

HISTORIC AND DESIGN REVIEW COMMISSION

May 04, 2022

HDRC CASE NO: ADDRESS: 2022-212
LEGAL DESCRIPTION: 304 SADIE ST
ZONING: NCB 733 BLK 5 LOT 1 AND 2
CITY COUNCIL DIST.: RM-4, H
DISTRICT: 1 Lavaca Historic District
APPLICANT: Michelle Hipps-Cruz/Liminal Design Studio
OWNER: 304 SADIE LLC
TYPE OF WORK: Removal of rear addition, fencing, fenestration modifications, rehabilitation work, Historic Tax Certification
APPLICATION RECEIVED: April 07, 2022
60-DAY REVIEW: Not applicable due to City Council Emergency Orders
CASE MANAGER: Hannah Leighner

REQUEST:

The applicant is requesting a Certificate of Appropriateness for approval to:

1. Perform exterior modifications including the removal of an existing hot water heater closet and modifications to an existing rear addition to facilitate the installation of a screened porch.
2. Modify the front fenestration by removing a non-original door on the front façade and replacing it with a window
3. Modify the front fenestration by removing and enclosing the opening of an original door from the side of the front porch.
4. Modify the west elevation fenestration by replacing the non-original casement window at the rear of the original structure with a traditional, one-over-one wood window.
5. Modify the west elevation fenestration by replacing the non-original casement window toward the front of the structure with a wood door and over head transom window.
6. Modify the west elevation fenestration by installing one new one-over-one wood window in the bay where the water heater was removed, one new window at the rear to replace the removed casement window, and installing one door and overhead transom window between the new bay window and existing one-over-one window.
7. Modify the west elevation fenestration by replacing one existing gable vent with a square, wood casement window.
8. Modify the east elevation fenestration replacing the existing 28x48" one-over-one wood window with one that is traditional in size and profile.
9. Replace the existing chain link fencing in the front yard with a 4-foot cattle panel fence, and the rear chain link fencing with 6ft wood privacy fence
10. Replace the existing pressboard skirting with wood skirting to match the house siding.
11. Perform various scopes of work to include repair of the existing siding, foundation repair, and repainting the exterior.
12. Modify the curb cut of the existing driveway to accommodate two vehicles.
13. Remove the carport.
14. Receive Historic Tax Certification.

APPLICABLE CITATIONS:

Historic Design Guidelines, Chapter 2, Exterior Maintenance and Alterations

1. Materials: Woodwork

A. MAINTENANCE (PRESERVATION)

- i. *Inspections*—Conduct semi-annual inspections of all exterior wood elements to verify condition and determine maintenance needs.
- ii. *Cleaning*—Clean exterior surfaces annually with mild household cleaners and water. Avoid using high pressure power washing and any abrasive cleaning or stripping methods that can damage the historic wood siding and detailing.

iii. *Paint preparation*—Remove peeling, flaking, or failing paint surfaces from historic woodwork using the gentlest means possible to protect the integrity of the historic wood surface. Acceptable methods for paint removal include scraping and sanding, thermal removal, and when necessary, mild chemical strippers. Sand blasting and water blasting should never be used to remove paint from any surface. Sand only to the next sound level of paint, not all the way to the wood, and address any moisture and deterioration issues before repainting.

iv. *Repainting*—Paint once the surface is clean and dry using a paint type that will adhere to the surface properly. See *General Paint Type Recommendations* in Preservation Brief #10 listed under Additional Resources for more information.

v. *Repair*—Repair deteriorated areas or refasten loose elements with an exterior wood filler, epoxy, or glue.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

i. *Façade materials*—Avoid removing materials that are in good condition or that can be repaired in place. Consider exposing original wood siding if it is currently covered with vinyl or aluminum siding, stucco, or other materials that have not achieved historic significance.

ii. *Materials*—Use in-kind materials when possible or materials similar in size, scale, and character when exterior woodwork is beyond repair. Ensure replacement siding is installed to match the original pattern, including exposures. Do not introduce modern materials that can accelerate and hide deterioration of historic materials. Hardiboard and other cementitious materials are not recommended.

iii. *Replacement elements*—Replace wood elements in-kind as a replacement for existing wood siding, matching in profile, dimensions, material, and finish, when beyond repair.

2. Materials: Masonry and Stucco

A. MAINTENANCE (PRESERVATION)

i. *Paint*—Avoid painting historically unpainted surfaces. Exceptions may be made for severely deteriorated material where other consolidation or stabilization methods are not appropriate. When painting is acceptable, utilize a water permeable paint to avoid trapping water within the masonry.

ii. *Clear area*—Keep the area where masonry or stucco meets the ground clear of water, moisture, and vegetation.

iii. *Vegetation*—Avoid allowing ivy or other vegetation to grow on masonry or stucco walls, as it may loosen mortar and stucco and increase trapped moisture.

iv. *Cleaning*—Use the gentlest means possible to clean masonry and stucco when needed, as improper cleaning can damage the surface. Avoid the use of any abrasive, strong chemical, sandblasting, or high-pressure cleaning method.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

i. *Patching*—Repair masonry or stucco by patching or replacing it with in-kind materials whenever possible. Utilize similar materials that are compatible with the original in terms of composition, texture, application technique, color, and detail, when in-kind replacement is not possible. EIFS is not an appropriate patching or replacement material for stucco.

ii. *Repointing*—The removal of old or deteriorated mortar should be done carefully by a professional to ensure that masonry units are not damaged in the process. Use mortar that matches the original in color, profile, and composition when repointing. Incompatible mortar can exceed the strength of historic masonry and results in deterioration. Ensure that the new joint matches the profile of the old joint when viewed in section. It is recommended that a test panel is prepared to ensure the mortar is the right strength and color.

iii. *Removing paint*—Take care when removing paint from masonry as the paint may be providing a protectant layer or hiding modifications to the building. Use the gentlest means possible, such as alkaline poultice cleaners and strippers, to remove paint from masonry.

iv. *Removing stucco*—Remove stucco from masonry surfaces where it is historically inappropriate. Prepare a test panel to ensure that underlying masonry has not been irreversibly damaged before proceeding.

3. Materials: Roofs

A. MAINTENANCE (PRESERVATION)

i. *Regular maintenance and cleaning*—Avoid the build-up of accumulated dirt and retained moisture. This can lead to the growth of moss and other vegetation, which can lead to roof damage. Check roof surface for breaks or holes and flashing for open seams and repair as needed.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

i. *Roof replacement*—Consider roof replacement when more than 25-30 percent of the roof area is damaged or 25-30 percent of the roof tiles (slate, clay tile, or cement) or shingles are missing or damaged.

ii. *Roof form*—Preserve the original shape, line, pitch, and overhang of historic roofs when replacement is necessary.

- iii. *Roof features*—Preserve and repair distinctive roof features such as cornices, parapets, dormers, open eaves with exposed rafters and decorative or plain rafter tails, flared eaves or decorative purlins, and brackets with shaped ends.
- iv. *Materials: sloped roofs*—Replace roofing materials in-kind whenever possible when the roof must be replaced. Retain and re-use historic materials when large-scale replacement of roof materials other than asphalt shingles is required (e.g., slate or clay tiles). Salvaged materials should be re-used on roof forms that are most visible from the public right-of-way. Match new roofing materials to the original materials in terms of their scale, color, texture, profile, and style, or select materials consistent with the building style, when in-kind replacement is not possible.
- v. *Materials: flat roofs*—Allow use of contemporary roofing materials on flat or gently sloping roofs not visible from the public right-of-way.
- vi. *Materials: metal roofs*—Use metal roofs on structures that historically had a metal roof or where a metal roof is appropriate for the style or construction period. Refer to Checklist for Metal Roofs on page 10 for desired metal roof specifications when considering a new metal roof. New metal roofs that adhere to these guidelines can be approved administratively as long as documentation can be provided that shows that the home has historically had a metal roof.
- vii. *Roof vents*—Maintain existing historic roof vents. When deteriorated beyond repair, replace roof vents in-kind or with one similar in design and material to those historically used when in-kind replacement is not possible.

4. Materials: Metal

A. MAINTENANCE (PRESERVATION)

- i. *Cleaning*—Use the gentlest means possible when cleaning metal features to avoid damaging the historic finish. Prepare a test panel to determine appropriate cleaning methods before proceeding. Use a wire brush to remove corrosion or paint build up on hard metals like wrought iron, steel, and cast iron.
- ii. *Repair*—Repair metal features using methods appropriate to the specific type of metal.
- iii. *Paint*—Avoid painting metals that were historically exposed such as copper and bronze.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Replacement*—Replace missing or significantly damaged metal features in-kind or with a substitute compatible in size, form, material, and general appearance to the historical feature when in-kind replacement is not possible.
- ii. *Rust*—Select replacement anchors of stainless steel to limit rust and associated expansion that can cause cracking of the surrounding material such as wood or masonry. Insert anchors into the mortar joints of masonry buildings.
- iii. *New metal features*—Add metal features based on accurate evidence of the original, such as photographs. Base the design on the architectural style of the building and historic patterns if no such evidence exists.

5. Architectural Features: Lighting

A. MAINTENANCE (PRESERVATION)

- i. *Lighting*—Preserve historic light fixtures in place and maintain through regular cleaning and repair as needed.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Rewiring*—Consider rewiring historic fixtures as necessary to extend their lifespan.
- ii. *Replacement lighting*—Replace missing or severely damaged historic light fixtures in-kind or with fixtures that match the original in appearance and materials when in-kind replacement is not feasible. Fit replacement fixtures to the existing mounting location.
- iii. *New light fixtures*—Avoid damage to the historic building when installing necessary new light fixtures, ensuring they may be removed in the future with little or no damage to the building. Place new light fixtures and those not historically present in locations that do not distract from the façade of the building while still directing light where needed. New light fixtures should be unobtrusive in design and should not rust or stain the building.

6. Architectural Features: Doors, Windows, and Screens

A. MAINTENANCE (PRESERVATION)

- i. *Openings*—Preserve existing window and door openings. Avoid enlarging or diminishing to fit stock sizes or air conditioning units. Avoid filling in historic door or window openings. Avoid creating new primary entrances or window openings on the primary façade or where visible from the public right-of-way.
- ii. *Doors*—Preserve historic doors including hardware, fanlights, sidelights, pilasters, and entablatures.
- iii. *Windows*—Preserve historic windows. When glass is broken, the color and clarity of replacement glass should match the original historic glass.
- iv. *Screens and shutters*—Preserve historic window screens and shutters.
- v. *Storm windows*—Install full-view storm windows on the interior of windows for improved energy efficiency. Storm window may be installed on the exterior so long as the visual impact is minimal and original architectural details are not obscured.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Doors*—Replace doors, hardware, fanlight, sidelights, pilasters, and entablatures in-kind when possible and when deteriorated beyond repair. When in-kind replacement is not feasible, ensure features match the size, material, and profile of the historic element.
- ii. *New entrances*—Ensure that new entrances, when necessary to comply with other regulations, are compatible in size, scale, shape, proportion, material, and massing with historic entrances.
- iii. *Glazed area*—Avoid installing interior floors or suspended ceilings that block the glazed area of historic windows.
- iv. *Window design*—Install new windows to match the historic or existing windows in terms of size, type, configuration, material, form, appearance, and detail when original windows are deteriorated beyond repair.
- v. *Muntins*—Use the exterior muntin pattern, profile, and size appropriate for the historic building when replacement windows are necessary. Do not use internal muntins sandwiched between layers of glass.
- vi. *Replacement glass*—Use clear glass when replacement glass is necessary. Do not use tinted glass, reflective glass, opaque glass, and other non-traditional glass types unless it was used historically. When established by the architectural style of the building, patterned, leaded, or colored glass can be used.
- vii. *Non-historic windows*—Replace non-historic incompatible windows with windows that are typical of the architectural style of the building.
- viii. *Security bars*—Install security bars only on the interior of windows and doors.
- ix. *Screens*—Utilize wood screen window frames matching in profile, size, and design of those historically found when the existing screens are deteriorated beyond repair. Ensure that the tint of replacement screens closely matches the original screens or those used historically.
- x. *Shutters*—Incorporate shutters only where they existed historically and where appropriate to the architectural style of the house. Shutters should match the height and width of the opening and be mounted to be operational or appear to be operational. Do not mount shutters directly onto any historic wall material.

7. Architectural Features: Porches, Balconies, and Porte-Cocheres

A. MAINTENANCE (PRESERVATION)

- i. *Existing porches, balconies, and porte-cocheres*—Preserve porches, balconies, and porte-cocheres. Do not add new porches, balconies, or porte-cocheres where not historically present.
- ii. *Balusters*—Preserve existing balusters. When replacement is necessary, replace in-kind when possible or with balusters that match the originals in terms of materials, spacing, profile, dimension, finish, and height of the railing.
- iii. *Floors*—Preserve original wood or concrete porch floors. Do not cover original porch floors of wood or concrete with carpet, tile, or other materials unless they were used historically.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

- i. *Front porches*—Refrain from enclosing front porches. Approved screen panels should be simple in design as to not change the character of the structure or the historic fabric.
- ii. *Side and rear porches*—Refrain from enclosing side and rear porches, particularly when connected to the main porch or balcony. Original architectural details should not be obscured by any screening or enclosure materials. Alterations to side and rear porches should result in a space that functions, and is visually interpreted as, a porch.
- iii. *Replacement*—Replace in-kind porches, balconies, porte-cocheres, and related elements, such as ceilings, floors, and columns, when such features are deteriorated beyond repair. When in-kind replacement is not feasible, the design should be compatible in scale, massing, and detail while materials should match in color, texture, dimensions, and finish.
- iv. *Adding elements*—Design replacement elements, such as stairs, to be simple so as to not distract from the historic character of the building. Do not add new elements and details that create a false historic appearance.
- v. *Reconstruction*—Reconstruct porches, balconies, and porte-cocheres based on accurate evidence of the original, such as photographs. If no such evidence exists, the design should be based on the architectural style of the building and historic patterns.

8. Architectural Features: Foundations

A. MAINTENANCE (PRESERVATION)

- i. *Details*—Preserve the height, proportion, exposure, form, and details of a foundation such as decorative vents, grilles, and lattice work.
- ii. *Ventilation*—Ensure foundations are vented to control moisture underneath the dwelling, preventing deterioration.
- iii. *Drainage*—Ensure downspouts are directed away and soil is sloped away from the foundation to avoid moisture collection near the foundation.

iv. *Repair*—Inspect foundations regularly for sufficient drainage and ventilation, keeping it clear of vegetation. Also inspect for deteriorated materials such as limestone and repair accordingly. Refer to maintenance and alteration of applicable materials, for additional guidelines.

B. ALTERATIONS (REHABILITATION, RESTORATION, AND RECONSTRUCTION)

i. *Replacement features*—Ensure that features such as decorative vents and grilles and lattice panels are replaced in-kind when deteriorated beyond repair. When in-kind replacement is not possible, use features matching in size, material, and design. Replacement skirting should consist of durable, proven materials, and should either match the existing siding or be applied to have minimal visual impact.

ii. *Alternative materials*—Cedar piers may be replaced with concrete piers if they are deteriorated beyond repair.

iii. *Shoring*—Provide proper support of the structure while the foundation is rebuilt or repaired.

iv. *New utilities*—Avoid placing new utility and mechanical connections through the foundation along the primary façade or where visible from the public right-of-way.

UDC Section 35-618. Tax Exemption Qualification.

(d) Certification.

(1) Historic and Design Review Commission Certification. Upon receipt of the owner's sworn application the historic and design review commission shall make an investigation of the property and shall certify the facts to the city tax assessor-collector within thirty (30) days along with the historic and design review commission's documentation for recommendation of either approval or disapproval of the application for exemption.

Historic Design Guidelines, Chapter 3, Guidelines for Additions

1. Massing and Form of Residential Additions

A. GENERAL

i. *Minimize visual impact*—Site residential additions at the side or rear of the building whenever possible to minimize views of the addition from the public right-of-way. An addition to the front of a building would be inappropriate.

ii. *Historic context*—Design new residential additions to be in keeping with the existing, historic context of the block. For example, a large, two-story addition on a block comprised of single-story homes would not be appropriate.

iii. *Similar roof form*—Utilize a similar roof pitch, form, overhang, and orientation as the historic structure for additions.

iv. *Transitions between old and new*—Utilize a setback or recessed area and a small change in detailing at the seam of the historic structure and new addition to provide a clear visual distinction between old and new building forms.

B. SCALE, MASSING, AND FORM

i. *Subordinate to principal facade*—Design residential additions, including porches and balconies, to be subordinate to the principal façade of the original structure in terms of their scale and mass.

ii. *Rooftop additions*—Limit rooftop additions to rear facades to preserve the historic scale and form of the building from the street level and minimize visibility from the public right-of-way. Full-floor second story additions that obscure the form of the original structure are not appropriate.

iii. *Dormers*—Ensure dormers are compatible in size, scale, proportion, placement, and detail with the style of the house. Locate dormers only on non-primary facades (those not facing the public right-of-way) if not historically found within the district.

iv. *Footprint*—The building footprint should respond to the size of the lot. An appropriate yard to building ratio should be maintained for consistency within historic districts. Residential additions should not be so large as to double the existing building footprint, regardless of lot size.

v. *Height*—Generally, the height of new additions should be consistent with the height of the existing structure. The maximum height of new additions should be determined by examining the line-of-sight or visibility from the street. Addition height should never be so contrasting as to overwhelm or distract from the existing structure.

2. Massing and Form of Non-Residential and Mixed-Use Additions

A. GENERAL

i. *Historic context*—Design new additions to be in keeping with the existing, historic context of the block. For example, additions should not fundamentally alter the scale and character of the block when viewed from the public right-of-way.

ii. *Preferred location*—Place additions at the side or rear of the building whenever possible to minimize the visual impact on the original structure from the public right of way. An addition to the front of a building is inappropriate.

iii. *Similar roof form*—Utilize a similar roof pitch, form, and orientation as the principal structure for additions, particularly for those that are visible from the public right-of-way.

- iv. *Subordinate to principal facade*—Design additions to historic buildings to be subordinate to the principal façade of the original structure in terms of their scale and mass.
- v. *Transitions between old and new*—Distinguish additions as new without distracting from the original structure. For example, rooftop additions should be appropriately set back to minimize visibility from the public right-of-way. For side or rear additions utilize setbacks, a small change in detailing, or a recessed area at the seam of the historic structure and new addition to provide a clear visual distinction between old and new building forms.

B. SCALE, MASSING, AND FORM

- i. *Height*—Limit the height of side or rear additions to the height of the original structure. Limit the height of rooftop additions to no more than 40 percent of the height of original structure.
- ii. *Total addition footprint*—New additions should never result in the doubling of the historic building footprint. Full-floor rooftop additions that obscure the form of the original structure are not appropriate.

3. Materials and Textures

A. COMPLEMENTARY MATERIALS

- i. *Complementary materials*—Use materials that match in type, color, and texture and include an offset or reveal to distinguish the addition from the historic structure whenever possible. Any new materials introduced to the site as a result of an addition must be compatible with the architectural style and materials of the original structure.
- ii. *Metal roofs*—Construct new metal roofs in a similar fashion as historic metal roofs. Refer to the Guidelines for Alternations and Maintenance section for additional specifications regarding metal roofs.
- iii. *Other roofing materials*—Match original roofs in terms of form and materials. For example, when adding on to a building with a clay tile roof, the addition should have a roof that is clay tile, synthetic clay tile, or a material that appears similar in color and dimension to the existing clay tile.

B. INAPPROPRIATE MATERIALS

- i. *Imitation or synthetic materials*—Do not use imitation or synthetic materials, such as vinyl siding, brick or simulated stone veneer, plastic, or other materials not compatible with the architectural style and materials of the original structure.

C. REUSE OF HISTORIC MATERIALS

- i. *Salvage*—Salvage and reuse historic materials, where possible, that will be covered or removed as a result of an addition.

4. Architectural Details

A. GENERAL

- i. *Historic context*—Design additions to reflect their time while respecting the historic context. Consider character-defining features and details of the original structure in the design of additions. These architectural details include roof form, porches, porticos, cornices, lintels, arches, quoins, chimneys, projecting bays, and the shapes of window and door openings.
- ii. *Architectural details*—Incorporate architectural details that are in keeping with the architectural style of the original structure. Details should be simple in design and compliment the character of the original structure. Architectural details that are more ornate or elaborate than those found on the original structure should not be used to avoid drawing undue attention to the addition.
- iii. *Contemporary interpretations*—Consider integrating contemporary interpretations of traditional designs and details for additions. Use of contemporary window moldings and door surroundings, for example, can provide visual interest while helping to convey the fact that the addition is new.

Historic Design Guidelines, Chapter 5, Guidelines for Site Elements

2. Fences and Walls

A. HISTORIC FENCES AND WALLS

- i. *Preserve*—Retain historic fences and walls.
- ii. *Repair and replacement*—Replace only deteriorated sections that are beyond repair. Match replacement materials (including mortar) to the color, texture, size, profile, and finish of the original.
- iii. *Application of paint and cementitious coatings*—Do not paint historic masonry walls or cover them with stone facing or stucco or other cementitious coatings.

B. NEW FENCES AND WALLS

- i. *Design*—New fences and walls should appear similar to those used historically within the district in terms of their scale, transparency, and character. Design of fence should respond to the design and materials of the house or main structure.
- ii. *Location*—Avoid installing a fence or wall in a location where one did not historically exist, particularly within the front yard. The appropriateness of a front yard fence or wall is dependent on conditions within a specific historic district. New front yard fences or wall should not be introduced within historic districts that have not historically had them.
- iii. *Height*—Limit the height of new fences and walls within the front yard to a maximum of four feet. The appropriateness of a front yard fence is dependent on conditions within a specific historic district. New front yard fences should not be introduced within historic districts that have not historically had them. If a taller fence or wall existed historically, additional height may be considered. The height of a new retaining wall should not exceed the height of the slope it retains.
- iv. *Prohibited materials*—Do not use exposed concrete masonry units (CMU), Keystone or similar interlocking retaining wall systems, concrete block, vinyl fencing, or chain link fencing.
- v. *Appropriate materials*—Construct new fences or walls of materials similar to fence materials historically used in the district. Select materials that are similar in scale, texture, color, and form as those historically used in the district, and that are compatible with the main structure. Screening incompatible uses—Review alternative fence heights and materials for appropriateness where residential properties are adjacent to commercial or other potentially incompatible uses.

C. PRIVACY FENCES AND WALLS

- i. *Relationship to front facade*—Set privacy fences back from the front façade of the building, rather than aligning them with the front façade of the structure to reduce their visual prominence.
- ii. *Location* – Do not use privacy fences in front yards.

5. Sidewalks, Walkways, Driveways, and Curbing

A. SIDEWALKS AND WALKWAYS

- i. *Maintenance*—Repair minor cracking, settling, or jamming along sidewalks to prevent uneven surfaces. Retain and repair historic sidewalk and walkway paving materials—often brick or concrete—in place.
- ii. *Replacement materials*—Replace those portions of sidewalks or walkways that are deteriorated beyond repair. Every effort should be made to match existing sidewalk color and material.
- iii. *Width and alignment*— Follow the historic alignment, configuration, and width of sidewalks and walkways. Alter the historic width or alignment only where absolutely necessary to accommodate the preservation of a significant tree.
- iv. *Stamped concrete*—Preserve stamped street names, business insignias, or other historic elements of sidewalks and walkways when replacement is necessary.
- v. *ADA compliance*—Limit removal of historic sidewalk materials to the immediate intersection when ramps are added to address ADA requirements.

B. DRIVEWAYS

- i. *Driveway configuration*—Retain and repair in place historic driveway configurations, such as ribbon drives. Incorporate a similar driveway configuration—materials, width, and design—to that historically found on the site. Historic driveways are typically no wider than 10 feet. Pervious paving surfaces may be considered where replacement is necessary to increase stormwater infiltration.
- ii. *Curb cuts and ramps*—Maintain the width and configuration of original curb cuts when replacing historic driveways. Avoid introducing new curb cuts where not historically found.

C. CURBING

- i. *Historic curbing*—Retain historic curbing wherever possible. Historic curbing in San Antonio is typically constructed of concrete with a curved or angular profile.
- ii. *Replacement curbing*—Replace curbing in-kind when deteriorated beyond repair. Where in-kind replacement is not be feasible, use a comparable substitute that duplicates the color, texture, durability, and profile of the original. Retaining walls and curbing should not be added to the sidewalk design unless absolutely necessary.

FINDINGS:

- a. The property located at 304 Sadie is a single story, single-family structure constructed in the folk-Victorian style. The property first appears on the 1912 Sanborn map. The structure features an original wrap-around front porch, and has been modified to feature a non-historic, rear addition replacing an original rear porch. The rear

addition was constructed post-1951 as indicated in the Sanborn map of this date. The house currently features three front doors at the front porch of the structure as part of a modification of the structure into a duplex,, and a historically-present cant bay window with three faces that has been modified to accommodate a non-historic water heater closet addition.

- b. **REMOVAL OF NON-HISTORIC ADDITIONS FOR REAR PORCH CONSTRUCTION:** The applicant has proposed to modify the rear addition to accommodate a rear porch. The existing rear addition is located in the same footprint as the original rear porch as shown on the 1912 and 1951 Sanborn Maps. The rear addition was likely constructed after 1951. Staff finds the removal of the non-historic addition to accommodate a rear porch appropriate. The applicant has proposed to remove a water heater shed from the side elevation. Staff finds that this structural component is not historically present, and that its removal is appropriate.
- c. **FENESTRATION MODIFICATION: FRONT FAÇADE** – The applicant has proposed to remove the front door on the east side of the front (north) façade and replace it with a relocated existing window. Additionally, the applicant has proposed to remove and enclose the door opening on the east façade on the front porch. Guideline 6.A.i for Exterior Maintenance and Alterations stipulates that existing window and door openings should be preserved. Avoid enlarging or diminishing to fit stock sizes or air conditioning units. Avoid filling in historic door or window openings. Avoid creating new primary entrances or window openings on the primary façade or where visible from the public right-of-way. While the front door on the east side of the front façade is likely not original to the structure and the replacement of the door opening with a salvaged window is appropriate, the front door on the east façade of the front porch is original to the structure and front door configurations like the existing configuration are common on Folk Victorian and Queen Anne homes of this period. Staff finds that the original porch door should be maintained. The non-original porch door may be replaced with a new window opening; however, the window should feature a head and sill height to match the existing front façade windows. The applicant Additionally, staff finds that the original gable vent should be preserved.
- d. **FENESTRATION MODIFICATIONS: WEST ELEVATION** – The applicant has proposed to remove three (3) non-original small windows from the west elevation and install a fully wood door and transom window in the location of the window to the immediate left. The applicant has also proposed to install a window in the existing opening on the side window bay. Lastly, the applicant has proposed to replace an existing gable vent with a window. The Guidelines for Exterior Maintenance and Alterations note that original openings should be reserved and that new openings on primary facades or where visible from the right of way should be avoided. Staff finds the installation of a window in the bay to be appropriate; however, staff does not find the installation of a door to the left of the bay and a window in the gable vent’s location to be appropriate.
- e. **FENESTRTION MODIFICATIONS: EAST ELEVATION** – The applicant has proposed to replace a non-original window on north side of the east elevation with a custom-made wood window. Guideline 6.B.vii for Exterior Maintenance and Alterations states that non-historic incompatible windows should be replaced with windows that are typical of the architectural style of the building. Staff finds the proposal appropriate.
- f. **FENCING** – The applicant is requesting to replace the existing chain link fence. The new fencing will feature a hog wire, cattle-panel style, 4-foot fence in the front of the property, and 6ft horizontal wood slat and metal post privacy fencing along the rear and side yards. Guideline 2.B.i for Site Elements notes that new fences should appear similar to those used historically within the district in terms of their scale, transparency, and character; staff does not find the cattle panel-style fencing to be consistent with these guidelines. A fence of wood or wrought iron material would be appropriate. Guidelines 2.B.i and 2.B.ii state that fences should be installed where historically located, and should be limited in height to 4 feet and 6 feet in the front yard and rear yards, respectively. Staff finds the proposed location and dimensions of the new fencing to be appropriate.
- g. **SKIRTING REPLACEMENT** – The applicant has proposed to replace the existing pressboard skirting with wood siding to match the existing siding of the house. Guideline 1.B.ii for Exterior Maintenance and Alterations states that replacement siding should be installed to match the original pattern, including exposures. Staff finds the proposed skirting modifications to be appropriate.
- h. **REPAIR AND MAINTENANCE** – The applicant is requesting approval to repair the historic siding, repair the foundation, repaint the exterior of the home, and perform window repair. Staff finds the proposed scopes of work to be appropriate provided that all work is done in-kind with like materials. Wholesale siding replacement should not occur.
- i. **CURB CUT MODIFICATION** – The applicant is requesting to modify the curb cut of the existing driveway to accommodate two vehicles. Historic Guideline 5.B.ii for Site Elements states to maintain the width and

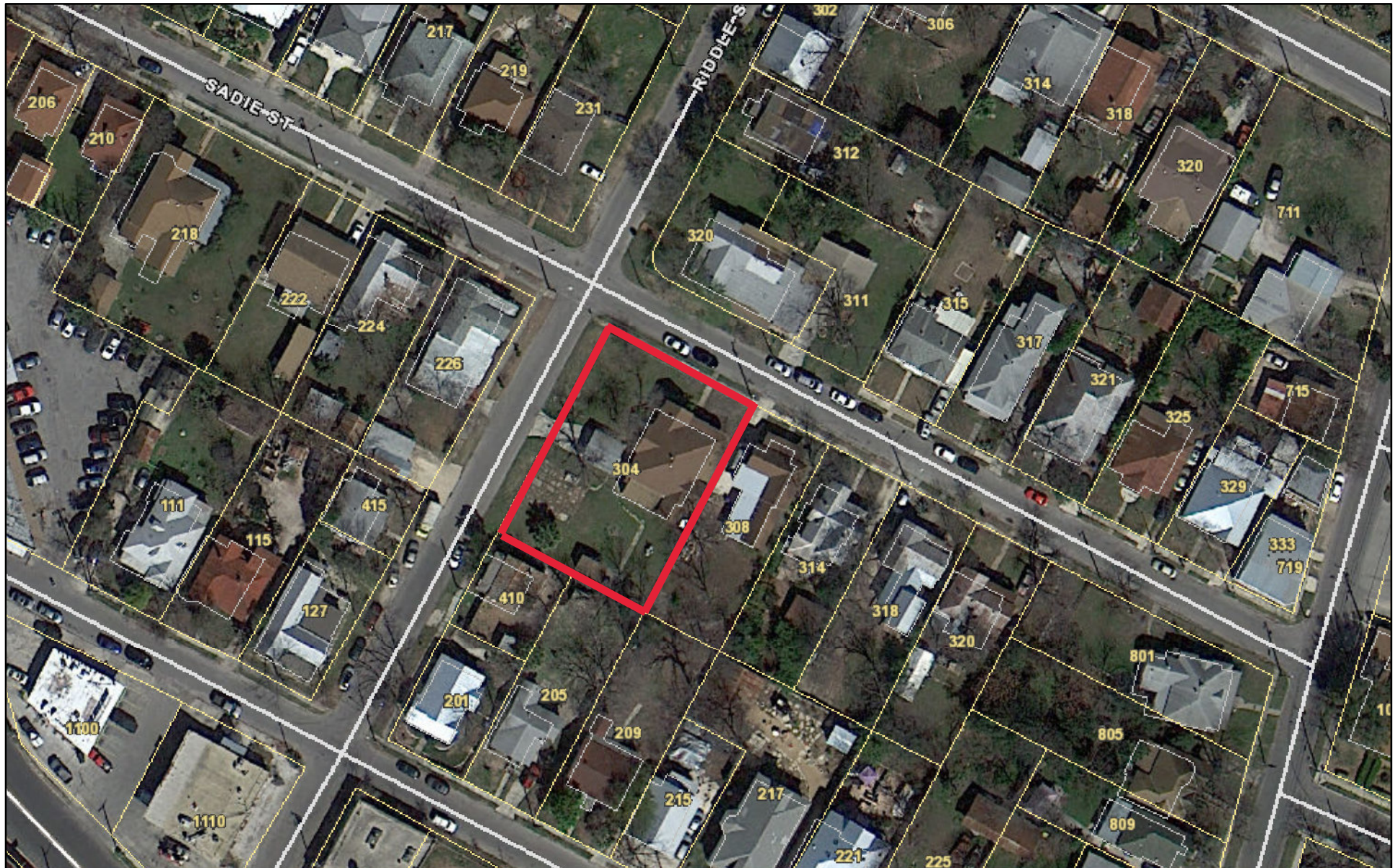
configuration of original curb cuts when replacing historic driveways, and to void introducing new curb cuts where not historically found. Staff finds the new proposed curb cut to be inconsistent with this guideline.

- j. REMOVAL OF CARPORT – The applicant is requesting approval to remove the existing, non-historic carport. Staff finds this to be appropriate as the structure is non-contributing.
- k. HISTORIC TAX INCENTIVE – The scope of work includes a comprehensive interior remodel, electrical, plumbing, and mechanical upgrades, foundation repair, window repair, roof repair, siding repair, soffit and fascia repair, porch column replacement, removal of a non-historic rear addition, fenestration modifications, site work, and landscaping. Certificates of Appropriateness are required for all exterior scopes of work. The applicant has met all the requirements for Historic Tax Certification outlined in UDC Section 35-618 and has provided evidence to that effect to the Historic Preservation Officer. To qualify for the Substantial Rehabilitation Tax Incentive the owner must pursue Historic Tax Verification once the rehabilitation work is complete.

RECOMMENDATION:

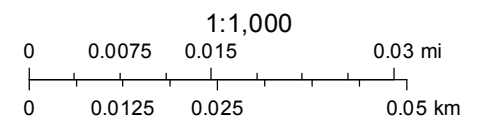
1. Staff recommends approval of item 1, removal of the rear addition and water heater closet, and the installation of a screened rear porch based on finding b.
2. Staff recommends approval of item 2, the replacement of the front door on the west side of the front porch with an existing relocated wood window from the enclosed rear facade, based on finding c.
3. Staff does not recommend approval of item 3, the removal of the front door on the east façade of the front porch, at this time based on finding c. If, during construction, the applicant is able to provide evidence to staff that the opening is not original, then the item could be considered for administrative approval at a future time.
4. Staff recommends approval of item 4, replacement of the rear casement window on the west elevation with a one-over-one wood window, based on finding d. The new window should match the existing historic windows in profile and material.
5. Staff recommends approval of item 5, the installation of a one over one window to replace a non-original window at the rear of the west elevation based on finding d. The new window should match the existing historic windows in profile and material.
6. Staff recommends approval of item 6, installation of a window within the existing side bay on the west elevation, based on finding d. the window within the bay should be installed to match the existing two. The head and sill heights of all original windows should remain the same.
7. Staff does not recommend approval of item 7, replacement of the front casement window on the west elevation with a wood door and transom window, based on finding d. Staff supports removal of the casement window, however the addition to this proposed door and transom window to the right hand side of the bay window may be appropriate.
8. Staff recommends approval of item 8, replacement of the gable vent on the west elevation with a wood casement window, based on finding d.
9. Staff recommends approval of the window replacement on the east elevation based on finding e with the following stipulation that the new window feature a profile, head and sill height that matches the original.
10. Staff recommends approval of item 10, replacement of the existing chain link fence, based on finding f with the following stipulations:
 - a. That the applicant install fencing that is fully framed in wood; and
 - b. That the final construction height of the approved gate and fencing may not exceed the maximum height of 4 feet as approved by the HDRC at any portion of the fence. Additionally, the gate and fencing must be permitted and meet the development standards outlined in UDC Section 35-514.
11. Staff recommends approval of item 11, replacing the existing skirting with wood skirting, based on finding g with the stipulation that the new wood skirting matches the profile of the existing siding.
12. Staff recommends approval of item 12, repair and maintenance, based on finding h.
13. Staff does not recommend approval of item 13, modification of the existing curb cut, based on finding i. Staff recommends that the curb cut not be altered.
14. Staff recommends approval of item 14, carport removal, based on finding j.
15. Staff recommends approval of item 15, Historic Tax Certification, based on finding k.

City of San Antonio One Stop



April 28, 2022

— User drawn lines



257

SEE VOLUME FOUR

S. PRESA

251

DEVINE

SEE VOLUME FOUR

S. PRESA

257

EAGER 1912

EAGER 257

726 (731)

735

732

727 (730)

RIDDLE

SADIE

VANCE

733

728 (729)

LABOR

258

W. DELAWARE ST.

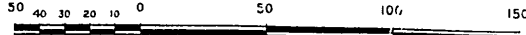
INDIANA ST.

259

W. FLORIDA ST.

W. FLORIDA

Scale of Feet.



257

SEE UO I U M B FOUR

S. PRESA

251

DEVINE

SEE UO I U M B FOUR

S. PRESA

257

EAGER

EAGER 257

726 (731)

732

252

DEVINE

RIDDLE

SADIE

733

728

(729)

W. FLORIDA

PARK

LABOR

258

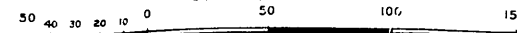
W. DELAWARE ST

INDIANA ST.

DEVINE ST

259

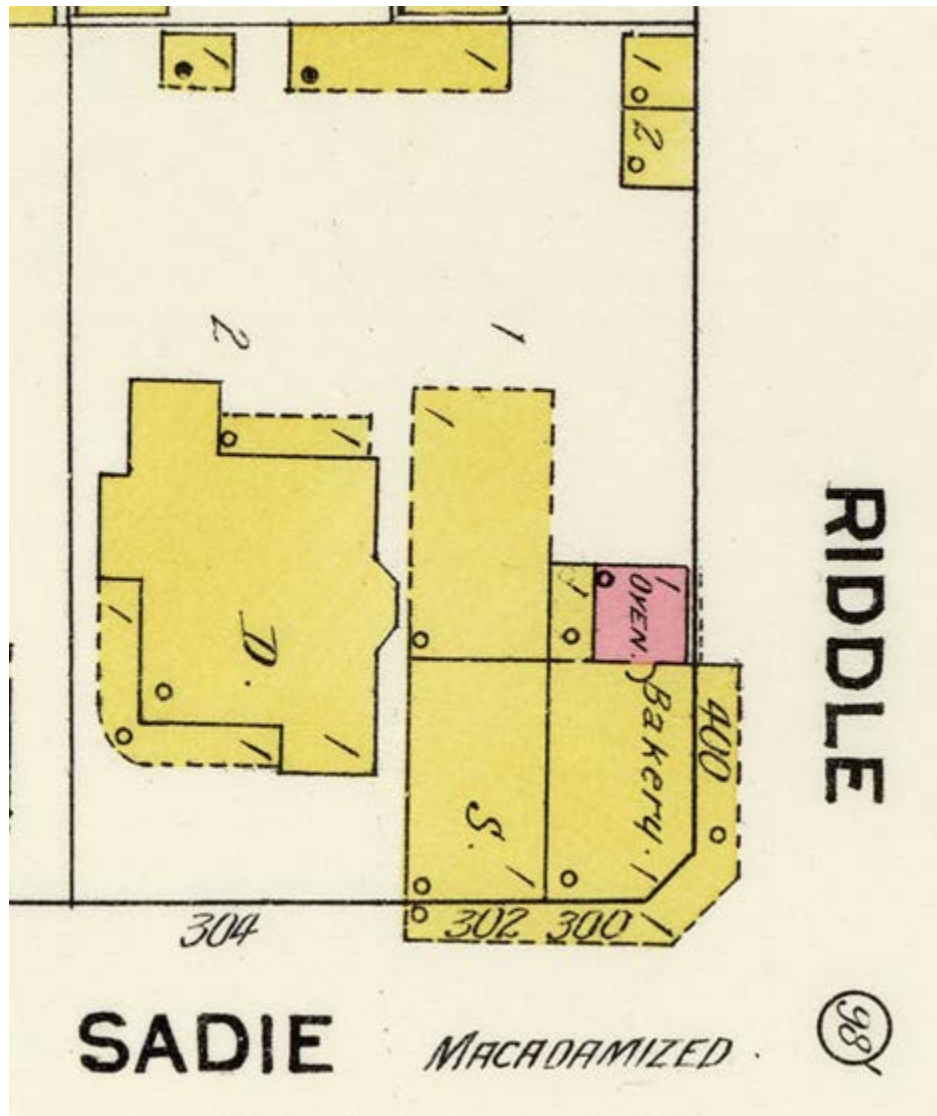
Scale of Feet.



304 Sadie – Built between 1904 and 1912

1904 – not shown on Sanborn map (v.2, p. 119)

1912, v.3, p. 257



















Proposed

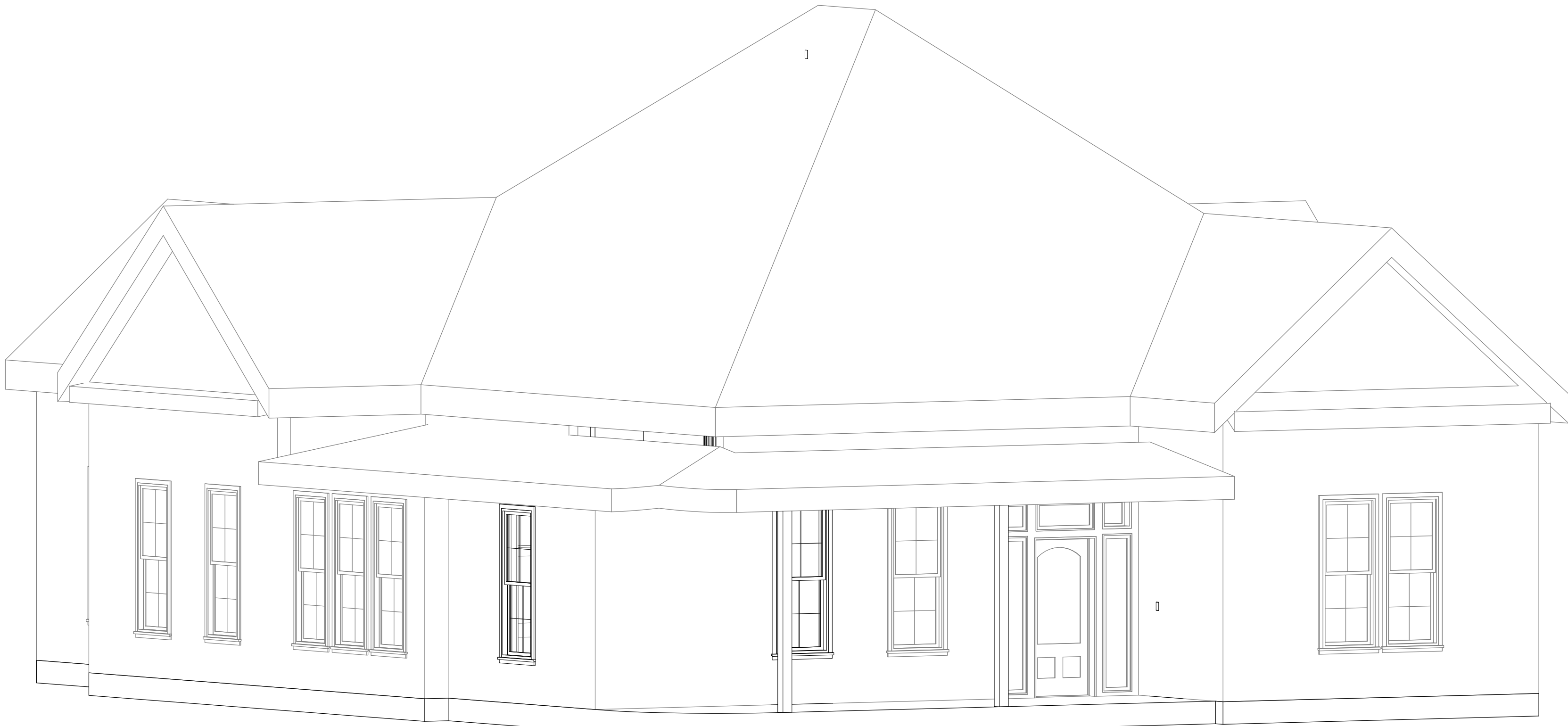
CONTENTS

001	3D VIEW/ CONTENTS
AD 100	SITE PLAN/ ROOF PLAN - DEMO
AD 101	FIRST FLOOR PLAN - DEMO
AD 300	ELEVATION NORTH & WEST - DEMO
AD 301	ELEVATION SOUTH & EAST - DEMO
A 100	SITE PLAN/ ROOF PLAN - NEW
A 101	FIRST FLOOR PLAN - NEW
A 102	SECOND FLOOR PLAN - NEW
A 200	SECTIONS
A 201	SECTIONS
A 300	ELEVATION NORTH & WEST - NEW
A 301	ELEVATION SOUTH & EAST - NEW
A 400	REFLECTED CEILING PLAN
A 500	WINDOW & DOOR SCHEDULE
E 101	ELECTRICAL FLOOR PLANS
L 101	LANDSCAPE PLAN
S1	FOUNDATION PLAN & DETAILS
S2	WALL FRAMING PLAN
S3	FIRST FLOOR CEILING FRAMING PLANS
S4	ROOF FRAMING PLAN
S5	FRAMING SECTIONS

HISTORIC ARCHITECTURAL FEATURES

Ogee 2" lap wood siding
Original Single Hung Wood Framed Windows
Shake Shingles at Gable Roof North Elevation
Existing Front Porch

Notes: First floor 2143sf
second floor 377sf
total: 2,520 SF



1 North - East

GENERAL NOTES

1. All work shall be performed in accordance with all applicable codes, regulations, ordinances and standards having jurisdiction within the City of San Antonio city limits. If there are any conflicts or questions concerning the compliance with such code, ordinances and/or standards, the contractor shall notify owner and/or architect prior to commencing any work in question.
2. All necessary permit licenses, certificates, special inspections and soil reports shall be procured by the contractor.
3. Contractor is responsible for checking all contract documents, field conditions, and dimensions for accuracy and confirming the work is buildable as shown, and meets all applicable codes before proceeding with construction. If there are any conflicts or questions regarding these or any other coordination issue, it is the responsibility of the contractor to inform the owner and/or architect prior to proceeding with the work in question.
4. The contractor shall certify size and location of all required openings for structural, mechanical, electrical and plumbing work and equipment with trades involved
5. The contractor and subcontractors shall be responsible for checking existing conditions of the job site and field verify dimensions prior to submitting a proposal. Claims for extra compensation for work that could have been foreseen by such inspection, whether shown on contract documents or not, shall not be accepted or paid.
6. All materials associated with the contract shall be new, unless noted on the drawings. All labor and materials shall be guaranteed against defective materials and workmanship for a period of one (1) year after the date of substantial completion. Contractor and subcontractors shall be provide all material warranty information to the owner.

SCOPE OF WORK - GENERALLY

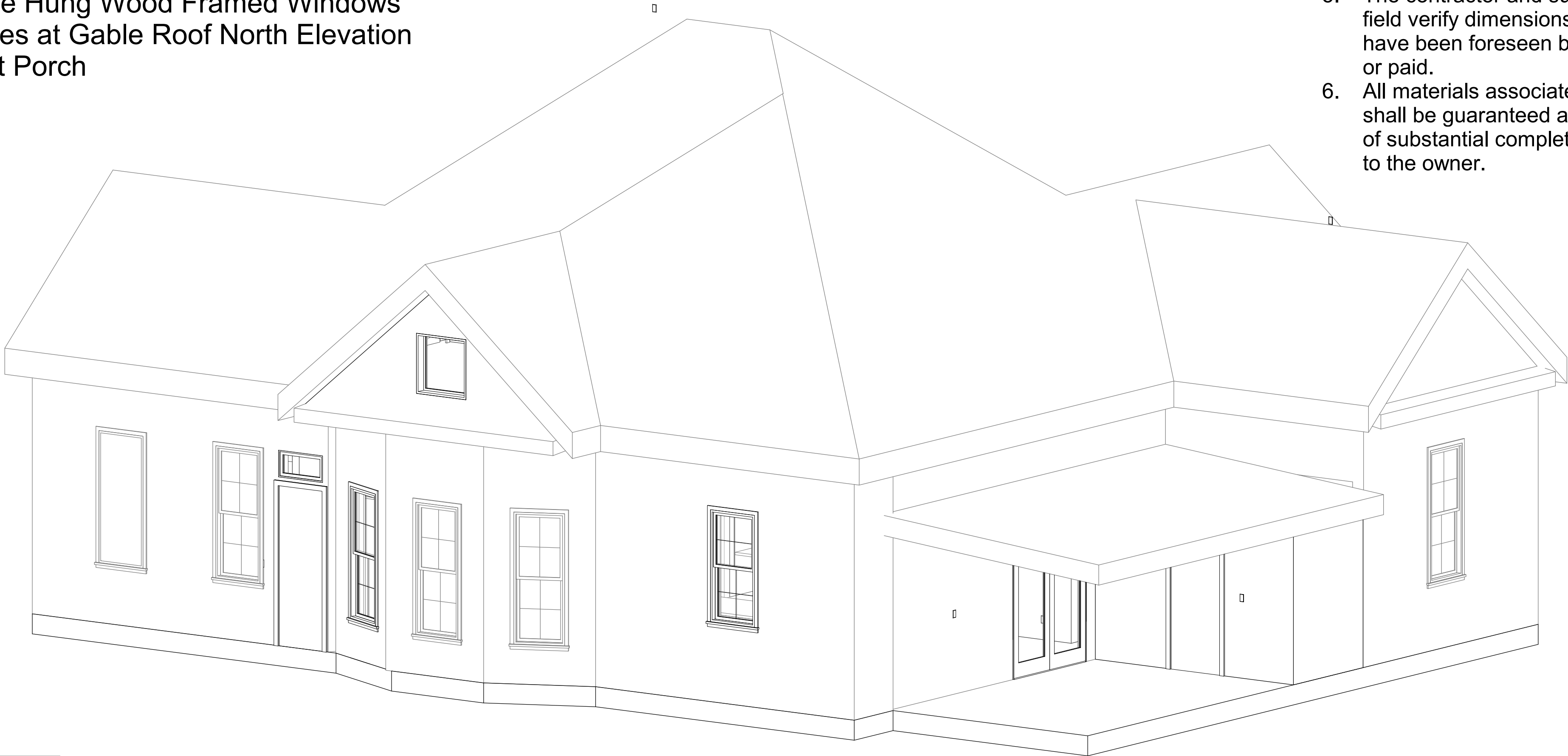
The scope of work includes interior renovations to a historic home in the Lavaca neighborhood. All utilities will be upgraded and added to existing water, and electrical meters. The work consists of repairing the foundation, adding supports to the roof trusses, removing interior walls and refinishing the interiors. The home will be retrofitted with HVAC, new appliances, and interior finishes.

The exterior work consists of removal of the non-historic portion of the house and creating a new back porch. Repairing historic windows, repairing wood rot, and painting the entire home. Widening the curb cut for two vehicles as well as widening the driveway. Construction a carport with 220 voltage for electric car charging station.

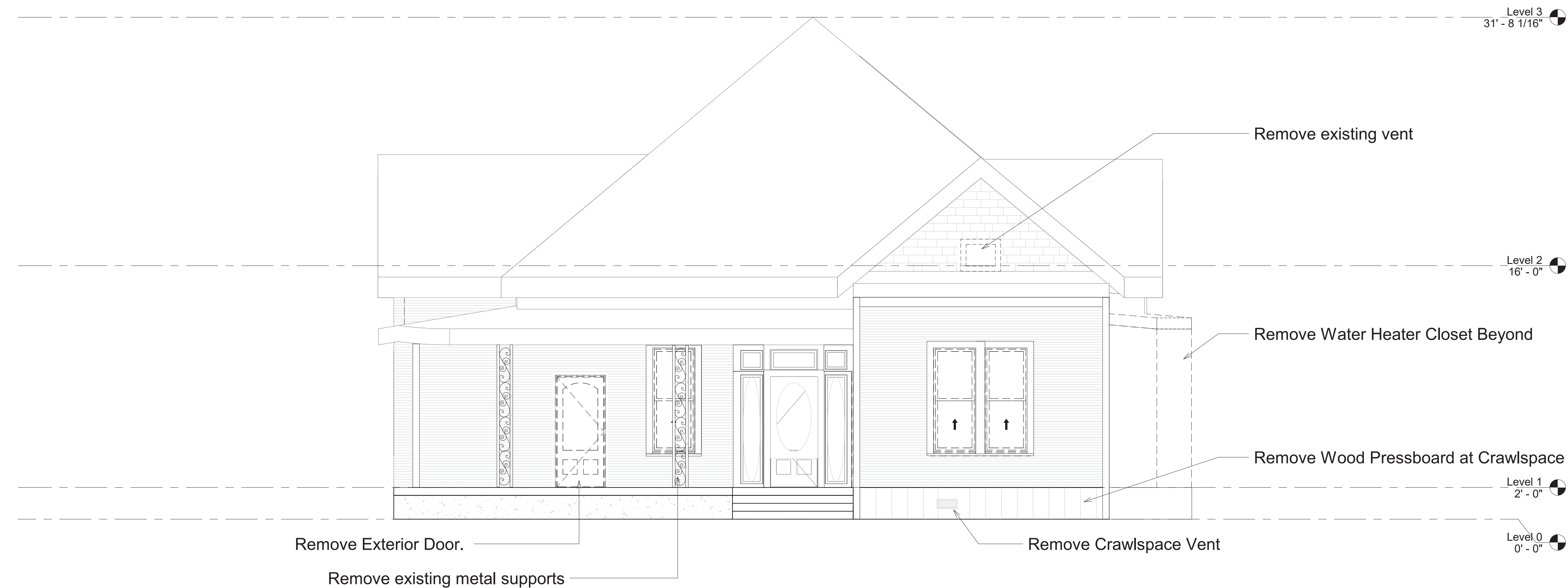
Landscaping will include new plantings, a sport court, gravel, mulch, pads and a new fence.



2 South - West

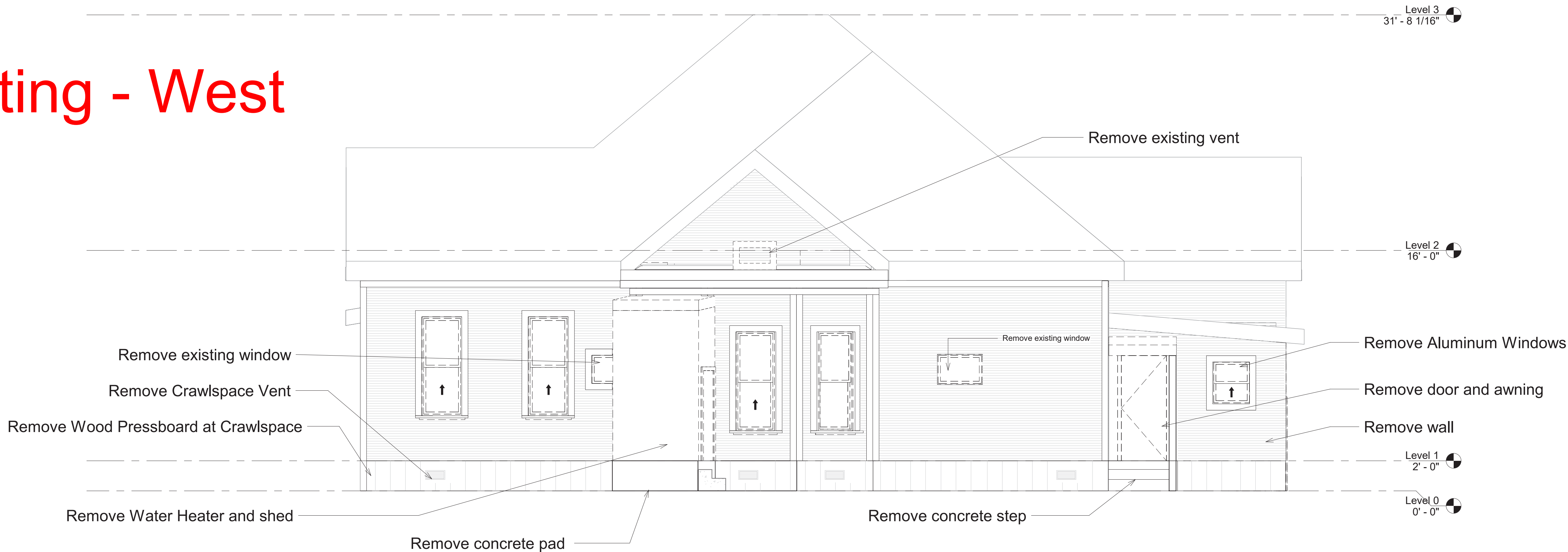


Existing - North



1 North- Demo
1/4" = 1'-0"

Existing - West



2 West- Demo
1/4" = 1'-0"

Revision History

Bid Documents

This document is incomplete and may not be used for regulatory approval, permit, or construction.

Michelle Hipps-Cruz
TX Registration No.

Date

07/11/21

Scale

1/4" = 1'-0"

Sheet Name

ELEVATION NORTH &
WEST-DEMO

Sheet Number

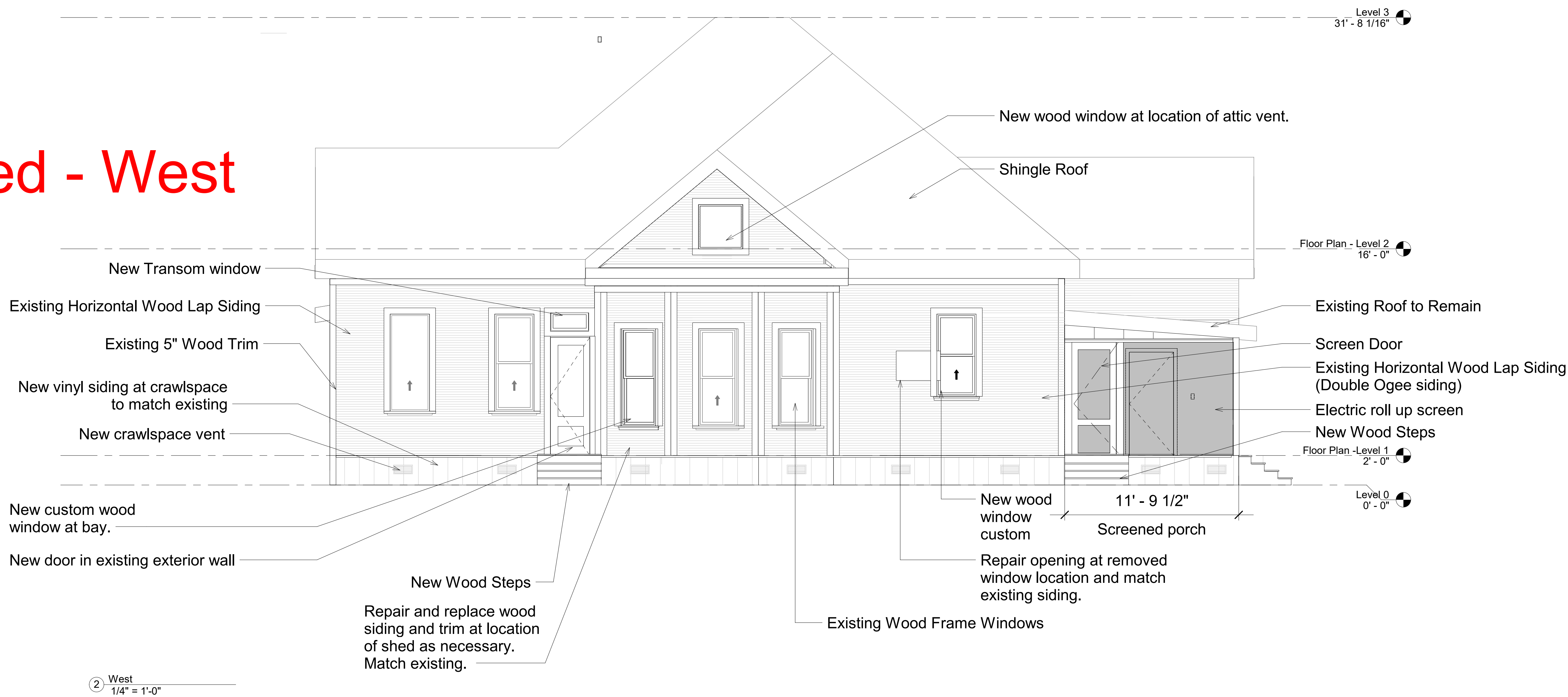
Notes - All Elevations

- 1. Paint all exterior wood of home.
- 2. Paint windows and trims.
- 3. Replace crawspace siding with vinyl siding to match existing.
- 4. Replace all crawspace vents

Proposed - North



Proposed - West



Existing - South

Save wood slats in good contition and reuse where repair is need.

Remove Water Heater Shed Beyond

Remove Aluminum Windows

Remove Crawspace Vent

Remove Wood Pressboard at Crawspace

Remove Water Heater Shed

23' - 1"
Remove wall at exterior

① South- Demo
1/4" = 1'-0"

Existing - East

Remove Crawspace Vent

Remove Wood Pressboard at Crawspace

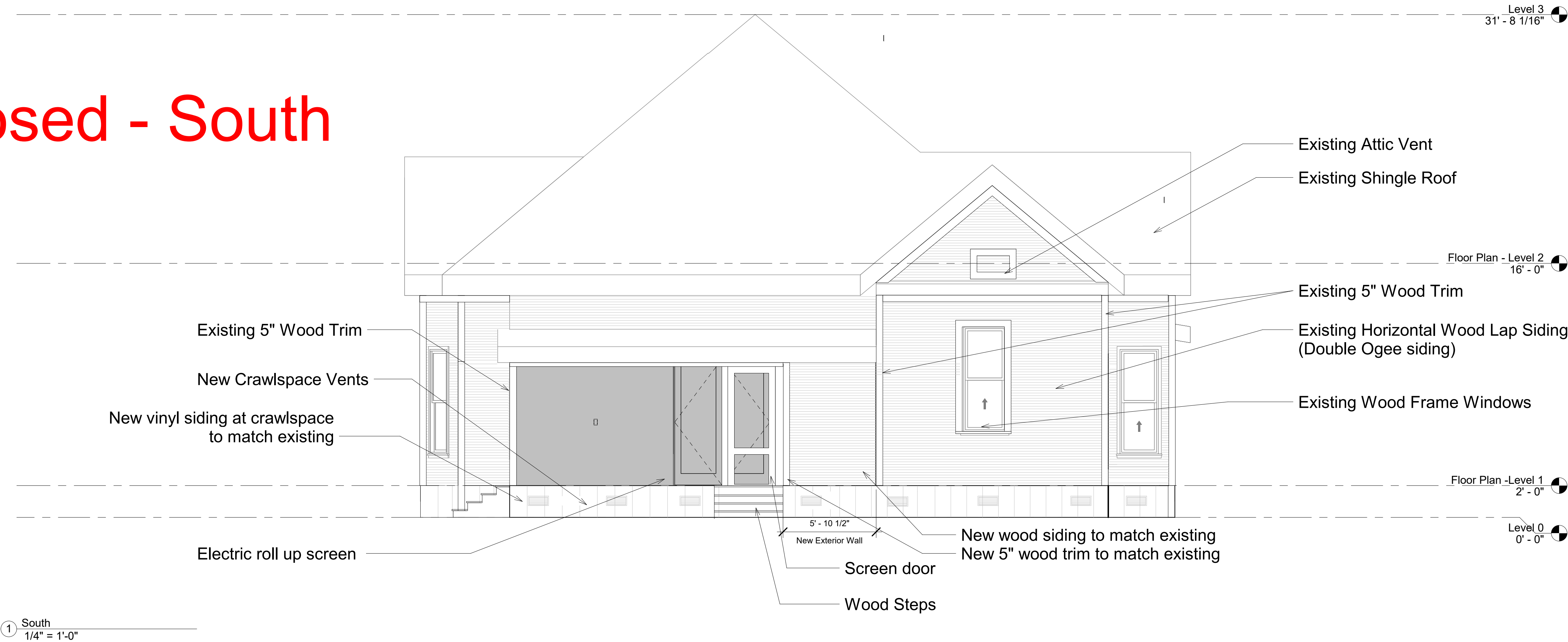
Remove Water Heater and Shed

Remove existing 28" x 48" winodow

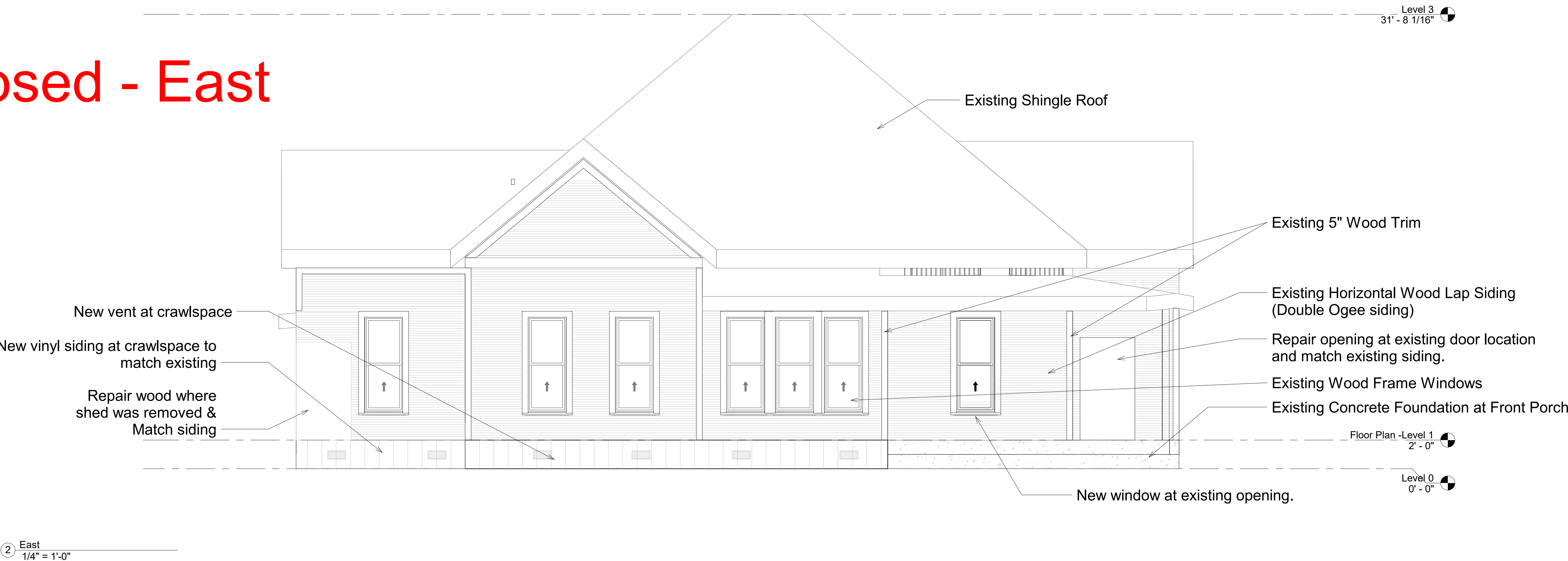
Remove existing exterior door

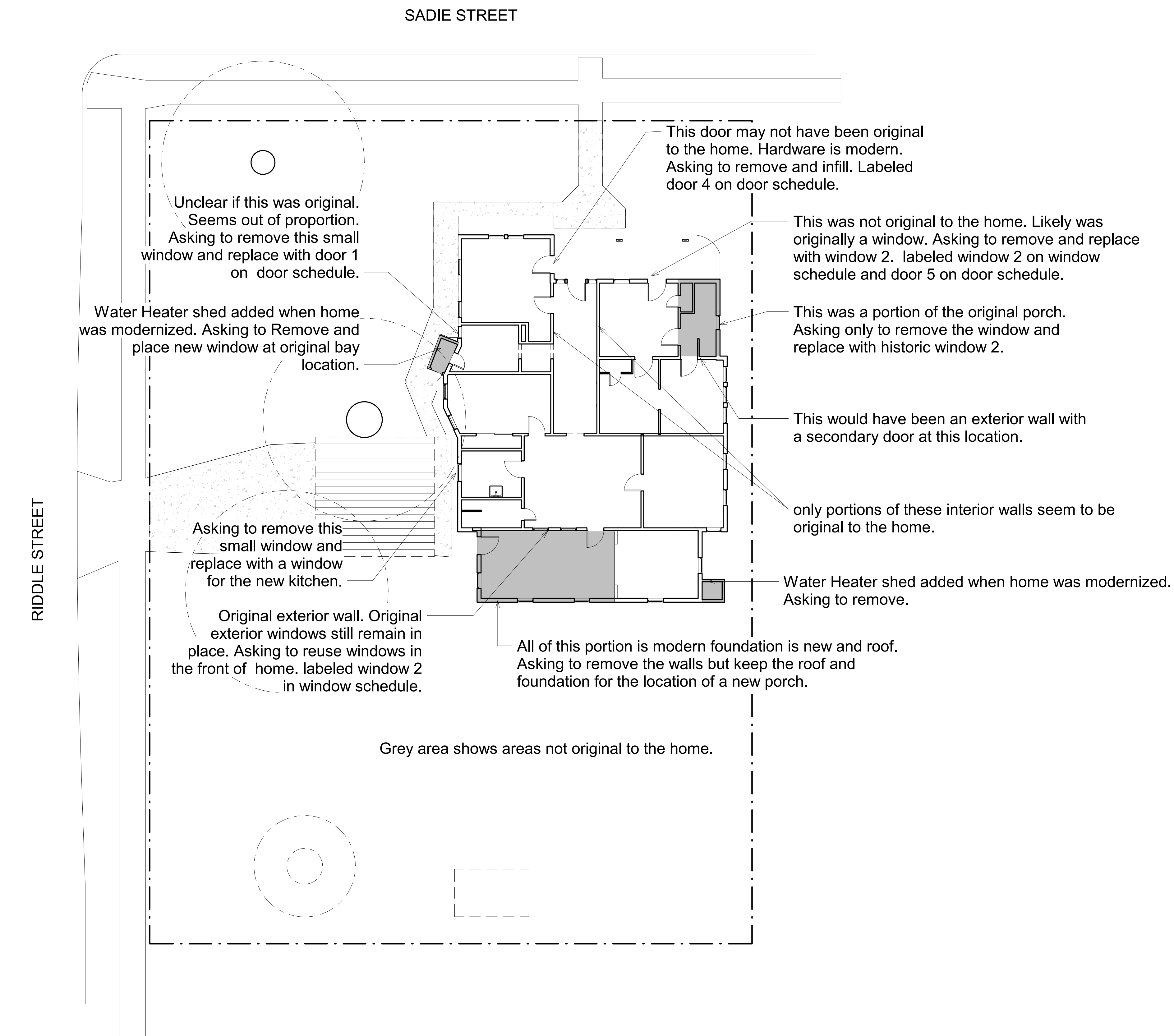
② East - Demo
1/4" = 1'-0"

Proposed - South



Proposed - East





Revision History

Bid Documents



Michelle Hipps-Cruz
TX Registration No. 26493

Date

03/24/22

Scale

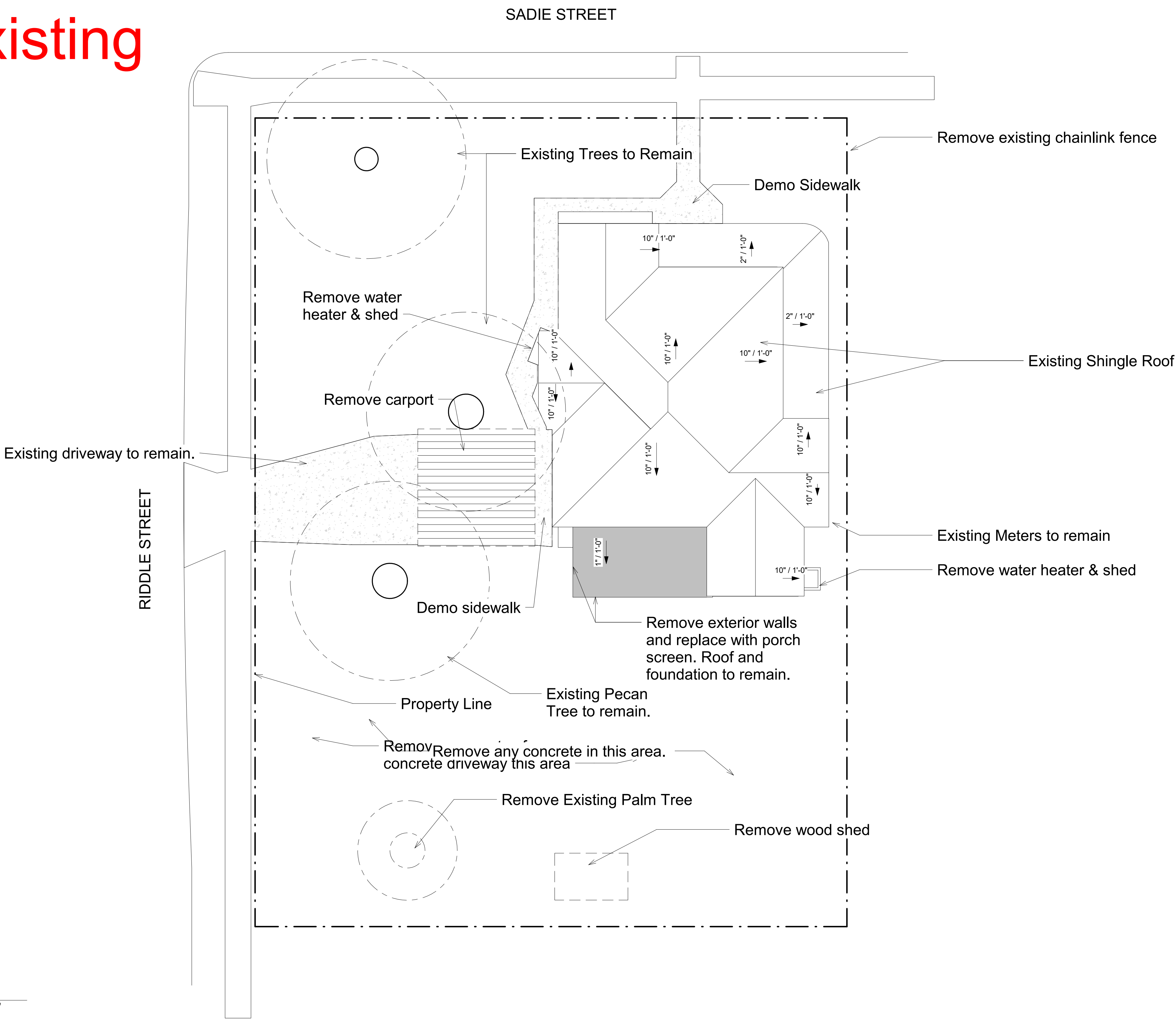
1" = 10'-0"

Sheet Name

As-built Site and Floor
Plan

Sheet Number

Existing



① Site Demo
1" = 10'-0"

Revision History

Bid Documents



Michelle Hipps-Cruz
TX Registration No. 26493

Date

3/31/22

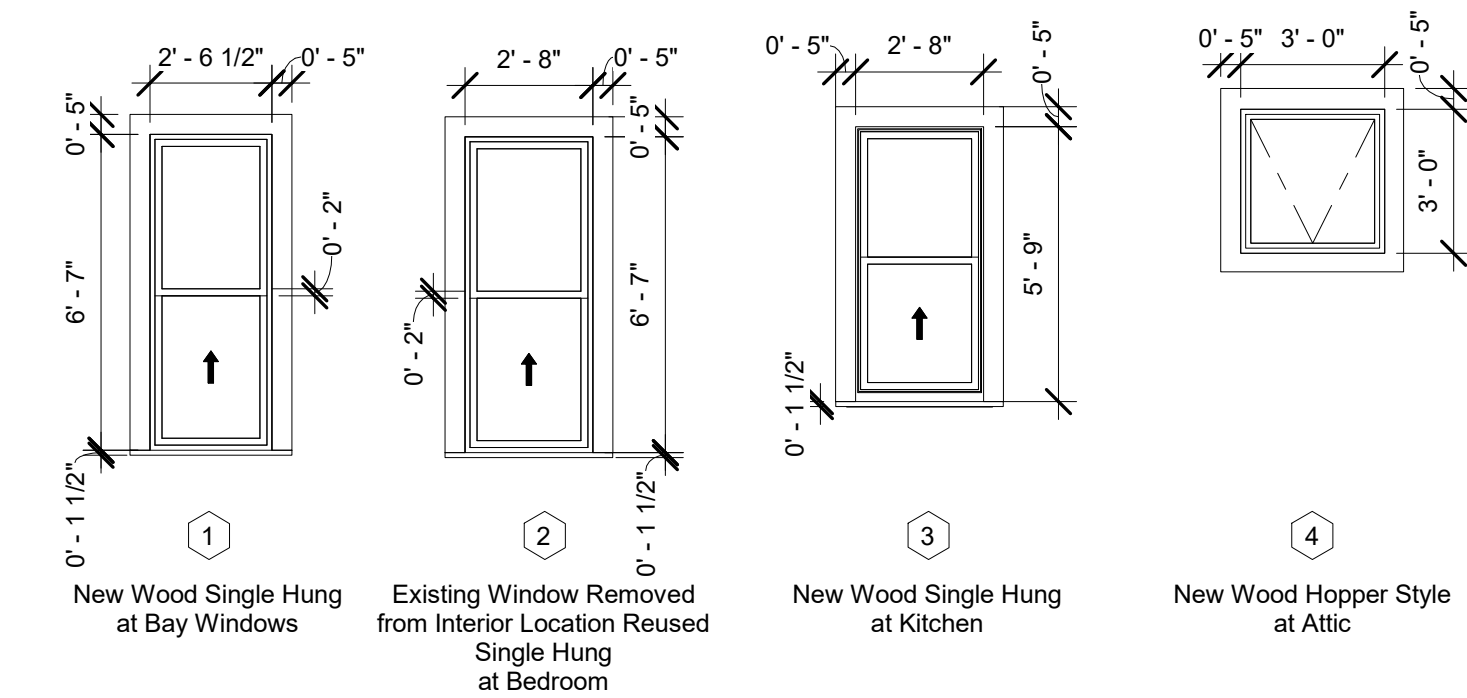
Scale

1" = 10'-0"

Sheet Name

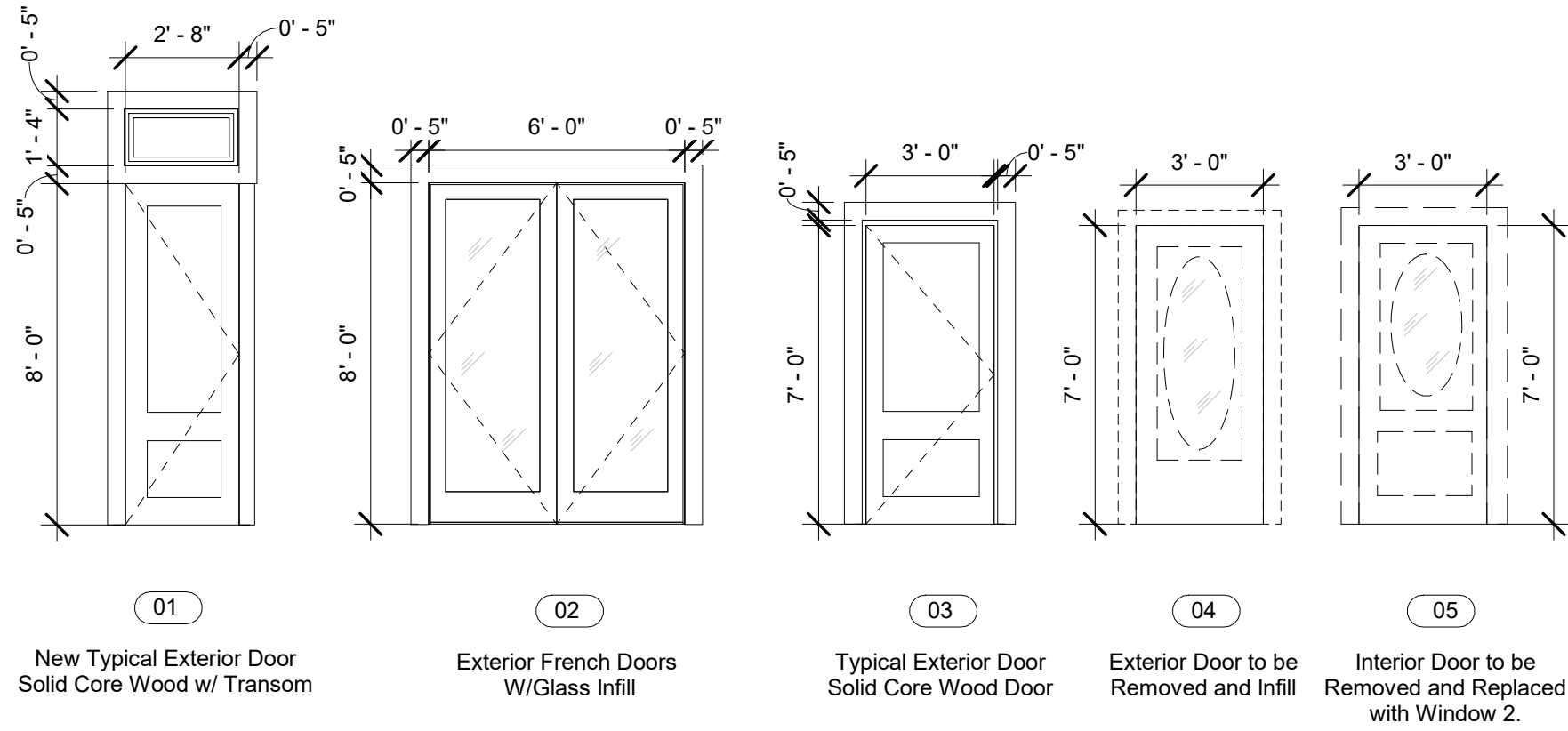
SITE PLAN - DEMO

Sheet Number

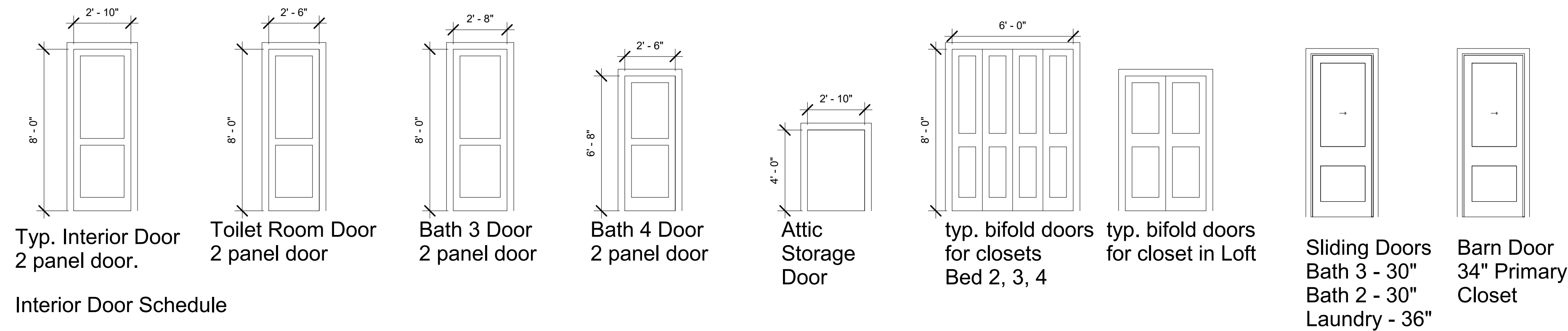


Exterior Window Schedule

Window and Door Schedule
1/4" = 1'-0"



Exterior Door Schedule



Interior Door Schedule

Revision History

Bid Documents



Michelle Hipps-Cruz
TX Registration No. 26493

Date

3/31/22

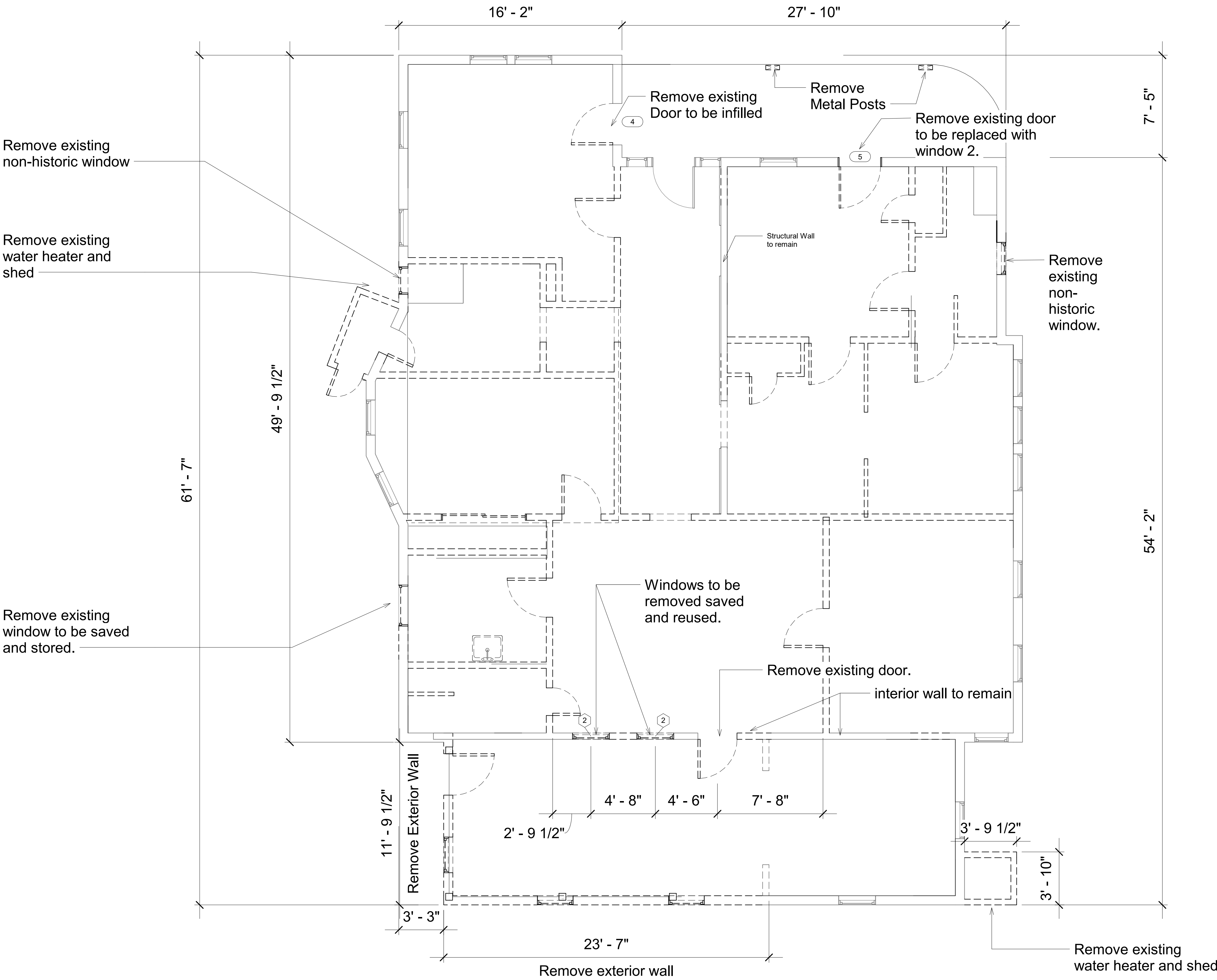
Scale

1/4" = 1'-0"

Sheet Name

Window and Door
Schedule

Sheet Number



Demolition Generally

All interior walls, door, vinyl floor, plumbing fixtures, cabinets, and appliances, shall be removed except where noted. The home may have lead paint to be disposed of as necessary.

1. Remove all plumbing fixture sinks/ toilets/ showers and tubs and cap where necessary.
2. Remove all kitchen appliances and cabinets.
3. Remove all Vinyl floor.
4. Existing wood floor under vinyl floor shall remain and be sanded, stained and sealed.
5. Verify the existence of asbestos at vinyl floor adhesion.
6. Remove all interior gypsum wall board to stud of wall.

1 Demo - Floor Plan -Level 1
1/4" = 1'-0"

Revision History

Bid Documents



Michelle Hipps-Cruz
TX Registration No. 26493

Date

3/31/22

Scale

1/4" = 1'-0"

Sheet Name

FIRST FLOOR PLAN -
DEMO

Sheet Number

Revision History

Bid Documents

This document is incomplete and may not be used for regulatory approval, permit, or construction.

Michelle Hipps-Cruz
TX Registration No.

Date

06/10/21

Scale

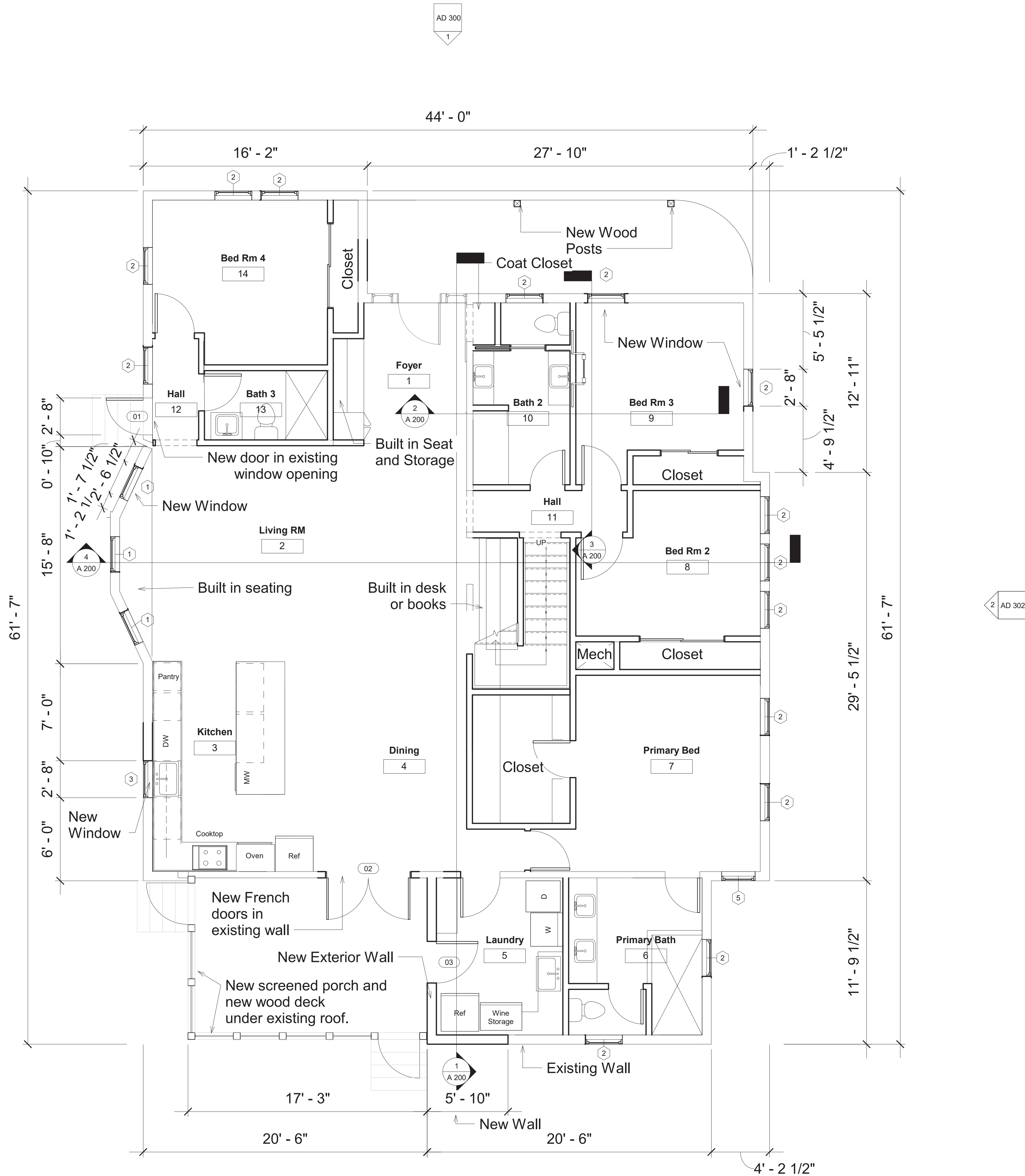
1/4" = 1'-0"

Sheet Name

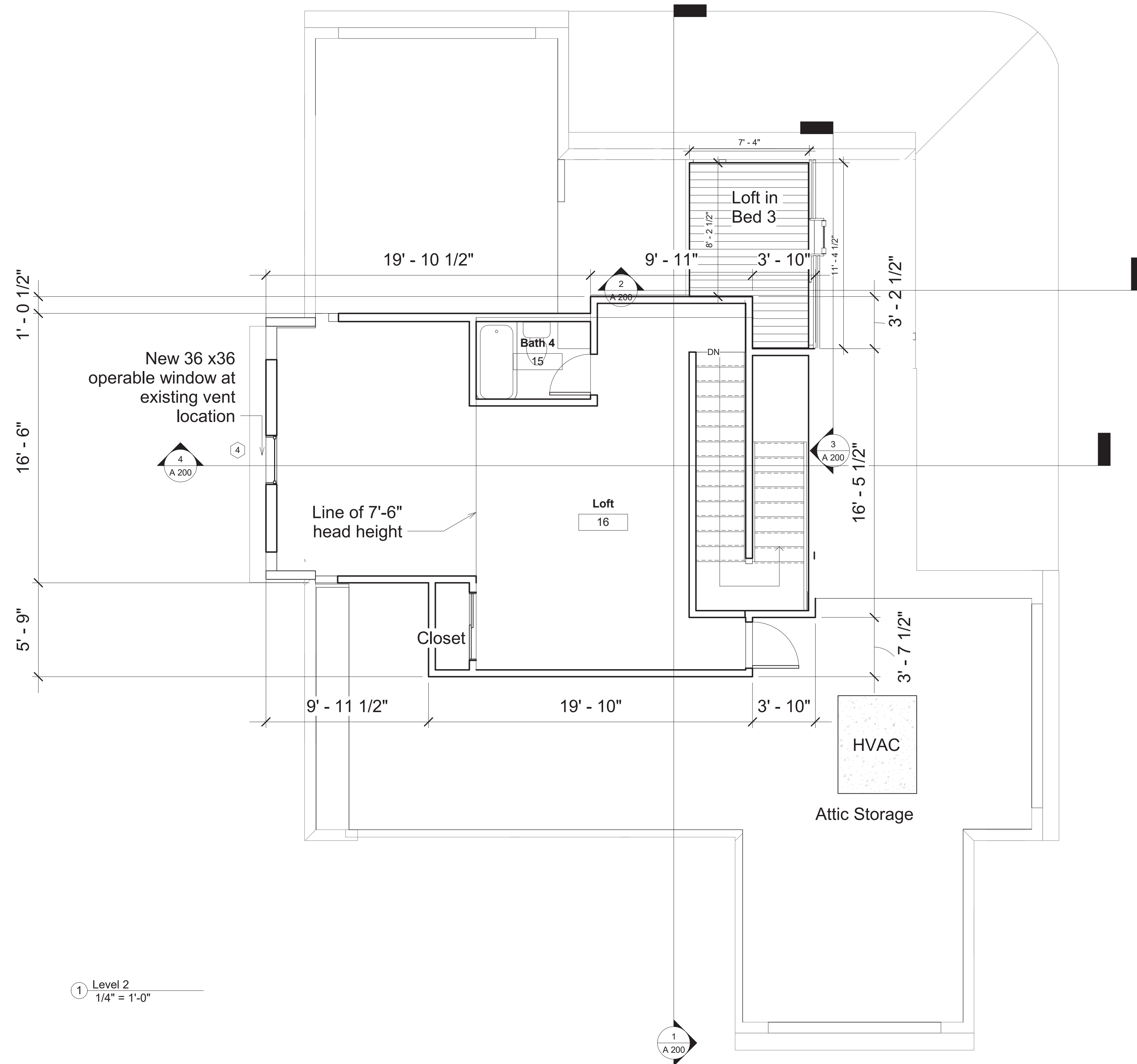
FIRST FLOOR PLAN

Sheet Number

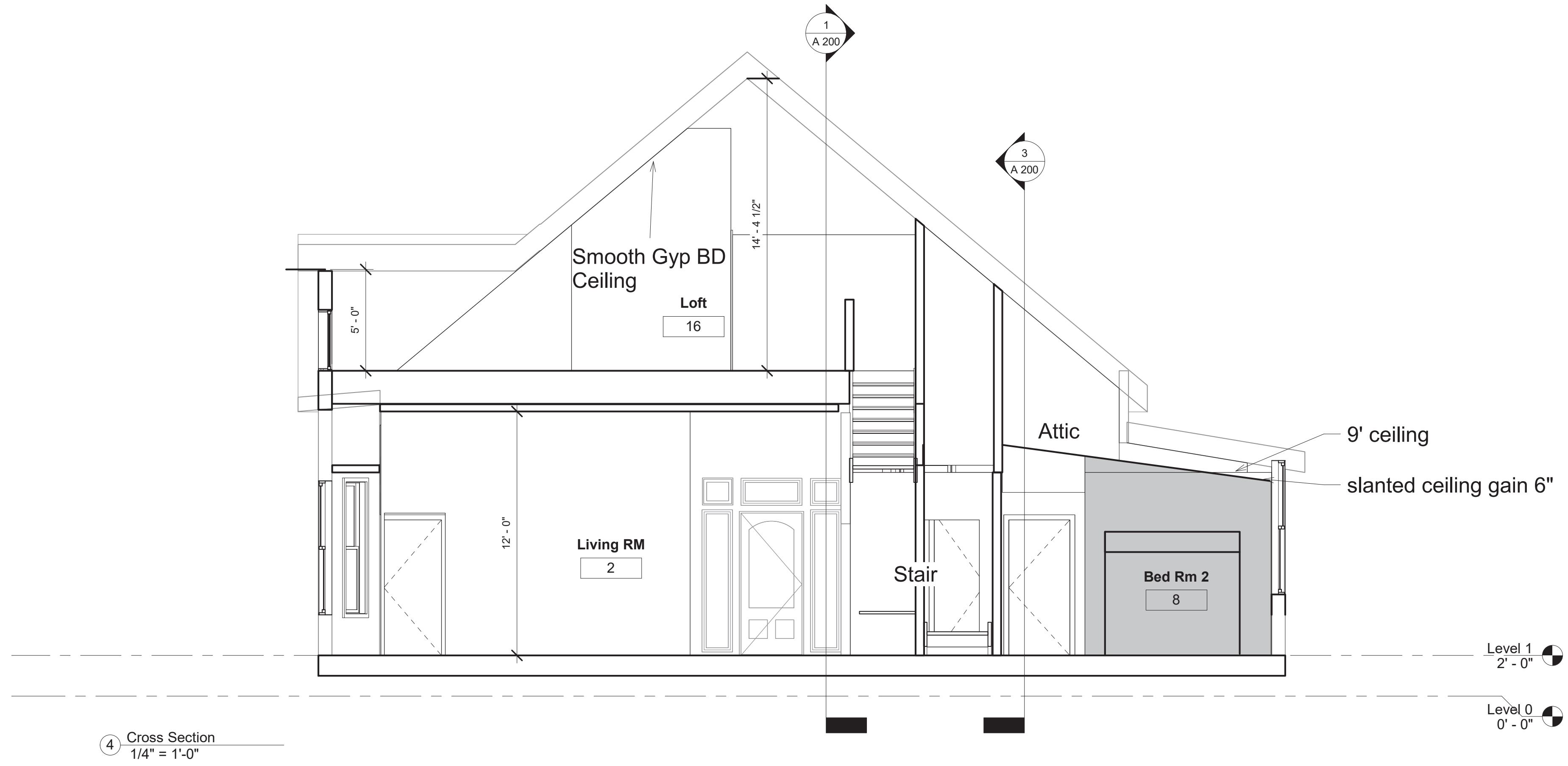
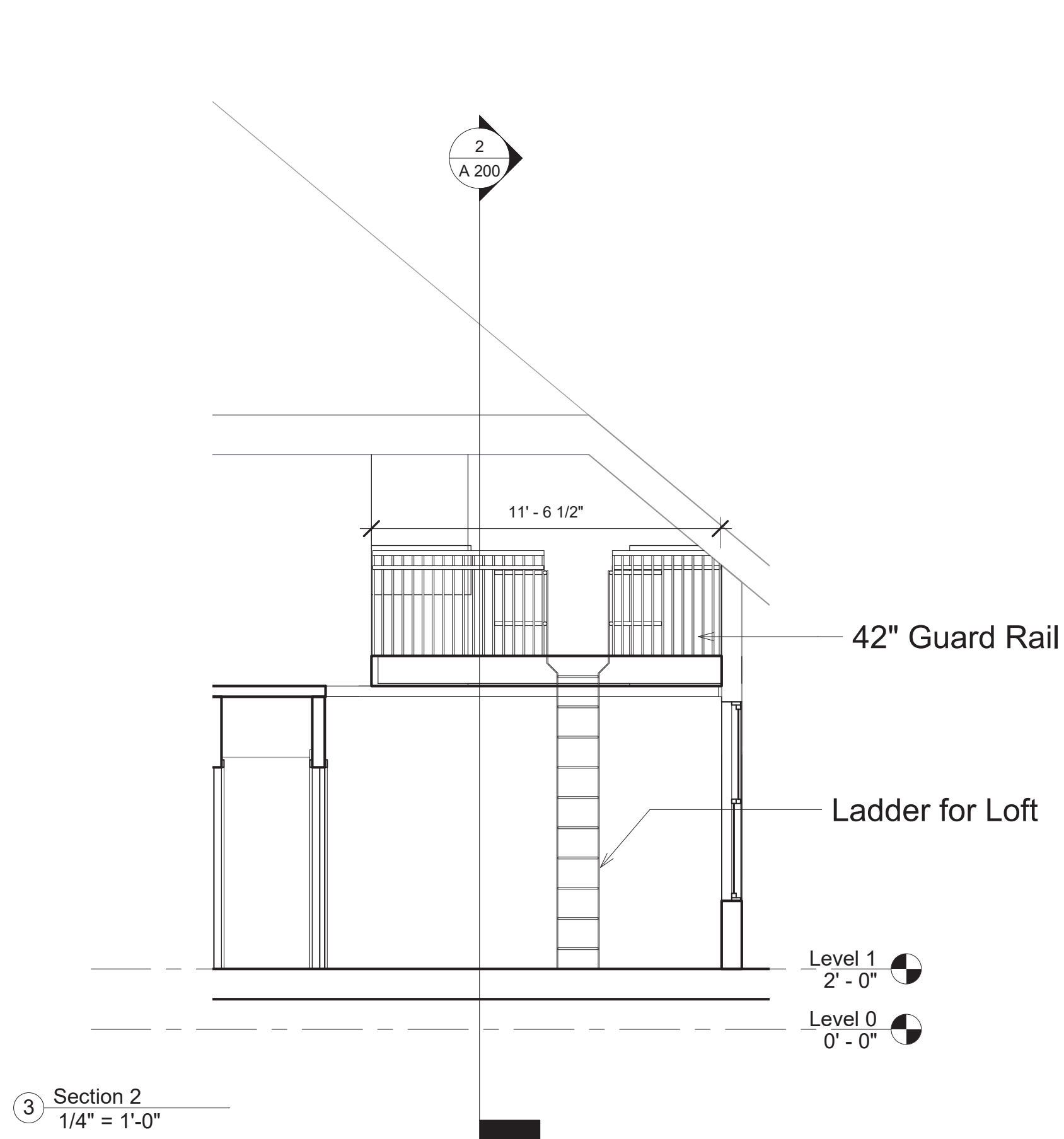
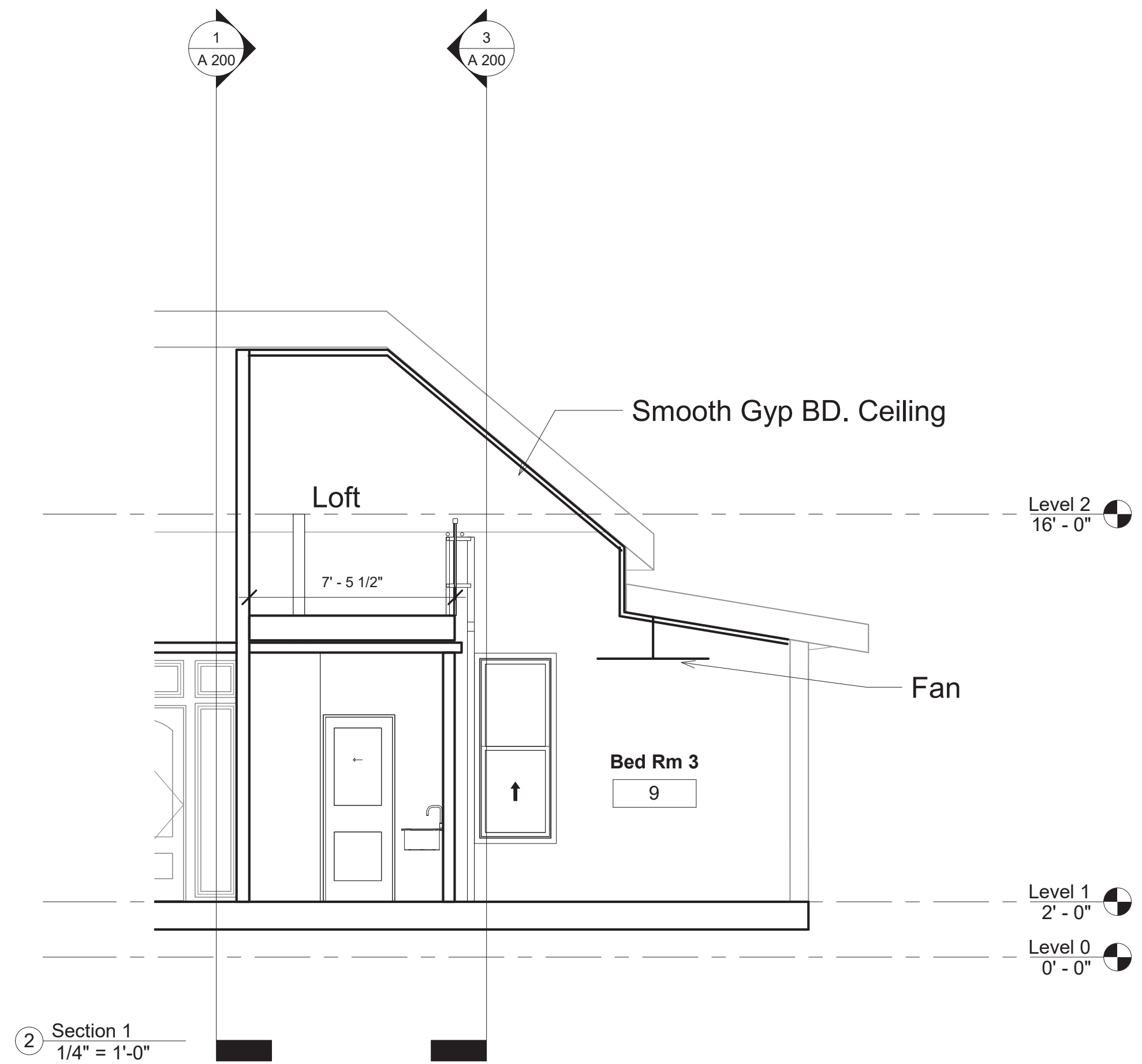
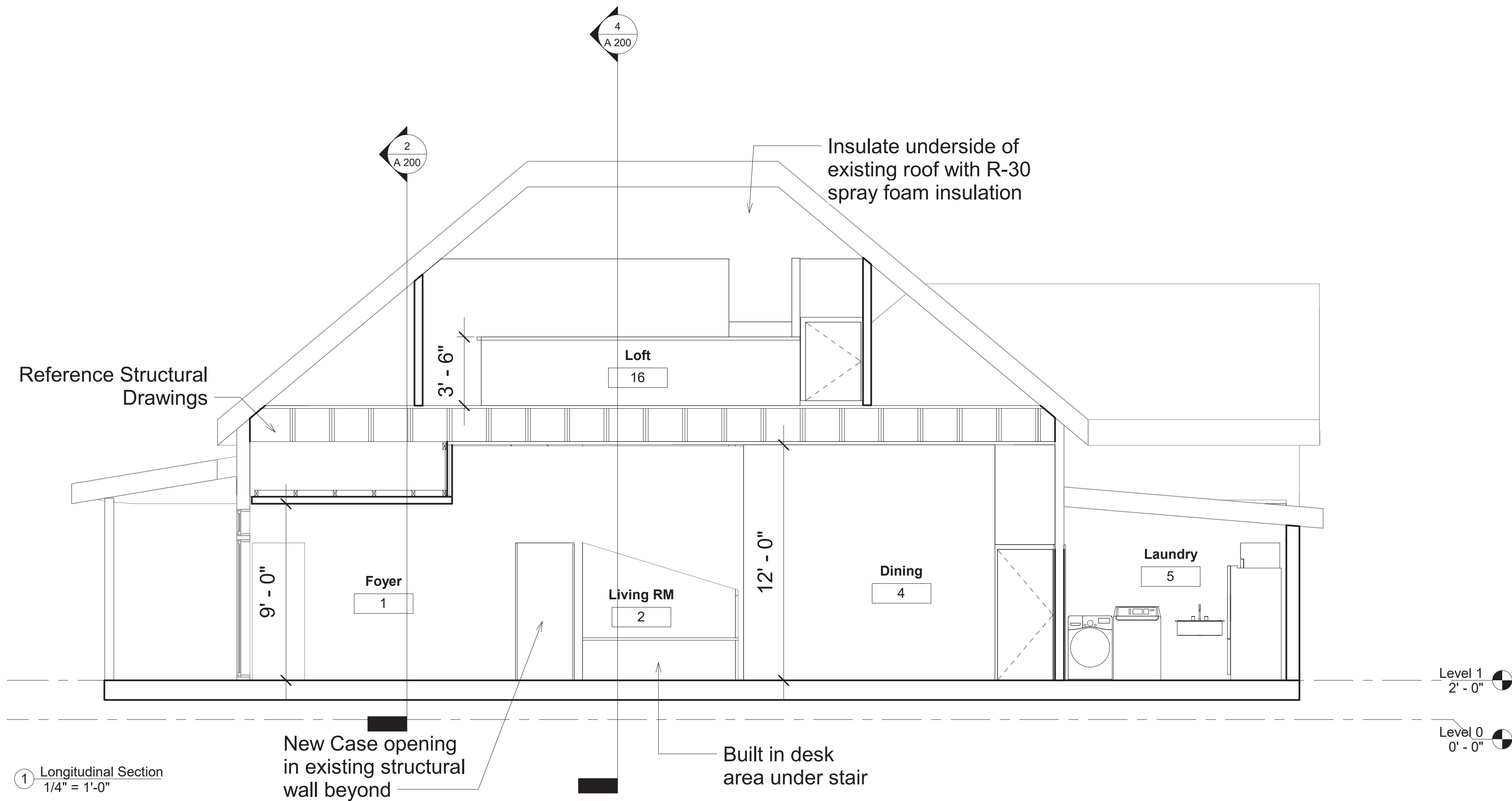
1 Level 1
1/4" = 1'-0"



- Notes:
1. Sand, stain, and seal all existing wood floors.
 2. Insulate all exterior walls with R-13 Batt insulation.



Gonzalez Home
304 Sadie



Revision History

Bid Documents

This document is incomplete and may not be used for regulatory approval, permit, or construction.

Michelle Hipps-Cruz
TX Registration No.

Date

07/11/21

Scale

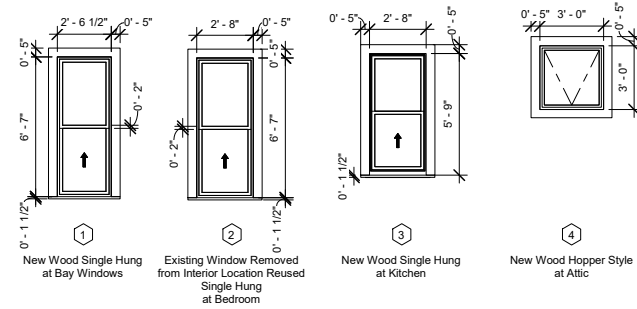
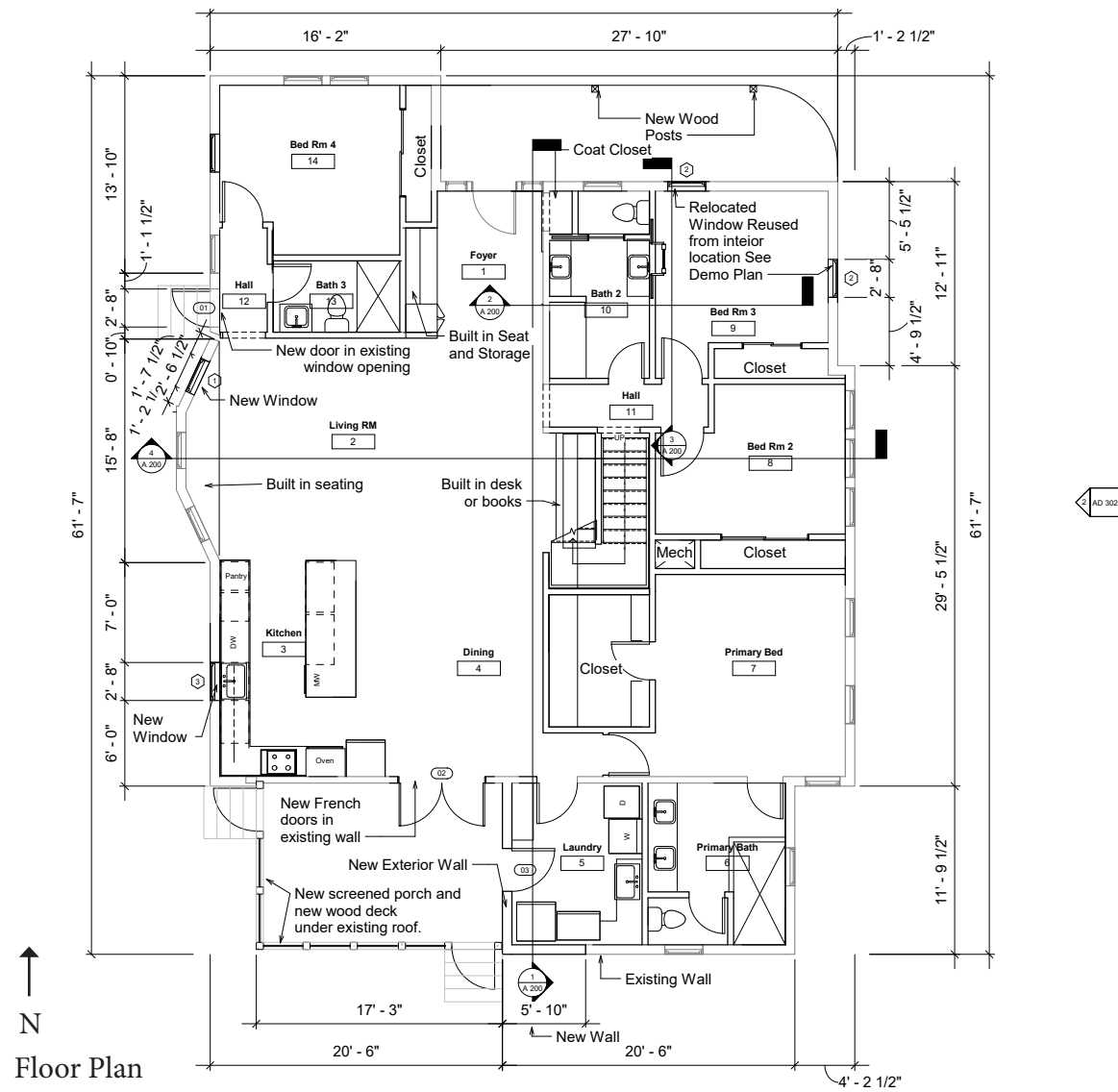
1/4" = 1'-0"

Sheet Name

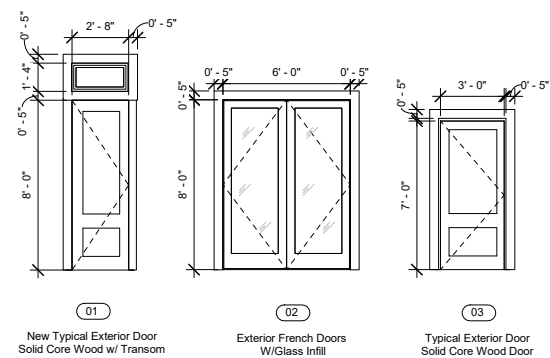
SECTIONS

Sheet Number

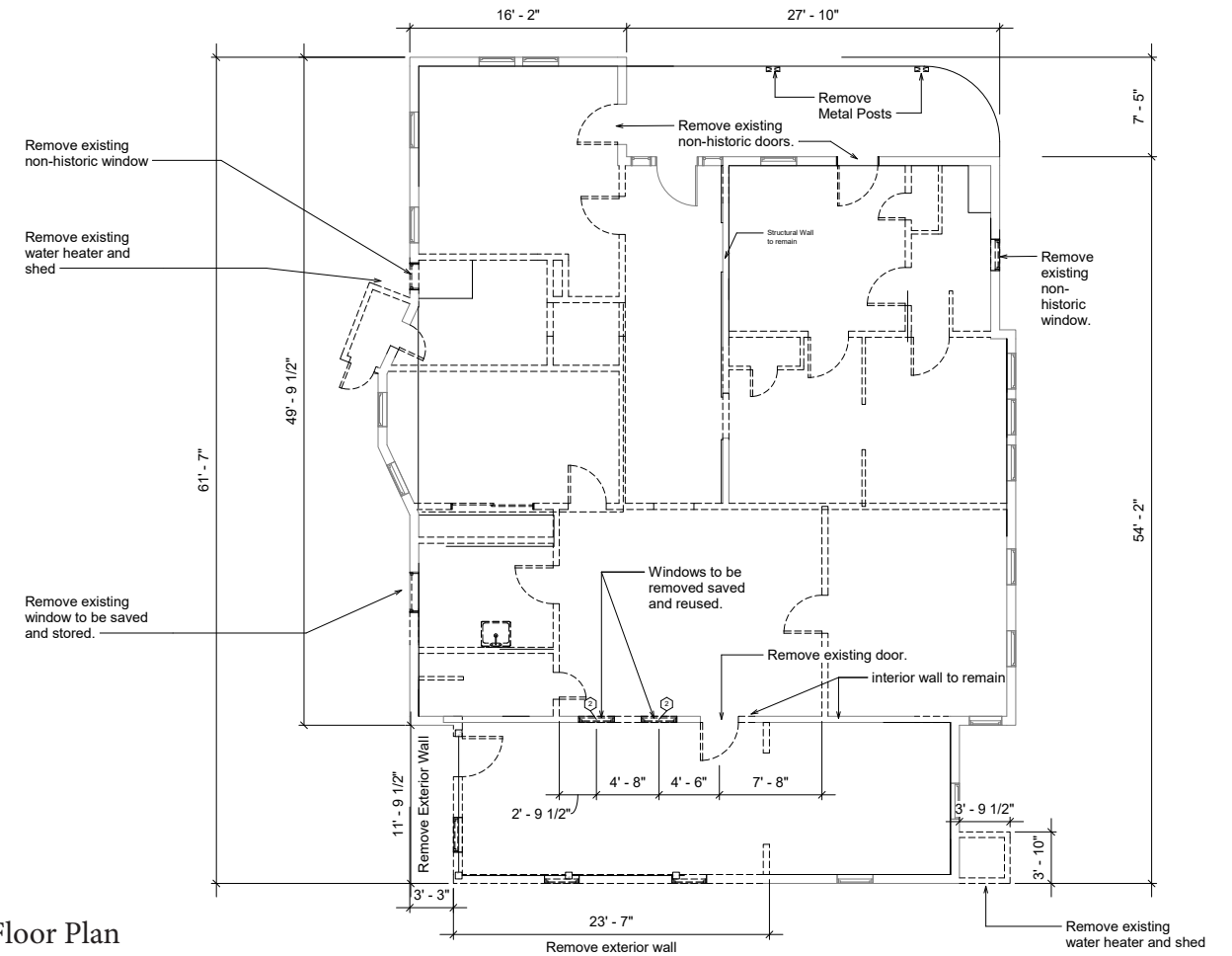
A 200



Exterior Window Schedule

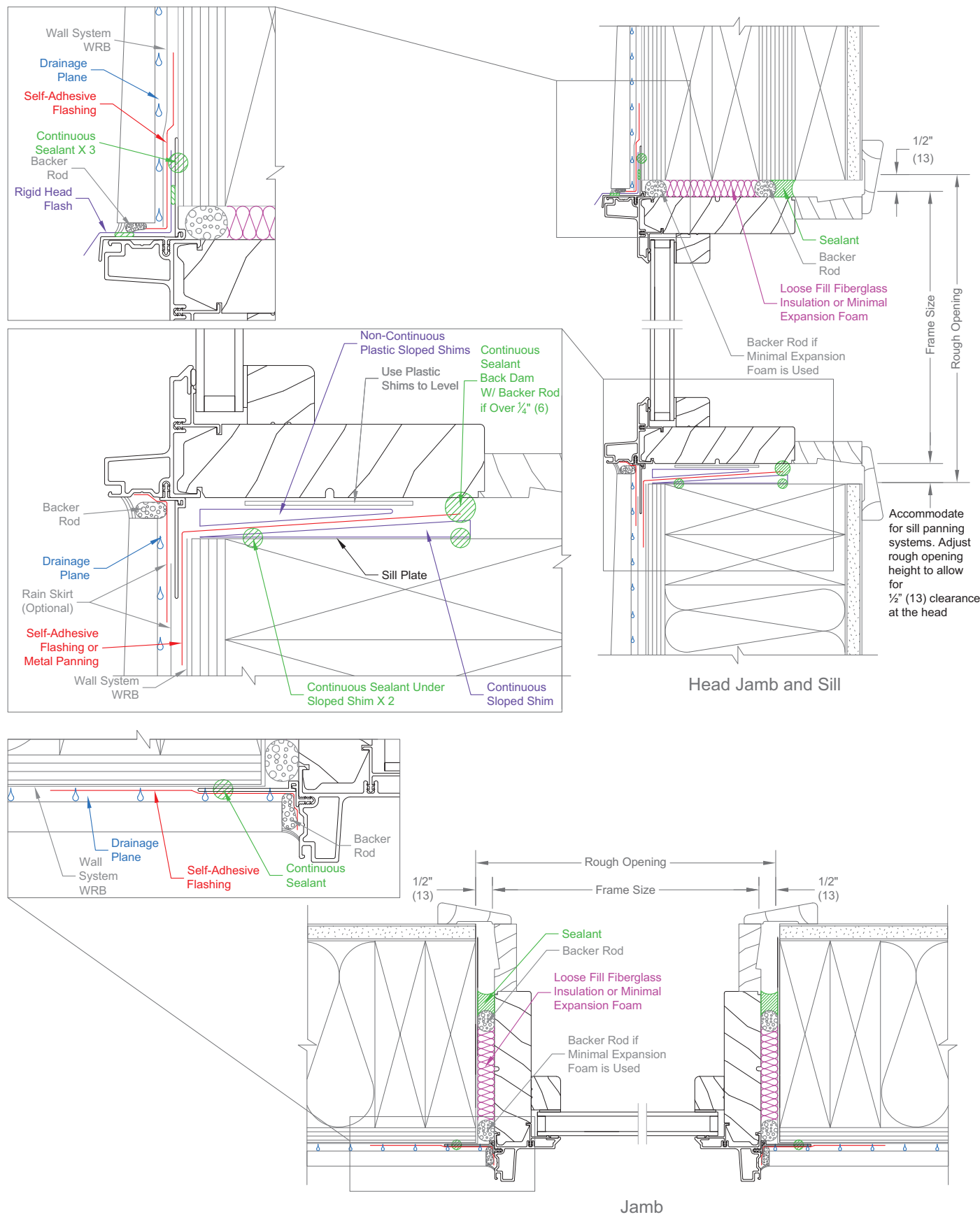


Exterior Door Schedule



Ultimate Direct Glaze Polygon - 2x6 Frame Wood Siding

Scale: 3" = 1"0"





Example of 4' high Metal post and mesh gate and 6' high metal post and wood fence.



Example of motorized rolling gate.

NORTH FACADE



The door A to the duplex to be removed and replaced by historic window located on the interior of the house labeled window 2 on schedule and demo plans. The interior windows match the North facade window sizes.



Door A Interior View



Door A Exterior View

EAST FACING FACADE



The door B is a secondary door to be removed and replaced with ogee siding to match existing. We are removing some siding from the rear of the home which may be reused at this location.



Door B Exterior View



Door B Interior View

WEST FACADE



The water heater shed (WH) is to be removed and a new bay window will be placed back to it's original location. This window will be a custom wood window to match the other bay windows. Labeled window 1 on window schedule and floor plans. Window C will be removed and replaced by door for side yard access. Labeled Door 1 on floor plans and door schedule.



Interior view of WH shed door, where a new bay window 1 will be located. View of window C.



Exterior view of window C.



Interior view of window C.

WEST FACADE



Window D to be removed and replaced with custom wood window to match existing windows. Labeled 3 on the plan and window schedule. Remove existing carport.



Interior view of window D.

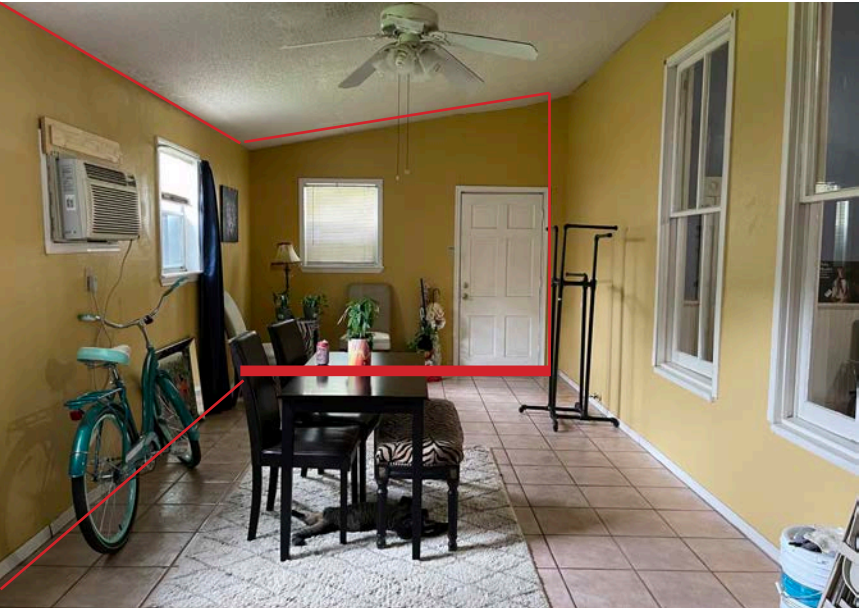


Exterior view of window D.

WEST FACADE



Addition to home to be removed. The roof will remain and this portion will become a back porch. These are all non-historic aluminum windows. The ogee siding which remains in good condition may be reused for repair and infill at other locations in the home.



Interior view of exterior wall to be removed. New back porch

SOUTH FACADE



Addition to home to be removed. The roof will remain and this portion will become a back porch. These are all non-historic aluminum windows. The ogee siding which remains in good condition may be reused for repair and infill at other locations in the home. Water Heater Shed (WH) to be removed.



Interior view of exterior wall to be removed. New back porch

EAST FACADE



Window E to be removed and replaced by historic window located on the interior of the house labeled window 2 on schedule and demo plans.



Exterior view window E



Interior view window E.

Interior Historic Windows



Interior View
Window at interior location to be removed, and reused at exterior locations. Labeled window 2 on floor plans, demo plans, and window schedule.



Exterior view.
Window at interior location to be removed, and reused at exterior locations. Labeled window 2 on floor plans, demo plans, and window schedule.

Introduction and Product Performance (Ultimate)

How to Use this Manual	1
Top Level Abbreviations	2
Glossary of Terms	5
Unit Features on Windows and Doors	13
IZ3/IZ4: Code Requirements and Glazing	15
Egress Code: International Building Code - 2012, 2015, 2018	16
Chain of Custody Certification	17
WDMA Hallmark Certification Program	19
Industry and Federal Performance Standards	20
Product Rating Codes / Performance Classes	21
STC and OITC Class Values	23
ENERGY STAR® Program - United States	27
ENERGY STAR® Most Efficient - United States	28
ENERGY STAR® Program - Canada	29
ENERGY STAR® Most Efficient - Canada	30
ENERGY STAR® Program	31
NFRC Certification Program	32
NFRC Label	33
Building Categories and Design Factors	34
Wind Speed Map - ASCE 7-16	37
Altitude Guidance	38

How to Use this Manual

Manual Objectives:

The content of this manual will aid in understanding the wide variety of standards, codes, and regulations governing the use of windows and doors. Consumer-friendly information on a variety of highly-rated Marvin Window and Door products along with fenestration standards, including glazing, clad finishes, hardware, and overall product performance can be used to help your clients understand what products best fit their project needs.

Intended Audience:

This manual is primarily intended for professionals who:

- Provide shop drawings, sales and service to customers
- Write job specifications
- Need further product knowledge

Sources of Additional Help:

- Marvin Architectural Hotline: 1-800-346-3363
- Our Website: www.marvin.com
- CSI Specifications
- Installations Instructions
- Warranty Information
- Care and Maintenance
- Owner's Manual
- Parts Manual

The Online version of this document is the document of record and will be the most current version. Specifications and technical data are subject to change without notice.

This manual is designed to make Marvin Windows and Door product knowledge easy to find and utilize. Used in conjunction with the Marvin Price Guide and Marvin Parts Manual, it will provide a library of Information on Marvin Products.

Each Window and Door Product has a collection chapter that covers general unit features. All individual chapters have product specific features. The line entries of the TOC are linked to a specific page for assistance in locating necessary information.

Product Notes:

- Numbers in parentheses () following measurements are metric equivalents in millimeters rounded to the nearest whole number
- Allow 1/16" (2) tolerance on all measurements
- For accessories, dimensions and applications, see the Accessories section of this manual
- All measurements for Rough Opening, Masonry Opening, Frame Size, Casing OM are rounded to the nearest 16th of an inch. Rounded Fraction for Glass Size, Daylight Opening, OM of Combination or Energy Panel, Storm Sash or RO Spring line are to the nearest 32nd of an inch
- E = (Egress): Window that meets the requirements for Egress. Please note that the top of the sill must be no more than 44" (1118) from the floor. Code restrictions may vary depending on your local building codes
- T = (Tempered): For safety and/or code requirements, frame size greater than 71 1/8" (2924) tall, Marvin recommends tempered glass. Units with Frame 25.2 sq. ft. and larger may require tempered glass

Trademark Information:

The following trademarks are referenced in this manual:

- E-Gard® is a registered trademark of Truth Hardware

How to Submit Suggestions:

Comments or suggestions regarding this publication can be directed to: Technical Publications, Marvin Windows and Doors, P.O. Box 100, Warroad, MN 56763 or call (218) 386-1430 or 1-800-346-5044.

Top Level Abbreviations

Marvin Product Abbreviations

General Term

CN	Call Number
CNR	Corner Units
COMB	Combination
CR	Condensation Resistance
DLO	Daylight Opening
DP	Design Pressure
EP	Energy Panel
EXT	Exterior
EYE	Eyebrow
FCIR	Full Circle
FELP	Full Ellipse
FPAN	Flat Panel
FS	Frame Size
GOTH	Gothic Head
GS	Glass Size
GTH	Gothic
HCIR	Half Circle
HP	High Performance
IG	Insulating Glass
INACT	Inactive (X)
INST	Installed
LF	Lineal Feet
LH	Left Hand
LPS	Low Profile Sill
LT	Lite
MO	Masonry Opening
MPT	Multi-Point
MRF	Mull Reinforcement
OCT	Octagon
OSM	Outside Measurement
OPER	Operator (X)
PG	Performance Grade
PROJ	Projection
QCIR	Quarter Circle
QELP	Quarter Ellipse
QEYE	Quarter Eyebrow
RAD	Radius
RO	Rough Opening
RPAN	Raised Panel
SCR	Screen
SG	Single Glaze
SGL	Single
SHGC	Solar Heat Gain Coefficient
SL	Sidelite
SO	Sash Opening
SPEC	Special

SPLN	Springline
ST	Stationary (O)
TRDL	Traditional
VGR	Vertical Grain
VLT	Visible Light Transmittance
W	Wood
W	Wide - Always preceded by number wide
WDW	Window

Doors

CBD	Combination Door
DRTR	Door Transom
SCD	Screen Door
SD	Swinging Door
SDDG	Swinging Door Direct Glaze
UIFD2.25	Ultimate Inswing French Door 2 1/4"
UIFD	Ultimate Inswing French Door
UIFDSL	Ultimate Inswing French Door Sidelite
UIFDTR	Ultimate Inswing French Door Transom
UOFD2.25	2 1/4" Residential Outswing French Door
UOFD	Ultimate Outswing French Door
UOFDSL	Ultimate Outswing French Door Sidelite
UOFDTR	Ultimate Outswing French Door Transom
UIFD2.25AT	Ultimate Inswing French Door 2 1/4" Arch Top
UOFD2.25AT	Ultimate Outswing French Door 2 1/4" Arch Top
UIFDAT	Ultimate Inswing French Door Arch Top
UOFDAT	Ultimate Outswing French Door Arch Top
UWSPDINT	Ultimate Wood Sliding Patio Door Interior
USPD	Ultimate Sliding Patio Door
UWSFDINT	Ultimate Wood Sliding French Door Interior
USFD	Ultimate Sliding French Door
USFDTR	Ultimate Sliding French Door Transom
ULSD	Ultimate Lift and Slide Door
ULSD PKT	Ultimate Lift and Slide Pocket Door
ULSD STK	Ultimate Lift and Slide Stacked Door
UCD	Ultimate Commercial Door (1 3/4")
UCDTR	Ultimate Commercial Door Transom
UCDDGTR	Ultimate Commercial Door Direct Glaze Transom
UCD2.25	Ultimate Commercial Door 2 1/4inch
UMSD	Ultimate MultiSlide Door
UMSDSTK	Ultimate MultiSlide Door Stacked
UMSDPKT	Ultimate MultiSlide Door Pocket
UBFLD	Ultimate Bi-Fold Door

Top Level Abbreviations

Options		Swinging Windows	
ADL	Authentic Divided Lites	UWTTCAI	Ultimate Wood Tilt Turn Casement Inswing
BAY	Bay	UTTHOP	Ultimate Tilt Turn Hopper
BOW	Bow	UTT	Ultimate Tilt Turn
BMC	Brick Mould Casing	UAWN	Ultimate Awning
CBRNT	Cabernet - Stain Finish	UAWNNF	Ultimate Awning Narrow Frame
CIF	Clear Interior Finish	UAWNNFP	Ultimate Awning Narrow Frame Picture
CSG	Casing	UAWNPO	Ultimate Awning Push Out
ESPR	Espresso - Stain Finish Grilles-	UAWNPOP	Ultimate Push Out Awning Picture
GBG	Between-the-Glass	UAWNNFPO	Ultimate Awning Narrow Frame Push Out
		UAWNNFPOP	Ultimate Awning Narrow Frame Push Out Picture
HNY	Honey - Stain Finish	UCA	Ultimate Casement
HZLNT	Hazelnut - Stain Finish	UCABAY	Ultimate Casement Bay
LTHR	Leather - Stain Finish	UCABOW	Ultimate Casement Bow
PIF	Painted Interior Finish	UCAP	Ultimate Casement Picture
SIF	Stained Interior Finish	UCAPOLY	Ultimate Casement Polygon
SDL	Simulated Divided Lite	UCART	Ultimate Casement Round Top
TEMP	Tempered	UCAVP	Ultimate Casement Venting Picture
TG	Tripane Glass	UCANF	Ultimate Casement Narrow Frame
WHT	Wheat - Stain Finish	UCANFP	Ultimate Casement Narrow Frame Picture
WOCD	Window Opening Control Device	UCANFTR	Ultimate Casement Narrow Frame Transom
Sliding Windows		UCAPO	Ultimate Casement Push Out
UDHTP	Ultimate Double Hung Tilt Pac	UCAPOP	Ultimate Casement Push Out Picture
USHTP	Ultimate Single Hung Tilt Pac	UCANFPO	Ultimate Casement Narrow Frame Push Out
UDHMTP	Ultimate Double Hung Magnum Tilt Pac	UCANFPOP	Ultimate Casement Narrow Frame Push Out Picture
USHMTP	Ultimate Single Hung Magnum Tilt Pac	UFCA	Ultimate French Casement
UDHIN	Ultimate Double Hung Insert	UFCAPO	Ultimate French Casement Push Out
UDHINP	Ultimate Double Hung Insert Picture	UFCANFPO	Ultimate French Casement Narrow Frame Push Out
INDT	Ultimate Insert Double Hung Transom	Stationary Windows	
UDHM	Ultimate Double Hung Magnum	DG	Direct Glaze
UDHMP	Ultimate Double Hung Magnum Picture	OCT	Octagon
UDHMRT	Ultimate Double Hung Magnum Round Top	PDG	Polygon Direct Glaze
UWDHMTR	Ultimate Wood Double Hung Magnum Transom	PENT	Pentagon
USHM	Ultimate Single Hung Magnum	POLY	Polygon
USHG2	Ultimate Single Hung G2	RECT	Rectangle
UDHG2	Ultimate Double Hung G2	RT	Round Top
UDHPG2	Ultimate Double Hung Picture G2	TRI	Triangle
UDHRTG2	Ultimate Double Hung Round Top G2		
UDHTRG2	Ultimate Double Hung Transom G2		
USHRTG2	Ultimate Single Hung Round Top G2		
UGL	Ultimate Glider		
UGLP	Ultimate Glider Picture		
UGLTS	Ultimate Glider Triple Sash		

Top Level Abbreviations

Clad Colors		Interior Shades	
SW	Stone White	ALMD	Almond
PB	Pebble Gray	BSCT	Biscuit
SA	Sierra White	CELR	Cellular
CO	Coconut Cream	CELRFLT	Cellular Light Filtering
CS	Cashmere	CELRBL	Cellular Blackout
CG	Cadet Gray	CHPN	Champagne
BN	Bahama Brown	CNM	Cinnamon
EG	Evergreen	CNTPRY	Contemporary
HS	Hampton Sage	DENIM	Denim
CC	Cascade Blue	DRFTW	Driftwood
BZ	Bronze	EGGSH	Eggshell
EB	Ebony	IVORY	Ivory
		MOSS	Moss
WB	Wineberry	MGLD	Marigold
MSL	Bright Silver (pearlescent)	RSE	Rose
MCP	Copper (pearlescent)	SHD	Shade
MLB	Liberty Bronze (pearlescent)	SLV	Silver
CY	Clay	ST	Stone
GM	Gunmetal	TAN	Tan
SE	Suede	TRDL	Traditional
		WH	White

Glossary of Terms

ALUMINUM SURROUND: The aluminum frame around a screen or energy panel.

APRON: A piece of casing or decorative trim installed against the wall immediately beneath the stool of a window.

ARGON GAS: An inert gas known for its ability to provide insulating properties in IG air spaces.

ASTRALGAL: A moulding applied to one stile of a French Door, Sliding French Door or Ultimate French Casement window unit which the other door panel or window sash strikes. Usually head and foot bolt devices will be found on the astragal side.

ASSEMBLY: A collection of single units mulled together.

AUTHENTIC DIVIDED LITE (ADL): Also known as True Divided Lite. Permanent stationary muntins and bars separate the glass in a window sash or door panel to give the sash two or more lites of glass.

AWNING WINDOW: A combination of frame and sash, hinged at the top of the vertical jambs which allows the unit to pivot from the top with the sash opening to the exterior of the building.

BALANCES: Any system of block and tackle or spiral springs used in the jamb liner of double hung or single hung units to counter - weight the sash and allow for easier opening and top sash retention.

BARs: A narrow rabbeted, member in a divider system to create a series of divided lites in the daylight opening of the sash or panel. ADL, GBG, and SDL Spacer bars must be connected to the rails and stiles. SDL without spacer bars may be freely attached to the glass without contacting rail and stile. Bars can be assembled into a variety of patterns including grids, radius, diamond, Queen Anne, etc.

BAY WINDOWS: A series of windows installed in a “bay” which is two flanker units and a center sash; a “bay” may be an arc or a polygon; when a “bay” is or closely approaches an arc, the window is termed a “bow” See Bow Windows.

BOW WINDOWS: A series of adjoining window units, installed on a radius.

BRICK MOULD CASING (BMC): An exterior moulding of window and door frames that butts the exterior facing material of the structure. The casing serves as the boundary moulding for brick or other siding material and also helps to form a rabbet for screens and/or storm sash or a combination door.

CAM LOCK: A lever operated lock which is used to prevent intrusion through the sash. Cam locks and keepers were installed on the jambs and stiles of older Casement and awnings.

CAM PIVOT: A zinc pivot pin attached to the top and bottom sash stiles of double hung units (bottom sash on single hung units). Cam pivots rest on the clutch system of the balance tube assembly which allow opening and closing of the sash.

CAPILLARY TUBES: A tube inserted into the insulating glass spacer that allows the inside and outside air pressure to equalize in higher elevations. Capillary tubes will allow gas fills other than air to escape.

CASEMENT WINDOW (CA): A vertical hinged window system consisting of a frame, sash weather strip, locks, hinges and an operating crank device, on operating units. Push Out models are optionally available.

CHECK RAIL: The horizontal members of a double hung sash that are designed to mate with the check rail of the paired sash. These could also be vertical check stiles, as in the glider or patio door.

CLAD (C): Marvin clad products refer to wood window and door parts which are covered with an extruded permanent colored aluminum jacket on the exterior side of the frame and sash.

CLAD BRICK MOULD CASING (BMC): A clad extrusion designed to simulate brick mould casing for Marvin clad products.

CLEAR OPENING (CO): The opening created when the window or door is completely open.

CLUTCH: The plastic and metal assembly on which the cam pivots of a double hung or single hung sash rest. The clutch is attached to the balance system which allow opening and closing of the sash. The clutches are color coded for easy identification of balance strength.

COMBINATION DOOR: An aluminum frame assembly containing an interchangeable glass storm panel and screen. The unit is installed on the exterior of the door, and is available for wood Inswing and Ultimate Inswing French doors.

COMBINATION WINDOW: A wood or clad wood frame storm sash with self-storing screen. Bottom glass panels such as those installed on a double hung unit operate by moving the plungers in and sliding the glass panel up to the desired position. Side glass panels such as those installed on gliders slide to the left or right to the desired position. All inserts are removable from the inside.

COMMERCIAL DOOR: A door which specifically targets the non-residential market and may not meet WDMA standards for water penetration. This door comes standard with an 11 3/8" (289) bottom rail and a 1/2" (13) low profile sill allowing it to meet ADA codes.

CONDENSATION RESISTANCE (CR): Measures the ability of a product to resist the formation of condensation on the interior surface of that product. The higher the CR rating the better it resists forming condensation.

COTTAGE WINDOW: A double or single hung window with the top sash smaller than the bottom sash.

DAYLIGHT OPENING (DLO): The width and the height of the visible glass.

Glossary of Terms

DEPTH OF THE JAMB: The point where the exterior casing ends to the point where the interior casing begins. On clad units, the point from the backside of the nailing fins to the interior of the frame.

DESIGN PRESSURE (DP): Is a rating system that is based on testing for structural performance under static air pressure. Water leakage, air leakage, operating force and forced entry must also comply to attain a DP rating.

DIRECT GLAZE (DG): Refers to a stationary window with no sash where the glass is glazed directly into the frame.

DIVIDED LITES: See Authentic Divided Lites or Simulated Divided Lites.

DOUBLE HUNG (DH): A window unit with two movable sash which operate by sliding vertically. Double hung sash are retained in position with the use of balancing devices.

DOUBLE HUNG MAGNUM (DHM): Larger size Double hung windows. Double hung magnum windows have two movable sash which operate vertically. Double hung magnum sash are held in an open position with the use of balancing devices.

DOUBLE HUNG TILT PAC (DHTP): A specially designed, made-to-order, package which includes everything needed to replace double hung sash and hardware in an existing frame without changing the frame. This product has the same tilt feature as the Marvin double hung.

DRIP CAP: A formed aluminum or vinyl piece which is installed at the top of windows and doors that allows water to run off the casing of the unit instead of seeping around the casing and into the unit.

DUAL GLAZE: An IG with two panes of glass.

EGRESS: Refers to an escape opening in a room designated as a sleeping area. Windows and doors must meet a minimum size requirement to qualify as an egress product.

ELECTRIC OPERATOR: An electrically operated device which will open Casement or awnings units by using a switch. This is used in lieu of a roto gear crank or pole crank.

EMISSIVITY: A measure of a surface's ability to emit long-wave infrared radiation or room temperature radiant heat energy. Emissivity varies from 0 (no emitted infrared) to 1 (100% emitted infrared). The lower the emissivity, the lower the resultant U-Factor and the better insulating performance of the material.

ENERGY PANEL (EP): Formerly called an RDG - removable double glazing, is a piece of glass annealed or tempered, and finished on the edges by a surround. EPs are applied to windows or doors and rest on the glazing stop. EPs offer the homeowner added energy efficiency over single glazed units.

ESCUTCHEON: A decorative door handle plate attached to the stile directly behind the handle(s). Generally square or rectangular shaped.

ESPAGNOLETTE: Tilt-Turn hardware which houses the gear mechanism for the Tilt--Turn, in-swinging casement and hopper handles.

EXTRUSION: A linear component of plastic or metal made by the process of heating the raw material and forcing it through a die as it cools to provide a specific cross-sectional shape.

FENESTRATION: Anything designed to fill an opening in a structure. Used in our industry to specifically apply to doors and windows.

FIELD MEASUREMENT GUIDE: A form that is filled out prior to ordering the Clad Magnum Double Hung Replacement System with Panning to ensure the correct sized unit is assembled at the factory.

FINGER-JOINT: A series of fingers machined into the ends of two pieces of lumber to be joined together. They are then held firmly in position by adhesive. Finger-jointed wood is very strong and has a lesser chance of warping than does a non finger-jointed piece of wood the same length.

FLANKER: A former term used to describe a side or lateral part. Also previously used to describe the side units in a 3-wide picture unit or bay. See two-wide entry.

FLAT CASING: Flat-surfaced on four sides, pieces of pine of various widths and thicknesses for trimming door and window openings. The casing serves as the boundary moulding for siding material and also helps to form a rabbet for screens and/or storm sash or combination doors.

FOAM PLASTIC INSULATING SHEATHING (FPIS): an insulating board

FOOT BOLT: A locking rod device installed vertically in the stile or astragal of a door or screen which when activated secures the panel or screen in a stationary position.

Glossary of Terms

FRAME: The stationary portion of a window that encloses either the glass (direct glaze) or the sash (operating or stationary) and consists of the following parts:

1. **HEAD JAMB:** The top frame member.
2. **SILL:** The bottom frame member.
3. **SUB-SILL:** The supplemental member used under most awning and casement units as an additional sill with the primary purpose being to hold multiple units together at the sill.
4. **SIDE JAMB:** Side or vertical frame members.
5. **JAMB EXTENSION:** The addition onto the standard jamb to adapt a window unit to deeper wall thicknesses, in most cases will be factory applied unless specified otherwise.
6. **BRICK MOULD OR FLAT CASING:** The exterior trim member applied to the side jambs and head jamb on wood units. Often used to secure the window to the wall opening.
7. **BLIND STOP:** The frame member on a double hung window located between the jambs and the casing. The blind stop forms a rabbet that supports either a storm sash or screen.

FRAME EXPANDER: A flat aluminum extrusion used in conjunction with the 90 degree frame expander to provide a flat casing appearance for clad units.

FRENCH DOOR: A glass door consisting of moderate width top rail and stiles with a larger bottom rail. Doors available in either in-swing or out-swing operation. Can be rectangular or arched style top.

GLASS SIZE (GS): The measurement of the actual glass, not the visible glass.

GLAZING: Installing glass into windows and doors.

1. **SINGLE GLASS** - Glazing with a single piece of glass.
2. **INSULATING GLASS** - two or more panes of glass separated by a spacer and hermetically sealed together with dead air space between the panes.

GLAZING BEAD: Strips of profiled wood or vinyl used to hold the glass in position in the sash. Wood glazing bead is attached to the rails and stiles of the sash using staples, small nails or vinyl barbs. A vinyl bead is held in place by extruded barbs positioned in the kerf. Aluminum caps may be used over the vinyl bead in some cases.

GLAZING TAPE: A two sided adhesive tape placed between the glass rabbet and the glass and/or the glazing bead and glass of some unit types.

GLIDER (GL): Horizontal operating units which have one or more sash that glide open and shut horizontally.

HANDING: A term used to describe the right or left hand operation of a window or door.

HEAD BOLT: A locking rod device installed vertically in the stile or astragal of a door or screen which when activated secures the door in a stationary position.

HISTORICAL OR HISTORIC: A term used to define a window or door product meeting the requirements of historical renovation standards. This product may not meet all WDMA and ENERGY STAR® criteria.

IG: Insulating glass (see Glazing)

INACTIVE PANEL (X): Secondary operating door panel.

DOUBLE HUNG INSERT: A specially designed, made-to-order sash and frame unit that is used to replace existing double hung sash and hardware in an existing frame - without disturbing existing interior trim or exterior casing.

INSTALLATION BRACKETS: A factory installed or supplied metal strip with holes used with windows or doors to attach the unit in the rough opening in lieu of nailing through the casing, thus eliminating unsightly nail holes. Available as an option for all Marvin wood windows or door products.

INSWING FRENCH DOOR (IFS): A French Door with panels that swing to the inside. One, two, three and four panel units available as stationary or operating.

INSULATING GLASS (IG): A glass assembly with two or more panes of glass sealed with a perimeter spacer.

INTERIOR CASING: The casing trim used on the interior perimeter of the window or door. Generally supplied by others except in the case of round top casing which is a factory supplied option.

JAMB EXTENSION: A jamb-like member usually surfaced on four sides, which increases or extends the depth of the exterior or interior window or door frame. Common jamb depths are 4 9/16" (116), 4 13/16" (122), 5 1/16" (129), 5 3/16" (132), and 6 9/16" (167).

JAMB LINER (wood): A strip of wood that goes on the inside of a window frame to provide a snug fit and finished look to the window. The birds' beak jamb extension is added to this piece to accommodate various wall thicknesses.

Glossary of Terms

KEYED CYLINDER LOCK: A lock providing an exterior entry and locking convenience.

KRYPTON GAS: An inert gas known for its ability to provide insulating properties in smaller IG air spaces.

LAMINATED GLASS: Glass composed of two sheets of glass fused together with a sheet of transparent plastic between the sheets. When broken, laminated glass will generally not leave the opening and is often used as safety or security glazing.

LAMINATED VENEER LUMBER (LVL): An engineered wood product that uses multiple layers of thin wood assembled with adhesives. It offers several advantages over typical milled lumber: it is stronger, straighter, and more uniform. It is much less likely than conventional lumber to warp, twist, bow, or shrink due to its composite nature.

LAMINATING: A method of gluing strips of thin non finger-jointed wood to the lengthwise surfaces of finger-jointed material to provide the appearance of non finger-jointed stock.

LEVER LOCK: A lever handle and lever arm operator available as an option on awning units.

LOCKSET: A complete door lock system comprised of the lock mechanism together with knobs, keys, plates, strikes and other accessories.

LOW E GLASS: Low E stands for low emissivity. The lower the emissivity the higher the percentage of long wave radiation blocked thereby improving thermal performance. Low E glass is coated with a thin microscopic, virtually invisible, metal or metallic oxide layer. The primary function is to reduce the U-factor by suppressing radiative heat flow. A secondary feature is the blocking of short wave radiation to impede heat gain. There are two basic types of Low E glass. The first, vacuum or sputter coated Low E, is referred to as softcoat (See Low E2 definition). The second is pyrolytic Low E, commonly referred to as hardcoat. (See pyrolytic definition.)

LOW E1: A high performance Low E coating, providing excellent balance for cold winters and warm summers. It offers increased solar heat gain coefficient values allowing heat from the winter sun to enter while reducing heat loss to the exterior. The Low E1 coated glass products are specifically designed for insulating glass units normally as a third surface coating.

LOW E2: A high performance Low E2 glass, providing excellent winter and center of glass temperatures. It offers reduced solar heat gain coefficient values providing customers cool summer glass temperature. Additionally, ultraviolet light transmission is greatly reduced. The Low E2 coated glass products are specifically designed for insulating glass units normally as a second surface coating. See Low E and pyrolytic definitions.

LOW E3: A high performance Low E glass, providing the best winter U-factor and center of glass temperatures. It offers extremely low solar heat gain coefficient values providing customers a summer glass temperature that is very low. Additionally, it provides the best reduction in ultraviolet light transmission.

LOW ERS: A hardcoat Low E coating for the indoor IG surface, providing excellent heat reflectance. When used in conjunction with an E2 or E3 coating, it provides exceptional thermal properties – approaching that of a tripane unit with two LOW E coatings. The Low ERS coated glass reflects additional heat back to the room. The effectiveness of this coating causes the interior surface of the glass to cool and additional condensation may be noticed.

LOW ELR: A high performance Low E coating, providing the lowest Solar Heat Gain Coefficient with a slightly darker tint. It offers very good U-factor performance with excellent glare control. This product meets requirements for the “turtle code”. It provides the best reduction in ultraviolet light transmission.

LOW PROFILE SILL: Also referred to as saddles, these sills have no more than a 1/2" (13) rise. Low profile sills are required when a door opening must meet codes associated with the Americans with Disabilities Act.

MAGNUM: A Marvin trade name for heavily constructed window products which are designed for applications where a heavy duty product is necessary.

MAGNUM HOPPER (MHOP): A heavy duty window designed to hinge on the bottom and tilt into the room for ventilation purposes.

MAGNUM TILT-TURN (MTT): A heavy duty window. The Magnum Tilt-Turn has hardware which allows the sash to either be tilted into the room from the sill or swing fully open into the room.

MASONRY OPENING (MO): A brick, stone or block opening into which a window or door unit is installed. Exterior casing may cause the Masonry Opening to be larger than the Rough Opening.

MEETING STILES: The vertical members of a glider sash or sliding door panel that are designed to mate with the meeting stile of the paired sash.

MORTISE AND TENONING: The system by which Marvin assembles authentic divided lite units, a projecting tenon on either the muntins or bars fit snugly into a mortise in either a bar, stile or rail.

Glossary of Terms

MULLING: The act of attaching two or more window or door units together. The joint is then finished with a mullion center cap or mull trim.

MULLION: The vertical member of a sash, window or door frame between openings in a multiple opening frame.

1. **SPACE MULL** - Two or more units mulled together with a space left between the units. The jamb extension surrounds the entire unit.
2. **STUD POCKET** - Two or more units mulled together with a space between the units. The jamb extension surrounds each unit separately, providing space for a support member between the units.

MULLION COVER: A clad cover for space mull usage that covers a range from 3" (76) minimum to 10" (254) maximum width.

MULLION EXPANDER: An aluminum extrusion designed specifically for the Clad Magnum Double Hung Replacement System with Panning to allow the existing panning to be expanded to a wider width to accommodate a larger rough opening.

MULLION REINFORCEMENT: A system of high-strength members placed between units of an assembly and fastened to the RO and the units to provide enhanced structural performance. 3/8" (10) Aluminum, 1" (25) LVL, and various tube mullion options are available for most products.

MULTI-POINT LOCKING SYSTEM: A line of standard or optional multiple point locking mechanisms installed on the operative panel(s)/ sash of various Marvin products to enhance security and performance.

MUNTINS OR "MUNT": A short "bar," horizontal or vertical, extending from a bar to a stile or rail or another bar.

NAILING FIN: A factory installed vinyl strip that is inserted into a kerf in the frame of clad units. Nailing fin is designed to provide easier clad unit installation in new construction where the highest structural performance is not required.

NON-KEYED LOCK: A handle without a keyed cylinder. The door cannot be locked or unlocked from the exterior.

ORIOLE WINDOW: A double or single hung window with the bottom sash smaller than the top sash.

OBSCURE GLASS: (Pattern 62) A pattern glass that provided privacy while maintaining full light transmission. It is formed by running molten glass through special rollers that apply the pattern to one side.

OUTSIDE MEASUREMENT (OM): The measurement in width from outside of jamb to outside of jamb. Height measurement from top of jamb to bottom of sill. The outer edges of what is being measured.

ONE WIDE (1W): The current term used to describe one frame with single or multiple sash or panels.

OPERATOR (X): An operating sash, panel or unit.

OUTSWING FRENCH DOOR (OFD): A French door with panels that swing to the outside. One, two, three, or four panel units available as stationary or operating.

OX and XO: The letters OX or XO identify the operation of window or door units as viewed from the exterior. The letter O stands for stationary while the letter X stands for operating.

PANEL: An assembly of stiles and rails with glass that form the stationary or operating section of the door and is fitted in the frame.

PANNING: A term used to describe the aluminum covering extrusion components (i.e. jambs, sill and head jamb) used for the Clad Magnum Double Hung Replacement System with Panning.

PART STOP: A strip of wood with weather strip attached which prevents air and water infiltration. Part stops are commonly found at the head jamb of a double hung unit.

PERFORMANCE CLASS: A methodology to grade product performance types.

R = Residential, LC = Light Commercial, CW = Commercial, AW =Architectural

PERFORMANCE GRADE (PG): A numeric designator that defines performance that applies to; air leakage resistance, water penetration resistance and deflection resistance according to Standard Specifications.

PITCH: A term used to describe the angle of a roof. For example: A 4-12 pitch indicates that the roof rises 4" (102) vertically for each 12" (305) horizontally.

POLE CRANK: An extension pole used to open or close awnings or casements which would otherwise be inaccessible because of their height.

POLYGON (POLY): A high level term used to describe any shape with three or more straight sides. Typical fenestration shapes are triangles, trapezoids, pentagons, hexagons and octagons.

PRIMER: The first coat of paint in an application that is intended to prepare the surface for better adhesion by additional coats of paint.

PULTRUSION: Lineal profiles of constant cross section manufactured by combining plastic resin and continuous glass fiber reinforcement. These thermally insulating and structural components are ideally suited for applications where strength, thermal stability and weather resistance are required.

Glossary of Terms

RABBET: A groove along or near the edge of a piece of wood.

RADIUS: The length of an imaginary line from the center point of a circle to the arc or circumference of a circle.

RAILS: The cross or horizontal members of the framework of a sash, door or other panel assembly.

RELIEF KERF: Kerfs machined into the frame parts of a unit. Relief kerfs inhibit warping.

REMOVABLE MULLION: A metal component available for two panel Commercial Doors. Anchored to the header and the sill, it separates the single opening into two, the mullion can be removed to allow furniture to be easily moved through the opening.

RETRO: Retro sizing refers to units which are sized for replacement purposes.

RIM DEVICE: May also be referred as panic hardware, a rim device spans the door panel. A push bar retracts the latch allowing for quick egress.

ROLLED ALUMINUM: A term used to describe aluminum profiles for screen and energy panel surrounds which are fabricated by the use of a roller or series of rollers to produce a desired profile. All other Marvin profiles are fashioned by the extrusion method.

ROLLER CAM: The adjustable roller devices of the Multi-Point hardware installed on the sash of the French Casement unit. When adjusted properly with an Allen wrench, they ensure a tight seal between the sash and frame members.

ROSE: A circular cover plate attached to the stile directly behind a knob or door handle. May be plain or have a decorative design embossed into the cover.

ROTO-GEAR: A term used to describe the steel drive worm, gears and crank device used for opening awning and casement windows.

ROUGH OPENING (RO): The opening in the wall where a window or door unit is to be installed. Openings are larger than the size of the unit to allow room for insulation, shimming and squaring of the unit.

ROUND TOP (RT): Any window unit with a radius frame member. The most common shape is a semicircle window with a horizontal sill which may be mulled to the top of another window or door. Round tops can be used separately or combined with other units to create a seemingly endless selection.

SASH: An assembly of stiles and rails with glass that form the stationary or operating section of the window and is fitted into the frame. Double Hung sash also contain check rails. The operating and/or stationary portion of the window unit that is separate from the frame. The sash consists of the following parts:

1. STILES - Vertical sash members.
2. RAILS - Horizontal sash members.
3. CHECK RAILS - Horizontal sash members that meet, as in double hung units. These could also be vertical check stiles, as in the glider or patio door.
4. BARS - Divisional members extending from rail to rail or from stile to stile in an authentic divided lite unit.
5. MUNTINS - Divisional members extending from a bar to a rail or stile or another bar.

SASH LIMITER: An optional metal device which attaches to an Ultimate Casement sill and bottom rail which limits the sash to a specified opening -5, 10, 15 or 20 degrees.

SASH LOCK: A device which holds a window shut and prohibits it from being opened from the outside.

SASH OPENING (SO): The opening between wood frame members for both height and width (disregarding any jamb hardware tracks). This measurement is used predominantly when measuring an opening for the Double Hung Tilt Pac.

SASH RETAINER PLATE: A flat plate used on double hung and Magnum Double Hung sash to secure the bottom sash.

SASH WIDTH: Horizontal measurement across the face of a sash.

SCISSOR STAY: An optional piece of hardware for the Tilt-Turn window which is attached to the header and top rail corner drive on the handle side to limit the travel of the sash when operated in the tilt mode. It is automatically disengaged when the sash is swung in the turn mode.

SCREEN OM (outside measurement): The width and the height of a screen including wood or metal surrounds.

SCREENS (full and half): A close-mesh woven screen material of metal or fiberglass attached to an aluminum or wood surround. Screens inhibit entry of insects, yet permit light, air and vision. Most Marvin window and door products utilize full screens. Half-screens are available for single hung units.

SEQUENTIAL LOCKING SYSTEM: An exclusive Marvin design used on Ultimate Casement for locking the sash to the frame. The action is sequential where the lower lock activates first moving the sash to the weather strip; the top then engages to snug the sash to the frame.

SIDELITE: A stationary glass panel mulled to or installed next to a door.

SILL: The horizontal member forming the bottom of a window or exterior door frame; the lowest member of the frame of a structure, resting on the foundation and supporting the frame.

Glossary of Terms

SILL HORN: The extension of the “lip” of a window sill to the outside edge of the casing.

SINGLE HUNG (SH): A window unit with two sash with a bottom sash that operates by sliding vertically and is retained in position with the use of balancing devices. The top sash is stationary.

SLIDING FRENCH DOOR (SFD): A sliding door utilizing French door style panels.

SLOT AND TENON: The method of machining profiles into the ends of stiles and rails in order to produce strong sash frame corners.

SLOPE: The measure of the tilt of a line; rise over run.

SNUBBER: An interlocking metal bracket attached at the center of the hinge side of a Casement sash and frame with certain heights and both sides of an awning sash and frame with certain heights. It allows operation but pulls the sash tightly against the frame weather strip to maximize performance when closed.

SOLAR HEAT GAIN COEFFICIENT (SHGC): The ratio of the solar heat gain entering the space through the fenestration product to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation which is then re-radiated, conducted, or convected into space. The lower a window's SHGC, the less solar heat it transmits to the interior, and the greater its shading ability.

SPACER: A perimeter member of an IG used to separate and seal two more pieces of glass.

SQUARE FOOT (Sq. Ft.): For measuring the area of a unit. RO width (inches) x RO height (inches) divided by 144 equals the area in square feet of a unit.

STARBURST: A semi-elliptical area, the lower center is the point where the dividing spokes meet and radiate outward. May be constructed of glazed sash, ADLs, GBGs or SDLs.

STATIONARY (O): A non-operating sash, panel or unit.

STATIONARY SASH BRACKET: A bracket used to secure stationary Ultimate Casement and Ultimate Awning sash to the frame. The sash can be removed for replacement by removing the wood stops and bracket screws.

STILES: The upright or vertical perimeter pieces of a sash, panel or screen.

STOOL: A horizontal trim member that laps the window sill above the apron and extends beyond the interior casing. See apron entry.

STORM SASH: A wood framed assembly containing non-removable glass. The storm sash is removed during the summer and replaced with a wood framed screen.

STRUCTURAL MASONRY BRACKETS: An installation bracket used with multiple high/wide window units or large doors for added structural support. The brackets are also used to attach the unit in the rough opening in lieu of jamb screws or nailing through the casing.

STRUCTURAL ROUGH OPENING EXTENSION (SROE): an-add-on (bump-out) to the structural framing at the rough opening to support the window and allow window alignment with exterior plane of FPIS. The add-on shall be suitable for structural attachment of window.

SUNBURST: A semi-elliptical area, the lower center of which contains a sun-like figure with sun rays radiating there from. May be constructed of glazed sash with inverted radii, ADLs or SDLs.1

SURROUND: An attractive, protective trim which is secured to an energy panel by an adhesive or vinyl barb to give the glass panel a safe finished edge. Also the aluminum framework for most standard screens.

TEMPERED GLASS: Float glass panels heated and then cooled rapidly in a controlled environment. This process makes the glass several times stronger than regular glass. It also makes it safer because when broken it yields small pebble-like fragments.

TEMPLATE: A pattern of a window unit or opening from which dimensions and measurements can be determined. Round Tops require templates for replacement units.

THREE WIDE (3W): Current term referring to any product or unit when three frames (i.e. separate jambs) are mulled together as a multiple unit.

TILT PAC (TP): See Double Hung Tilt Pac

TRANSOM: A window above a window or door. Transoms can be either stationary or operating.

TRIPANE: An IG with three panes of glass.

TURN BUTTON: A vinyl or aluminum button and screw. Buttons are used to secure wood combinations, storm sash and wood screens to the exterior casing or energy panels to the sash or door panel.

TURN RESTRICTOR: A device used on a Magnum Tilt-Turn to provide friction to the sash when in the swing position.

TWO WIDE (2W): Current term referring to any product or unit when two frames (i.e. separate jambs) are mulled together as a multiple unit.

Glossary of Terms

ULTREX: A pultruded composite material made of polyester resin and glass fibers with an acrylic cap on primary surfaces.

U-FACTOR: (Btu/hr.-sq. ft. - °F.) A measurement of the amount of heat flow through a product. The lower the U-factor, the greater the resistance to heat flow and better its insulating value.

UV BLOCKAGE: Low E glass options will screen out ultraviolet waves while allowing visible light into a structure, reducing fading damage to interior surfaces.

UNIT: One single product such as a one-wide casement.

VENT OPENING: The total opening created when a door or window is completely open.

VINYL GLAZING BEAD: A vinyl extrusion used on clad units which serves the same purpose as a wood glazing bead for wood units.

VISIBLE LIGHT TRANSMITTANCE (VT): Percentage of visible light transmitted through the unit.

WARM EDGE SPACER: A spacer designed to minimize heat transference between layers of insulating glass.

WATER RESISTIVE BARRIER: A material behind an exterior wall covering that is intended to resist liquid water that has penetrated behind the exterior covering from further intruding into the exterior wall assembly.

WEATHER STRIP: A strip of resilient material designed to seal the sash and frame members in order to reduce air and water infiltration.

WINDOW OPENING CONTROL DEVICE (WOCD): A device that controls a window sash opening to be opened with normal operation of the sash such as to prohibit the free passage of a four inch (102mm) diameter rigid sphere at the lowest opening portion of the window opening, with a release mechanism that allows the sash to be opened to a larger opening area as required for emergency escape and rescue, and that automatically resets when the window sash is fully closed.

WIRE GLASS: Glass with wire embedded into the glass when the glass is still in a molten state. This prevents the shattered glass from falling out of the sash if it should break.

XO: See OX entry.

Unit Features on Windows and Doors

Marvin offers an assortment of products and features to fit your window and door requirements. Each product offers similarities that allow multiple products to be positioned in your project and look similar yet distinctive. Below is a collection of the similar characteristics you will find throughout our product lines. For product specific features, refer to the collection or individual chapters for additional information.

Aluminum Frame and Sash:

- Exterior: Extruded aluminum .050"(1.3) thick
- Standard colors: Stone White, Bahama Brown, Bronze, Pebble Gray, Evergreen, Ebony, Wineberry, Sierra White, Coconut Cream, Cashmere, Cadet Gray, Hampton Sage, Cascade Blue, Bright Silver (pearlescent), Copper (pearlescent), Clay, Gunmetal, Liberty Bronze (pearlescent), or Suede
 - Custom colors are available, please contact your Marvin representative
- Interior: Standard is treated pine bare wood
- Optional species: mixed grain Douglas fir, mahogany, vertical grain Douglas fir, cherry and white oak
 - Cherry and white oak are available on parts towards the interior on clad units only
- The Wood is dried to a moisture content of 12% or less

Wood Frame and Sash:

- The wood is dried to a moisture content of 12% or less
- Exterior and Interior: Standard is treated pine bare wood
- Optional species: mahogany, and vertical grain Douglas fir
- Cedar Dress Option
 - Brick Mold and Flat Casing
 - Subsill
 - Mull Covers
- See [Ultimate Wood Double Hung Collection Chapter](#) for additional Cedar Dress options

Interior Finish Options:

- Prime: Factory applied enamel primer
 - Available on Pine products only
- Painted Interior Finish (PIF): Factory applied water-borne acrylic enamel paint applied over compatible primer
 - Available on pine products only.
 - Available colors: White or Designer Black
- Clear Interior Finish (CIF): Factory applied water-borne acrylic enamel clear coat. Applied in two separate coats with light sanding between coats.
 - Available on pine, mahogany, mixed grain Douglas fir, vertical grain Douglas fir, cherry, and white oak
- Stain Interior Finish (SIF): Factory applied water-borne stain. Stain applied over a wood (stain) conditioner. A water-borne acrylic enamel clear coat applied on two separate coats, with light sanding between coats, applied over the stain
 - Available on pine, mahogany, mixed grain Douglas fir, vertical grain Douglas fir, cherry, white oak
 - Colors available: Wheat, Honey, Hazelnut, Leather, Cabernet, and Espresso

Interior Jamb Extension:

- Jamb extensions are available for various wall thickness factory applied up to 14" (356) wide
 - Finish to match interior
- Jamb extensions over 7 9/16" (192) will be edge glued, 4 11/16" (119) jamb extension will be shipped loose

Insect Screen:

- Standard Screen is roll formed aluminum with Charcoal Fiberglass screen mesh
 - Optional screen mesh is Charcoal High Transparency Fiberglass Mesh, Charcoal Aluminum Wire, Black Aluminum Wire, Bright Aluminum Wire, or Bright Bronze Aluminum Wire
- Interior screen colors: Satin Taupe, Bronze, White or Ebony
- Exterior screen will match the clad frame color
 - See Clad and Wood Swinging Door Collection chapters for sliding and swinging screen options.
- Optional wood interior screen for Casement products.
- Optional wood screen for wood exterior Double Hung windows.
- Optional Double Hung Magnum, extruded aluminum, screen for Ultimate Double Hung products.

Standard Features on Windows and Doors:**Simulated Divided Lites (SDL):**

- Bar (interior and exterior): 5/8" (16), 7/8" (22), 1 1/8" (29), 1 15/16" (49), 2 13/32" (61) wide bars
- Exterior:
 - Clad units match the exterior clad color
 - Wood Units match the wood species
- Interior:
 - Pine wood standard
 - Finish to match interior
- Insulated glass units available with or without aluminum spacer in airspace
- Pattern: Rectangular, diamond, custom lite layouts available, contact your Marvin representative

Grilles-Between-the-Glass (GBG):

- 23/32" (18) white contoured aluminum bar
- Exterior Colors: Stone White, Sierra White, Coconut Cream, Evergreen, Pebble Gray, Ebony, Bronze, Bahama Brown, Wineberry, and Cashmere
 - The exterior GBG color is designed to best match the Marvin clad colors when used with Low E glass
 - The use of different types of glazing options may alter the exterior GBG color appearance
- Interior Colors: White, Bronze, Pebble Gray, Sierra, and Ebony (only available with Ebony exterior)
- Optional flat aluminum bar (5/8") available
 - Exterior and Interior Colors: White, Sand Stone, Dark Brown, Dark Bronze, Green, Bright Gold, Champagne, and Light Bronze

Authentic Divided Lite (ADL):

- Wood units only
- Bar (interior and exterior): single glazed 7/8" (22) wide bars, insulated glass 1 11/16" (43) wide bars, with the exception of Double Hung Tilt Pacs which are 1 7/16" (37), Magnum Tilt Turn/Hopper 1 15/16" (49)
- Available in standard pine and optional mahogany, or vertical grain Douglas fir
- Finish to match interior and exterior and species of door
- Pattern: Rectangular, custom lite layouts available, contact your Marvin representative
- ADL glazing options not available with Argon. Sealed air units are standard.

Accessories:

- Installation brackets: 6 3/8" (162), 9 3/8" (238), or 15 3/8" (390)
- Masonry brackets: 6" (152), or 10" (254)
- Exterior wood casings: Brick Mould Casing (BMC), Flat Casing, Special Casing 3 (SPC3), Special Casing 7 (SPC7), Special Casing 21 (SPC21), Special Casing 18 (SPC18), Special Casing 26 (SPC26)
- Aluminum extrusions: Brick Mould Casing (BMC), Flat Casing, Columbus Casing, Grayson Casing, Stratton Casing, Thornton Casing, Potter Casing
- Aluminum Extrusions: Mullion Cover, Frame Expander, Mullion Expander, Subsills and Subsill End Caps
- Jamb Jack Installation kit
- IZ3 Installation kit

IZ3/IZ4: Code Requirements and Glazing

Regional Product Design Pressure Requirements

International Residential Code/International Building Code:

This set of building codes has fast been replacing the regional codes we have had available in the past. These codes represent the results of the many code governing agencies getting together to come up with a singular code language that meets all geographical locations within the building industry.

The International Residential Code is written for typical residential construction and the International Building Code is more for Commercial use. Within these codes is language that places a building site geographically into different zones based on wind-speed and proximity to the ocean as listed here:

Impact Glazing Zone 1 (IZ1):

130mph and up to but not including 140 mph and within 1-mile of the mean high tide line and Hawaii. Design pressures in this zone will exceed 40psf for negative loads. The I-codes also specifically require wind-borne debris construction in this zone. Windows and doors must be designed to withstand an impact of a 4' long 2x4 stud shot out of a cannon at 40' per second (27mph) to simulate flying debris followed by a total of 9,000 high wind cycles to simulate a hurricane.

Impact Glazing Zone 2 (IZ2):

140mph and up to but not including 150mph and more than 1-mile from the mean high tide line. Pressures in this zone approach 50psf for negative loads. Wind-borne debris requirements are identical to Zone 1.

Impact Glazing Zone 3 (IZ3):

For winds 150mph and up to 160mph, or 140mph and up to 160mph and within 1-mile of the mean high tide line. Design pressures in this zone can approach 65psf for negative loads. The I-codes specifically require wind-borne debris construction in this zone. Windows and Doors must be designed to withstand an impact of an 8' long 2x4 stud shot from a cannon at 50' per second (34mph) to simulate flying debris followed by a 9,000 high wind cycles that simulate a hurricane.

The make-up of IZ3 glass:

- Exterior piece of glass is annealed or tempered.
- Interior piece of glass is laminated glass which is composed of a layer of PVB or SGP sandwiched between two pieces of annealed glass.

Impact Glazing Zone 4 (IZ4):

This is considered a high velocity wind zone and encompasses all areas with wind speeds in excess of 160mph. Design pressures in this zone often exceed 65psf and can approach 100psf. Wind-borne debris requirements include everything from Zone 3 as well as possible multiple hits per test unit and mullions.

NOTE: Refer to wind speed map and ASTM E1996-14, subsection 6.2.2 for more information.

Egress Code: International Building Code - 2012, 2015, 2018
International Building Code - 2012, 2015, and 2018

Section 1029 in 2012 code, Section 1030 in 2015 and 2018 code - Emergency Escape and Rescue Openings

Minimum Size: Emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet (.053 m²). Exception: The minimum net clear opening for grade-floor emergency escape and rescue openings shall be 5.0 square feet (0.46m²).

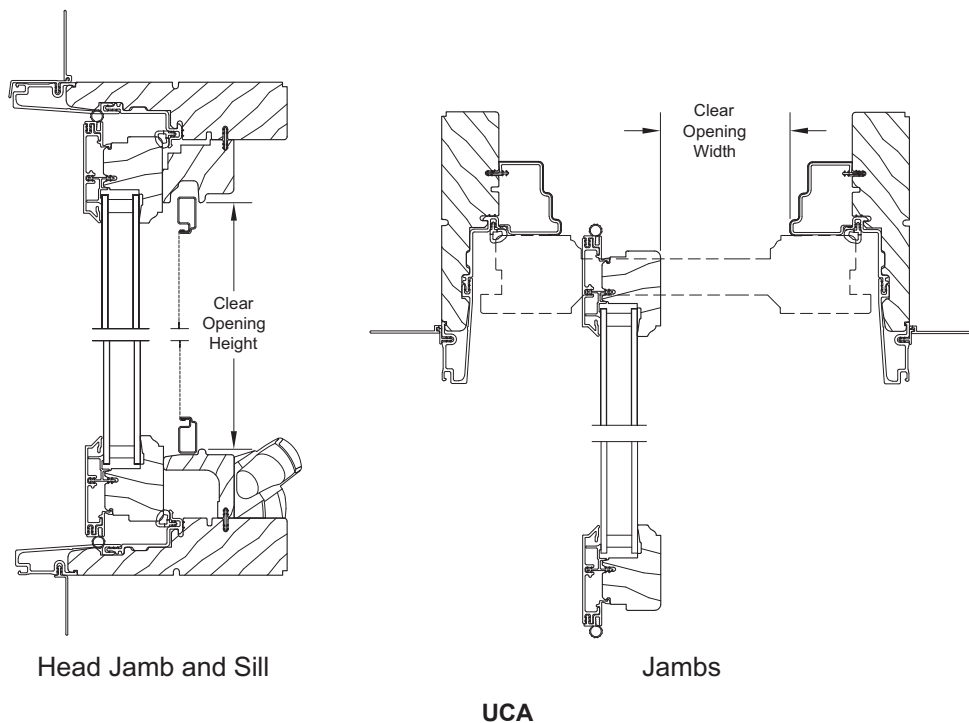
Minimum Dimensions: The minimum net clear opening height dimension shall be 24 inches (610). The minimum net clear opening width dimension shall be 20 inches (508). The net clear opening dimensions shall be the result of normal operation of the opening.

Maximum Height from Floor: Emergency escape and rescue openings shall have the bottom of the clear opening not greater than 44 inches (118) measured from the floor.

Operational Constraints: Emergency escape and rescue openings shall be operational from the inside of the room without the use of keys or tools. The 2018 code added the following sentence - window-opening control devices complying with ASTM F2090 shall be permitted for use on windows serving as a required emergency escape and rescue opening.

Code restrictions may vary depending on your local building code.

NOTE: Net Clear opening drawing is located in individual chapter with measurement conversions. UCA sample below.



Chain of Custody Certification

Marvin® offers customers the option to order chain-of-custody (COC) certified products through the Forest Stewardship Council® (FSC® License Code - FSC-C041268) Percentage System. The output claim for eligible products will be FSC® Mix XX%. The COC process is your assurance that the wood is legally and ethically harvested since it is tracked from the forest, through the manufacturing processes, and eventually to the end consumer.

When specifying the FSC® Percentage System, Marvin will utilize only FSC® certified COC and controlled material. Two wood species are available from Marvin certified through the COC system: Douglas Fir and Honduran Mahogany. Invoices for the FSC® Mix Certified products will include the claim statement “FSC® Mix XX%” along with the Marvin FSC® certificate number.

FSC® is an established, independent organization recognized as a leader in promotion of responsible forest management practices. Marvin has a genuine appreciation for the critical role forests play in the quality of life within the global ecosystems. Properly managed forests supply a continual source of wood. Marvin continues to support sustainable forestry management and is committed to conserving natural resources, including efforts to preserve old growth and ancient rain forests.

For more information on FSC®, go to www.fscus.org.

AAMA Paint & Coating Specifications

The American Architectural Manufacturer's Association (AAMA) is a trade association representing firms engaged in the manufacture and sale of architectural building components and related products. Voluntary standard have been created to test a product's durability, strength, resistance to environmental degradation and longevity. AAMA has a standard set of stringent performance tests designed to evaluate high-performance coatings on fenestration products. the quality of these finishes is affected by the pigment formula as well as the resin used to bind pigment to the substrate surface. Marvin Windows and Door uses an exceedingly strong fluropolymer resin material with hi-quality complex ceramic pigment mix to create a finish that meets AAMA 2605 voluntary performance requirements and test procedures for pigmented organic coatings on extruded aluminum and panels. In addition, a five-step pre-treatment process ensures thorough, firm bonding between the resin and the extruded aluminum substrate. The chart below illustrated the difference between the AAMA ratings, from aesthetic changes such as chalking and color retention to testing designed to replicate harsh coastal conditions.

AAMA Paint Specifications for Clad Units		
South Florida Weathering:		
Specification Details	AAMA 2603	AAMA 2605
Color Retention	1 yr "Slight" fade	10 yrs Fade = 5 Delta E
Chalk Resistance	1 yr "Slight" chalk	10 yrs chalk = 8
Glass Retention	no specification	10 yrs 50% retention
Erosion Resistance	no specification	10 yrs 10% loss
Dry Film Thickness	0.8 mils minimum	1.2 mils minimum
Pretreatment System	Chrome/chrome free	Chrome = 40 mg/sq ft
Chemical Resistance		
Specification Details	AAMA 2603	AAMA 2605
Muriatic Acid	15 minutes/no attack	15 minutes/no attack
Mortar	24 hours/no attack	24 hours/no attack
Nitric Acid	max 5D E units change	max 5D E units change
Detergent	72 hours/no attack	72 hours/no attack
Window Cleaner	no specification	24 hours/no attack
Accelerated Testing		
Specification Details	AAMA 2603	AAMA 2605
Salt Spray	1,500 hours	4,000 hours
Humidity	1,500 hours	4,000 hours

WDMA Hallmark Certification Programwww.wdma.com

Marvin Windows and Doors is a member of the Window and Door Manufacturers Association (WDMA) and uses their Hallmark Certification program to certify products. Please refer to product chapters for specific Hallmark Certification information.

Any manufacturer who complies with standards set by the Window and Door Manufacturer's Association's standards is eligible to participate in the Hallmark Certification program. In order to participate, products must be tested and pass one of the performance rating levels as defined in the applicable standard. In order for WDMA to ensure those manufacturers' products remain in continuing compliance; unannounced periodic in-plant inspections are conducted. Following this process authorizes the manufacturer to label the products as certified and gives the consumer and specifiers assurance that purchased products comply with industry standards.

Standard Requirements	
Aluminum and Wood Windows and Doors	AAMA/WDMA/CSA 101/I.S.2/A440, NAFS-11, NAFS-17
Water - Repellent Preservative	WDMA I.S.4
Non-Pressure Treatment for Millwork	

Industry and Federal Performance Standards

Marvin products have been tested and passed the following applicable test procedures referenced by WDMA, AAMA, IGCC, IGMA, SMA and CMBSO.

AAMA 2603	Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels
AAMA 2605	Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels
WDMA I.S.2	Industry Standard for Water-Repellent Preservative Treatment of Millwork
WDMA TM-14-09	Test Methods for Factory Applied and Pigmented Interior Pre-finished Wood and Wood Cellulose Composites Used for Millwork
ANSI A 201-2	Specification for Aluminum Sliding Screen Doors; SMA 2005
ASTM C-1036	Standard Specification for Flat Glass
ASTM D-3310	Standard Specification for Adhesives Used in Non-Structural Glued Lumber Products
ASTM E-90	Laboratory Measurement of Airborne Sound Transmission of Building Partitions
ASTM E-283	Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors
ASTM E-330	Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Differences
ASTM E-331	Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Uniform Static Air Pressure Differences
ASTM E-413	Determination of Sound Transmission Class
ASTM E-547	Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differences
ASTM E-1300	Standard Practice for Determining the Load Resistance of Glass in Buildings
ASTM E-1886	Standard Test Method for Performance of Exterior Windows, Curtains Walls, Doors, and Impact Protective Systems. Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials
ASTM E-1996	Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact. Protective Systems Impacted by Windborne Debris in Hurricanes
ASTM E-2068	Standard Test Method for Determination of Operating Force of Sliding Windows and Doors
ASTM E-2190	Standard Specification for Insulating Glass Unit Performance and Evaluation
ASTM E-1425	Standard Practice for Determining the Acoustical Performance of Windows, Doors, Skylight, and Glazed Wall Systems
ASTM F-588	Standard Test Method for Resistance of Window Assemblies to Forced Entry
ASTM F-842	Standard Entry Method for Measurements of Forced Entry Resistance of Horizontal Sliding Door Assemblies
ASTM F-2090	Standard Specification for Window Fall Prevention Devices with Emergency Escape (Egress) Release Mechanisms
SMA 1004	Specification for Aluminum Tubular Frame Screen for Windows"
AAMA/WDMA/CSA 101/I.S. 2/A440-11	NAFS - North American Fenestration Standard/Specification for windows, doors, and skylights
ANSI/NFRC 100-2017	Procedure for Determining Fenestration Product Thermal Attributes

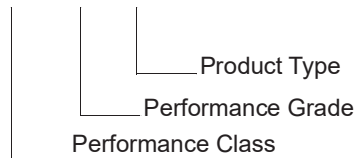
Product Rating Codes / Performance Classes

<u>Product Type</u>		<u>Performance Class and Grade</u>
AP = Awning, Hopper, Projected Window	MA = Mullion Assembly	R = Residential
AP = Awning, Hopper, Projected Window	POW = Parallel Opening Window	LC = Light Commercial
C = Casement Windows	SD = Sliding Door	CW=Commercial
DAW = Dual Action Windows	SGD = Sliding Glass Doors	AW =Architectural
DASHD = Dual Action Side-Hinges Door	SHD = Side-Hinged Door	
FD = Fixed Door	SHW = Side-Hinges (inswinging) window	
FW = Fixed Windows	SLT = Side Lite	
H = Hung Windows	SP = Specialty Product	
HGD = Hinged Glass Doors	SSP = Secondary Storm Product	
HP = Horizontally Pivoted Window	TH = Top-Hinged Window	
HS = Horizontal Sliding Windows	VP = Vertical Pivoted Window	
LW DASHD = Limited Water Dual Action Side Hinged Door	VS = Vertical Sliding Window	

Product Rating Code for '11

Example

LC - PG25 - H



Product Rating Codes / Performance Classes/Design Pressure Ratings

Performance Classes (‘08, ‘11, ‘17 Standards)	(psf) Min. DP	(psf) Struct. Press.	(psf) Water Press.	(cfm/ft ²) Max. Air. Inf.
R = Residential	15	22.56	2.92	0.3 (1.57 psf)
LC = Light Commercial	25	37.59	3.76	0.3 (1.57 psf)
CW = Commercial	30	45.11	4.59	0.3 (1.57 psf)
AW = Architectural	40	60.15	7.95	0.1 or 0.3 (6.27 psf)
Metric	(Pa)	(Pa)	(Pa)	(L/s/m ²)
R = Residential	720	1080	140	1.5 (75 Pa)
LC = Light Commercial	1200	1800	180	1.5 (75 Pa)
CW = Commercial	1440	2160	220	1.5 (75 Pa)
AW = Architectural	1920	2880	380	0.5 or 1.5 (300 Pa)

NOTE: AAMA/WDMA chose to establish 2.86 psf as the minimum air pressure used during water testing although it is greater than 15% of the design pressure at DP15.

Performance Grade					
Performance Grade	PG15	PG20	PG25	PG30	PG35
Design Pressure (DP) (psf)	15.04	20.05	25.06	30.08	35.09
Structural Test Pressure (STP) (psf)	22.56	30.08	37.59	45.11	52.63
Water penetration resistance test pressure (psf)	2.92	3.13	3.76	4.59	5.43
Performance Grade	PG40	PG45	PG50	PG55	PG60
Design Pressure (DP) (psf)	40.10	45.11	50.13	55.14	60.15
Structural Test Pressure (STP) (psf)	60.15	67.67	75.19	82.71	90.23
Water penetration resistance test pressure (psf)	6.06	6.89	7.52	8.35	9.19
Metric Performance Grade					
Metric Performance Grade	PG15	PG20	PG25	PG30	PG35
Design Pressure (DP) (Pa)	720	960	1,200	1,440	1,680
Structural Test Pressure (STP) (Pa)	1,080	1,440	1,800	2,160	2,520
Water penetration resistance test pressure (Pa)	140	150	180	220	260
Metric Performance Grade	PG40	PG45	PG50	PG55	PG60
Design Pressure (DP) (Pa)	1,920	2,160	2,400	2,640	2,880
Structural Test Pressure (STP) (Pa)	2,880	3,240	3,600	3,960	4,320
Water penetration resistance test pressure (Pa)	290	330	360	400	440

STC and OITC Class Values

Marvin Sound Transmission Class and Outdoor - Indoor Transmission Class Values							
Product Type	Exterior Glazing	Airspace	Interior Glazing	STC	OITC	Additional Information	STC Report #
Ultimate Double Hung G2							
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	5/8" (16.0)	1/8" (3.1) Annealed	27	23		ESP018375P-2
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	1/4" (6.5)	1/8" (3.1) Annealed	28	24	Tri-pane: two 1/4" air spaces with 1/8" center pane	ESP016170P-2
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	19/32" (14.5)	3/16" (4.7) Annealed	30	26		ESP020753P-2
UDH G2 (47 3/16 x 59 1/8)	1/4" (5.7) Annealed	3/8" (9.8)	1/4" (6.0) Lami	30	27		ESP016170P-4
UDH G2 (47 3/16 x 59 1/8)	1/4" (6.0) Lami	3/8" (9.8)	1/4" (6.0) Lami	31	27		ESP016170P-5
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	7/16" (11.5)	5/16" (7.8) Lami	31	26	CE	ESP020753P-1
UDH G2 (47 3/16 x 59 1/8)	9/32" (7.0) Lami	5/16" (8.0)	9/32" (7.0) Lami	31	27	CE	ESP016170P-7
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	7/16" (11.5)	11/32" (8.6) Lami	31	27	IZ3	ESP018375P-5
UDH G2 (47 3/16 x 59 1/8)	3/16" (4.7) Annealed	7/16" (11.5)	1/4" (6.0) Lami	31	28		ESP018375P-3
UDH G2(47 3/16 x 59 1/8)	1/4" (5.9) Annealed	5/16" (8.0)	5/16" (7.8) Lami	31	29	CE	ESP016170P-6
UDH G2 (47 3/16 x 59 1/8)	3/16" (4.7) Annealed	5/16" (8.0)	11/32" (8.6) Lami	32	29	IZ3	ESP018375P-7
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	5/8" (16.0)	1/8" (3.1) Annealed	35	28	1/8" Clad Storm Combination	ESP016170P-14
UDH G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	1/4" (6.5)	1/8" (3.1) Annealed	36	30	Tri-pane: two 1/4" air spaces w/ 1/8" center pane, 1/8" Clad Storm Comb	ESP016170P-15
UDH G2 (47 3/16 x 59 1/8)	1/4" (5.7) Annealed	3/8" (9.8)	1/4" (6.0) Lami	39	32	1/8" Clad Storm Combination	ESP016170P-19
UDH G2(47 3/16 x 59 1/8)	1/4" (6.0) Lami	3/8" (9.8)	1/4" (6.0) Lami	40	33	1/8" Clad Storm Combination	ESP016170P-17
UDH G2 (47 3/16 x 59 1/8)	3/16" (4.7) Annealed	7/16" (11.5)	1/4" (6.0) Lami	40	33	1/8" Clad Storm Combination	ESP016170P-18
UDH G2 (47 3/16 x 59 1/8)	9/32" (7.0) Lami	5/16" (8.0)	9/32" (7.0) Lami	40	33	1/8" Clad Storm Combination CE	ESP016170P-12
UDH G2 (47 3/16 x 59 1/8)	1/4" (5.9) Annealed	5/16" (8.0)	5/16" (7.8) Lami	41	35	1/8" Clad Storm Combination CE	ESP016170P-16
UDH P G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	5/8" (16.0)	1/8" (3.1) Annealed	29	23		ESP016170P-21
UDH P G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	1/4" (6.5)	1/8" (3.1) Annealed	30	25	Tri-pane: two 1/4" air spaces with 1/8" center pane	ESP016170P-24
UDH P G2 (47 3/16 x 59 1/8)	1/4" (5.7) Annealed	3/8" (9.8)	1/4" (6.0) Lami	34	29		ESP016170P-26
UDH P G2 (47 3/16 x 59 1/8)	1/4" (6.0) Lami	3/8" (9.8)	1/4" (6.0) Lami	35	30		ESP016170P-25
UDH P G2 (47 3/16 x 59 1/8)	3/16" (4.7) Annealed	7/16" (11.5)	1/4" (6.0) Lami	35	29		ESP016170P-23
UDH P G2 (47 3/16 x 59 1/8)	1/4" (5.9) Annealed	5/16" (8.0)	5/16" (7.8) Lami	35	31	CE	ESP016170P-22
UDH P G2 (47 3/16 x 59 1/8)	9/32" (7.0) Lami	5/16" (8.0)	9/32" (7.0) Lami	35	30	CE	ESP016170P-27
UDH P G2 (47 3/16 x 59 1/8)	1/8" (3.1) Annealed	1/4" (6.5)	9/16" (13.6) Lami	35	31		ESP016170P-29
Ultimate Wood Double Hung							
UWDH 3026	1/8" (3.1) Annealed	7/16" (11.5)	1/8" (3.1) Annealed	35	26	3/32" (2) Wood Storm Comb	66263-4
UWDH 3026	3/16" (4.7) Annealed	3/8" (9.8)	1/8" (3.1) Annealed	36	27	3/32" (2) Wood Storm Comb	66263-5
UWDH 3026	5/32" (3.9) Annealed	3/8" (9.8)	1/4" (6) Lami	37	28	3/32" (2) Wood Storm Comb	66263-6
UWDHP 6878	1/4" (5.7) Annealed	9/16" (14.5)	1/4" (6) Lami	34	27	2" (51) Sash	66263-7
Ultimate Wood Double Hung Magnum (see NOTE below)							
UWDHM FS 48"(1219) X 60"(1524) (7/8)	1/4" (6) LAMI	3/8" (9.8)	1/4" (6) LAMI	33	28		ESP-015798P-3
UWDHM FS 48"(1219) X 60"(1524) (7/8)	1/4" (6) LAMI	5/16" (8)	5/16" (8.6) LAMI	34	29		ESP-015798P-2
UWDHM FS 48"(1219) X 60"(1524) (7/8)	1/8" (3.1) Annealed	1/4" (6.5)	1/8" (3.1) Annealed	28	24	Tri-pane: two 1/4" air spaces with 1/8" center pane	ESP-015798P-1
UWDHM FS 47 7/8 X 88 (11/16)	1/8" (3.1) Annealed	7/16" (11.5)	1/8" (3.1) Annealed	27	22		76430
UWDHM FS 47 7/8 X 88 (11/16)	3/16" (4.7) Annealed	3/8" (9.8)	1/8" (3.1) Annealed	30	25		
UWDHM FS 47 7/8 X 88 (11/16)	1/4" (5.7) Annealed	5/16" (8)	5/32" (3.9) Annealed	31	26		
UWDHM FS 47 7/8 X 88 (11/16)	1/4" (6) LAMI	9/32" (7)	3/16" (4.7) Annealed	31	26		
Ultimate Wood Double Hung Magnum							
UWDHM FS 48" (1219) X 60"(1524)	(with 7/8" IG) 1/4" (6) LAMI	3/8" (9.8)	1/4" (6) LAMI	33	27		ESP-015798P-6
UWDHM FS 48" (1219) X 60"(1524)	1/4" (6) LAMI	5/16" (8)	5/16" (8.6) LAMI	34	29		ESP-015798P-5
UWDHM FS 48" (1219) X 60"(1524)	1/8" (3.1) Annealed	1/4" (6.5)	1/8" (3.1) Annealed	28	24	Tri-pane: two 1/4" air spaces with 1/8" center pane	ESP-015798P-4

NOTE: The test reports in the UWDHM section are for Clad Ultimate Double Hung Magnum (UDHM) product, a product that is no longer available. However, in testing the UDHM product, it qualifies the UWDHM product as well.

STC and OITC Class Values

Marvin Sound Transmission Class and Outdoor - Indoor Transmission Class Values							
Product Type	Exterior Glazing	Airspace	Interior Glazing	STC	OITC	Additional Information	STC Report #
Ultimate Casement							
Values for wood and clad product UCA, UCART, UPCA, UCAP, UCARTP, UPCA							
UCA 2460 3/4" (19)	1/8" (3.1) Annealed	1/2" (13)	1/8" (3.1) Annealed	29	23		TCT005872P-1
UCA 2460 3/4" (19)	1/4" (5.7) Annealed	5/16" (8)	1/4" (6) LAMI	34	29		ESP016574P-2
UCA 2460 3/4" (19)	1/4" (6) LAMI	9/32" (7)	1/4" (6) LAMI	35	30		ESP016574P-3
UCA 2460 3/4" (19)	1/8" (3.1) Annealed	5/16" (8)	11/32" (8.6) PVB	35	31	IZ3	ESP017287P-4
UCA 2460 3/4" (19)	3/16" (4.7) Annealed	5/16" (8)	1/4" (6) LAMI	35	30		ESP016574P-4
UCA 2460 3/4" (19)	3/16" (4.7) Annealed	1/4" (6.5)	11/32" (8.6) PVB	37	31	IZ3	ESP017287P-1
UCA 2460 3/4" (19)	1/8" (3.1) Annealed	1/2" (13)	1/8" (3.1) Annealed	46	34	interior sash 1/8" glass, 4 1/4" airspace	TCT005872P-1
UCA 2460 1" (25)	1/8" (3.1) Annealed	5/16" (8)	1/8" (3.1) Annealed	30	25	Tri-pane: two 5/16 air spaces, with 1/8" center	ESP016574P-5
UCA 2460 1" (25)	1/4" (5.7) Annealed	1/2" (13)	1/4" (6) LAMI	34	28		ESP016574P-10
UCA 2460 1" (25)	3/16" (4.7) Annealed	9/16" (14.5)	1/4" (5.7) Annealed	34	27		TCT005872P-1
UCA 2460 1" (25)	1/4" (6) LAMI	1/2" (13)	1/4" (6) LAMI	35	28		ESP016574P-11
UCA 2460 1" (25)	9/32" (7) Lami	7/16" (11.5)	9/32" (7) Lami	35	29	CE	ESP016574P-13
UCA 2460 1" (25)	1/4" (5.9) Annealed	7/16" (11.5)	5/16" (7.8) Lami	37	32	CE	ESP017287P-3
UCA 2460 1" (25)	3/16" (4.7) Annealed	9/32" (7)	17/32" (13.6) Lami	37	34		ESP016574P-9
UCA 2460 1" (25)	3/16" (4.7) Annealed	9/16" (14.5)	1/4" (6) LAMI	37	30		ESP016574P-12
UCA 2460 1" (25)	3/16" (4.7) Annealed	7/16" (11.5)	11/32" (8.6) PVB	37	31	IZ3	ESP017287P-2
UCA 2460 1" (25)	3/16" (4.7) Annealed	3/8" (9.8)	13/32" (10.1) PVB	38	33		ESP017287P-6
UCA 2460 1" (25)	3/16" (4.7) Annealed	9/16" (14.5)	1/4" (5.7) Annealed	47	36	interior sash 1/8" glass, 4 1/4" airspace	TCT005872P-1
UCAP 4860 1" (25)	3/16" (4.7) Annealed	9/16" (14.5)	1/4" (6) LAMI	36	30		ESP016574P-15
UCAP 4860 1" (25)	1/4" (5.7) Annealed	1/2" (13.0)	1/4" (6) LAMI	34	29		ESP016574P-16
UCAP 4860 1" (25)	1/4" (6) LAMI	1/2" (13.0)	1/4" (6) LAMI	35	29		ESP016574P-17
UCAP 4860 1" (25)	3/16" (4.7) Annealed	9/32" (7)	17/32" (13.6) Lami	36	33		ESP016574P-18
UCAP 4860 1" (25)	1/8" (3.1) Annealed	5/16" (8)	1/8" (3.1) Annealed	29	24	Tri-pane: two 5/16" air spaces, with 1/8" center	ESP016574P-19
UCAP 4860 1" (25)	9/32" (7) Lami	7/16" (11.5)	9/32" (7) Lami	36	32	CE	ESP016574P-23
UCAP 4860 1" (25)	1/4" (5.9) Annealed	7/16" (11.5)	5/16" (7.8) Lami	36	30	CE	ESP016574P-22
UCAP 4860 1" (25)	3/16" (4.7) Annealed	5/8" (16)	3/16" (4.7) Annealed	31	25		
UCAP 4860 1" (25)	3/16" (4.7) Annealed	9/16" (14)	1/4" (5.7) Annealed	34	28		TCT005872P-2
UGL 5040	1/8" (3.1) Annealed	7/16" (11.5)	1/8" (3.1) Annealed	27	22		
UGL 5040	1/8" (3.1) Annealed	3/8" (10)	3/16" (4.7) Annealed	32	26		TCT006299P-CUGL
UGL 5040	1/8" (3.1) Annealed	7/16" (11.5)	1/8" (3.1) Annealed	33	25	1/8" Combination to the exterior	
UGL 5040	1/8" (3.1) Annealed	3/8" (10)	3/16" (4.7) Annealed	37	27	1/8" Combination to the exterior	
UGL 5040	3/16" (4.7) Annealed	9/32" (7.0)	1/4" (6.0) Lami	32	29		ESP020754P-4rev1
UGL 5040	5/32" (3.9)	9/32" (7.0)	9/32" (7.0) Lami	30	27	CE	ESP020754P-5
UGL 5040	3/16" (4.7) Annealed	9/32" (7.0)	1/4" (6.0) Lami	37	31	1/8" Combination to the exterior	ESP020754P-2rev1
UGL 5040	5/32" (3.9)	9/32" (7.0)	9/32" (7.0) Lami	37	30	CE 1/8" Combination to the exterior	ESP020754P-3
UGLP 4050	3/16" (4.7) Annealed	5/16" (8)	3/16" (4.7) Annealed	31	26		TCT006299P-CUGLP
UGLP 4050	1/8" (3.1) Annealed	3/8" (10)	3/16" (4.7) Annealed	31	26		
UGLP 4050	3/16" (4.7) Annealed	9/32" (7)	1/4" (6.0) Lami	34	30		ESP020754P-1
Ultimate Direct Glaze							
UDG Rect FS 47 3/16" x 59 3/32"	5/32" (3.9) Annealed	7/16" (11.5)	5/32" (3.9) Annealed	28	24		ESP014020-2
UDG Rect FS 47 3/16" x 59 3/32"	1/4" (5.7) Annealed	7/16" (11.5)	1/4" (6.0) Lami	33	27		ESP014020-3
UDG Rect FS 47.2 x 59.1	1/8" (3.1) Annealed	7/16" (11.5)	1/8" (3.1) Annealed	27	23		ESP019269P-4
UDG Rect FS 47.2 x 59.1	3/16" (4.7) Annealed	7/16" (11.5)	3/16" (4.7) Annealed	29	26		ESP019269P-9
UDG Rect FS 47.2 x 59.1	1/4" (5.7) Annealed	7/16" (11.5)	1/4" (5.7) Annealed	30	26		ESP019269P-8
UDG Rect FS 47.2 x 59.1	5/32" (3.9) Annealed	7/16" (11.5)	3/16" (4.7) Annealed	32	28		ESP019269P-5
UDG Rect FS 47.2 x 59.1	3/16" (4.7) Annealed	7/16" (11.5)	1/4" (6.0) Lami	34	29		ESP019269P-2
UDG Rect FS 47.2 x 59.1	1/4" (6.0) Lami	7/16" (11.5)	1/4" (6.0) Lami	33	28		ESP019269P-11
UDG Rect FS 47.2 x 59.1	1/8" (3.1) Annealed	5/16" (8.0)	1/8" (3.1) Annealed	27	23	tripane- two 5/16" airspaces with 1/8" center	ESP019269P-7
UDG Rect FS 47.2 x 59.1	1/8" (3.1) Annealed	5/16" (8.0)	1/4" (6.0) Lami	33	27	tripane- two 5/16" airspaces with 1/8" center	ESP019269P-6
UDG Rect FS 47.2 x 59.1	3/16" (4.7) Annealed	3/8" (9.8)	13/32" (10.1) SGP	34	30	IZ3	ESP019269P-3
UDG Rect FS 47.2 x 59.1	9/32" (7.0) Lami	7/16" (11.5)	9/32" (7.0) Lami	36	30	CE	ESP019269P-1
UDG Rect FS 47.2 x 59.1	15/64" (5.9) Annealed	7/16" (11.5)	5/16" (7.8) Lami	36	31	CE	ESP019269P-10
Ultimate Tilt Turn							
UTT FS 48" (1219) x 72" (1829)	1/8" (3) Annealed	5/8" (16)	1/8" (3) Annealed	31	25		66263-24
UTT FS 48" (1219) x 72" (1829)	3/16" (5) Annealed	15/32" (12)	1/4" (6) Lami	36	29		66263-25

STC and OITC Class Values

Marvin Sound Transmission Class and Outdoor - Indoor Transmission Class Values							
Product Type	Exterior Glazing	Airspace	Interior Glazing	STC	OITC	Additional Information	STC Report #
Ultimate Sliding Patio Door							
USPD 6068	1/8" (3.1) Tempered	1/2" (12.7)	1/8" (3.1) Tempered	29	24		ESP023470P-12
USPD 6068	1/8" (3.1) Tempered	7/16" (11.0)	3/16" (4.7) Tempered	31	26		ESP023470P-20
USPD 6068	1/8" (3.1) Tempered	3/8" (9.3)	1/4" (5.7) Tempered	31	27		ESP023470P-14
USPD 6068	5/32" (3.9) Tempered	7/16" (11.0)	5/32" (3.9) Tempered	30	25		ESP023470P-18
USPD 6068	1/4" (5.7) Tempered	5/16" (8.1)	1/4" (5.7) Tempered	31	28		ESP023470P-19
USPD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (6) Lami	31	27		ESP023470P-15
USPD 6068	3/16" (4.7) Tempered	5/16" (8.0)	1/4" (6) Lami	31	28		ESP023470P-17
USPD 6068	1/4" (5.7) Tempered	5/16" (8.0)	1/4" (6) Lami	31	28		ESP023470P-13
USPD 6068	1/4" (6) Lami	9/32" (7.0)	1/4" (6) Lami	32	29		ESP023470P-16
USPD 6068	1/8" (3.1) Tempered	5/16" (8.0)	5/16" (7.8) Lami	31	28	CE	ESP023470P-22
USPD 6068	5/32" (3.9) Tempered	5/16" (8.0)	5/16" (7.8) Lami	31	28	CE	ESP023470P-21
Ultimate Sliding French Door							
UWSFD 6068	1/4" (6) Lami	3/8" (10)	1/8" (3.1) Tempered	32	28		66263-9
USFD 6068	1/8" (3.1) Tempered	1/2" (12.7)	1/8" (3.1) Tempered	30	26		ESP023470P-1
USFD 6068	1/8" (3.1) Tempered	7/16" (11.0)	3/16" (4.7) Tempered	31	27		ESP023470P-10
USFD 6068	1/8" (3.1) Tempered	3/8" (9.3)	1/4" (5.7) Tempered	31	28		ESP023470P-5
USFD 6068	5/32" (3.9) Tempered	7/16" (11.0)	5/32" (3.9) Tempered	30	27		ESP023470P-7
USFD 6068	1/4" (5.7) Tempered	5/16" (8.1)	1/4" (5.7) Tempered	31	28		ESP023470P-11
USFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (6) Lami	32	28		ESP023470P-3
USFD 6068	3/16" (4.7) Tempered	5/16" (8.0)	1/4" (6) Lami	32	29		ESP023470P-8
USFD 6068	1/4" (5.7) Tempered	5/16" (8.0)	1/4" (6) Lami	32	29		ESP023470P-9
USFD 6068	1/4" (6) Lami	9/32" (7.0)	1/4" (6) Lami	31	29		ESP023470P-2
USFD 6068	1/8" (3.1) Tempered	5/16" (8.0)	5/16" (7.8) Lami	32	29	CE	ESP023470P-4
USFD 6068	5/32" (3.9) Tempered	5/16" (8.0)	5/16" (7.8) Lami	32	29	CE	ESP023470P-6
Ultimate Sliding French Door IZ3							
USFD 6068	5/32" (3.9) Tempered	5/16" (8.0)	9/32" (6.9) SGP LAMI	32	29	IZ	ESP023470P-23
USFD 6068	3/16" (4.7) Tempered	9/32" (7.0)	9/32" (6.9) SGP LAMI	32	29	IZ	ESP023470P-24
Ultimate Inswing French Door IZ3							
UIFD 6068 IZ3	1/8" (3.1) Tempered	9/32" (7)	11/32" (8.6) SGP	33	30		ESP018204P-1
UIFD 6068 IZ3	3/16" (4.7) Tempered	1/4" (6.5)	11/32" (8.6) SGP	34	31		ESP018204P-2
Ultimate Inswing French Door							
UIFD 6068	1/8" (3.1) Tempered	1/2" (13)	1/8" (3.1) Tempered	31	26		ESP018204P-6
UIFD 6068	1/8" (3.1) Tempered	7/16" (11.5)	5/32" (3.9) Tempered	33	28		ESP018204P-8
UIFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (5.7) Tempered	34	30		ESP018204P-10
UIFD 6068	1/4" (5.7) Tempered	5/16" (8)	1/4" (5.7) Tempered	34	29		ESP018204P-12
UIFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (6) Lami	35	30		ESP018204P-14
UIFD 6068	3/16" (4.7) Tempered	5/16" (8)	1/4" (6) Lami	35	30		ESP018204P-18
UIFD 6068	1/4" (5.7) Tempered	5/16" (8)	1/4" (6) Lami	35	30		ESP018204P-16
UIFD 6068	1/4" (6) Lami	9/32" (7)	1/4" (6) Lami	35	30		ESP018634P-1
UIFD 6068 3/4 lite stmpd rsd pnls	1/8" (3.1) Tempered	1/2" (13)	1/8" (3.1) Tempered	32	26	3/4 lite stamped raised panels	ESP018204P-22
UIFD 6068 3/4 lite stmpd rsd pnls	3/16" (4.7) Tempered	5/16" (8)	1/4" (6) Lami	34	30	3/4 lite stamped raised panels	ESP018204P-24
UIFD 6068	1/8" (3.1) Tempered	1/2" (13)	1/8" (3.1) Tempered	40	30	1/8" storm combination on exterior	ESP018204P-7
UIFD 6068	1/8" (3.1) Tempered	7/16" (11.5)	5/32" (3.9) Tempered	42	32	1/8" storm combination on exterior	ESP018204P-9
UIFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (5.7) Tempered	43	33	1/8" storm combination on exterior	ESP018204P-11
UIFD 6068	1/4" (5.7) Tempered	5/16" (8)	1/4" (5.7) Tempered	42	34	1/8" storm combination on exterior	ESP018204P-13
UIFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (6) Lami	44	33	1/8" storm combination on exterior	ESP018204P-15
UIFD 6068	3/16" (4.7) Tempered	5/16" (8)	1/4" (6) Lami	43	34	1/8" storm combination on exterior	ESP018204P-19
UIFD 6068	1/4" (5.7) Tempered	5/16" (8)	1/4" (6) Lami	43	35	1/8" storm combination on exterior	ESP018204P-17
UIFD 6068	1/4" (6) Lami	9/32" (7)	1/4" (6) Lami	44	33	1/8" storm combination on exterior	ESP018634P-2
UIFD 6068 3/4 lite stmpd rsd pnls	1/8" (3.1) Tempered	1/2" (13)	1/8" (3.1) Tempered	41	31	1/8" storm combination on exterior	ESP018204P-23
UIFD 6068 3/4 lite stmpd rsd pnls	3/16" (4.7) Tempered	5/16" (8)	1/4" (6) Lami	43	34	1/8" storm combination on exterior	ESP018204P-25

STC and OITC Class Values

Marvin Sound Transmission Class and Outdoor - Indoor Transmission Class Values							
Product Type	Exterior Glazing	Airspace	Interior Glazing	STC	OITC	Additional Information	STC Report #
Ultimate Outswing French Door							
UOFD 6068	1/8" (3.1) Tempered	1/2" (13)	1/8" (3.1) Tempered	31	26		ESP018204P-26
UOFD 6068	1/8" (3.1) Tempered	7/16" (11.5)	5/32" (3.9) Tempered	33	28		ESP018204P-27
UOFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (5.7) Tempered	35	30		ESP018204P-28
UOFD 6068	1/4" (5.7) Tempered	5/16" (8)	1/4" (5.7) Tempered	34	29		ESP018204P-29
UOFD 6068	1/8" (3.1) Tempered	3/8" (9.8)	1/4" (6) Lami	36	30		ESP018204P-30
UOFD 6068	3/16" (4.7) Tempered	5/16" (8)	1/4" (6) Lami	36	30		ESP018204P-32
UOFD 6068	1/4" (5.7) Tempered	5/16" (8)	1/4" (6) Lami	35	30		ESP018204P-33
UOFD 6068	1/4" (6) Lami	9/32" (7)	1/4" (6) Lami	36	31		ESP018204P-31
Ultimate Outswing French Door IZ3							
UOFD 6068 IZ3	1/8" (3.1) Tempered	9/32" (7)	11/32" (8.6) SGP	33	29	IZ3	ESP018204P-3
UOFD 6068 IZ3	3/16" (4.7) Tempered	1/4" (6.5)	11/32" (8.6) SGP	34	31	IZ3	ESP018204P-4
Ultimate MultiSlide Door / Stacked							
Multi Panel Sliding Door CN6070 OX	3/16" (4.7) Tempered	9/16" (14.5)	3/16" (4.7) Tempered	30	27		ESP021984P-1
Multi Panel Sliding Door CN6070 OX	3/16" (4.7) Tempered	1/2" (13.0)	1/4" (5.7) Tempered	32	29		ESP021984P-3
Multi Panel Sliding Door CN6070 OX	1/4" (5.7) Tempered	7/16" (11.5)	1/4" (5.7) Tempered	31	28		ESP021984P-4
Multi Panel Sliding Door CN6070 OX	3/16" (4.7) Tempered	1/2" (13.0)	1/4" (6.0) Lami	33	30		ESP021984P-5
Multi Panel Sliding Door CN6070 OX	1/4" (6.0) Lami	9/32" (7)	1/4" (6.0) Lami	33	30		ESP021984P-2
Multi Panel Sliding Door CN6070 OX	3/16" (4.7) Tempered	1/4" (11.5)	11/32" (8.6) SGP	31	29	IZ3	ESP021984P-7
Multi Panel Sliding Door CN6070 OX	1/4" (5.7) Tempered	1/2" (13.0)	15/32" (11.7) SGP	32	30	IZ3	ESP021984P-6
Ultimate Double Hung Hopper							
UDHHOP (1") FS 40 X 59.1"	3/16" (4.7) Annealed	5/8" (16)	3/16" (4.7) Annealed	33	28		ESP017948P-1
UDHHOP (1") FS 40 X 59.1"	1/8" (3.1) Annealed	5/16" (8)	1/8" (3.1) Annealed	32	28	Tri-pane: two 5/16" air space with 1/8" center	ESP017948P-3
UDHHOP (1") FS 40 X 59.1"	3/16" (4.7) Annealed	9/16" (14.5)	1/4" (6) LAMI	36	32		ESP017948P-7
UDHHOP (1") FS 40 X 59.1"	1/4" (5.7) Annealed	1/2" (13)	1/4" (6) LAMI	36	32		ESP017948P-5
UDHHOP (1") FS 40 X 59.1"	1/4" (6) LAMI	1/2" (13)	1/4" (6) LAMI	37	32		ESP017948P-17

ENERGY STAR® Program - United States

www.energystar.gov

About ENERGY STAR®

ENERGY STAR® is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy helping us all save money and protect the environment through energy efficient products and practices.

Residential Windows, Doors and Skylights

Thanks to advances in technology, today's ENERGY STAR® qualified windows, doors, and skylights offer greater savings than ever before. Just look for the ENERGY STAR® label.

Save energy and money.

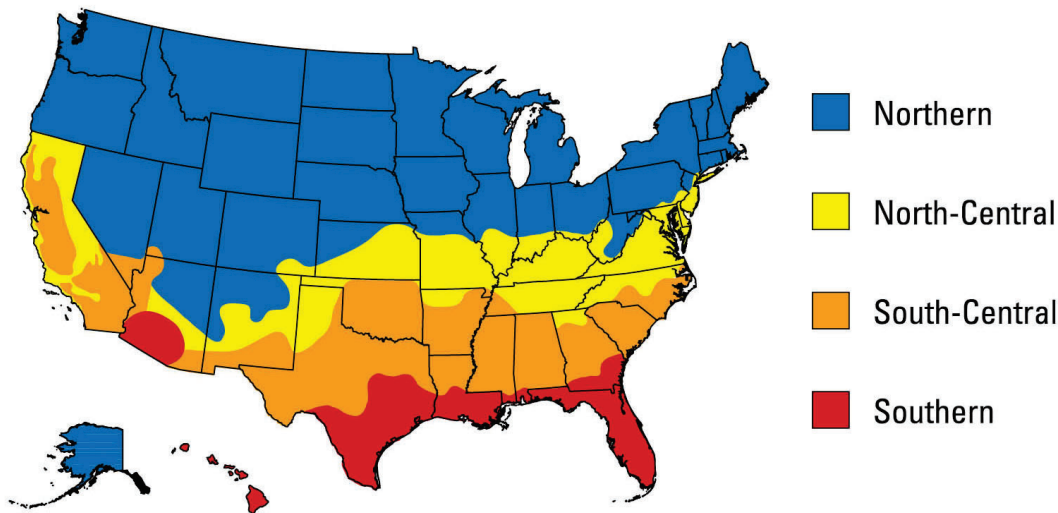
Replacing old windows with ENERGY STAR® qualified windows lowers household energy bills by 7-15 percent. Lower energy consumption also reduces greenhouse gas emissions from power plants and shrinks a house's carbon footprint.

Current Specification Effective Date: January 1, 2015

As of January 1, 2016, ENERGY STAR® qualified windows, doors, and skylights meet new performance levels, see below.

Windows and skylights must meet NFRC U-Factor and, where applicable, Solar Heat Gain Coefficient (SHGC) requirements based on climate zone. Doors must meet U-Factor and, where applicable, SHGC requirements based on glazing level (amount of glass).

At this time, most Marvin window and door product lines qualify for the ENERGY STAR® Window and Door Program. For more specific information, please refer to the individual product sections in your Marvin Windows and Doors product catalog.



Windows

Climate Zone	U-Factor ¹	SHGC ²	
Northern*	≤ 0.27	Any	Prescriptive
	= 0.28	≥ 0.32	Equivalent Energy Performance
	= 0.29	≥ 0.37	
	= 0.30	≥ 0.42	
North-Central	≤ 0.30	≤ 0.40	
South-Central	≤ 0.30	≤ 0.25	
Southern	≤ 0.40	≤ 0.25	

Doors

Glazing Level	U-Factor ¹	SHGC ²	
Opaque	≤ 0.17	No Rating	
≤ ½-Lite	≤ 0.25	≤ 0.25	
> ½-Lite	≤ 0.30	Northern North-Central	≤ 0.40
		Southern South-Central	≤ 0.25

Air Leakage ≤ 0.3 cfm/ft²

¹ Btu/h ft²·°F

² Solar Heat Gain Coefficient

ENERGY STAR® Most Efficient - United States

The ENERGY STAR® Most Efficient mark is an extension of the ENERGY STAR® brand and is designed to recognize and advance the most efficient products among those that qualify for ENERGY STAR®. This recognition is for specific categories and awarded for a specific year.

Marvin has long been a leader in providing our customers with energy efficient options. We are pleased to announce that Marvin meets the US ENERGY STAR® Most Efficient criteria with 49 product types and 25,000+ glazing options.

MOST EFFICIENT CRITERIA

Energy Star Zone	U-factor	SHGC
Northern	≤ 0.20	≥ 0.20
North-Central	≤ 0.20	≤ 0.40
South-Central	≤ 0.20	≤ 0.25
Southern	≤ 0.20	≤ 0.25

As more product and glazing options are certified throughout the year, additional qualifying options will become available. The EPA has set up a page on its website where consumers can go to find all of the Marvin options that meet the Most efficient criteria.

To view the latest listing for [casement windows](#)

To view the latest listing for [horizontal sliding windows](#)

To view the latest listing for [vertical sliding windows](#)

To view the latest listing for [fixed windows](#)



ENERGY STAR® Program - Canada

This technical specification determines how residential windows, doors, and skylights sold in Canada are certified for the ENERGY STAR® program. This specification is issued by Natural Resources Canada (NRCAN). NRCAN has been authorized by the U.S. Environmental Protection Agency (EPA) to promote and administer the ENERGY STAR name and symbol in Canada. A product must meet this specification in order to be promoted as ENERGY STAR certified in Canada by its manufacturer or authorized agent. Manufacturers must also sign a Fenestration Administrative Arrangement with NRCAN.

Performance metrics

U-Factor: The heat transfer per time per area and per degree of temperature difference in $W/m^2 \cdot K$ ($Btu/h \cdot ft^2 \cdot ^\circ F$). The U-factor multiplied by the interior-exterior temperature difference and by the projected fenestration product area yields the total heat transfer through the fenestration product due to conduction, convection, and long-wave infra-red radiation. A U-factor in $Btu/h \cdot ft^2 \cdot ^\circ F$ multiplied by 5.678263 converts the value to $W/m^2 \cdot K$. The U-factor in $Btu/h \cdot ft^2 \cdot ^\circ F$ shall conform with Table 1 before the conversion to $W/m^2 \cdot K$.

Solar heat gain coefficient (SHGC): The ratio of the solar heat gain entering the space through the fenestration product to the incident solar radiation.

Air leakage: the flow of air that passes through fenestration products in $L/s \cdot m^2$. Air leakage infiltration is the flow of air into the building envelope and exfiltration is the flow of air out of the building envelope. An air leakage in cfm/ft^2 multiplied by 5.08 converts the value to $L/s \cdot m^2$. The air leakage value in cfm/ft^2 shall conform with Table 1 before the conversion to $L/s \cdot m^2$.

Energy rating (ER): a unitless value derived from a formula that balances heat loss (U-factor), air leakage loss and potential passive solar gain of a fenestration product. The ER is applied to fenestration systems intended to be installed in a vertical orientation in low-rise residential buildings. The simplified ER equation is as follows:

$$ER = (57.76 \times SHGC_w) - (21.90 \times U_w) - (1.97 \times L_{75}) + 40 \text{ where}$$

- i. $SHGC_w$ = fenestration system solar heat gain coefficient
- ii. U_w = fenestration system U-factor (W/m^2)
- iii. L_{75} = fenestration system air leakage rate at a pressure difference of 75 Pa, established in accordance with AAMA/WDMA/CSA 101/I.S.2/A440 (North American Fenestration Standard) in $L/s \cdot m^2$. The L_{75} shall be the average of the infiltration and exfiltration measurements.

A complete explanation of the ER equation may be found in the CSA A440.2 Standard.

U-factor Criteria for Residential Windows and Doors

Product	Maximum U-factor $W/m^2 \cdot K$	Maximum U-factor $Btu/h \cdot ft^2 \cdot ^\circ F$
Windows and Doors	1.22	0.21

Alternate ER Criteria for Residential Windows and Doors

Product	Minimum ER (unitless)
Windows and Doors	34

U-factor Criteria for Unit Skylights

Product	Maximum U-factor $W/m^2 \cdot K$	Maximum U-factor $Btu/h \cdot ft^2 \cdot ^\circ F$
Skylights	2.29	0.4

Marvin options that meet the ENERGY STAR Canada criteria can be viewed in the NRCAN listing for [NRCAN ENERGY STAR Searchable Product List](#).

ENERGY STAR® Most Efficient - Canada**Most Efficient criteria for windows and sliding glass doors 2020**

The window or sliding glass door must:

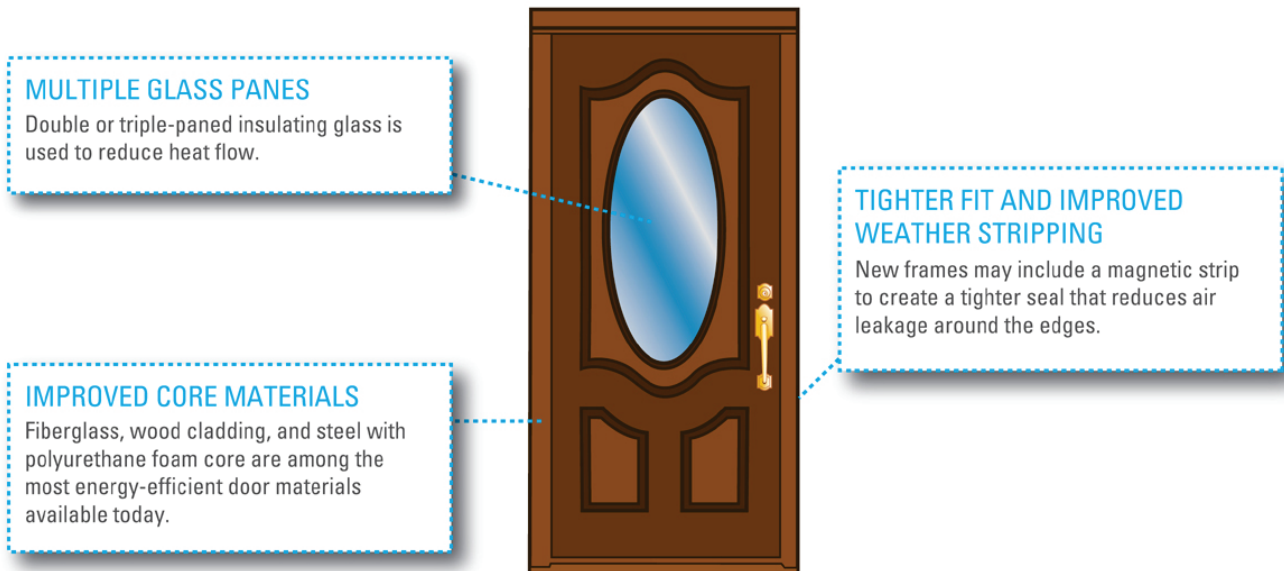
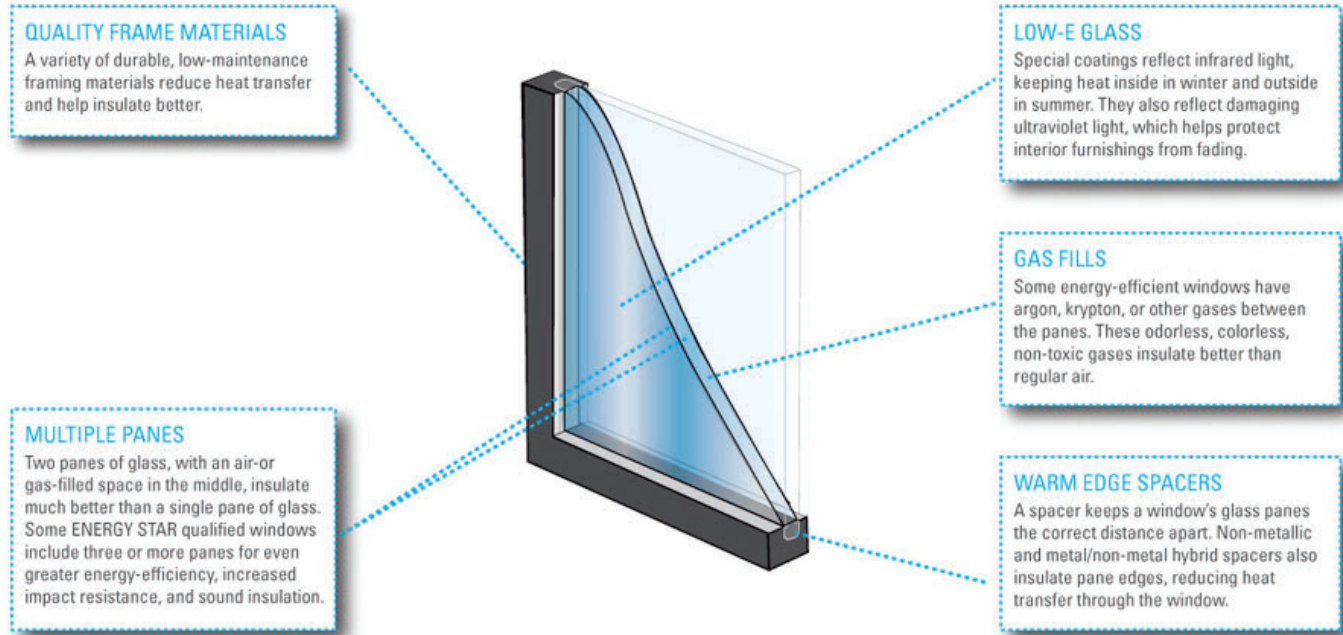
- be manufactured by an ENERGY STAR Canada Participant
 - be sold in Canada, registered with NRCAN as ENERGY STAR certified and posted on the Canada/NRCAN website
 - meet the labeling section of the *Guidelines for the labeling and promotion of ENERGY STAR certified fenestration products*
 - meet the following specific criteria:
 - A U-factor of $1.05 \text{ W/m}^2 \cdot \text{K}$ ($0.18 \text{ Btu/h} \cdot \text{ft}^2 \cdot ^\circ\text{F}$) or lower
- OR**
- An Energy Rating (ER) of 40 (unitless) or higher

Marvin options that meet the Most efficient criteria can be viewed in the NRCAN listing for [NRCAN Most Efficient Windows and Sliding Glass Doors](#).



ENERGY STAR® Program

Today, manufacturers use an **array of technologies** to make ENERGY STAR qualified windows.



NFRC Certification Program

Who is the NFRC?

The National Fenestration Rating Council (NFRC) is a non-profit public/private group of manufacturers, builders, designers, specifiers, code officials, utilities, regulators and consumers formed to establish a national energy performance rating system for fenestration products.

Sanctioned by the federal government under the Energy Policy Act of 1992, NFRC will, over the next several years, in addition to U-Factor (thermal transmission), rate other factors, including solar heat gain, optical properties, air infiltration and condensation resistance.

It is important to note that the NFRC is not setting minimum performance standards or mandating specific performance levels. NFRC has established a single rating system with a rigorous process for comparing product performance. By certifying and labeling their products in accordance with the NFRC program, manufacturers demonstrate their commitment to provide accurate energy performance information.

Whole Product Performance

NFRC ratings are based on “whole product performance”. Although a window, door, or skylight may have high performance glazing, its overall performance may be reduced by a poorly performing frame. Similarly, a very energy efficient frame may be wasted on ineffective glazing and sealing. Whole product performance helps builders and consumers compare products of different construction and attributes directly.

When reading a NFRC Label, it is important to remember that the U-Factor, SHGC, and VT, values represent the whole window, not the center-of-glass

NFRC Labeling

Certification and Labeling Process






Window and door manufacturers attempting to certify their fenestration products are required to have them evaluated by two different types of independent NFRC accredited laboratories.

1. The first type of laboratory is a computer simulation lab which evaluates a window or door's thermal efficiency by computer simulation programs. The computer program takes into account the product's frame and glazing system attributes and derives an overall product U-Factor.
2. The second type of laboratory is a physical testing laboratory which takes an actual product and evaluates it in a thermal chamber. The physical test lab will also derive an overall product U-Factor.

For additional regional information, please contact your local Marvin Windows and Doors representative.

For complete NFRC ratings, please visit <http://pros.marvin.com/resources/architectural-detail-manual/>

NFRC Label

MARVIN  SIGNATURE COLLECTION	
ENERGY STAR® Certified in Highlighted Regions	
	 <input type="checkbox"/> Certified
 National Fenestration Rating Council® CERTIFIED	UL CSMNT WA/WA Casement 3/4" IG Low E2 Arg 3.1mm 272 / 13.0mm arg / 3.1mm clr .006 SS - D Pine or EQU MAR - N - 342 - 13243 - 00001
ENERGY PERFORMANCE RATINGS	
U-Factor 0.29 (U.S.I.-P)	SOLAR HEAT GAIN COEFFICIENT 0.29
ADDITIONAL PERFORMANCE RATINGS	
VISIBLE TRANSMITTANCE 0.49	
<small>Manufacturer stipulates that these ratings conform to applicable NFRC procedures for determining whole product performance. NFRC ratings are determined for a fixed set of environmental conditions and a specific product size. NFRC does not recommend any product and does not warrant the suitability of any product for any specific use. Consult manufacturers literature for other product performance information. www.nfrc.org</small>	
 WINDOW & DOOR MANUFACTURERS ASSOCIATION WDMA Hallmark Certified <small>www.wdma.com</small>	Ultimate Casement Manufacturer Stipulates Hallmark Certification As Indicated Below
UNIT	
Hallmark Product Number	407 - H - 918
AAMA/WDMA/CSA 1011.5.2/4440 - 08	CW - PG50 914X2442 mm (36X96 13 in)
POSITIVE DESIGN PRESSURE (DP)	+50 psf
NEGATIVE DESIGN PRESSURE (DP)	-50 psf
Water Penetration Test Pressure	7.5 psf
MULL	
Hallmark Product Number	407 - H - 1137
AAMA 450 - 10 Option 1	
POSITIVE DESIGN PRESSURE (DP)	+70 psf
NEGATIVE DESIGN PRESSURE (DP)	-70 psf
OVERALL RATING CW - PG50 WATER RESISTANCE 10.65 psf	
TCL02216 1	A1
Do Not Remove this label prior to inspection. Save for future reference	

Energy Star

NFRC

WDMA

Building Categories and Design Factors

Design Wind Pressure (PSF) - ASCE 7 -05												
Location	Zone	Effective Wind Area (SF)	Basic Wind Speed V (MPH)									
			110		115		120		130		140	
Walls	4	10	+22	-24	+24	-26	+26	-28	+30	-33	+35	-38
		50	+20	-21	+21	-23	+23	-25	+27	-30	+32	-35
		500	+16	-18	+18	-20	+19	-22	+23	-25	+26	-29
			150		160		180		200			
		10	+41	-44	+46	-50	+58	-63	+72	-78		
		50	+36	-40	+41	-45	+52	-57	+64	-71		
		500	+30	-34	+34	-38	+44	-48	+54	-60		
Walls	5		110		115		120		130		140	
		10	+22	-29	+24	-32	+26	-35	+30	-41	+35	-47
		50	+20	-25	+21	-27	+23	-29	+27	-34	+32	-40
		500	+16	-18	+18	-20	+19	-22	+23	-25	+26	-29
			150		160		180		200			
		10	+41	-54	+46	-62	+58	-78	+72	-96		
		50	+36	-46	+41	-52	+52	-66	+64	-81		
		500	+30	-34	+34	-38	+44	-48	+54	-60		

Metric Conversions: 1 PSF = 47.9 pascals

1 SF = 0.0929 SM

1 MPH = 0.447 M/S

NOTE:

- Design wind pressures above represent the net pressure (sum of external and internal pressures) applied normal to all surfaces.
- Values shown are for exposure B. For other exposures, multiply values shown by the following factor: exposure C: 1.40 and exposure D: 1.66
- Linear interpolation between values of tributary area is permissible.
- Values shown are for an importance factor I = 1.0. For other values of I, multiply values shown by I.
- Plus and minus signs signify pressure acting toward and away from the exterior surface, respectively.
- All component and cladding elements shall be designed for both positive and negative pressures shown in the table.
- Notation:
 - 10% of least horizontal dimension or 0.4 h, whichever is smaller, but not less than 40% of least horizontal dimension or 3 ft.
 - Mean roof height in feet (meters).

BUILDING WIND LOADS

"The information presented is provided to simplify the determination of structural wind load requirements of ASCE 7-05. ASCE 7-05 may not have local precedence. Please refer to your local codes for design pressures that apply to your area."

ASCE 7-05 Design wind load tables are based on the following:

- Wind loads tables are based on Exposure B.
- Tributary area of the structural elements is less than or equal to 10 sq. ft.
- Does not apply to roof areas.
- Roof slope is greater than 10 degrees.
- Building is less than or equal to 30 feet tall.
- The building is completely enclosed, all windows and doors are designed to withstand full wind load.
- Applicable to components and cladding, which include windows and doors.

If the tributary area is greater than 10 sq. ft. or if the roof slope is less than 10 degrees, the design wind loads from this table may be conservative. However, if the building has openings in the elevation which may allow wind to pass through, the design values in the tables may be too low. For these cases, ASCE 7-05 should be consulted.

NOTE: Windows and doors designed to resist wind loading are not considered openings.

Building Categories and Design Factors**EXPOSURES**

Exposure B: Urban and suburban areas, wooded areas, or other terrain with numerous closely spaced obstructions having the size of single family dwellings or larger. For buildings with a mean roof height of less than or equal to 30ft (9.1m). Exposure B shall apply where the ground surface roughness, as defined by Surface Roughness B, prevails in the upwind direction for a distance greater than 1,500ft (457m). For buildings with a mean roof height greater than 30ft (9.1m), Exposure B shall apply where Surface Roughness B prevails in the upwind direction for a distance greater than 2,600ft (792m) or 20 times the height of the building, whichever is greater.

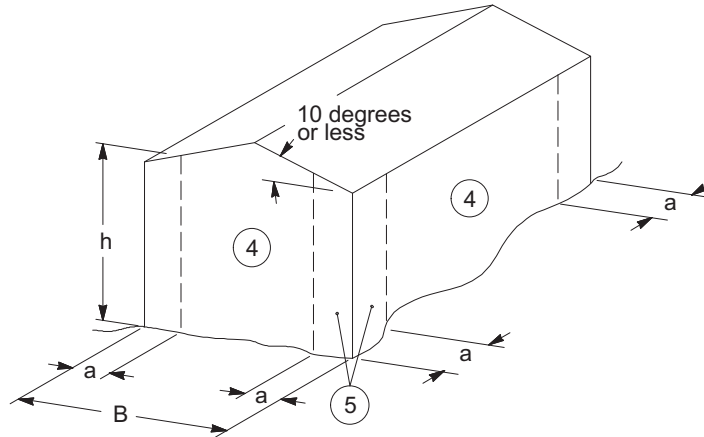
Exposure C: Open terrain with scattered obstructions having heights generally less than 30 ft. (9.1 m). This category includes flat open country, grasslands. Shall apply for all cases where Exposures B or D do not apply.

Exposure D: Flat, unobstructed areas and water surfaces. This category includes smooth mud flats, salt flats, and unbroken ice. Shall apply where the ground surface roughness, as defined by Surface Roughness D, prevails in the upwind direction for a distance greater than 5,000ft (1,524m) or 20 times the building height, whichever is greater. Exposure D shall also apply where the ground surface roughness immediately upwind of the site is B or C, and the site is within a distance of 600ft (183m) or 20 times the building height, whichever is greater, from the Exposure D condition as defined in the previous sentence. For a site located in the transition zone between exposure categories, the category resulting in the largest wind forces shall be used.

INSTRUCTIONS:

- Determine the Basic Wind Speed (V) in mph from Design Wind Load Table based on the location of the building.
- Determine the Roof Height (h) of the building in feet. This is the mean height of the roof above the lowest grade adjacent to the building. Eave height may be used for roof slope of less than 10 degrees.
- Determine least width (B) of the building in feet. This is defined as the shortest distance between two parallel lines which contain the entire building floor plan.
- Determine high pressure outside corner loading zones (a) in feet from building illustration on following page. $a = (0.10) \times (B)$ or $a = (0.4) \times (h)$, whichever is smaller, but not less than either $(0.04) \times (B)$ or 3 feet (76).
- Determine design pressure from Design Pressure Table.
- All design pressure values are assumed for buildings with an importance Factor Category of II. See Design Factors chart on following page.
- If category III, IV is more appropriate then multiply the design pressure by the corresponding Design Factor - See Design Factor chart.

Building Categories and Design Factors



RISK CATEGORY	NATURE OF OCCUPANCY
I	Buildings and other structures that represent a low hazard to human life in the event of failure. <ul style="list-style-type: none"> • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III and IV
III	<ul style="list-style-type: none"> • Buildings and other structures that represent a substantial hazard to human life in the event of failure, such as, schools, colleges, large day care facilities, resident care recipients but not having surgery or emergency treatment facilities. • Any other occupancy with an occupant load greater than 5,000. • Power-generating stations, water treatment facilities for potable water, waste water treatment facilities, other public utility facilities, buildings and other structures containing quantities of toxic or explosive materials that exceed maximum allowable quantities per control area.
IV	Buildings and other structures designated as essential facilities, such as, hospitals, surgery or emergency facilities. <ul style="list-style-type: none"> • Fire, rescue, ambulance and police stations and emergency vehicle garages. • Designated earthquake, hurricane or other emergency shelters, emergency preparedness, communications and operations centers and other facilities required for emergency response. • Power-generating stations, public utility facilities required as emergency backup facilities. • Buildings/structures containing quantities of highly toxic materials. • Aviation control towers, air traffic control centers and emergency aircraft hangars. • Buildings and other structures having critical national defense functions. • Water storage facilities and pump structures required to maintain water pressure for fire suppression.

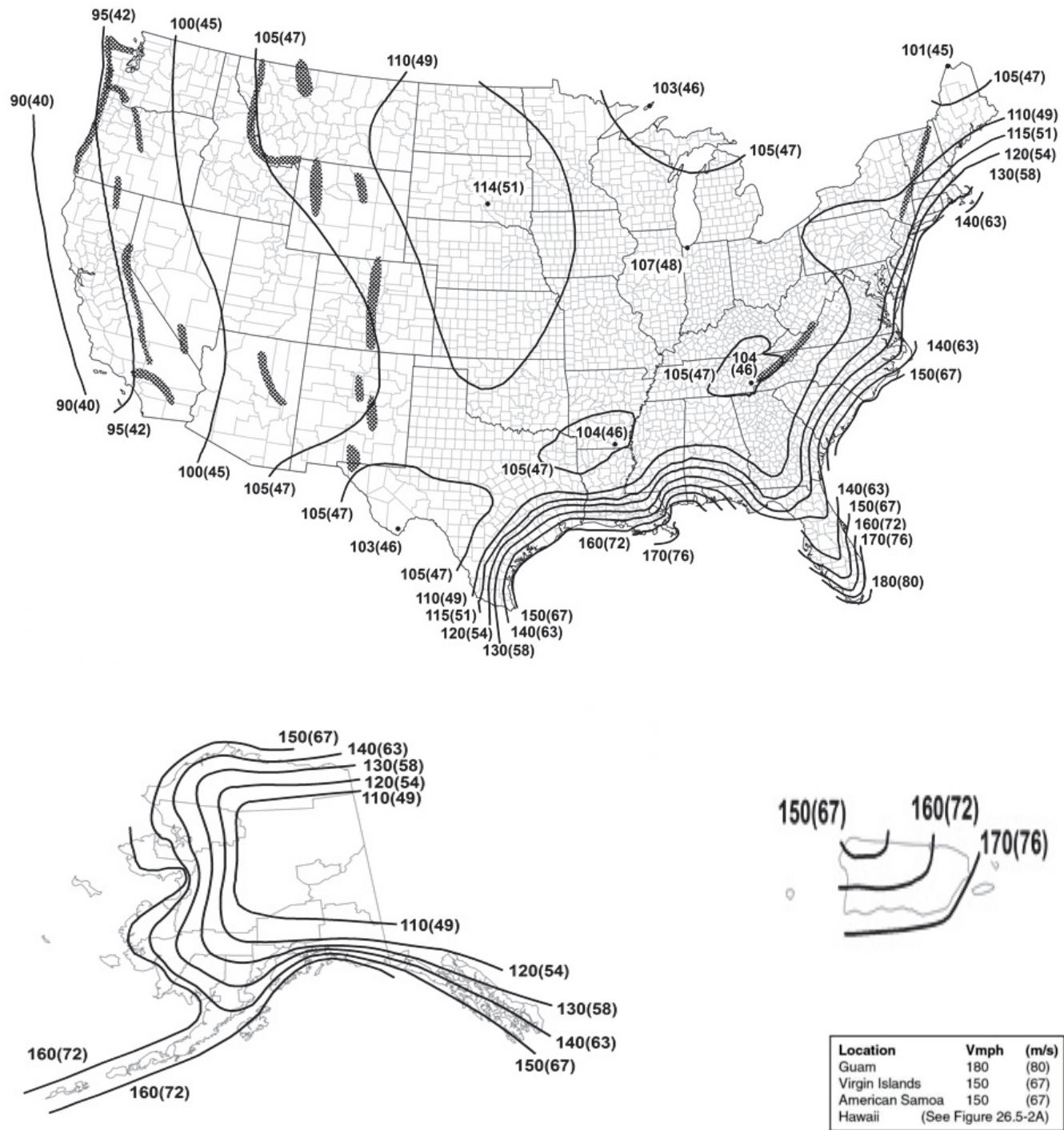
NOTE: This is an abbreviated version of the 2015 International Building Code (IBC) Table 1604.5. Please, check with your local building code official(s) for current requirements in your area.

Design Factors		
Category	Non-Hurricane prone regions and Hurricane prone regions with V = 85/100 mph and Alaska	Hurricane prone regions with V greater than 100 mph
I	0.87	0.77
II	1.00	1.00
III	1.15	1.15
IV	1.15	1.15

Wind Speed Map - ASCE 7-16

NOTES: Basic Wind Speeds for Occupancy Category II Buildings and Other Structures.

- Values are nominal design 3-second gust wind speeds in miles per hour (m/s) at 33ft (10m) above ground for Exposure C category.
- Linear interpolation between contours is permitted.
- Islands and coastal areas outside the last contour shall use the last wind speed contour of the coastal area.
- Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.
- Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (Annual Exceedance Probability = 0.00143, MRI = 700 Years).

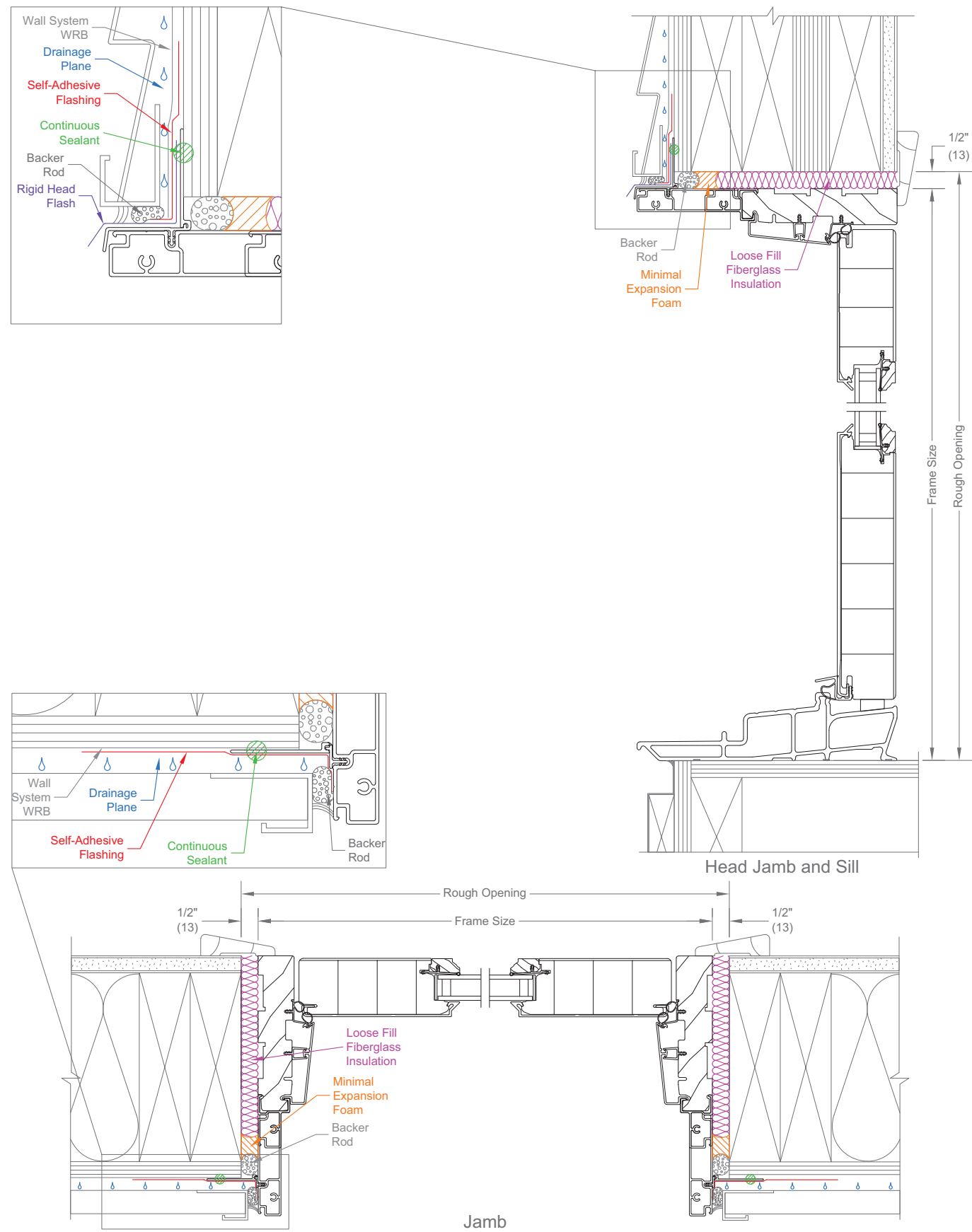


Altitude Guidance

Marvin provides Capillary Tube Usage Guidelines for all products, available upon request. Capillary tubes are also recommended in smaller lites or ADL units where one side of glass is less than 12" (305) in length at elevations of 3,000 feet or more above sea level. Partners who serve high altitude markets are expected to consult the Capillary Tube Usage Guidelines and make appropriate selections based on product size, installed altitude, and highest transportation altitude.

Ultimate Inswing French Door - Frame with Steel Siding

Scale: 3" = 1'0"





HISTORIC REHABILITATION APPLICATION: Part 1 of 2

OFFICE OF HISTORIC PRESERVATION
1901 S ALAMO, SAN ANTONIO, TEXAS 78204
210-207-0035 | INFO@SAPRESERVATION.COM

DATE RECEIVED

Staff Initials: _____
Date of HDRC hearing: _____

Use this form :

BEFORE WORK BEGINS

1. SUBSTANTIAL REHABILITATION TAX INCENTIVE: TAX CERTIFICATION
2. CITY OF SAN ANTONIO FEE WAIVER PROGRAM

This form is to be completed, signed, and filed with the City of San Antonio's Office of Historic Preservation prior to being heard by the Historic & Design Review Commission (HDRC). It will be scheduled according to the HDRC deadline schedule.

REQUIRED DOCUMENTS

- ☒ One set of complete plans for restoration and rehabilitation both exterior and interior. This could include drawings or photos and narrative.
- ☒ Detailed written narrative explaining the proposed work
- ☒ Itemized list of expected work both interior and exterior
- ☒ Projected time schedule
- ☒ Estimated associated costs
- ☒ Color photos of the exterior and interior
- ☒ Color photo of the structure from the street

Which program are you applying for? Check all that apply.

- ☒ City of San Antonio Fee Waiver Program ☒ Substantial Rehabilitation Tax Incentive (must be designated historic)

Property Address: 304 Sadie Street Zip code: 78210

Legal Description: NCB 733 Block 5 Lot 1 and 2 Property ID: 108269 Search BCAD if unknown.

Zoning Code: RM-4 Search COSA's One-Stop Map if unknown.

Mark all that apply, if any:

- ☒ Historic District ☐ Historic Landmark ☐ River Improvement Overlay ☐ Public Property ☐ Vacant Structure

Property Owner Name: Selsabeel and Carlos Omar Gonzolez (Formerly 304 Sadie LLC)

Mailing address: 526 Refugio St, San Antonio 78210 Zip code: 78210

Phone number: 2109131278 Email: selsabeel@gmail.com

Applicant/Authorized Representative (Primary point of contact if different than owner): _____

Mailing address: _____ Zip code: _____

Phone number: _____ Email: _____

☐ Spanish translation: Preferiría tener un traductor de español en la audiencia. (I would prefer to have a Spanish translator at the hearing.)

I, THE APPLICANT, DECLARE THAT I AM THE OWNER OR AUTHORIZED AGENT OF THE OWNER(S) TO MAKE THIS REQUEST OF THIS PROPERTY AND THAT THE INFORMATION PRESENTED IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE.

I, the applicant, acknowledge (PLEASE INITIAL ALL):

SAT This form, nor the approval of Tax Certification, does NOT take place of a Certificate of Appropriateness NOR a building permit. A building permit, if applicable, must be obtained from the City of San Antonio, Development Services Department. If work that required a Certificate of Appropriateness is part of the proposed substantial rehabilitation, that the property owner is responsible for obtain those proper approvals.

SAT After work is completed, the applicant MUST submit the tax verification application to be scheduled for HDRC Review.

SIGNATURE OF APPLICANT

DATE

To submit, applicants MUST submit this form in-person to our counter at 1901 S Alamo.

Attention: Historic Preservation rehabilitation Program

Dear OHP,

My husband and I purchased 304 Sadie St. in May 2021 with the intention of renovating it to become our forever home. The home was built in 1904. It requires complete rehabilitation, including:

- New electrical
- New plumbing
- Repair of foundation
- Returning the home to a single family home (it is currently a duplex)
- Reinforcing the structure
- installation of HVAC
- repair of windows
- Installing insulation under roof and under house
- returning the back of house enclosed porch to the original open porch
- Replacing the chain link fence with a new fence that matches other historic fences in the neighborhood
- Painting the exterior of the home
- Reinforcing the ceiling to allow for finish out of the attic

We expect to start the project in the summer of 2022 and expect that it will take 12-18 months to complete.

Our current estimate is upwards of \$600,000.

Please see attached information and application and let us know if you need further information.

Sincerely,

Selsabeel and Carlos Omar Gonzalez
526 Refugio, San Antonio, TX, 78210



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221
Contractor: Henry Tijerina Jr.

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Residential Builder License ID: H-923427

Proposal for Repairs at 304 Sadie Street

1) Demo Interior

Details: Walls, flooring, ceilings, cabinets, counter-tops, load bearing walls, insulation, fixtures, doors, appliances, Testing for lead paint and Asbestos

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SQFT	\$12,500.00	0.00%	\$0.00	\$12,500.00	\$25,000.00
Labor	1	SQFT	\$12,500.00	0.00%	\$0.00	\$12,500.00	

Location: Per Drawing Details **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

Sub-Total This Section:

2) Demo Exterior

Details: Windows, carport, driveway, exterior wall, Water heater and shed, door and awning, sidewalk, skirting, vents, concrete pad and step,

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SQFT	\$9,500.00	0.00%	\$0.00	\$9,500.00	\$19,000.00
Labor	1	SQFT	\$12,500.00	0.00%	\$0.00	\$12,500.00	

Location: Per Drawing Details **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

3) Foundation Work

Details: Replace beams, piers, structural support as needed. Add piers as needed for new layout per structural engineer drawings

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SQFT	\$10,500.00	0.00%	\$0.00	\$10,500.00	\$21,000.00
Labor	1	SQFT	\$10,500.00	0.00%	\$0.00	\$10,500.00	

Location: Per Drawing Details **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Contractor: Henry Tijerina Jr.

Residential Builder License ID: H-923427

Specification of Repairs

4) Framing

Details: Install new walls and ceilings per drawings and structural engineers direction. Install wind bracing and fire blocking as required by code.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SQFT	\$47,500.00	0.00%	\$0.00	\$47,500.00	\$95,000.00
Labor	1	SQFT	\$47,500.00	0.00%	\$0.00	\$47,500.00	

Location: Per approved drawings **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

5) Structural Support

Details: Install LVLs for new attic space. Install additional joist support for new roof support. Frame new ceilings per code

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	EA	\$9,500.00	0.00%	\$0.00	\$9,500.00	\$19,000.00
Labor	1	EA	\$9,500.00	0.00%	\$0.00	\$9,500.00	

Location: _____ **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

6) Windows

Details: Install insulating windows per drawings. Replace and repair existing windows per code and historical direction. Install new windows per drawing.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	26	EA	\$450.00	0.00%	\$0.00	\$11,700.00	\$23,400.00
Labor	26	EA	\$450.00	0.00%	\$0.00	\$11,700.00	

Location: _____ **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Contractor: Henry Tijerina Jr.

Residential Builder License ID: H-923427

Specification of Repairs

7) Roof and Dormer

Details: Install new 3 tab shingles as needed. Add Dormer per drawing and connect to existing roof.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	34	SQ	\$300.00	0.00%	\$0.00	\$10,200.00	\$20,400.00
Labor	34	SQ	\$300.00	0.00%	\$0.00	\$10,200.00	

Location: Per Drawing **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

8) Plumbing

Details: Install new sewer line, water line, gas lines, vent lines, exhaust fans and ducts per drawing.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SQFT	\$13,500.00	0.00%	\$0.00	\$13,500.00	\$27,000.00
Labor	1	SQFT	\$13,500.00	0.00%	\$0.00	\$13,500.00	

Location: _____ **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

9) Electrical

Details: Upgrade electrical panel, electrical circuits, outlets, grounding rod, arc fault, circuit breakers, and install new outlets as required for appliances.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$12,500.00	0.00%	\$0.00	\$12,500.00	\$25,000.00
Labor	1	SF	\$12,500.00	0.00%	\$0.00	\$12,500.00	

Location: Roof **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Contractor: Henry Tijerina Jr.

Residential Builder License ID: H-923427

Specification of Repairs

10) Mechanical

Details: Create mechanical closets and install 16 SEER units as required to meet new layout. Install all new ducts, returns, and registers.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	EA	\$14,250.00	0.00%	\$0.00	\$14,250.00	\$28,500.00
Labor	1	EA	\$14,250.00	0.00%	\$0.00	\$14,250.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

Sub-Total This Section: \$

11) Insulation

Details: Install R-13 and R-30 insulation as required per code. Install fire foam and caulking as required by code. Seal all penetrations.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$7,500.00	0.00%	\$0.00	\$7,500.00	\$15,000.00
Labor	1	SF	\$7,500.00	0.00%	\$0.00	\$7,500.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

12) Drywall and Painting

Details: Install new drywall, green board, Fire Rated Board, and hardie board as required. Tape, Float, and Texture new wall and ceilings. Paint all interior walls, doors, ceiling per drawings.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$16,500.00	0.00%	\$0.00	\$16,500.00	\$33,000.00
Labor	1	SF	\$16,500.00	0.00%	\$0.00	\$16,500.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Contractor: Henry Tijerina Jr.

Residential Builder License ID: H-923427

Specification of Repairs

13) Stairs and Attic Space

Details: Install stairs and loft per drawing and code.
Install attic space for storage per drawings.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	LS	\$32,000.00	0.00%	\$0.00	\$32,000.00	\$64,000.00
Labor	1	LS	\$32,000.00	0.00%	\$0.00	\$32,000.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

Sub-Total This Section: \$

14) Driveway, sidewalk, and Storage

Details: Install new walking paths per drawings.
Cut curb and install new driveway.
Install new enclosed shed and new carport.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$24,000.00	0.00%	\$0.00	\$24,000.00	\$48,000.00
Labor	1	SF	\$24,000.00	0.00%	\$0.00	\$24,000.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

15) Cabinets and Countertops

Details: Install new cabinets, island, countertops,
and pantry shelving per drawing.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	LF	\$13,000.00	0.00%	\$0.00	\$13,000.00	\$26,000.00
Labor	1	LF	\$13,000.00	0.00%	\$0.00	\$13,000.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Contractor: Henry Tijerina Jr.

Residential Builder License ID: H-923427

Specification of Repairs

16) Interior Finishes

Details: Install case work, trim, shoe molding, shelving
access ladders, smoke detectors, CO
detectors, thermostats, back splashes per
drawing and code

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$8,000.00	0.00%	\$0.00	\$8,000.00	\$16,000.00
Labor	1	SF	\$8,000.00	0.00%	\$0.00	\$8,000.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

17) Flooring

Details: Install ceramic tile per drawing and sand
stain and seal existing wood floors.
Repair subfloor as needed

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$13,750.00	0.00%	\$0.00	\$13,750.00	\$27,500.00
Labor	1	SF	\$13,750.00	0.00%	\$0.00	\$13,750.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

18) Fixtures

Details: Provide and install contractor grade sinks,
vanities, toilets, tubs, faucets, shower
heads, water heaters, and vent fans.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	EA	\$9,250.00	0.00%	\$0.00	\$9,250.00	\$18,500.00
Labor	1	EA	\$9,250.00	0.00%	\$0.00	\$9,250.00	

Location: _____ Level: _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:



Tijerina Construction, LLC
15577 Rosa Street
San Antonio, Texas 78221
Contractor: Henry Tijerina Jr.

Phone: (210) 202-1974 Email:
henry@tijerinage.com

Residential Builder License ID: H-923427

Specification of Repairs

20) Exterior Finishes

Details: Install new screened porch, new sliding doors, new vents for crawl space, New window per drawing, new stone at crawl space, lap siding, attic vents

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SQFT	\$10,750.00	0.00%	\$0.00	\$10,750.00	\$21,500.00
Labor	1	SQFT	\$10,750.00	0.00%	\$0.00	\$10,750.00	

Location: Per Drawing Details **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

21) Fencing and SOD

Details: Install new _____ fence and sod for the property per the drawings.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	SF	\$8,250.00	0.00%	\$0.00	\$8,250.00	\$16,500.00
Labor	1	SF	\$8,250.00	0.00%	\$0.00	\$8,250.00	

Location: Per Drawing Details **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

22) Debris Disposal

Details: Remove and dispose of all debris as required at the land fill.

	Qty	Unit	Unit Cost	Tax/Margin		Sub Total	Item Total
Material/LS	1	EA	\$4,500.00	0.00%	\$0.00	\$4,250.00	\$8,500.00
Labor	1	EA	\$4,500.00	0.00%	\$0.00	\$4,250.00	

Location: Per Drawing Details **Level:** _____

This work will be done by:

☐ Owner ☒ Contractor

☒ Permit Required

Summary/Narrative of Work to be Done:

Specification of Repairs

[illegible]

All repairs must be performed in conformance with local zoning ordinances and codes.

Applicant(s) and Contractor (if any) to sign and date upon final acceptance.

Date of Final Acceptance:

Consultant: _____ Date: _____

Applicant: _____ Date: _____

Applicant: _____ Date: _____

Applicant: _____ Date: _____

Applicant: _____ Date: _____

Contractor: Henry Tijerina Date: March 27, 2022

304 Sadie Street

Specifications

Demolition Generally: Remove a portion of the house at the back and provide new screened porch. Remove all interior walls, and vinyl flooring except where noted. Lead paint may be present mitigate as necessary. Asbestos flooring may be present mitigate as necessary.

Site Work: Contractor to provide port-a-poty as necessary. Contractor to ensure site remains clean at all times.

Landscape: Area of new plantings. Prepare ground, remove existing lawn. Use 4" of composting soil. Use fabric weed barrier over area of plants, gravel and mulch. Use aged shredded or chipwood mulch for plants and mulch area.

Provide allowance for a wood and metal 6' high fence at perimeter of the property with motorized rolling gate. Provide allowance for Metal post and mesh 4' high fence at the front yard perimeter of house.

Provide new concrete paver pads per drawings.

Provide allowance for new carport with power ready for electric vehicles.

New concrete and curb cut at existing driveway.

Provide 30'x60' Versacourt sport court for new volley ball court.

Provide allowance for planting at the front of the home for contractor to install.

Provide new hose bib locations.

Provide New gravel area.

Provide New mulch area for playground.

Provide electric rolling screen at porch from MagnaTrack or similar.

Provide irrigation for front yard and side-front yard only.

Foundation: Foundation is currently a pear-and-beam system with cedar posts constructed on top of a concrete soil-supported spread footings. Beams are preservative-treated 4x6 wood. Contractor shall verify the foundation is as assumed and in adequate conditions (rotting or notched beams are not permissible). Contractor shall repair the foundation to provide first floor that is level Mac allows vertical deformation

shall be 3/4" rise or drop within 10' horizontal. See Structural Drawings for Specifications.

Framing: Interior Studs 2x4 @ 16" O.C.

Plumbing walls to be 2x6 @ 16" O.C.

Heights vary. Ref. Plans.

Floors: Insulate the "crawl space" between the floor joists with rigid foam board insulation. Tape the seams, use spray foam where necessary to assure good coverage.

Existing wood floor to be sanded, stained and sealed for repair.

New engineered hardwood floor in second floor, and loft are.

Provide hardwood stair treads.

Provide allowance for tile in bathrooms, laundry, and kitchen.

Walls: Exterior walls to remain are to be supported per structural drawings Wall Framing Plan.

Use wood siding to match existing where repairs are needed.

Interior walls are to be 3/4" gypsum board with light orange peel texture unless otherwise noted.

In wet locations use Hard Board.

All plumbing walls to be 2x6.

Insulate all interior wall with acoustic soundproofing batts of fiberglass or polyester.

Provide allowance for tile in bathroom showers, kitchen, and laundry room.

Ceilings: New ceilings to be 5/8" gypsum wall board.

In wet locations use Mold and moisture resistant gypsum board.

Insulate between attic floor joists with unfaced batt insulation 10" deep of blown cellulose to achieve a value of R-30.

Windows: All window except where noted are existing historic windows and are to be repaired and refinished as necessary. Contractor to verify any windows that are more than 50% damaged and beyond repair and must be replaced.

Provide a storm window at the inter of the window for all bedrooms window locations.

For new window locations, contractor to verify opening. Provide new windows by Marvin to match existing windows.

Doors: All interior doors to be solid core Jeldwen 8'H or equal.

Provide New side door at exterior by Marvin Craftsman Style. Contractor to verify opening.

Provide New French Doors by Marvin. Contractor to verify opening.

Painting: Sherwin Williams or equal, low VOC. Allow for three colors interior. Flat on interior walls.

Gypsum wall board to be taped floated and sanded smooth primed and painted with 2 coats. Color selected by owner.

Wood trim, exposed wood ceilings, deck, and soffits to be sealed.

Provide allowance to paint exterior the exterior of the home.

Roofing: Install a radiant barrier to the underside of the roof, following manufactures instructions for installation.

Mechanical: The home currently has no HVAC and must be retrofitted for a new system. Mechanical contractor to provide new HVAC min of 15 seer and new ducts shall be insulated and sealed. Provide allowance of digital thermostats for owner selection.

Verify location of grills, supply and return with owner.

Install new exhaust fans at bathrooms.

Provide vent at dryer location.

Electrical: All wiring to comply with applicable codes. Update electrical power and service as necessary for new appliances.

Verify exact location of outlets, switches, lighting fixtures etc. at rough in stage with owner to insure proper locations.

Provide 220 service at HVAC, dryer and range.

Provide a lighting fixture allowance for which the owner will select fixtures.

4" LED recessed cans to be included in electricians contract. Fans wired as shown on plans.

Waterproof plugs as shown.

GFI circuits per plan and code. White Switches.

Lighting: Provide allowance to include ceiling fans, doorbell & dimmers, wall mounted and surface mounted fixtures. Exclude 4" recessed cans to be added to electrical.

Plumbing: Pex supply lines; PVC drain lines; Insulate hot and cold water lines to prevent freezing.

Electric Tankless water heater by Nortiz and water softener or equal value.

Provide plumbing fixture allowance for owner selection.

Finish Carpentry: Interior and exterior trim work to be shop grade painted or stained.

Shelves at niches to be painted or stained wood built in.

Provide allowance for custom closets installed by contractor.

Moulding or trim to be painted or stained.

Base: 1x6 Pine

Casing 1x4 Pine

Provide allowance for custom millwork at the entry, and under stair desk.

Kitchen Cabinets: provide allowance for face frame paint grade cabinets with fully concealed blum hinges. Full extension side mount drawer slides. Soft stop doors and drawers.

Provide allowance for vanities in bathrooms for owner selection.

Stairs: Painted skirt board, 36" wall with wood cap and hand rail.

Counter tops: Level 1 Caesar stone or equal. 3cm at kitchen. 2 cm at laundry.

Tile: Master bath provide \$10/sf materials.

Laundry floor \$5/sf.

Bathrooms \$8/sf

Kitchen backsplash \$10/sf

Kitchen floor \$8/sf

Wood Floors: Existing wood floor to remain except where noted. Contractor to verify where repair is required. For repairs use reclaimed wood from a supplier of existing species and size. Sand, stain, and seal.

Hardware: Halifax SN lever hardware. Modern collection SN tool bars and TP holders.

Cabinet pulls Amerock BP36572FB or equal value.

Mirrors & Glass: Frameless Shower door and showers. 48" mirrors at vanities.

Appliances:

Oven/Microwave provide electric in-wall 30" oven and microwave combo by GE or equal value in stainless steel.

Dishwasher 24" built in stainless steel dishwasher by GE or equal value.

Hood 30" stainless steel under cabinet hood by GE or equal value.

Refrigerator 36" side-by-side refrigerator with ice maker in stainless steel by GE or equal value.

Wine cooler 24" - 54 bottle capacity stainless steel wine cooler in laundry room.

Freezer 30" freezer in laundry room.

Metal Work: Provide custom metal pipe rail at loft, and metal pipe ladder.