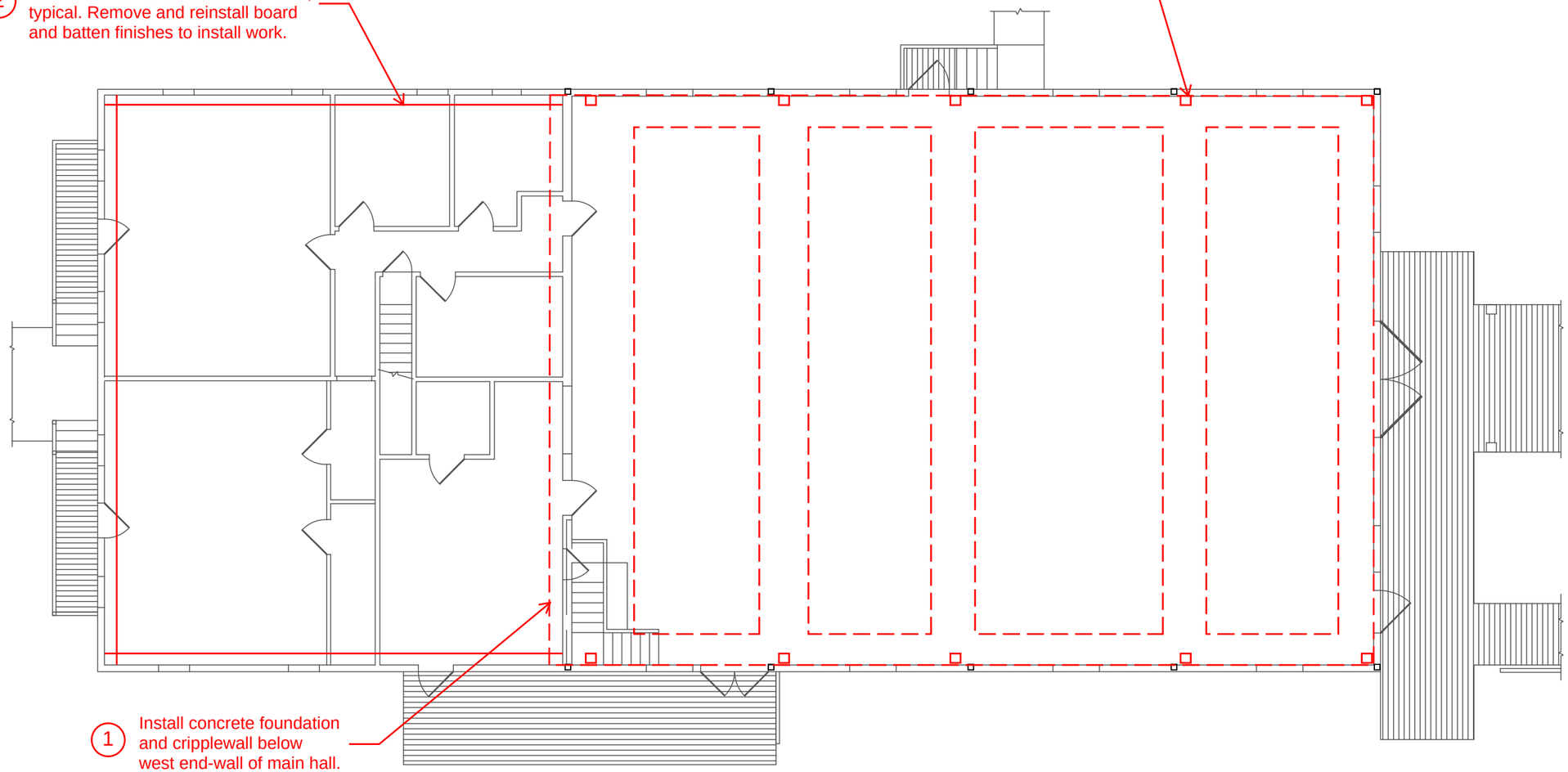
Wood Handbook: Wood as an Engineering Material. Madison: Forest Products Laboratory, 2021. https://www.fpl.fs.usda.gov/documnts/fplgtr/fplgtr282/fpl_gtr282.pdf.

APPENDIX A. Conceptual Structural Strengthening Recommendations

CONCEPTUAL STRUCTURAL STRENGTHENING RECOMMENDATIONS

2 Install plywood shear walls at interior side of exterior walls in western area, typical. Remove and reinstall board and batten finishes to install work.

3 Install 8 to 10 cantilevered steel columns around the perimeter of the main hall, including foundations below, typical.



1 Install concrete foundation and cripplewall below west end-wall of main hall.

1 FIRST FLOOR PLAN

SCALE: 3/32" = 1'-0"

N

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Consultants

Project

CHAUTAUQUA HALL
BUILDING ASSESSMENT
162 16th Street
Pacific Grove, CA 93950

Client

City of Pacific Grove
300 Forest Avenue
Pacific Grove, CA 93950

Mark	Date	Description

0 1/2" 1"

THIS SHEET PLOTS FULL SIZE AT 11x17 (INCHES)

Project No.	2019.2238.0
Date	01/18/2024
Drawn	KC/JAW
Checked	KEC/RJB
Scale	As Noted

Sheet Title: FIRST FLOOR PLAN

Sheet No.: **S1**