

**City of Norman, OK
HISTORIC DISTRICT COMMISSION
MEETING AGENDA**

**Monday
January 3, 2022**

5:30 p.m.

201 W. Gray, Building A, Conference Room D

It is the policy of the City of Norman that no person or groups of persons shall on the grounds of race, color, religion, ancestry, national origin, age, place of birth, sex, sexual orientation, gender identity or expression, familial status, marital status, including marriage to a person of the same sex, disability, retaliation, or genetic information, be excluded from participation in, be denied the benefits of, or otherwise subjected to discrimination in employment activities or in all programs, services, or activities administered by the City, its recipients, sub-recipients, and contractors. In the event of any comments, complaints, modifications, accommodations, alternative formats, and auxiliary aids and services regarding accessibility or inclusion, please contact the ADA Technician at 405-366-5424, Relay Service: 711. To better serve you, five (5) business days' advance notice is preferred.

1. Roll Call.

2. Approval of the Minutes from the November 1, 2021 Regular Meeting.

Action Needed: Approve or amend the Minutes from last meeting.

3. Election of Chair and Vice Chair.

Nominations from the Commission for Chair and Vice Chair
Discussion

Action Needed: Motion to elect Chair and Vice Chair.

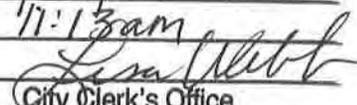
4. HD (22-01) Consideration of a Certificate of Appropriateness request for installation of a rear addition for the property located at 428 Chautauqua Avenue.

Motion to approve the request as submitted

Public Hearing:

Staff Presentation
Applicant Presentation
Public Comments
Close Public Hearing
Commission Discussion

This agenda was posted in prominent public view at the Municipal Building, 201 West Gray, in Norman, Oklahoma, on:

DATE: 12/20/21
TIME: 11:13am
SIGNATURE: 
City Clerk's Office

Action Needed: Consideration of approval, rejection, amendment, and/or postponement.

5. HD (22-02) Consideration of Certificate of Appropriateness for a second floor addition with an extension of the porte cochere below for the property located at 521 Miller Avenue.

Motion to approve the request as submitted

Public Hearing:

Staff Presentation
Applicant Presentation
Public Comments
Close Public Hearing
Commission Discussion

Action Needed: Consideration of approval, rejection, amendment, and/or postponement as submitted.

6. HD (22-03) Consideration of Certificate of Appropriateness for the modification of an existing accessory structure, the replacement of non-original metal siding with cement fiberboard siding, and for the replacement of windows on the north side of the house with aluminum-clad windows for property located at 904 Classen Boulevard.

Motion to approve the request as submitted

Public Hearing:

Staff Presentation
Applicant Presentation
Public Comments
Close Public Hearing
Commission Discussion

Action Needed: Consideration of approval, rejection, amendment, and/or postponement as submitted.

7. HD (22-04) Consideration of the Certificate of Appropriateness for the removal of a non-original addition on the rear of the house, the replacement of 24 deteriorated wood windows, the replacement of front and rear doors, and the installation of a set of double doors on rear of the house, for the property located at 514 Miller Avenue.

Motion to approve the request as submitted

Public Hearing:

Staff Presentation
Applicant Presentation
Public Comments
Close Public Hearing
Commission Discussion

Action Needed: Consideration of approval, rejection, amendment, and/or postponement as submitted.

8. Staff report on active Certificates of Appropriateness and Administrative Bypass issued since November 1, 2021 and consideration of six-month extension requests for expiring COAs.

Action Needed: Consideration of approval, rejection, amendment, and/or postponement of the requests to grant six-month extensions.

9. Discussion of progress report regarding the FY 2021-2022 CLG Grant Projects.

Action Needed: No action needed – for informational purposes only.

10. Discussion of potential FY 2022-2023 CLG Grant Projects.

Action Needed: No action needed – for informational purposes only.

11. Miscellaneous comments of the Historic District Commission and City Staff.

12. Adjournment.

**HISTORIC DISTRICT COMMISSION
MINUTES OF
November 1, 2021**

The Historic District Commission of the City of Norman, Cleveland County, State of Oklahoma, met for the Regular Meeting on November 1, 2021, at 5:30 p.m. Notice and Agenda of the meeting were posted at 201 West Gray Building-A, the Norman Municipal Building and at www.Normanok.gov twenty-four hours prior to the beginning of the meeting.

Commissioner Emily Wilkins called the meeting to order at 5:36p.m.

Item No. 1, being: Roll Call.

MEMBERS PRESENT: Mitch Baroff *Left at 8:30pm
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Brent Swift
Emily Wilkins
Barrett Williamson
Michael Zorba

MEMBERS ABSENT:

A quorum was present.

STAFF MEMBERS PRESENT: Anaïs Starr, Planner II
Tara Reynolds, Admin Tech III
Jeanne Snider, Assistant City Attorney

GUESTS: Dave Boeck
Cheryl Clayton
Stanley Berry
Bob & Robi Craig
Cory Baitz

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Item No. 2, being: Approval of the Minutes from the October 4, 2021 regular meeting.

Motion by Michael Zorba for approval of the minutes from the October 4, 2021 regular meeting;
Second by Shavonne Evans.

The motion was passed unanimously.

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Item No. 3, being: HD (21-15) Certificate of Appropriateness request for the installation of a carport with attached storage shed in the rear yard and a rear screened porch for the property located at 503 Tulsa Street.

Motion by Aaron Brooks to approve item #3 as submitted; **Second** by Tabor Halford.

Anais Starr presented the staff report. She noted the applicant has to meet the Board of Adjustment requirements for the carport, and receive their approval as well.

The applicant's representative, Dave Boeck, 922 Schulze Drive, discussed the project:

The current garage is too small, so the applicant would like to install a carport in the rear of the house, on an already paved area. The proposed screened porch would be similar to the main structure.

No public comments were made.

Commission comments and discussion consisted of:

- Commissioners found the porch and carport compatible with the principal structure.
- The carport cannot be seen from the front right-of-way.

There being no further discussion, a vote on the motion was taken with the following result:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Brent Swift
Emily Wilkins
Barrett Williamson
Michael Zorba

NAYS None

Ms. Starr noted that there is a 10-day waiting period until the COA will be issued.

*

Item No. 4, being: HD (21-19) Consideration of a Certificate of Appropriateness request for the installation of solar panels for the property located at 425 S. Lahoma Avenue.

Motion by Barrett Williamson to approve item #4 as submitted; **Second** by Aaron Brooks.

Anais Starr presented the staff report.

The applicant's representative, Cory Baitz, discussed the project:

- The height of the roof limits the view of the solar panels. The solar panels can be removed at any time as they will not permanently damage the roof of the structure. The solar panels would contribute about 60% of the home's energy use. The proposed location is the most advantageous for sunlight, as the back yard is covered in shade from trees.

No public comments were made.

Commission comments and discussion consisted of:

- The panels are 6 inches thick, the frame is 2 inches, and the panels will be extend 4 inches above the roof.
- The Commission was concerned that this decision will be setting a precedent. Commissioner wanted it clear that this would be a "trail" case. Depending how it looked after installation, would determine if future solar panels installations on the front part of the house with visibility from the right-of-way would be allowed.
- Since this structure is 2 stories and the height of the roof limits the view there is less concern about the placement of the panels.
- Commissioners agree that allowance of solar panels is needed as we move into the future, and thinking about people's intent and their environmental impact.
- This request is uniform, low profile, and responsibly sourced.

There being no further discussion, a vote on the motion was taken with the following result:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Brent Swift
Emily Wilkins
Barrett Williamson
Michael Zorba

NAYS None

Ms. Starr noted that there is a 10-day waiting period until the COA will be issued.

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Item No. 5, being: HD (21-21) Consideration of an amendment to Certificate of Appropriateness 20-05 for the installation of a second floor balcony with doors in place of windows for the property at 518 Chautauqua Avenue.

Motion by Michael Zorba to approve item #5 as submitted. **Second** by Aaron Brooks.

Anais Starr presented the staff report.

The applicant's architect, Stan Berry, 820 Clement Drive, discussed the project:

- The proposed set of doors will be the same location as windows, and are the same length as the original proposed windows. The proposed railing will match the existing balcony railing in design, size and material.

No public comments were made.

Commission comments and discussion consisted of:

- The Commission stated that it is compatible, and not viewable from the front of the property, so they had no issue with amendment to the original COA.

There being no further discussion, a vote on the motion was taken with the following result:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Brent Swift
Emily Wilkins
Barrett Williamson
Michael Zorba

NAYS None

Ms. Starr noted that there is a 10-day waiting period until the COA will be issued.

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Item No. 6, being: HD (21-22) Consideration of an amendment to Certificate of Appropriateness 21-13 for the demolition of existing greenhouse for the property located at 518 & 526 S. Lahoma Avenue.

Motion by Mitch Baroff to approve item #5 as submitted. **Second** by Aaron Brooks.

Anais Starr presented the staff report. The greenhouse is a non-original structure dating most likely from the 1980's and was recently damaged in the hail storm in October. It is now posing a safety hazard from the all the broken window panes.

There was no applicant presentation.

No public comments were made.

Commission comments and discussion consisted of:

- The Commission found no issue with its removal since it was a safety issue and the structure is not historic.

There being no further discussion, a vote on the motion was taken with the following result:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Brent Swift
Emily Wilkins
Barrett Williamson
Michael Zorba

NAYS None

Ms. Starr noted that there is a 10-day waiting period until the COA will be issued.

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Item No. 7, being: HD (21-15) Consideration of a Certificate of Appropriateness request for the installation of an addition, a garage with an attached porch/cabana, new driveway, swimming pool, a 8' side yard fence, a 8' screening fence and a 8' driveway gate and rear deck for the property located at 506 S Lahoma.

Commissioners Brent Swift and Barrett Williamson recused themselves from this item as both of their companies would be on the proposed project for the owners.

Motion by Shavonne Evans to approve each item individually as submitted; **Second** by Aaron Brooks.

Anais Starr presented the staff report for request.

The applicant's representative, Barrett Williamson, discussed the project:

- This project is under the square footage for additions and lot coverage. It meets the Historic Preservation Guidelines for Additions, including the placement of the addition. This design is the best option for this house that will meet the client's wishes for a master bedroom addition.

The applicant, Bob Craig, 4201 Middlefield Court, addressed the Commission:

- The neighbors seem happy with the proposed changes, and with these changes it will take the house out of the rental realm, and bring stability back to the house. The Craig's would love to live there, and appreciate the Commission listening to their request today.

The applicant's contractor, Brent Swift, 1917 Whispering Pines, added that the current house design is a mess, and this proposal is the best possible fix.. He added that there is community support for this project.

No public comments were made.

Commission comments and discussion regarding Addition options A & B consisted of:

- Determining the differences between Option A and B for the addition. The preferred option is A, and the difference is 30 square feet. Option A bump out extends 10 feet past the side of the house, while option B only extends 7 feet. The design and materials are the same for both options.
- Staff noted that the previous owner wanted an 8 foot fence and was denied that request in the side yard.
- The Commissioners stated that the Guidelines weren't clear about additions being wider or taller than the primary structure. Traditionally applicants were told to tuck additions behind the rear of the house.
- Staff noted that Oklahoma City and San Antonio Guidelines have similarly worded Guidelines which clearly allows for side additions, and this has made several Commissioners rethink how they interpret Norman's current Preservation Guidelines.
- Commissioner Baroff stated there was plenty of room in the rear yard, and no reason for the addition to bump out on the side of the house to where it can be seen from the front.
- Chair Wilkins had a lot of concern over the addition extending into the side yard, but the review of other cities Guidelines affected her interpretation Norman's Guidelines regarding side addition that are visible from the front right-of-way. She understands the reasoning for placing the addition that will extend into the side yard in this situation. The proposed addition will be attaching to a non-original addition and it will be placed far back from the front. While it does stick out to the side, it is more in line with the appropriate massing for the house, and proposed fencing and landscaping will obscure the view from the front.
- There were 4 letters of support received from neighbors.
- Commissioner Koos said if they are to approve the addition at 7 feet into the side yard, they might as well approve the 10 feet.
- Commissioner Evans said the presentation for this item today was better, and had no concerns, and it was well thought out.

There being no further discussion, a **motion** was made to approve addition option A by Aaron Brooks; **Second** by Michael Zorba. The vote went as follows:

YEAS Aaron Brooks
Shavonne Evans
Joan Koos
Emily Wilkins

Michael Zorba

NAYS Mitch Baroff
Tabor Halford

There being no further discussion, a **motion** was made to approve garage option A as submitted by Aaron Brooks; **Second** by Joan Koos. The vote went as follows:

YEAS Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS Mitch Baroff

There being no further discussion, a **motion** was made to approve the driveway as submitted by Aaron Brooks; **Second** by Shavonne Evans. The vote went as follows:

YEAS Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS Mitch Baroff

Staff stated that no one in the district has had a pool request denied.

There being no further discussion, a **motion** was made to approve the pool as submitted by Aaron Brooks; **Second** by Joan Koos. The vote went as follows:

YEAS Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS Mitch Baroff

There being no further discussion, a **motion** was made to approve 8 foot side yard fence by Aaron Brooks; **Second** by Shavonne Evans.

The Commission would prefer 6 foot fences and gate. The applicant/owners were willing to amend their request to 6' in height instead of 8'.

Motion by Aaron Brooks to withdraw the previous motion, and amend the request to a 6 foot side yard fence; **Second** by Joan Koos.

The vote went as follows:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS None

There being no further discussion, a **motion** was made to approve the amended request of a 6 foot wrought iron side yard fence facing the front by Aaron Brooks; **Second** by Joan Koos. The vote went as follows:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS None

There being no further discussion, a **motion** was made to approve the amended request to a 6 foot wrought iron gate by Aaron Brooks; **Second** by Joan Koos. The vote went as follows:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS None

There being no further discussion, a **motion** was made to approve the rear deck as submitted by Aaron Brooks; **Second** by Joan Koos. The vote went as follows:

YEAS Mitch Baroff
Aaron Brooks
Shavonne Evans
Tabor Halford
Joan Koos
Emily Wilkins
Michael Zorba

NAYS None

Ms. Starr noted that there is a 10-day waiting period until the COA will be issued.

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Item No. 8, being: Staff report on active Certificates of Appropriateness and Administrative Bypass issued since October 4, 2021 and consideration of six-month extension requests for expiring COAs.

- 904 Miller – Violation notice sent to property owner, staff met with owner, she has until November 19th to show progress toward abating the issue.
- 518 Chautauqua – COA issued 6/1/20, building permit issued August 2020, interior demolition work has begun as of August 2021 and continues.
- 536 Chautauqua – COA issued 8/3/20. Work on garage and driveway is complete, and the fence is complete.
- 1320 Classen – COA issued 3/1/21. Windows replaced correctly. Unapproved work on soffit was stopped by Historic Preservation Officer that work is in the middle of being replaced with original design. Rear porch was not built to the approved COA. Driveway and garage laid out incorrectly. Submitted site plan was incorrect. Stop work order issued after columns started to be painted. (COA to amend request submitted.)
- 620 Miller – COA issued 3/1/21. Work has not started on the shutters.
- 605 Okmulgee – COA issued 4/5/21. Construction complete.
- 518 S Lahoma – Construction underway.
- 549 S Lahoma – Appeal to the Board of Adjustment of COA approved at the October 4th Historic District Meeting was being appealed by the applicant to the Board of Adjustments.

6 month extension requests – None.

Administrative Bypass requests since October 4th – 545 S Lahoma, installation of 4’ side yard fence of metal iron.

Item No. 9, being: Discussion of progress report regarding the FY 2021-2022 CLG Projects.

2021-2022 Certified Local Government Fund

\$ 150 National Alliance of Preservation Conference (NAPC) Dues

\$7,000 Commission Assistance and Mentoring Program (C.A.M.P)

Training for Commissioners

\$2,500 Planning Conference attendance for staff

\$ 600 Education Mailing

\$10,750 CLG Total allocation for 2021-2022

An educational mailing concerning hailstorm damage will be sent to homeowners.

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Item No. 10, being: Miscellaneous comments of the Historic District Commission and city staff.

None.

Item No. 11, being: Adjournment.

The meeting adjourned at 8:40 p.m.

Passed and approved this _____ day of _____, 2021.

Emily Wilkins, Chair
Historic District Commission

428 Chautauqua COA Request

Property Location: 428 Chautauqua Avenue
Chautauqua Historic District

COA Request: HD (22-01) Consideration of a Certificate of Appropriateness request for installation of a rear addition for the property located at 428 Chautauqua Avenue.

Applicant/ Owner: Bryan Bloom

Background Information:

Historical Information

2004 Chautauqua Historic District National Registry Nomination Survey states:

This circa 1907 Bungalow structure is located in the Chautauqua Historic District. The one-story structure has a cross-gabled roof plan, a brick chimney and a brick foundation. The wood windows are one-over-one, hung. The full-width front porch has a cross-gabled roof supported by massive brick columns. Decorative details include triangular knee braces and double and triple windows. The house includes the wood deck on the southwest corner of the house.

Additional Information

The Historic District Commission approved a COA that allowed this structure to be relocated from Lots 7 and 8 Block 1 of Ross's Addition to Lot 7 Block 1 of Ross's Addition at the December 1, 2014 meeting. The structure was moved in 2015 to its current location.

The relocation of this structure may make it a non-contributing structure due to a loss of historic integrity.

Sanborn Map Information

This structure will not appear on the Sanborn Map in its current location, as it was moved in 2015.

Property History

The following Certificates of Appropriateness (COA) requests for this property have been approved or denied for this property:

January 6, 2014 - A COA was granted to relocate the structure to the south to Lot 8. (Jack Hooper, owner). This work was not completed.

December 1, 2014 - Amended COA was granted to allow the structure to be relocated north to Lot 7, for the removal of a non-original addition, and for the installation of a 10'

wide driveway. This work was completed except for the driveway. (Mark Krittenbrink, owner).

March 2, 2015 - A COA was granted for a 2nd floor modification, comprised of 365 square feet to the existing house and for a two-story 974-square foot addition to the rear of the house. Together these two additions would have added 1,339 square feet to the existing house. This work was never started and the COA expired.

May 4, 2017 – A COA was granted for the construction of a two-story garage with a footprint of 624 square feet, a concrete pad to provide access to the garage, and side yard fence. The proposed work was never started and the COA expired.

May 24, 2019 - A COA by Administrative Bypass was approved for installation of a 4' front yard fence and 6' rear yard fence.

April 5, 2021 - A COA was granted for the installation of solar panels. These panels have been installed.

Project Description:

The property owner wishes to add a rear addition for a new bedroom. The proposed addition will be approximately 187 square feet and will be located on the northwest corner on the rear of the structure. The applicant proposes the exterior wall to be wood siding and wood windows of a similar configuration as seen in the principal structure. The attached drawings illustrate the proposed addition.

Ordinance and Guidelines:

Historic District Ordinance

429.3.1(g): *To safeguard the heritage of the City by preserving and regulating historic district structures in such a way that maintains or restores their historic integrity while allowing modern day uses and conveniences for their residents. (0-0910-12).*

429.3(c) *Changes to rear elevations do require a COA; however, the rear elevation of a historic structure is considered a secondary elevation and is therefore regulated to a lower standard to allow flexibility for additions or other modern day appurtenances. (0-0910-12)*

429.7[c] *Reviewing Non-Contributing Structures. Non-contributing structures should be controlled only to the degree necessary to make them compatible with the general atmosphere of the district with regard to exterior alteration, additions, signs, site work and related activities.*

Preservation Guidelines

2.7 Guidelines for Non-Contributing Resources

.1 Preservation Guidelines Apply. *The Historic Preservation Guidelines apply to all structures in Norman's Historic Districts, both contributing and non-contributing.*

.2 Support Harmony Between Old and New. *Non-contributing structures shall be controlled only to the degree necessary to make them compatible with the general atmosphere of the district with regard to alterations, additions, changes to the site, and the like. As with all requests for certificates of appropriateness in historic districts, each project will be evaluated on its own merits for overall impact on the district as a whole.*

3.1 Exterior Walls

.1 Preserve Original Walls. *Retain and preserve exterior walls that contribute to the overall historic form and character of a building, including functional and decorative features and details.*

.2 Retain Original Building Materials. *Retain and preserve exterior wall materials that contribute to the overall historic character of a building.*

.3 Replace Only Deteriorated Portions. *If replacement of a deteriorated wall or feature is necessary, replace only the deteriorated portion in kind rather than the entire feature. Match the original in material, design, dimension, detail, texture, and pattern. Consider compatible substitute materials only if using the original material is not technically feasible.*

.4 Avoid Covering Original Materials. *Building materials and decorative elements are important character-defining components of historic buildings. It is not appropriate to remove or cover any wall material or detail with coatings or contemporary substitute materials. Vinyl and aluminum siding are not appropriate for use in historic districts.*

.5 Replace Missing Features. *When replacing an exterior wall or feature, replace it with a new wall or feature based on accurate documentation of the original or a new design that is compatible with the historic character of the building and the district. Consider compatible substitute materials only if using the original material is not technically feasible.*

.6 Avoid False Historical Appearances. *Features or details that are introduced to a house should reflect its style, period, and design. Features should not create a false historical appearance by reflecting other periods, styles, or geographic regions of the country.*

.7 Substitute Materials. *Cement Fiberboard (e.g. hardiplank siding) will be considered on a case-by-case basis. Exterior insulating and finish system (EIFS) will not be considered for use in historic structures.*

3.5 Guidelines for Windows and Doors:

.12 Use Wood Windows in Primary Structures and Additions. *For construction of new primary structures, choose windows that complement window types in surrounding structures in material, placement, size, shape, and design. While single-pane, true divided-light, wood frame windows are the most desirable choice for new construction in historic districts, double-pane glass wood windows with interior and exterior applied muntins and shadow bars between the panes are permitted. Aluminum cladding of*

wooden windows is permissible for use in construction of new primary structures and additions. Vinyl cladding of wood windows is not appropriate.

4.2 Guidelines for Additions to Historic Buildings

.1 Make Additions Compatible. *Additions shall be compatible with the historic building in size, scale, mass, materials, and the pattern of windows and doors to solid walls.*

.2 Locate Addition Inconspicuously. *Locate a new addition on an inconspicuous facade of the historic building, usually the rear one. Additions that alter the front facade are generally considered inappropriate for a historic structure.*

.3 Limit Size and Scale. *The footprint of the addition shall not exceed 50% of the footprint of the existing structure or 750 square feet, whichever is greater. Exterior dimensions of the addition shall not exceed the exterior dimensions of the existing structure, including height, width, and depth. An addition which does not increase the footprint of the existing structure may be allowed to increase roof height and will be reviewed on a case-by-case basis.*

.4 Preserve the Site. *Design new additions so that the overall character of the site, character-defining site features, and trees, are retained.*

.5 Avoid Detracting From Principal Building. *It is not appropriate to construct an addition if it will detract from the overall historic character of the principal building and the site, or if it will require the removal of a significant building element or site feature. Construct new additions so that character-defining features of the historic buildings are not destroyed, damaged, or obscured.*

Staff Comments:

As stated earlier in this staff report, this structure was relocated from the adjacent property. Staff would note that a relocated structure might lose its contributing status to a designated Historic District. However, the Chautauqua Historic District has not been re-surveyed since the relocation of this structure and therefore its contributing status is undetermined. Regardless of the property's status, alterations to the site and building must follow the Preservation Guidelines and must still be compatible with house and the District as a whole.

The proposed addition meets the Preservation Guidelines for materials, size, scale, and location. However, the Guidelines for Additions encourages new additions be designed to be different but compatible to avoid creating a false sense of history for the structure. Since this addition will continue the north wall of the house with the same materials, it may be unclear as to what is original and what is new on this structure once the addition is completed. Often additions are inset to create a break between old and new sections of the structure. However, in this case, such an inset, according to the applicant, would be difficult to achieve and still have a functional space. A suggested remedy would be to place a vertical trim board on the north wall at the point of connection between original section of the structure and the addition. However, since this structure may not be considered a contributing historic structure, the Commission may not find this necessary.

Staff would note that no trees will need to be removed for the construction of this addition.

As stated earlier, the addition meets the Guidelines for materials, size, scale and location. The Historic District Commission would need to determine if the design of the addition is appropriate for this structure and if it is compatible with the District as a whole.

Commission Action:

Approve, deny, amend or and/or postponement the Certificate of Appropriateness request for installation of a rear addition for the property located at 428 Chautauqua Avenue.

**The City of Norman Historic District Commission
APPLICATION FOR CERTIFICATE OF APPROPRIATENESS (COA)**

Application Submittal Steps:

Step 1	Review guidelines for proposed work in the Historic Preservation Handbook available at City of Norman website: (http://www.normanok.gov/planning/historic-preservation) or by calling 405-366-5392).
Step 2	Contact Historic Preservation Officer to discuss proposed work at (405-366-5392) or anais.starr@normanok.gov
Step 3	Submit the following items by 12:00 p.m. on the deadline date.
	<input type="checkbox"/> It is strongly recommended that you meet and /or discuss your proposed work with the Historic Preservation Officer, prior to the submission deadline!
	<input type="checkbox"/> Completed Application Form
	<input type="checkbox"/> Application Fee of \$75
	<input type="checkbox"/> Copy of Property Deed to demonstrate ownership. If you do not have a copy, one may be obtained through the Cleveland County Court Office, 405-366-0240.
	<input type="checkbox"/> Site Plan, Elevation Drawings if needed and all other required supporting documents
	<input type="checkbox"/> Certified Adjacent Property Ownership List. A Radius Map delineating the adjacent property owners will be furnished and must be used to compile the list of the adjacent property owners. The adjacent property owner list must be certified by a licensed lawyer, engineer, surveyor, or abstract company.

COA Application Review Process:

- 1) Your application, along with the filing fee and supporting documents, must be submitted by **noon** on the filing deadline in the Planning Department (201 W Gray Street, Building A).
- 2) After your application and required supporting documents are filed, the Historic Preservation Officer will review the application to ensure it is complete. Incomplete applications will not be forwarded to the Commission. If the COA request for proposed work is complete, it shall be placed upon the next month's Historic District Commission Meeting agenda for a public hearing. A legally required sign will be posted in the yard of the property of the request at least 7 days prior to the meeting. This sign must remain until 10 days after the public hearing for the COA request. At least 5 days prior to the meeting, a notification letter of your application request will be mailed to all adjacent property owners. These owners, and any other citizen, may attend the public hearing in support or protest of your request.
- 3) At the Commission meeting approximately one month after you file your completed application (first Monday of each month), your request will be considered at a public hearing. You will be sent notice of this meeting along with a staff report. You or a designated representative must be present at the meeting. The city staff will introduce your request, you and any interested citizen will have the opportunity to speak to the Commission concerning the request. After presentation of the request, the Commission will discuss and vote to approve or deny the request. Applicants may appeal a denial of their request to the City Council.
- 4) If you have any questions, please contact the Historic Preservation Officer at (405)366-5392.

The City of Norman Historic District Commission
FOR CERTIFICATE OF APPROPRIATENESS (COA)

HD Case #:

Date:

Received by:

Note: Any relevant building permits must be applied for and paid for separately in the Planning and Community Development Office. 405-366-5311

Address of Proposed Work: 428 Chautauqua Avenue, Norman OK, 73069

Applicant's Contact Information:

Applicant's Name: Bryan and Sarah Bloom

Applicant's Phone Number(s): 405.312.0979

Applicant's E-mail address: bryanbloom@gmail.com

Applicant's Address: 428 Chautauqua Avenue, Norman OK, 73069

Applicant's relationship to owner: Contractor Engineer Architect

Owner's Contact Information: (if different than applicant)

Owner's Name:

Owner's Phone Number(s):

Owner's E-mail:

Project(s) proposed: (List each item of proposed work requested. Work not listed cannot be reviewed.)

1) Construct new bedroom addition on rear of house

2)

3)

4)

Supporting documents such as project descriptions, drawings and pictures are required see checklist page for requirements.

Authorization: I hereby certify that all statements contained within this application, attached documents and transmitted exhibits are true to the best of my knowledge and belief. In the event this proposal is approved and begun, I agree to complete the changes in accordance with the approved plans and to follow all City of Norman regulations for such construction. I authorize the City of Norman to enter the property for the purpose of observing and photographing the project for the presentations and to ensure consistency between the approved proposal and the completed project. I understand that no changes to approved plans are permitted without prior approval from the Historic Preservation Commission or Historic Preservation Officer.

Property Owner's Signature:  **Date:** 12.3.21

(If applicable): I authorize my representative to speak in matters regarding this application. Any agreement made by my representative regarding this proposal will be binding upon me.

Authorized Representative's Printed Name:

Authorized Representative's Signature: **Date:**

The City of Norman Historic District Commission Certificate of Appropriateness Request
Application Checklist

Supporting Documents

The purpose of supporting documentation is to illustrate existing conditions and proposed work as installed. Photos, site plan, elevation drawings, and specification sheets all need to clearly illustrate both the existing status as well as the proposed changes. It is recommended that you meet with the Historic Preservation Officer prior to submitting your COA application request to ensure you have a complete application by deadline. Incomplete applications will not be forwarded for review by the Historic District Commission. Please contact staff to discuss project before submitting application (405)366-5392.

A. Documentation of Existing Conditions – Pictures of the appearance, condition and dimensions of any existing materials to be replaced or altered must be submitted.

B. Site Plan – Show existing structures and site elements as well as proposed structures and site elements. The following elements should be included on a site plan drawn to scale:

- Buildings, garages, sheds
- Fences, walls
- Sidewalks, driveways, parking pads
- Patios, decks, Swimming pools, etc.
- Trees (see F Tree Preservation Plan)

Note: Additions and New Structures need to show adjacent property structures and site elements on the site plan.

C. Illustration of the proposed materials and design - Photos, drawings and/or samples must be provided to illustrate the design, materials, and finishes of the proposed work.

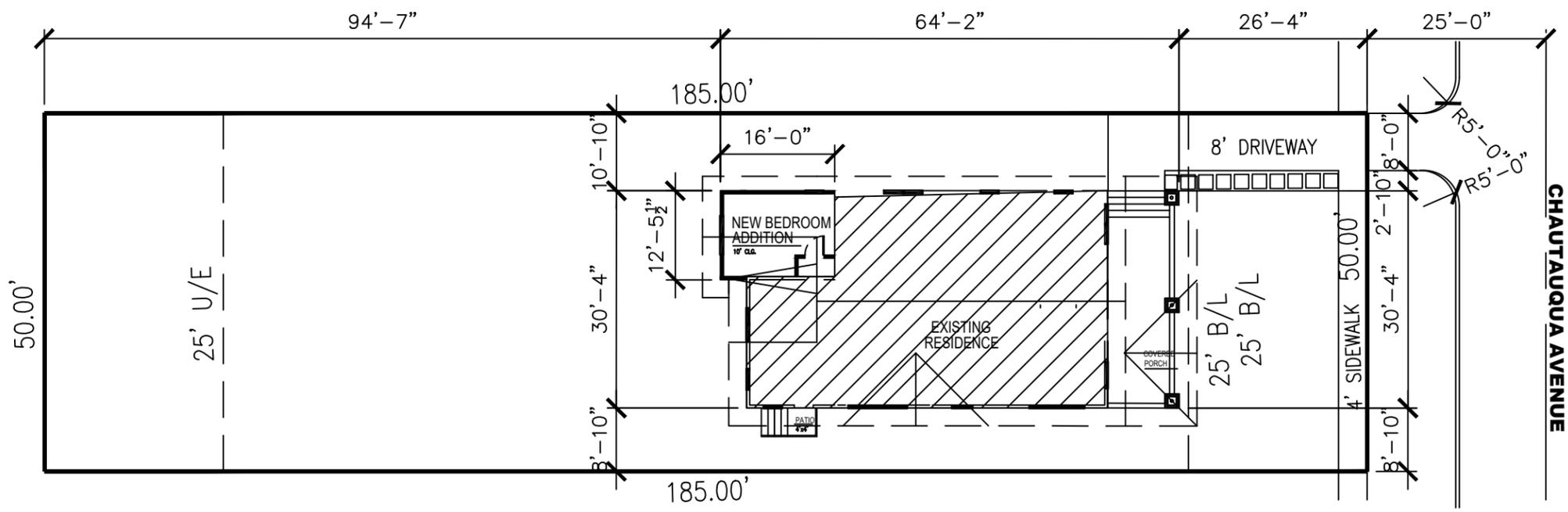
D. Elevation drawings and floor plans indicating existing and proposed features:

- | | |
|---|---|
| <input type="checkbox"/> Exterior materials | <input type="checkbox"/> Architectural Elements |
| <input type="checkbox"/> Doors | <input type="checkbox"/> Windows |
| <input type="checkbox"/> Foundation materials, dimensions | <input type="checkbox"/> Porches, stoops, gutters |
| <input type="checkbox"/> Roof, ridgeline, chimneys | <input type="checkbox"/> Steps, ramps, railings |

E. Trees Preservation Plan showing (required for major projects only, such as additions). This can be included on site plan. Show existing large shade trees 8” in diameter or greater and existing ornamental trees greater than 4” in diameter. Description of how existing trees will be protected during construction needs to be provided. Any trees proposed to be removed must be indicated.

F. Additional Documents for New Construction or Additions:

<input type="checkbox"/> Streetscape elevation of existing structure and adjacent structures	<input type="checkbox"/> Floor height of proposed house addition, comparison to adjacent properties
<input type="checkbox"/> Color Photos of site - front, side and rear	<input type="checkbox"/> Total height of proposed house or addition, comparison to neighboring structures
<input type="checkbox"/> Site Plan to include structures, pavement, trees of subject property and adjacent properties	<input type="checkbox"/> Elevation drawings of each façade of proposed house or addition
<input type="checkbox"/> Topographical information if proposing to change grades of site	<input type="checkbox"/> Floor Plans



428 CHAUTAUQUA AVE.

BUYER: BRYAN & SARAH
 JOB# 211126
 DATE: 11/26/2021

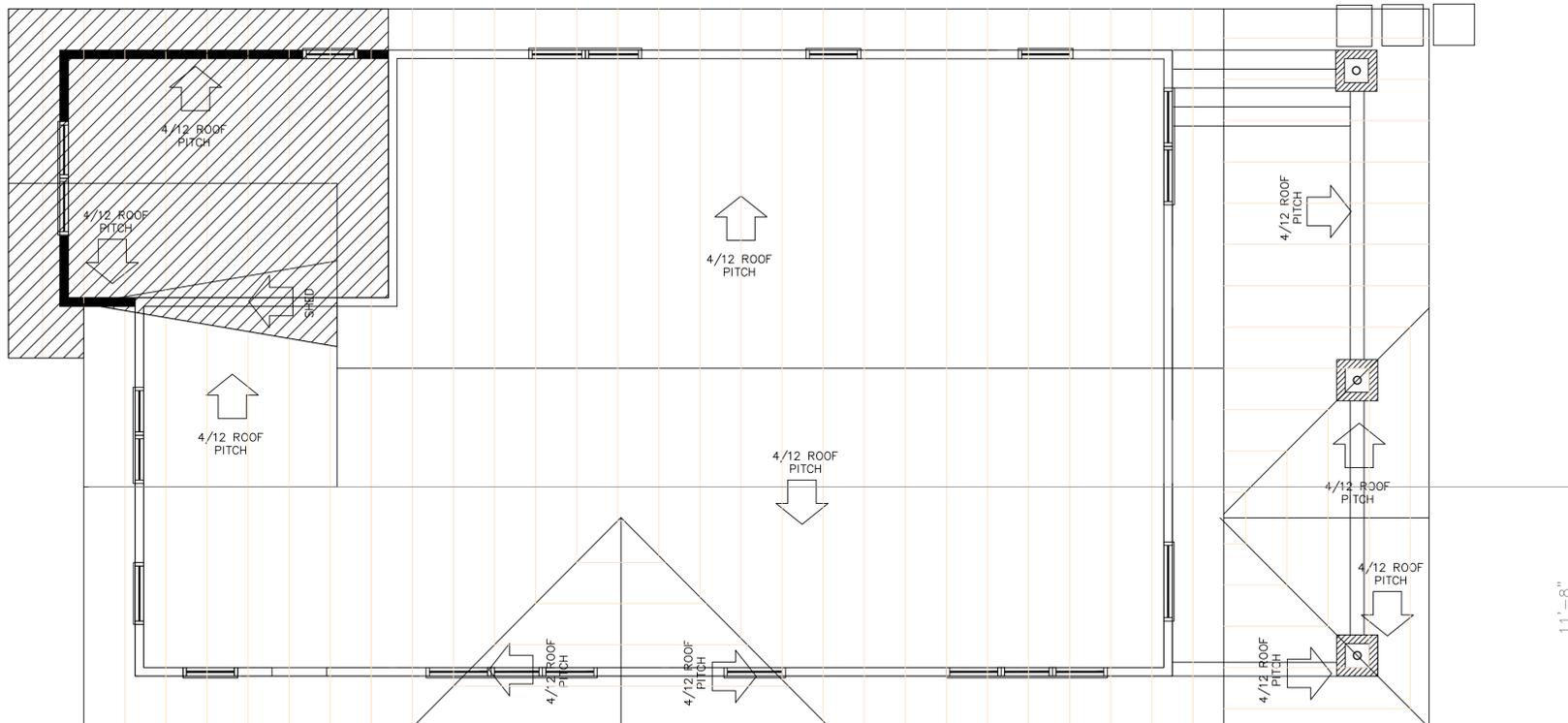
PLOT PLAN SCALE: 1" = 30'-0"
 428 CHAUTAUQUA AVE.
 NORMAN, OK 73069

BEFORE CONSTRUCTION OF ANY KIND, BUILDER, CONTRACTOR, OR PERSON IN AUTHORITY OF THIS JOB IS TO CHECK & VERIFY ALL PROPERTY LINES, SETBACKS, SIDE YARDS, & EASEMENTS IN ORDER TO COMPLY WITH ALL FEDERAL, STATE & LOCAL CODES, ORDINANCES, & RESTRICTION.



DATE	DESCRIPTION

TLD Designs LLC
Homes
 Planning and Design
 10036 SW25th Street
 Yukon, Oklahoma 73099
 Office / Cell (405)229-0761



2021 BRYAN AND SARAH BLOOM RESIDENCE
BRYAN & SARAH BLOOM ADDITION
NORMAN, OKLAHOMA

OWNER:
BRYAN AND SARAH BLOOM

JOB NUMBER:

DRAWN BY:
T.D.

CHECKED BY:

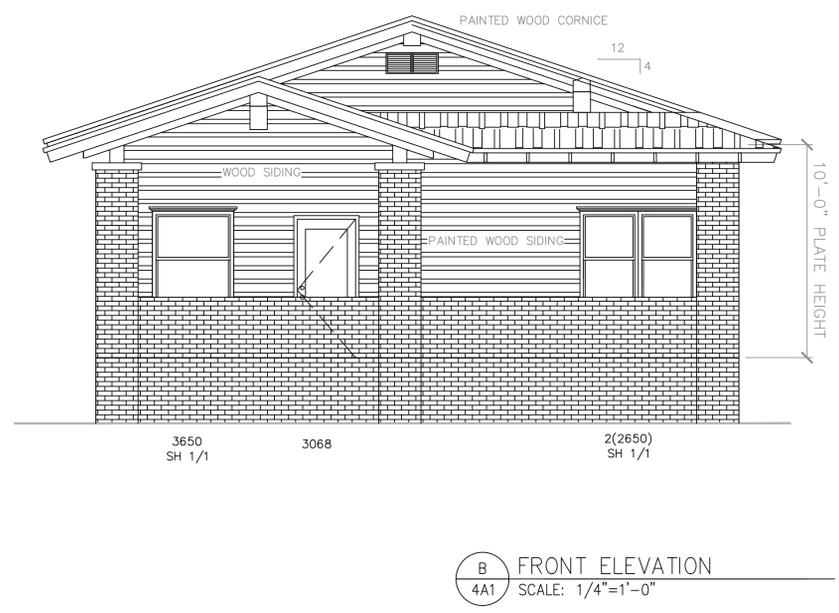
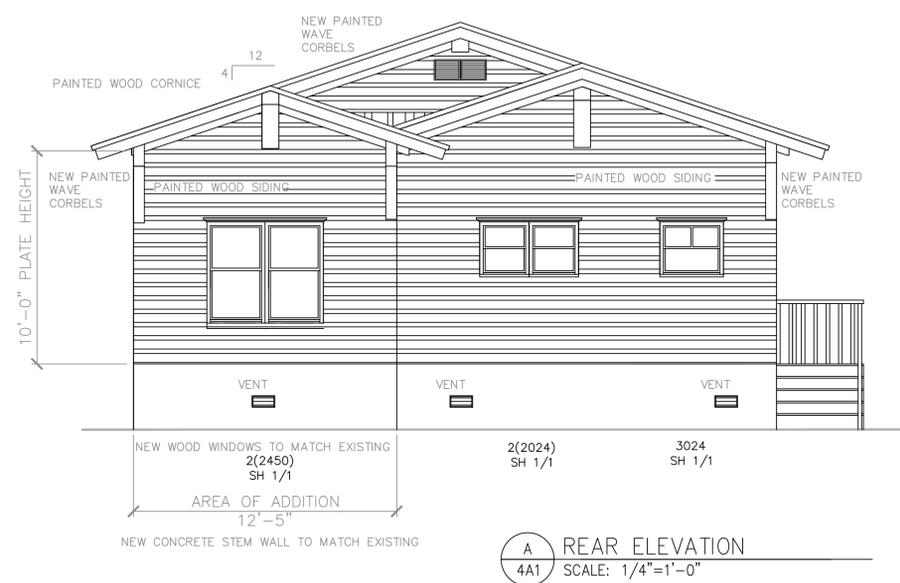
SHEET TITLE:
ROOF PLAN

DATE:
NOV 26, 2021

SHEET NUMBER:
3A1

DATE	DESCRIPTION

TLD Designs LLC
Homes
 Planning and Design
 10036 SW25th Street
 Yukon, Oklahoma 73099
 Office / Cell (405)229-0761



2021 BRYAN AND SARAH BLOOM RESIDENCE
BRYAN & SARAH BLOOM ADDITION
NORMAN, OKLAHOMA
 OWNER:
 BRYAN AND SARAH BLOOM

JOB NUMBER:

DRAWN BY: T.D. CHECKED BY:

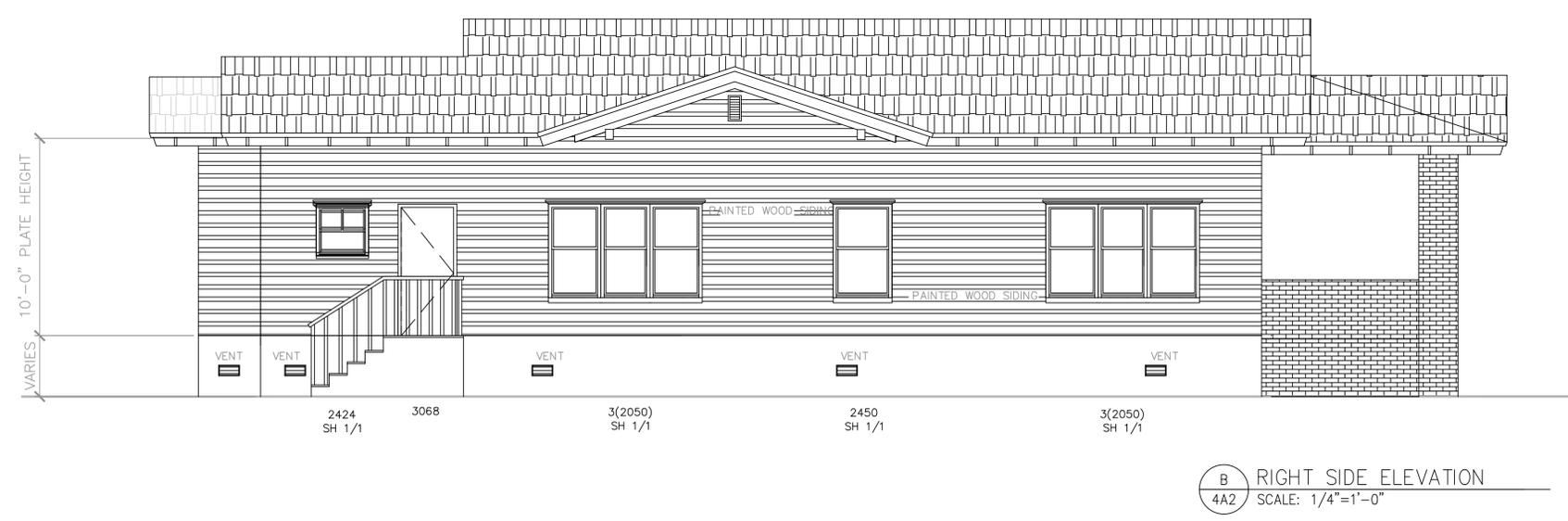
SHEET TITLE:
FRONT & REAR ELEVATIONS

DATE:
NOV 26, 2021

SHEET NUMBER:
4A1

DATE	DESCRIPTION

TLD Designs LLC
Homes
 Planning and Design
 10036 SW25th Street
 Yukon, Oklahoma 73099
 Office / Cell (405)229-0761



2021 BRYAN AND SARAH BLOOM RESIDENCE

BRYAN & SARAH BLOOM ADDITION

NORMAN, OKLAHOMA

OWNER:
BRYAN AND SARAH BLOOM

JOB NUMBER:

DRAWN BY: T.D. CHECKED BY:

SHEET TITLE:
SIDE ELEVATIONS

DATE:
NOV 26, 2021

SHEET NUMBER:
4A2

521 Miller
COA Request

Property Location: **521 Miller Ave
Miller Historic District**

COA Request: **(HD 22-02) Consideration of Certificate of
Appropriateness for a second floor addition with an
extension of the porte cochere below for the property
located at 521 Miller Avenue.**

Applicant/Owner: **John & Kristi Pate**

Background Information:

Historical Information

2004 Miller Historic District Nomination Survey Information:

521 South Miller Avenue. Ca. 1919. Bungalow/Craftsman. This contributing, two-story, weatherboard, single dwelling has a brick foundation and an asphalt-covered, front-gabled roof. The wood windows are vertical, four-over-one, hung, and the wood door is glazed paneled with wood and glass sidelights. The full-width porch has an asphalt-covered, side-gabled roof supported by full red brick piers with a wood railing. Other exterior features include an eave wall, red brick chimney and a porte cochere, both on the north side. Decorative details include triangular knee braces, exposed rafters, double and triple windows and decorative wood shutters. See below for description of rear garage/apartment.

519 A & B South Miller Avenue. Ca. 1960. No Distinctive Style. This noncontributing, two-story, Masonite-sided, garage/apartment has a concrete foundation and an asphalt-covered, side-gabled roof. The aluminum windows are two-over-two hung and the wood door is flush. There is a shed roof over the entry and a large second floor landing. Decorative details include exposed rafters. The building is noncontributing due to insufficient age.

Sanborn Map Information

The primary structure is indicated in its present location on the 1925 and 1944 Sanborn map. The existing secondary accessory structure is not indicated on either map, indicating that it was erected sometime after 1944.

Property History

The following Certificates of Appropriateness (COA) requests for this property have been approved or denied for this property:

August 6, 2001 - A COA was granted for installation of a swimming pool.

Project Description

The applicants wish to add a second floor addition which will require the extension of the porte cochere beneath it. The applicants intend to remodel the existing second story space above the porte cochere into a master bedroom and add an 165 square foot addition which will be the master bathroom.

The applicant's architect is proposing the porte cochere and the above second floor will be extended with the same design and exterior materials as the existing house. The porte cochere will be extended by the addition of one brick column spaced similarly as the original columns of the porte cochere. The north wall on the second floor will be extended with the same lap siding as presently found on the house and the addition of one window of similar configuration to the other windows in the house.

Ordinances & Guidelines:

Historic District Ordinance

429.3.1(g): *To safeguard the heritage of the City by preserving and regulating historic district structures in such a way that maintains or restores their historic integrity while allowing modern day uses and conveniences for their residents. (0-0910-12).*

429.3.3(c): *Changes to rear elevations do require a COA; however the rear elevation of a historic structure is considered a secondary elevation and is therefore regulated to a lower standard to allow flexibility for additions or other modern day appurtenances. (0-0910-12).*

Preservation Guidelines

3.1 Exterior Walls

.1 Preserve Original Walls. *Retain and preserve exterior walls that contribute to the overall historic form and character of a building, including functional and decorative features and details.*

.2 Retain Original Building Materials. *Retain and preserve exterior wall materials that contribute to the overall historic character of a building.*

.3 Replace Only Deteriorated Portions. *If replacement of a deteriorated wall or feature is necessary, replace only the deteriorated portion in kind rather than the entire feature. Match the original in material, design, dimension, detail, texture, and pattern. Consider compatible substitute materials only if using the original material is not technically feasible.*

.4 Avoid Covering Original Materials. *Building materials and decorative elements are important character-defining components of historic buildings. It is not appropriate to remove or cover any wall material or detail with coatings or contemporary substitute materials. Vinyl and aluminum siding are not appropriate for use in historic districts.*

.5 Replace Missing Features. *When replacing an exterior wall or feature, replace it with a new wall or feature based on accurate documentation of the original or a new design that is compatible with the historic character of the building and the district.*

Consider compatible substitute materials only if using the original material is not technically feasible.

.6 Avoid False Historical Appearances. *Features or details that are introduced to a house should reflect its style, period, and design. Features should not create a false historical appearance by reflecting other periods, styles, or geographic regions of the country.*

.7 Substitute Materials. *Cement Fiberboard (e.g. hardiplank siding) will be considered on a case-by-case basis. Exterior insulating and finish system (EIFS) will not be considered for use in historic structures.*

3.5 Guidelines for Windows and Doors:

.12 Use Wood Windows in Primary Structures and Additions. *For construction of new primary structures, choose windows that complement window types in surrounding structures in material, placement, size, shape, and design. While single-pane, true divided-light, wood frame windows are the most desirable choice for new construction in historic districts, double-pane glass wood windows with interior and exterior applied muntins and shadow bars between the panes are permitted.*

Aluminum cladding of wooden windows is permissible for use in construction of new primary structures and additions. Vinyl cladding of wood windows is not appropriate.

3.6 Guidelines for Entrances, Porches and Balconies

.1 Preserve Original Entrances, Porches and Balconies. *Retain and preserve entrances, porches, and balconies that contribute to the overall historic character of a building, including columns, pilasters, piers, entablatures, balustrades, sidelights, fanlights, transoms, steps, railings, floors, and ceilings.*

.8 Avoid Changes to Primary Facades. *It is not appropriate to remove an original entrance or porch or to add a new entrance or porch on a primary facade.*

.9 Avoid False Historical Appearances. *Features or details that are introduced to a house should reflect its style, period, and design. Features should not create a false historical appearance by reflecting other time periods, styles, or geographic regions of the country.*

4.2 Guidelines for Additions to Historic Buildings

.1 Make Additions Compatible. *Additions shall be compatible with the historic building in size, scale, mass, materials, and the pattern of windows and doors to solid walls.*

.2 Locate Addition Inconspicuously. *Locate a new addition on an inconspicuous facade of the historic building, usually the rear one. Additions that alter the front facade are generally considered inappropriate for a historic structure.*

.3 Limit Size and Scale. *The footprint of the addition shall not exceed 50% of the footprint of the existing structure or 750 square feet, whichever is greater. Exterior dimensions of the addition shall not exceed the exterior dimensions of the existing structure, including height, width, and depth. An addition which does not increase the*

footprint of the existing structure may be allowed to increase roof height and will be reviewed on a case-by-case basis.

.4 Preserve the Site. *Design new additions so that the overall character of the site, character-defining site features, and trees, are retained.*

.5 Avoid Detracting From Principal Building. *It is not appropriate to construct an addition if it will detract from the overall historic character of the principal building and the site, or if it will require the removal of a significant building element or site feature. Construct new additions so that character-defining features of the historic buildings are not destroyed, damaged, or obscured.*

Staff Comments:

The proposed addition meets the Preservation Guidelines for size, massing, and materials. However, due to the location of the proposed addition, it appears that the addition may not meet the Preservation Guidelines for design.

The location of the proposed second floor addition necessitates the extension of the first floor beneath it, which in this case is the porte cochere. This side of the structure is visible from the right-of-way and the Preservation Guidelines discourages the alteration of a side elevation of a structure, preferring additions to be placed in the rear with limited or no visibility. Additionally, the Preservation Guidelines clearly state that the alteration of primary architectural feature such as a porte cochere is not appropriate.

However, it should be noted that the applicants have indicated that the second floor of this house does not have a bathroom. The applicants, after much consideration, found this addition made the most sense given the limitations of the second floor and the close proximity of the secondary structure directly behind the house.

The Preservation Guidelines indicate that additions or new elements to a historic structure should be clearly of their own time and not create a false sense of history, as it may in this case. The extension of the porte cochere and the second floor addition as proposed does not appear to clearly provide a clear differentiation between the new addition and the original portion of the historic house. The *Historic Preservation Handbook* section on Additions (pg. 68) suggest that “additions could be differentiated from the original building through a break in roofline, cornice height, wall plane, materials, siding profile materials or window type”.

If the Historic District Commission feels the addition is allowable, it should discuss if it is appropriate to provide a differentiation between the proposed addition and the original house, and if so what that suggested differentiation would be.

The Commission will need to determine if the proposed addition with the extension of the porte cochere meets the Guidelines for design and determine if it is appropriate for this structure, as well as if it is compatible with the District as a whole.

Commission Action:

Approve, deny, amend or postpone the Certificate of Appropriateness request for a second floor addition with an extension of the porte cochere for the property located at 521 Miller Avenue.

The City of Norman Historic District Commission
FOR CERTIFICATE OF APPROPRIATENESS (COA)

Staff Only Use

HD Case #: 22-02

Date: 12-2-2021

Received by: AS

Note: Any relevant building permits must be applied for and paid for separately in the Planning and Community Development Office. 405-366-5311

Address of Proposed Work:

Applicant's Contact Information:

Applicant's Name: John + Kristi Pate

Applicant's Phone Number(s): John (405) 833-3834 Kristi (405) 420-2515

Applicant's E-mail address: patesace@cox.net

Applicant's Address: 521 Miller Ave.

Applicant's relationship to owner: Contractor Engineer Architect

Owner's Contact Information: (if different than applicant)

Owner's Name:

Owner's Phone Number(s):

Owner's E-mail:

Project(s) proposed: (List each item of proposed work requested. Work not listed cannot be reviewed.)

1) Second floor master bath addition. 165 sqft

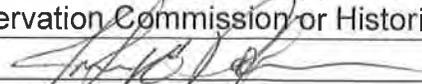
2)

3)

4)

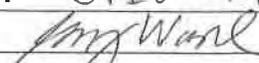
Supporting documents such as project descriptions, drawings and pictures are required see checklist page for requirements.

Authorization: I hereby certify that all statements contained within this application, attached documents and transmitted exhibits are true to the best of my knowledge and belief. In the event this proposal is approved and begun, I agree to complete the changes in accordance with the approved plans and to follow all City of Norman regulations for such construction. I authorize the City of Norman to enter the property for the purpose of observing and photographing the project for the presentations and to ensure consistency between the approved proposal and the completed project. I understand that no changes to approved plans are permitted without prior approval from the Historic Preservation Commission or Historic Preservation Officer.

Property Owner's Signature:  **Date:** 12/2/21

(If applicable): I authorize my representative to speak in matters regarding this application. Any agreement made by my representative regarding this proposal will be binding upon me.

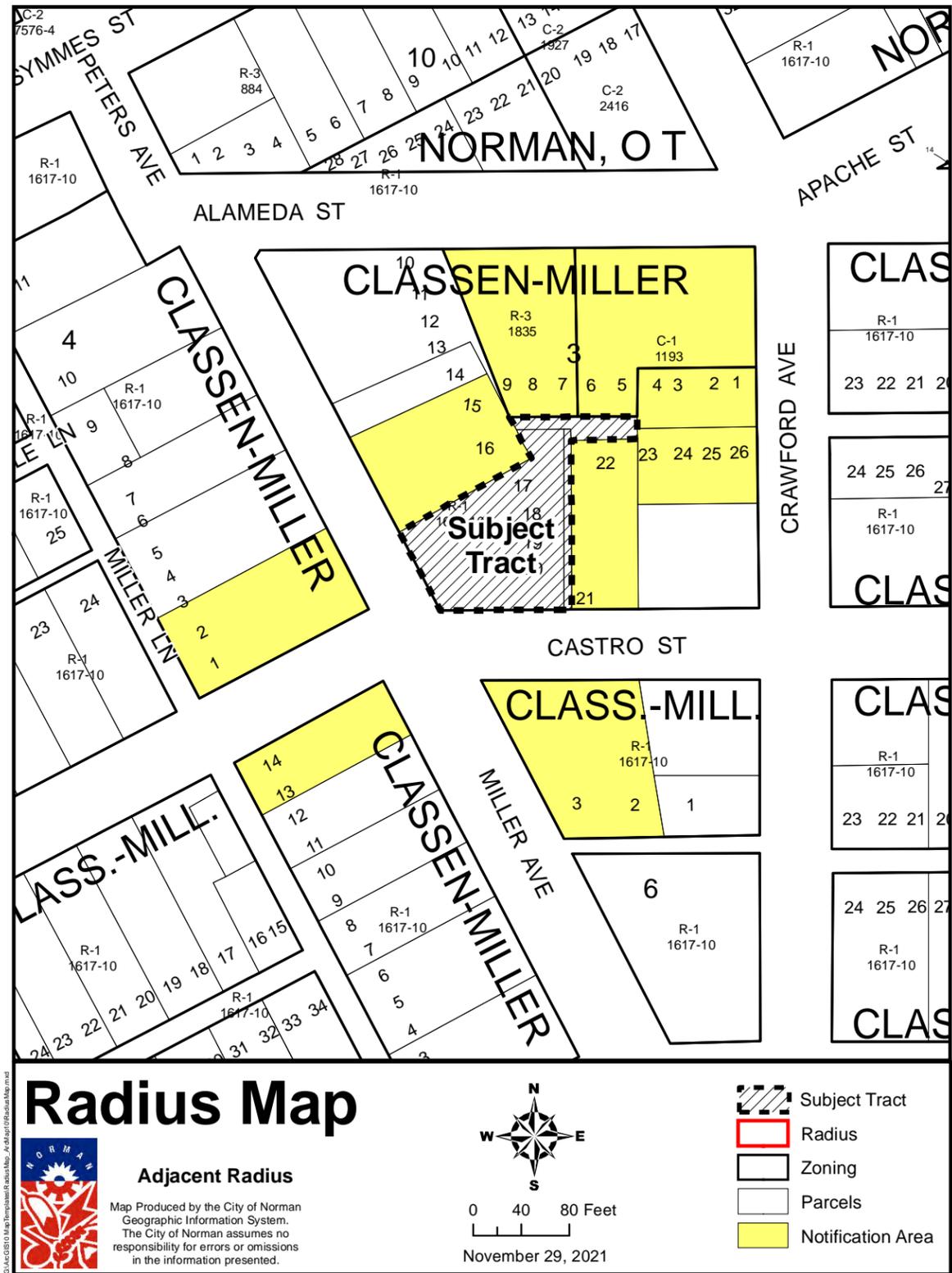
Authorized Representative's Printed Name: GREG WARD, AIA

Authorized Representative's Signature:  **Date:** 12/1/21

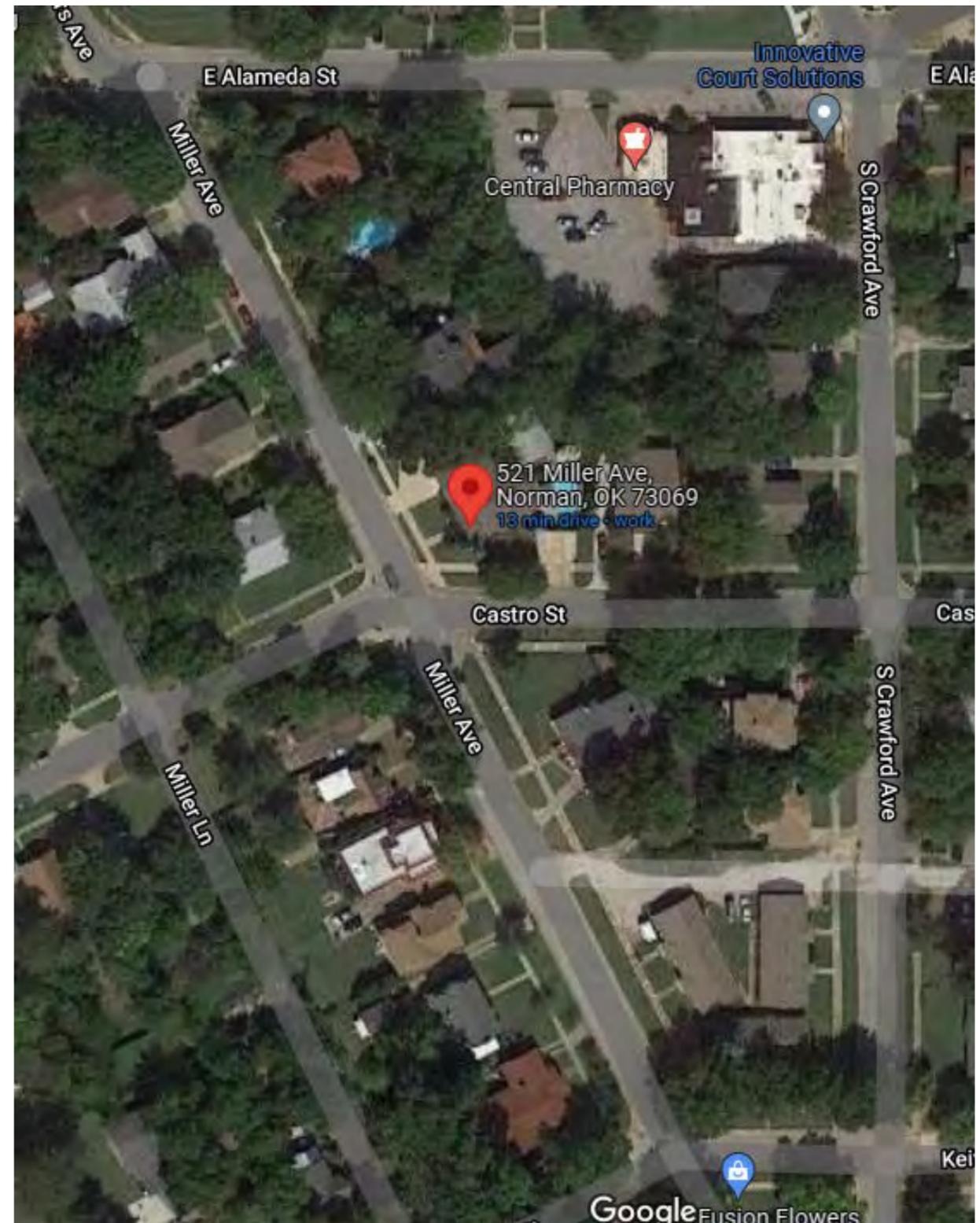
THE CITY OF NORMAN
HISTORIC DISTRICT COMMISSION
CERTIFICATE OF APPROPRIATENESS (COA)



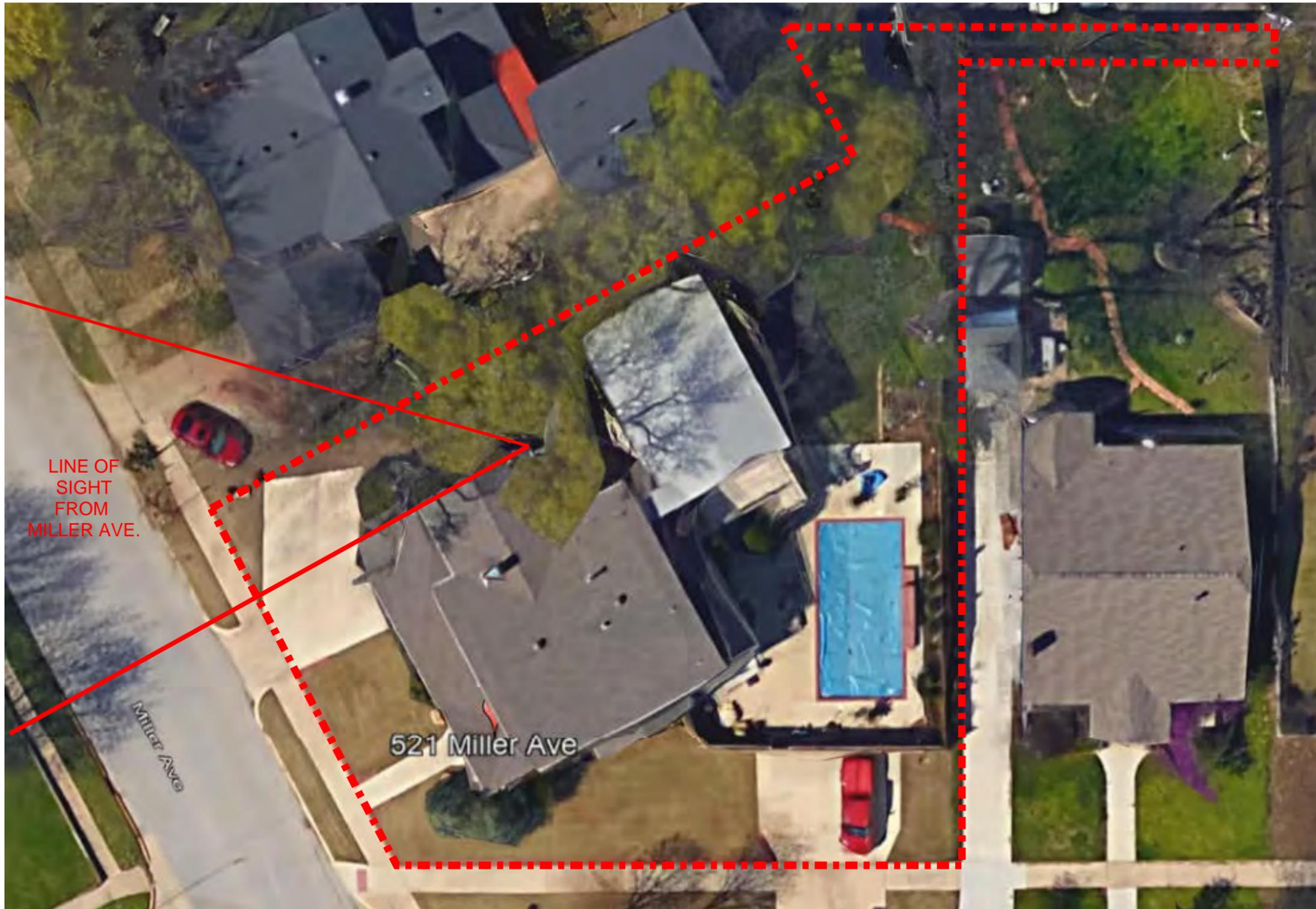
SUPPORTING DOCUMENTS
PATE RESIDENCE RESTORATION/ADDITION
521 MILLER
DECEMBER 03, 2021



RADIUS MAP
ADJACENT TO 521 MILLER



SATELLITE IMAGE
ADJACENT TO 521 MILLER

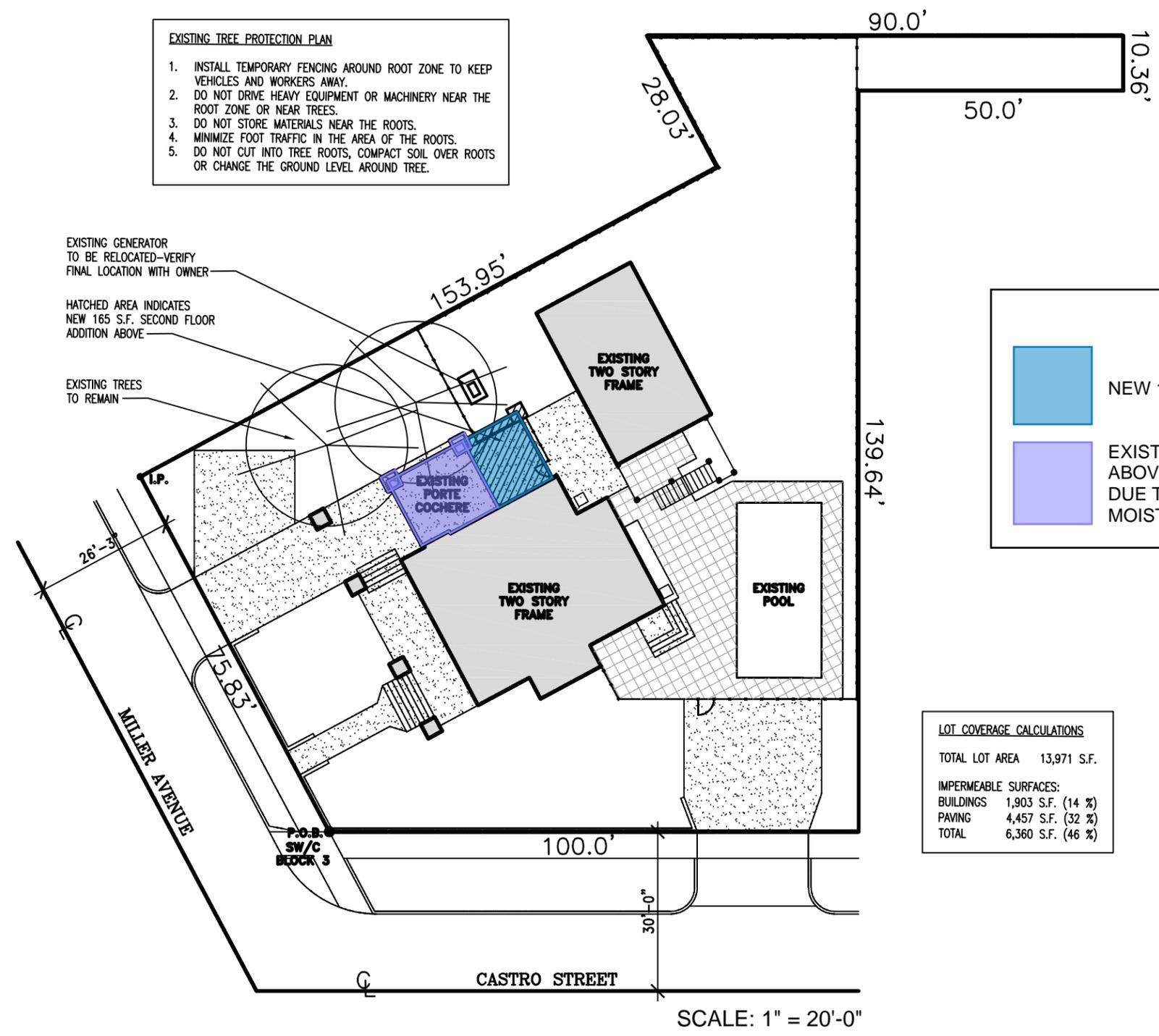


LINE OF
SIGHT
FROM
MILLER AVE.

521 Miller Ave

SATELLITE IMAGE
521 MILLER

- EXISTING TREE PROTECTION PLAN**
1. INSTALL TEMPORARY FENCING AROUND ROOT ZONE TO KEEP VEHICLES AND WORKERS AWAY.
 2. DO NOT DRIVE HEAVY EQUIPMENT OR MACHINERY NEAR THE ROOT ZONE OR NEAR TREES.
 3. DO NOT STORE MATERIALS NEAR THE ROOTS.
 4. MINIMIZE FOOT TRAFFIC IN THE AREA OF THE ROOTS.
 5. DO NOT CUT INTO TREE ROOTS, COMPACT SOIL OVER ROOTS OR CHANGE THE GROUND LEVEL AROUND TREE.



LEGEND

- NEW 165 SF SECOND FLOOR ADDITION
- EXISTING SECOND FLOOR BEDROOM ABOVE PORTE-COCHERE TO BE REPAIRED DUE TO STRUCTURAL SETTLEMENT AND MOISTURE INTRUSION ISSUES

LOT COVERAGE CALCULATIONS

TOTAL LOT AREA	13,971 S.F.
IMPERMEABLE SURFACES:	
BUILDINGS	1,903 S.F. (14 %)
PAVING	4,457 S.F. (32 %)
TOTAL	6,360 S.F. (46 %)

**PROPOSED SITE PLAN
521 MILLER**



EXISTING CONDITIONS
521 MILLER



EXISTING CONDITIONS
521 MILLER



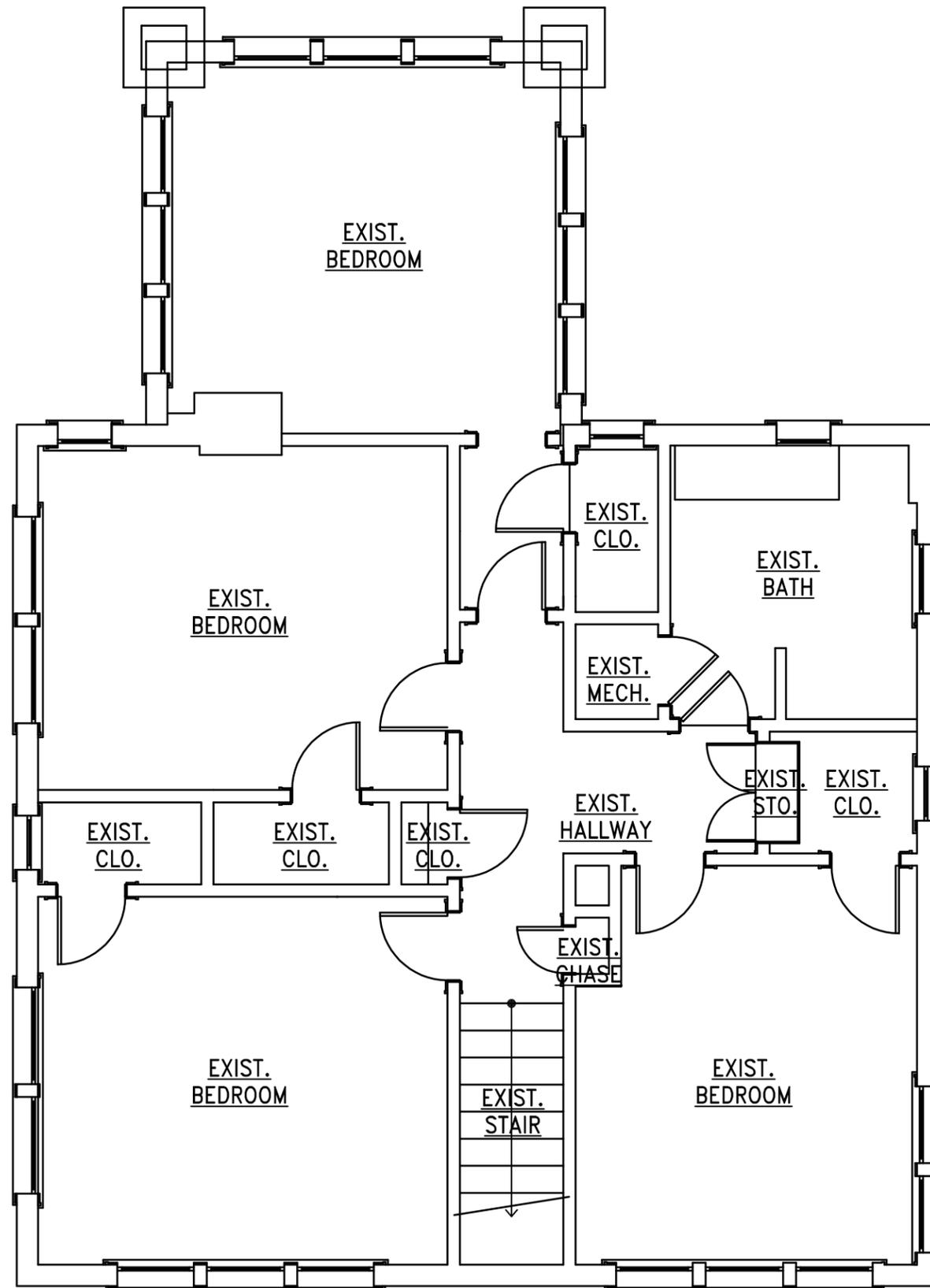
EXISTING CONDITIONS
521 MILLER



EXISTING CONDITIONS
521 MILLER



EXISTING CONDITIONS
521 MILLER



SCALE: 3/16" = 1'-0"

EXISTING SECOND FLOOR PLAN
521 MILLER



SCALE: 3/16" = 1'-0"

EXISTING WEST ELEVATION
521 MILLER



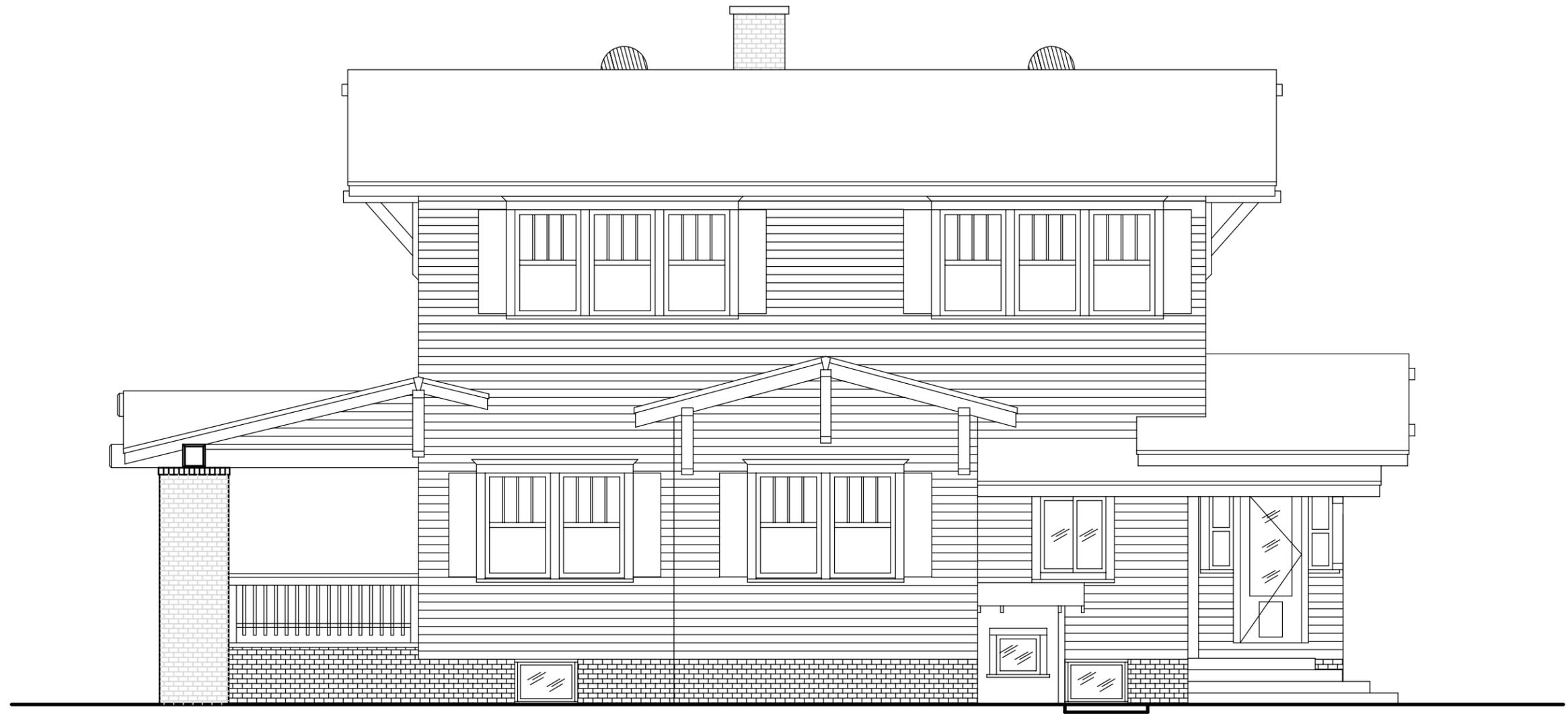
SCALE: 3/16" = 1'-0"

EXISTING NORTH ELEVATION
521 MILLER



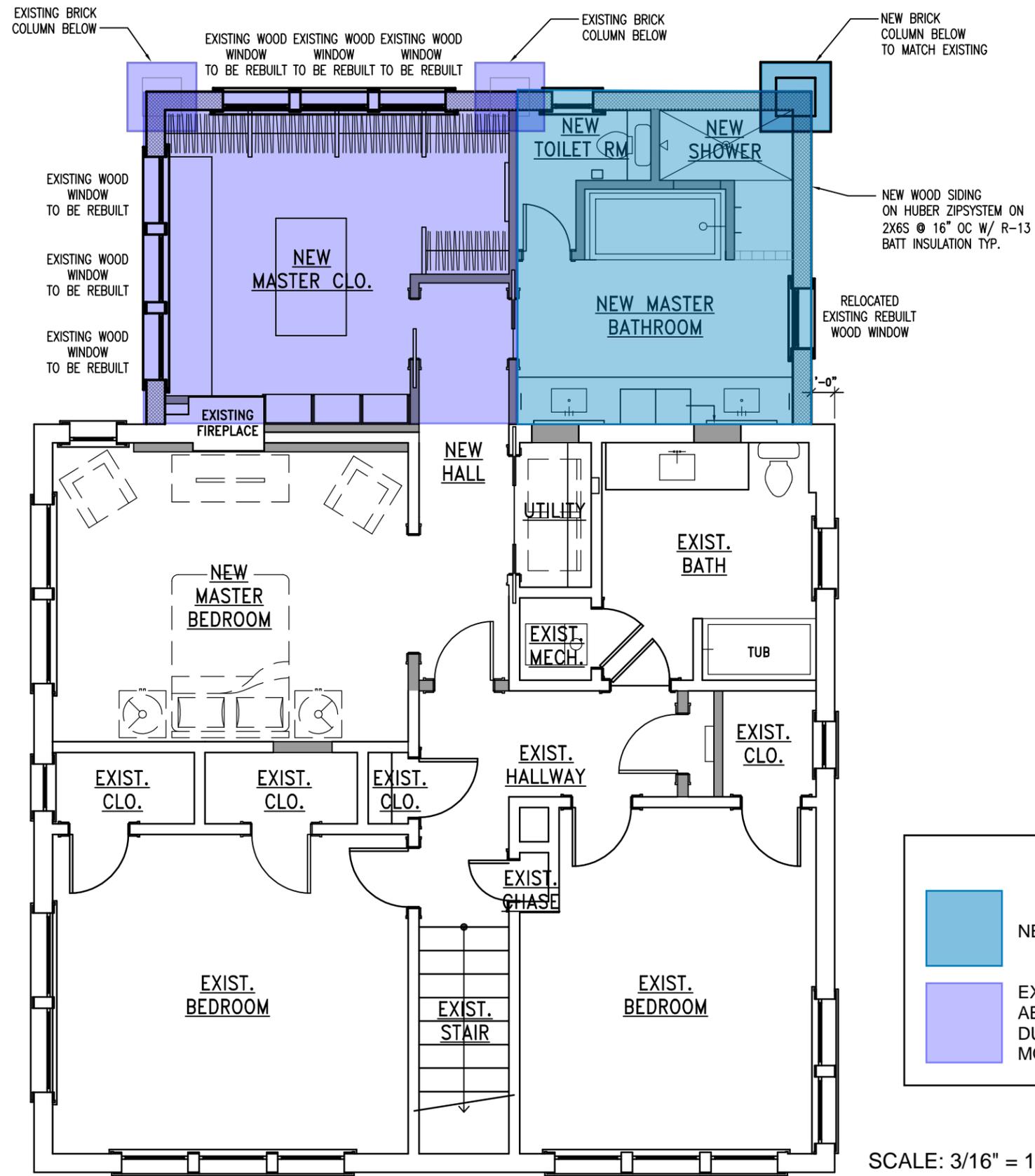
SCALE: 3/16" = 1'-0"

EXISTING EAST ELEVATION
521 MILLER



SCALE: 3/16" = 1'-0"

EXISTING SOUTH ELEVATION
521 MILLER



LEGEND

NEW 165 SF SECOND FLOOR ADDITION

EXISTING SECOND FLOOR BEDROOM ABOVE PORTE-COCHERE TO BE REPAIRED DUE TO STRUCTURAL SETTLEMENT AND MOISTURE INTRUSION ISSUES

SCALE: 3/16" = 1'-0"

**PROPOSED SECOND FLOOR PLAN
521 MILLER**

LEGEND



NEW 165 SF SECOND FLOOR ADDITION



EXISTING SECOND FLOOR BEDROOM ABOVE PORTE-COCHERE TO BE REPAIRED DUE TO STRUCTURAL SETTLEMENT AND MOISTURE INTRUSION ISSUES

NOTE:
EXISTING CONSTRUCTION TO
REMAIN AS-IS UNLESS NOTED

NEW ASPHALT COMP
SHINGLES AND ICE AND WATER
SHIELD ON NEW 7/16" OSB DECKING

RELOCATE WOOD BRACE-
NEW PAINT FINISH

25'-6"
RIDGE"

NEW WOOD FASCIA, SHINGLE
MOULDING AND DRIP EDGE TO MATCH
EXISTING-NEW PAINT FINISH

RELOCATE WOOD BRACE-
NEW PAINT FINISH

INSTALL REFURBISHED
EXISTING WOOD WINDOWS-
NEW PAINT FINISH

RELOCATE EXISTING
WOOD SIDING-NEW PAINT
FINISH (REPLACE TO MATCH
EXISTING IF DAMAGED)

EXISTING LOW ROOF WITH NEW
ASPHALT COMP. SHINGLE ROOF
AND ICE AND WATER SHIELD
ON EXIST. WOOD DECKING

NEW WOOD FASCIA, SHINGLE
MOULDING AND DRIP EDGE TO MATCH
EXISTING-NEW PAINT FINISH

EXISTING
PORTE-COCHERE

2ND FLOOR

GROUND FLOOR

SCALE: 3/16" = 1'-0"

PROPOSED WEST ELEVATION 521 MILLER

LEGEND



NEW 165 SF SECOND FLOOR ADDITION



EXISTING SECOND FLOOR BEDROOM ABOVE PORTE-COCHERE TO BE REPAIRED DUE TO STRUCTURAL SETTLEMENT AND MOISTURE INTRUSION ISSUES

NOTE:
EXISTING CONSTRUCTION TO REMAIN AS-IS UNLESS NOTED

NEW ASPHALT COMP SHINGLES AND ICE AND WATER SHIELD ON NEW 7/16" OSB DECKING

RELOCATE WOOD BRACE-
NEW PAINT FINISH

DASHED LINE INDICATES ORIGINAL EXTERIOR WALL

INSTALL REFURBISHED EXISTING WOOD WINDOWS-
NEW PAINT FINISH

NEW WOOD FASCIA, SHINGLE MOULDING AND DRIP EDGE TO MATCH EXISTING-NEW PAINT FINISH

25'-6" RIDGE"

RELOCATE WOOD BRACE-
NEW PAINT FINISH

RELOCATE EXISTING WOOD SIDING-NEW PAINT FINISH (REPLACE TO MATCH EXISTING IF DAMAGED)

NEW LOW ROOF WITH NEW ASPHALT COMP. SHINGLE ROOF AND ICE AND WATER SHIELD ON NEW WOOD DECKING

INSTALL REFURBISHED EXISTING WOOD WINDOWS-
NEW PAINT FINISH

EXISTING WOOD BRACE-
NEW PAINT FINISH

NEW WOOD FASCIA, SHINGLE MOULDING AND DRIP EDGE TO MATCH EXISTING-NEW PAINT FINISH

NEW 3'-0" X 3'-0" MASONRY COLUMN TO MATCH EXISTING

EXISTING PORTE-COCHERE

2ND FLOOR

GROUND FLOOR

SCALE: 3/16" = 1'-0"

PROPOSED NORTH ELEVATION 521 MILLER

LEGEND

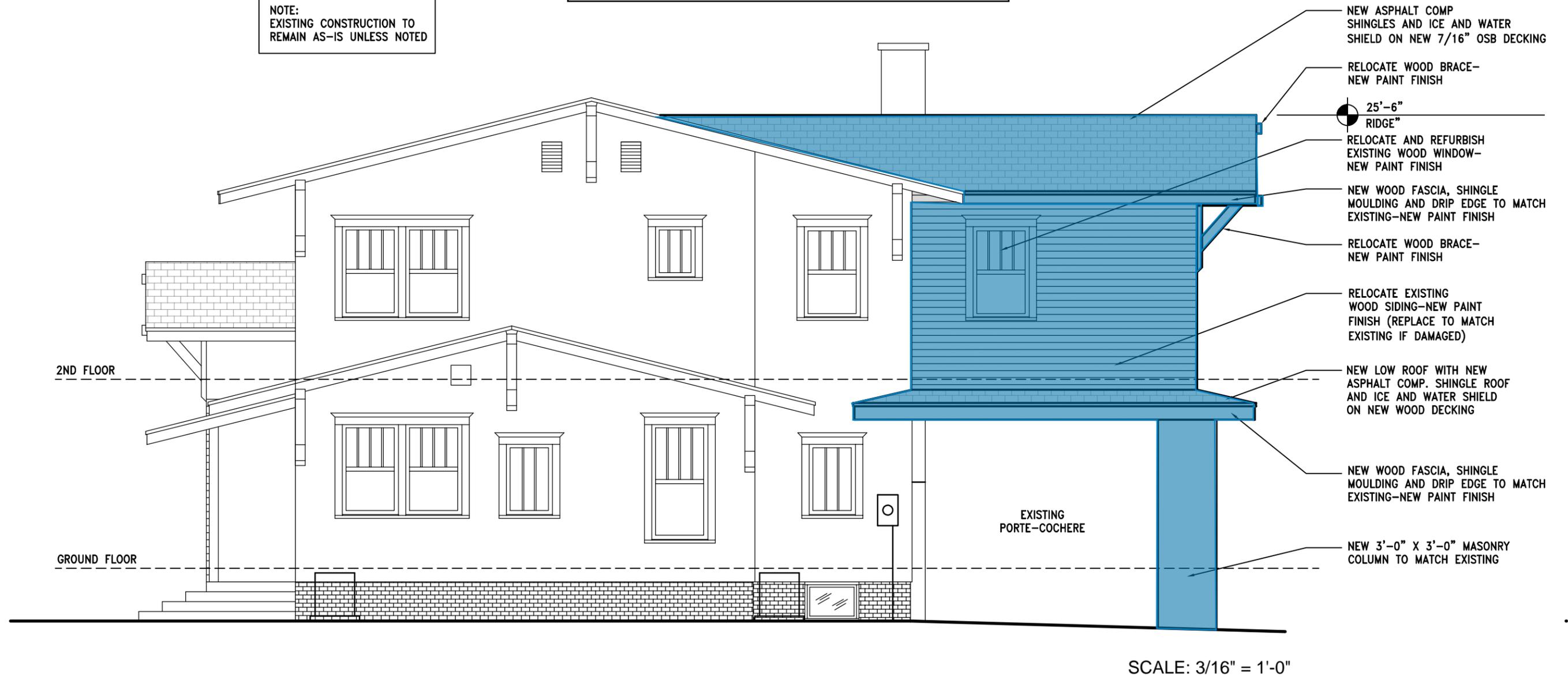


NEW 165 SF ADDITION



EXISTING SECOND FLOOR BEDROOM ABOVE PORTE-COCHERE TO BE REPAIRED DUE TO STRUCTURAL SETTLEMENT AND MOISTURE INTRUSION ISSUES

NOTE:
EXISTING CONSTRUCTION TO REMAIN AS-IS UNLESS NOTED



PROPOSED EAST ELEVATION 521 MILLER



PROPOSED ADDITION FROM MILLER AVENUE
521 MILLER

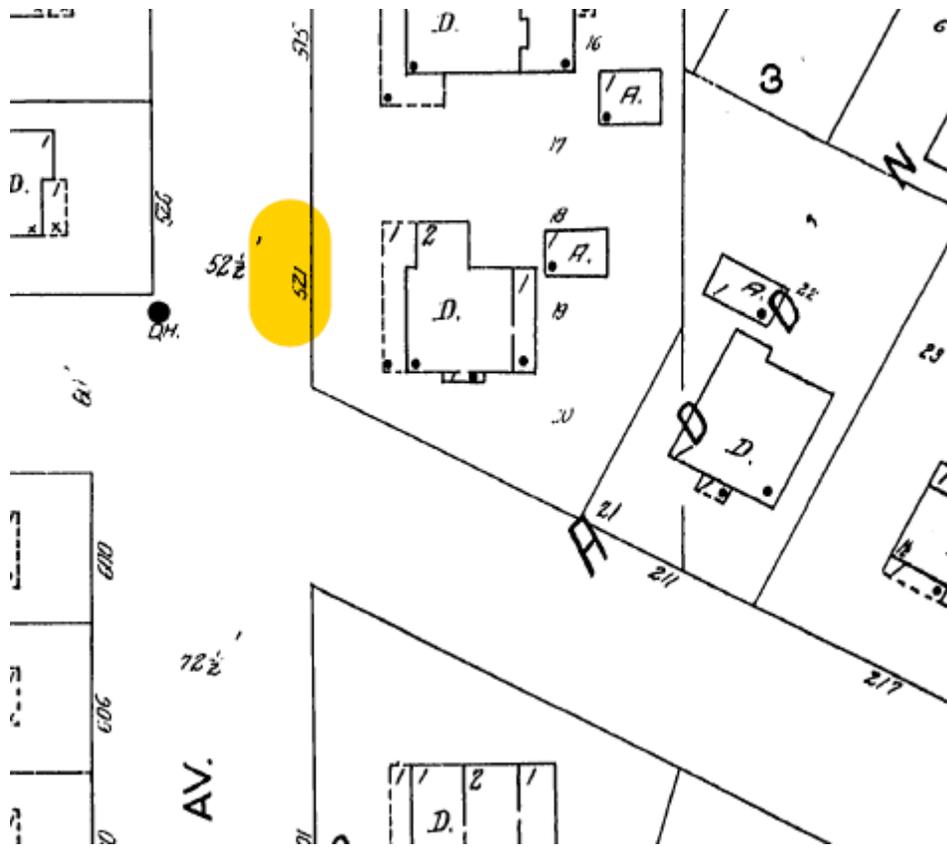


EXISTING 8 5/8" X 4" X 2 1/2"
SOLID BRICK- NEW BRICK AND GROUT
TO MATCH EXISTING IN COLOR
AND TEXTURE



EXISTING 4 1/2" H. WOOD LAP SIDING
TO BE REMOVED AND REINSTALLED
NEW WOOD LAP SIDING TO BE MILLED TO
MATCH EXISTING AS REQUIRED

EXISTING MATERIALS
521 MILLER



1944 Sanborn Map
521 Miller Ave

904 Classen Blvd COA Request

Property Location: **904 Classen Blvd
Southridge Historic District**

COA Request: **(HD 22-03) Consideration of Certificate of
Appropriateness for the modification of an existing
accessory structure, the replacement of non-original
metal siding with cement fiberboard siding, and the
replacement of windows on the north side of the house
with aluminum-clad windows for property located at
904 Classen Boulevard.**

Applicant/Owner: **Ryan Hauser**

Background Information:

Historical Information

2014 Southridge Historic District Nomination Survey Information:

Ca. 1913. Bungalow/Craftsman. This non-contributing, one-story, aluminum-sided, single dwelling has an asphalt-covered, cross-gabled roof and a concrete foundation. The wood hung windows are twelve-over-one and one-over-one. The wood door is glazed paneled. The wraparound porch has been enclosed on the north side with one-over-one windows and aluminum siding. The remaining partial porch has aluminum-sided walls and an aluminum-sided column supporting the south side of the porch roof. There is a decorative concrete block, interior, slope chimney on the north side, a gabled dormer with a single rectangular window on the front and a rear screened porch. Decorative details include gable returns and double and triple windows. The building is noncontributing due to a loss of integrity.

Sanborn Map Information

The primary structure is indicated in its present location on the 1925 and 1944 Sanborn map. The existing garage accessory structure in the current configuration is not indicated on either map, indicating that the structure was erected sometime after 1944.

Property History

The following Certificates of Appropriateness (COA) requests for this property have been approved or denied for this property:

August 6, 2001 - A COA was granted for side-yard and rear-yard fences.

September 9, 2002 - A COA was granted for the installation of a swimming pool.

March 6, 2006 - A COA was granted for the installation of French doors in the accessory structure in the rear yard.

October 6, 2008 - A COA was granted for replacement of an overhead garage door to be replaced with a window and cinderblock in the accessory structure.

September 11, 2017 - A COA was granted for Certificate of Appropriateness for the exterior modification of an existing accessory structure and the addition of a pergola. This worked was not installed.

Project Description:

The applicant wishes to remodel the existing non-original accessory structure that contains a garage and cabana. The applicant proposes to raise the wall height of the structure by two feet to allow for a more comfortable walking height for the interior of the structure. The applicant also wishes to create a more aesthetically pleasing exterior for this non-original structure with the following alterations: applying cement fiber board siding and shingles over the existing cinder block walls, adding cement fiberboard trim to all the corners and openings of the structure, and adding a metal French door on the east elevation. The applicant had a similar request approved on September 11, 2017 but did not install the modifications at that time.

Additionally, due to the recent hail storm, the metal and vinyl siding on the principal structure suffered extensive damage. The metal siding is not readily available for replacement and vinyl siding is not acceptable material in the Historic Districts. Therefore, the applicant proposes the removal of both the metal and vinyl siding and the installation of cement fiber board siding and trim for the entire house.

The applicant also proposes the windows on the north side of the house damaged by the hail storm be replaced with aluminum-clad wood windows of the same window configuration.

Ordinances & Guidelines:

Historic District Ordinance

429.3.1(g): *To safeguard the heritage of the City by preserving and regulating historic district structures in such a way that maintains or restores their historic integrity while allowing modern day uses and conveniences for their residents. (0-0910-12).*

429.3.3(c): *Changes to rear elevations do require a COA; however the rear elevation of a historic structure is considered a secondary elevation and is therefore regulated to a lower standard to allow flexibility for additions or other modern day appurtenances. (0-0910-12).*

Preservation Guidelines

Guidance can be provided by looking at the sections of the Historic District Guidelines listed below:

2.3 Guidelines for Garages & Accessory Structures

.1 Preserve Accessory Structures. *When possible, retain and preserve garages and accessory structures in their original locations and configurations. Even if the function changes, the exterior appearance should remain the same.*

.2 Preserve Original Materials. *When possible, retain and preserve character-defining materials, features, and details of historic garages and accessory buildings, including foundations, siding, masonry, windows, garage doors, and architectural trim. When necessary, repair character-defining materials, features, and details of historic garages and accessory buildings according to pertinent guidelines.*

.5 Make New Construction Compatible. *If a new garage is the approved alternative, it shall be compatible in form, scale, size, materials, features, and finish with the principal structure. New accessory structures shall maintain the traditional height and proportion of accessory buildings in the district.*

2.7 Guidelines for Non-Contributing Resources

.1 Preservation Guidelines Apply. *The Historic Preservation Guidelines apply to all structures in Norman's Historic Districts, both contributing and non-contributing.*

.2 Support Harmony Between Old and New. *Non-contributing structures shall be controlled only to the degree necessary to make them compatible with the general atmosphere of the district with regard to alterations, additions, changes to the site, and the like. As with all requests for certificates of appropriateness in historic districts, each project will be evaluated on its own merits for overall impact on the district as a whole.*

3.1 Guidelines for Exterior Walls

.1 Preserve Original Walls. *Retain and preserve exterior walls that contribute to the overall historic form and character of a building, including functional and decorative features and details.*

.2 Retain Original Building Materials. *Retain and preserve exterior wall materials that contribute to the overall historic character of a building.*

.3 Replace Only Deteriorated Portions. *If replacement of a deteriorated wall or feature is necessary, replace only the deteriorated portion in kind rather than the entire feature. Match the original in material, design, dimension, detail, texture, and pattern. Consider compatible substitute materials only if using the original material is not technically feasible.*

.4 Avoid Covering Original Materials. *Building materials and decorative elements are important character-defining components of historic buildings. It is not appropriate to remove or cover any wall material or detail with coatings or contemporary substitute materials. Vinyl and aluminum siding are not appropriate for use in historic districts.*

.5 Replace Missing Features. *When replacing an exterior wall or feature, replace it with a new wall or feature based on accurate documentation of the original or a new design that is compatible with the historic character of the building and the district. Consider compatible substitute materials only if using the original material is not technically feasible.*

.6 Avoid False Historical Appearances. Features or details that are introduced to a house should reflect its style, period, and design. Features should not create a false historical appearance by reflecting other time periods, styles, or geographic regions of the country.

.7 Substitute Materials. Cement fiberboard (e.g. Hardiplank siding) will be considered on a case-by-case basis. Exterior insulating and finish systems (EIFS) will not be considered for use in historic structures.

3.5 Guidelines for Windows and Doors:

.1 Retain Original Windows. Retain and preserve original windows, including glass, frames, sash, muntins, sills, heads, moldings, surrounds, and hardware.

.2 Retain Historic Glass. Retain original glass in historic windows if at all possible. Leaded glass windows shall be preserved. Bubbles and waves give old glass its distinctive look and add to the historic character of the house.

.3 Preserve Original Doors. Retain and preserve original doors and door surrounds including frames, glazing, panels, sidelights, fanlights, surrounds, thresholds, and hardware.

.4 Replace Only Deteriorated Features. If replacement of a deteriorated window or door feature or details is necessary, replace only the deteriorated feature in kind rather than the entire unit. Broken sash cords, for example, can be repaired and do not necessitate replacing an entire window. Match the original in design, dimension, placement, and material.

.5 Replacement Doors. Replacement doors and door surrounds shall be appropriate to the style of the structure. Doors shall be relocated, enlarged, or introduced only when the alteration is appropriate to the style of the building.

.6 Storm/Screen Doors. Wood framed screen doors and full-light storm doors do not require a COA or Administrative Bypass.

.7 Window Replacement by Administrative Bypass. A deteriorated window may be replaced "like with like," based on the following criteria:

Typically all wood construction

Muntin width and profile are very similar to the original in width and profile

Light pattern is the same as the original

True divided lights (window panes) are the same as the original

Size and dimension of all window components are the same as the original

.8 Window Replacement by COA. A deteriorated window replacement, other than "like with like" as defined above requires a COA and shall conform to the following:
Shall have a wood exterior, unless replacing a metal casement window•

Aluminum or vinyl cladding is not appropriate

Light patterns same as the original

Size and dimension the same as the original

Double-pane simulated divided lights with wood muntins on the exterior and interior and a shadow bar between the panes may be allowed for windows on the side or rear that are not visible from the street.

.9 Retain Original Metal Windows. *Replace original metal casement windows only as a last resort after weatherization measures have proven unsuccessful.*

.10 Preserve Original Openings. *Do not create new openings in the front or side facades of historic structures. Do not enlarge or diminish existing openings to fit stock window and door sizes. If new openings are necessary to meet code requirements, they shall be compatible with historic windows for that structure in proportion, shape, location, pattern, size, materials, and details.*

.11 Locate Privacy Glass in Rear. *Privacy glass may be installed where required in divided light windows (such as in a bathroom) but only located in the rear 50% of the structure. Smoked or tinted glass is not appropriate for use in historic structures.*

.12 Use Wood Windows in Primary Structures and Additions. *For construction of new primary structures, choose windows that complement window types in surrounding structures in material, placement, size, shape, and design. While single-pane, true divided-light, wood frame windows are the most desirable choice for new construction in historic districts, double-pane glass wood windows with interior and exterior applied muntins and shadow bars between the panes are permitted. Aluminum cladding of wooden windows is permissible for use in construction of new primary structures and additions. Vinyl cladding of wood windows is not appropriate.*

Staff Comments:

Staff presents the following comments for Commission's consideration:

Request #1 - Accessory Structure Modifications

The accessory structure, like the principal structure, is non-contributing to the Miller Historic District. The proposal to raise the roof of this accessory structure would allow for a more functional space. The request for the application of cement fiber board siding over the cinderblock exterior wall will make for a more visually compatible structure with the surrounding neighborhood than the current cinderblock wall material.

The addition of a set of metal French doors on the east elevation will not impact the Historic District since it will be mostly concealed by an existing 6' wood stockade fence, thereby limiting visibility from Classen Boulevard streetscape. Additionally, it seems reasonable to match the material of this set of French doors to the material of the existing set of French doors on the north side of the structure.

This accessory structure sits along the south property line and therefore has limited visibility from the Duffy Street. It should be noted that the proposed renovations of this back yard accessory structure into a fully functioning space will allow the resident modern day use of this accessory structure as allowed by the Historic District Guidelines.

The extension of the height of the accessory building will be a compatible height with other accessory structures in the neighborhood.

The proposed renovations to the accessory structure add design elements that update this structure but are simple in nature. The design does not detract from the principal structure and due to their simple elements are compatible with the surrounding neighborhood. The renovations will be a product of their own time and will not create a false sense of history as required by the Historic Preservation Guidelines. The use of cement fiber siding and shingles seems appropriate for a non-contributing structure that does not have prominent visibility from the front streetscapes.

The Commission would need to determine if this request meets the Historic Preservation Guidelines and if the proposed alterations to the accessory structure are compatible with the surrounding Historic District.

Request #2: House - Replacement of metal/vinyl siding with cement fiber board siding. Shingles and trim.

The October hail storm extensively damaged the metal siding on the north and west house elevations. The property owner has stated that inspection of the siding material on the rear of house has revealed metal siding over asbestos siding. Additionally, his inspection did not reveal wood siding underneath these two layers of non-original material. While the applicant supplied pictures of the siding in his application submittal, they do not show the layer beneath the two layers and therefore it is unclear if wood exist underneath the two layers.

Though this is a non-contributing structure due to the loss of historic integrity, the Preservation Guidelines require that alterations be compatible with the District as a whole. However, the Guidelines also allow for the repair of non-original materials. In this case the non-original metal material is not readily available and since it is not historic material it seems reasonable to allow the property owner to replace it with a more durable alternative.

Staff would suggest, if this request for cement fiberboard is approved, that a more thorough examination of the exterior wall materials be performed and reviewed by staff prior to installation, to ensure that a layer of historic wood does not exist beneath non-original layers. If a historic wood layer exists, staff would recommend that it be retained.

The Commission would need to determine if the replacement of the existing non-original material with cement fiber siding is appropriate for this structure and if it is compatible for the surrounding Historic District.

Request #3: House – Replacement of wood windows with wood windows

The windows on the north side of the house were also damaged in the recent hail storm and the applicant is requesting to replace these windows with aluminum-clad wood windows. Though the windows did suffer some damage, they appear to be

repairable. However, this is a non-contributing structure and as such is allowed by the Historic Preservation Guideline to have non-historic windows as long as they are compatible with the District.

The Commission would need to determine if the replacement of these wood windows with aluminum-clad windows is appropriate for this non-contributing structure and if aluminum-clad windows are compatible with the surrounding Historic District.

Commission Action:

Approve, deny, amend or postpone the Certificate of Appropriateness for the exterior modification of an existing accessory structure, the replacement of non-original metal siding with cement fiberboard siding, and for the replacement of windows on the north side of the house with aluminum-clad windows for property located at 904 Classen Boulevard.

The City of Norman Historic District Commission
FOR CERTIFICATE OF APPROPRIATENESS (COA)

Staff Only Use
HD Case #: 22-03
Date: 12-10-2021
Received by: AS

Note: Any relevant building permits must be applied for and paid for separately in the Planning and Community Development Office. 405-366-5311

Address of Proposed Work: 904 CLASSEN BLVD, NORMAN, OK 73071

Applicant's Contact Information:

Applicant's Name: WILLIAM RYAN HAUSER
Applicant's Phone Number(s): 405 473-6388
Applicant's E-mail address: TENGWAR@ME.COM
Applicant's Address: 904 CLASSEN BLVD, NORMAN, OK 73071
Applicant's relationship to owner: Contractor Engineer Architect OWNER

Owner's Contact Information: (if different than applicant)

Owner's Name: WILLIAM RYAN HAUSER
Owner's Phone Number(s): 405 473-6388
Owner's E-mail: TENGWAR@ME.COM

Project(s) proposed: (List each item of proposed work requested. Work not listed cannot be reviewed.)

- 1) RAISING ROOF PITCH ON OUTBUILDING TO 8/12
- 2) ADDING HARDIE BOARD CLAPBOARD/SHINGLE SIDING TO OUTBUILDING
ADDING DOOR (FRENCH) TO EAST SIDE OF OUTBUILDING
- 3) REPLACING ALUMINUM AND VINYL SIDING ON HOUSE WITH HARDIE BOARD
CLAPBOARD SIDING AND SHINGLES
- 4) REPLACE BROKEN WINDOWS WITH MATCHING WOODEN WINDOWS

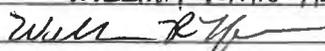
Supporting documents such as project descriptions, drawings and pictures are required see checklist page for requirements.

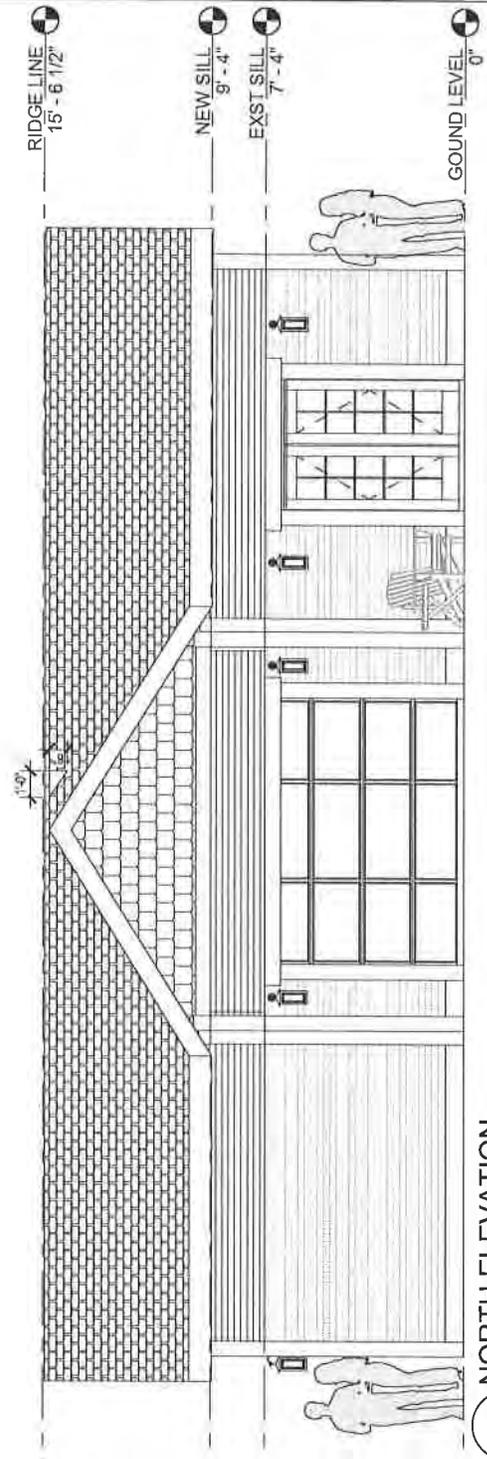
Authorization: I hereby certify that all statements contained within this application, attached documents and transmitted exhibits are true to the best of my knowledge and belief. In the event this proposal is approved and begun, I agree to complete the changes in accordance with the approved plans and to follow all City of Norman regulations for such construction. I authorize the City of Norman to enter the property for the purpose of observing and photographing the project for the presentations and to ensure consistency between the approved proposal and the completed project. I understand that no changes to approved plans are permitted without prior approval from the Historic Preservation Commission or Historic Preservation Officer.

Property Owner's Signature:  **Date:** 12/8/21

(If applicable): I authorize my representative to speak in matters regarding this application. Any agreement made by my representative regarding this proposal will be binding upon me.

Authorized Representative's Printed Name: WILLIAM RYAN HAUSER

Authorized Representative's Signature:  **Date:** 12/8/21



1 NORTH ELEVATION
1/4" = 1'-0"



www.autodesk.com/revit

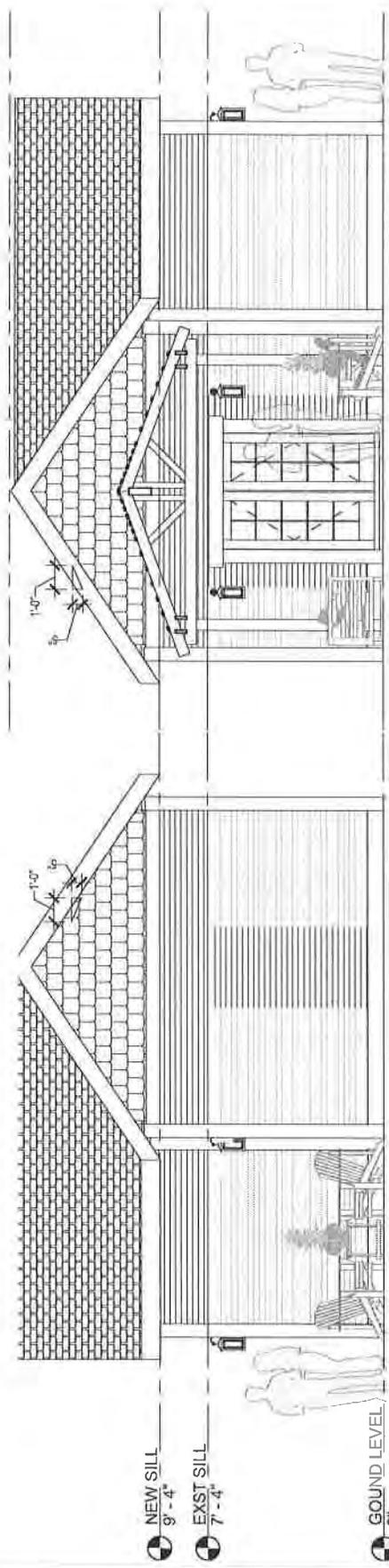
E&R'S
GUEST HOUSE

No.	Description	Date

EXTERIOR ELEVATIONS

Project number 21,01 00
Date 21/11/28
Drawn by JDP
Checked by TBD
Scale 1/4" = 1'-0"

A601



NEW SILL
9'-4"

EXST SILL
7'-4"

GROUND LEVEL
0"

1 EAST ELEVATION
1/4" = 1'-0"

2 WEST ELEVATION
1/4" = 1'-0"

AUTODESK.

www.autodesk.com/revit

E&R'S
GUEST HOUSE

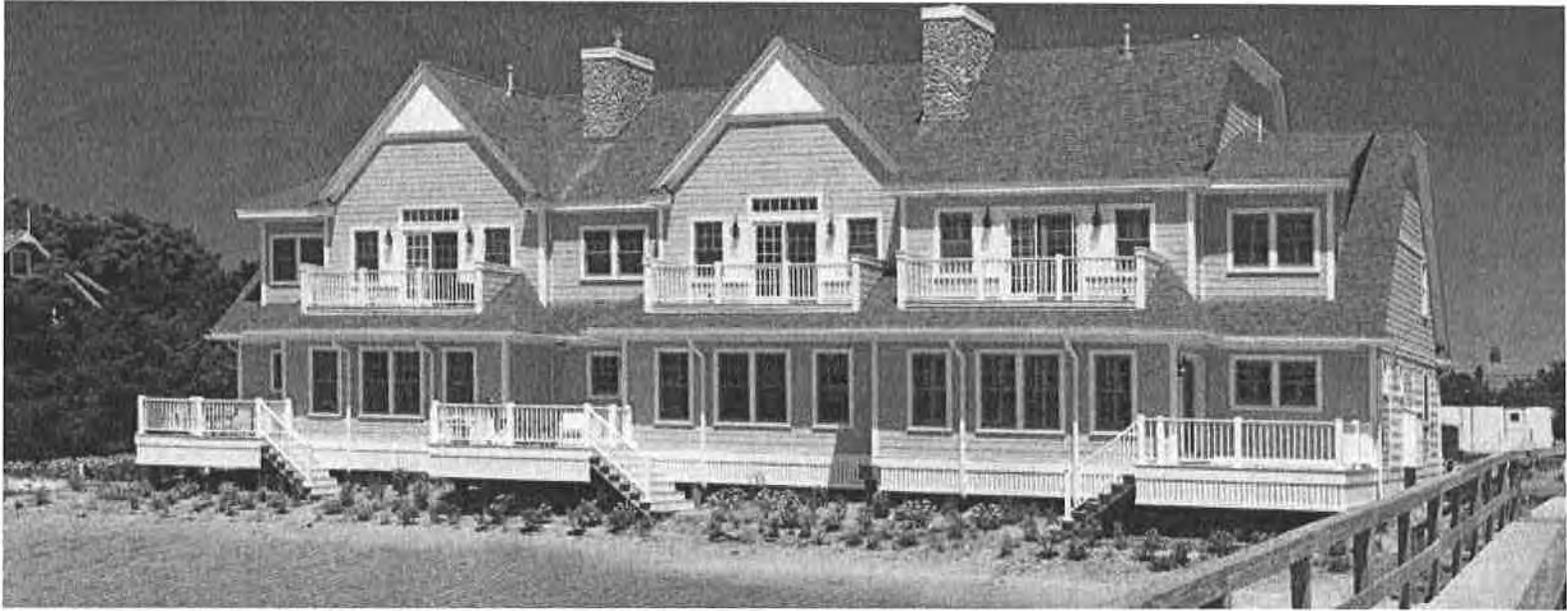
EXTERIOR ELEVATIONS

Project number	21.01.00
Date	21/1/28
Drawn by	JDP
Checked by	TBD

A602

Scale 1/4" = 1'-0"

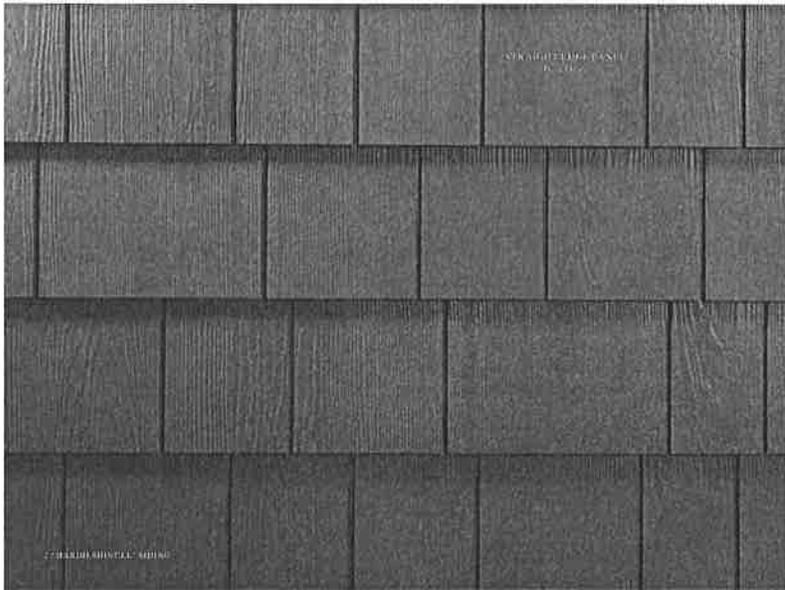
No.	Description	Date



HardieShingle® Siding

TIMELESS STYLE.
LASTING DURABILITY.



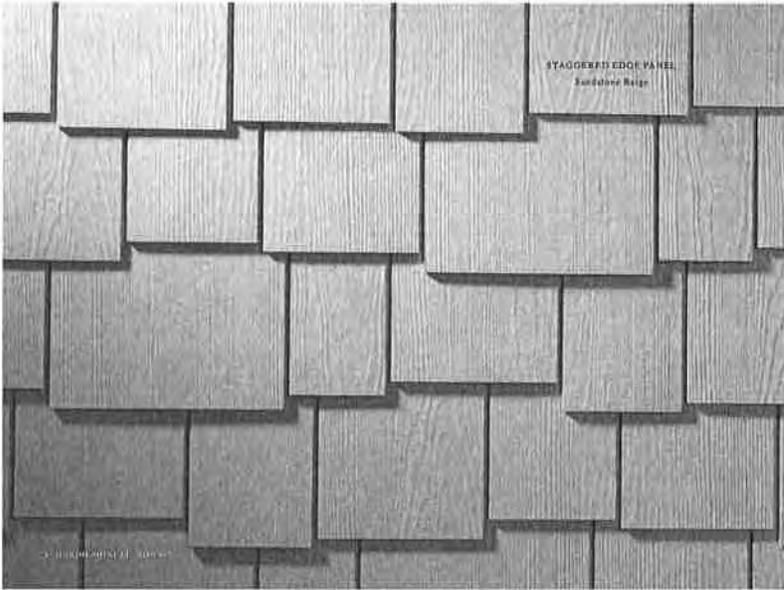


TRANSFORM YOUR HOME

Shingle remains a timeless style in home design. Whether you use it to accent architectural features or embellish your whole home, shingle embodies classic beauty.

HardieShingle® siding not only offers the durability and lower maintenance you expect from all James Hardie® siding products, but it also creates an exceptionally beautiful exterior for your home.





DURABILITY FOR LONG-TERM SAVINGS

Trust the 5.5 million homeowners who have chosen James Hardie® siding products to provide them exceptional durability and long-term cost savings.

Like all James Hardie® siding products, HardieShingle® siding is *Engineered for Climate®* to provide improved protection from your local climate. Unlike wood-based siding products which may rot, curl, warp, or split from extended exposure to moisture, James Hardie siding products resist the harshest weather conditions, prolonging the life of the siding. Plus, James Hardie siding products resist the spread of flame, providing greater security from fire than wood and plastic-based siding products.



When UV levels, wind, rain, pests and flame are at their worst, James Hardie siding products deliver lasting durability and protection for your biggest investment.

MORE COLOR WITH LESS MAINTENANCE

Not only are James Hardie® siding products with ColorPlus® Technology built to last, they are designed to hold paint for a long time, creating annual cost savings and minimal maintenance.

While the paint on wood-based siding products has a tendency to crack and fade, ColorPlus® Technology optimizes paint adhesion and slows fading because it's specifically formulated for use on fiber cement and is applied at the factory to eliminate the risks and inconsistencies of field painting.



Offered in more than 20 colors, ColorPlus Technology reveals a beautiful, consistent finish. Plus, James Hardie siding with ColorPlus Technology holds its color 30%* longer than plastic-based siding products, which can't be repainted even if they have severely faded.

Thanks to James Hardie siding products with ColorPlus Technology, you'll reduce demanding and expensive maintenance cycles, generating free time for your family and cost savings for your pocket.

*Based on 10-year accelerated QUV tests results compared to nationally available premium paint in lab environment.



AUTHENTIC DESIGN

Get the perfect match of durability and design. With HardieShingle® siding, you get the warm, realistic look of shingle or shake. HardieShingle® siding offers enhanced design over plastic shake by featuring true keyways and woven corners, achieving an authentic, handcrafted aesthetic.



HARDIESHINGLE® PRODUCT LINE



HardieShingle® Straight-Edge Panel
 Thickness: 1/4"
 Sizes: 46" x 15 25" Panels (17" exposure)
 48" x 14" Panels (5" exposure)
 Widths: 7 per panel (6 2" x 10")
 Available with ColorPlus® Technology



HardieShingle® Staggered-Edge Panel
 Thickness: 1/4"
 Size: 48" x 15 80" Panels (6" exposure)
 Widths: 7 per panel (4 2" x 10")
 Available with ColorPlus® Technology



HardieShingle® Individual Shingles
 Thickness: 1/4"
 Sizes: 15 25" (17" exposure)
 15 15" exposure
 Widths: 4 2" (5 5" (2) 6 75" (2) 7 25" (2) 10" (1" exposure)
 3 5" (4 5" (2) 5 5" (2) 7 0" (2) 8 75" (6" exposure)
 Available with ColorPlus® Technology



HardieShingle® Half Rounds
 Thickness: 1/4"
 Size: 46" x 15 25" Panels (17" exposure)
 Widths: 7 per panel (6 6")
 Available primed only

PRODUCT AVAILABILITY VARIES BY REGION. FOR COLOR AND PRODUCT AVAILABILITY IN YOUR AREA, PLEASE VISIT HARDIESHINGLE.COM.*

COMFORT OF A FULL JAMES HARDIE HOME

Choose a complete James Hardie exterior siding system, from roof to fascia and crown molding to ensure your whole home is protected by a single manufacturer warranty. By doing so, you'll not only increase the home's value but you'll reduce resolving warranty claims in the form of leaks, rot and less maintenance.

HARDIE PLANK®
LAP SIDING
HardiePro® Mold

HARDIE SHINGLE®
SHINGLES AT ROOF
HardiePro® Mold

HARDIE SOFFIT®
UNDER EAVES
HardiePro® Mold

HARDIE TRIM®
CORNER
HardiePro® Mold



PEACE OF MIND WITH EVERY PRODUCT.

Trusted by architects, builders, contractors and homeowners alike, James Hardie stands behind the design, durability and strength of its products. James Hardie offers exceptional warranties to provide you and your family peace of mind.



HardiePlank® lap siding, HardieShingle® siding, HardiePanel® vertical siding, and HardieSoffit® panels:

- 30 year non-prorated limited warranty
- 100% coverage at year 30



HardieTrim® boards and ColorPlus® Technology finish:

- 15 year limited warranty





FEATURES & BENEFITS

- Meets ASTM D226 Types I & II and D4869 Types II & IV
- Fiber grip slip-resistant walking surface
- Enhanced UV - 60 days exposure
- 12 x stronger than #30 felt
- 8 squares more per roll compared to #30 felt
- 17% more coverage per lap (42" width as compared to 36" for felt)
- Ease of installation - wider, lighter, more coverage per lap
- Synthetic construction inert to mold growth
- Lays flat and does not absorb water and wrinkle
- No oil leaching - no hazardous material content
- Class A Fire - ASTM E108 (as part of a system)
- Contributes to LEED® points
- Texas Department of Insurance
- Advanced backside non-slip coating
- Low temperature flexibility



CAN/CSA A129.3
CRR-1015
FBC #FL15216

TECHNICAL DATA

*TEST & STANDARD	RHINO ROOF® U20 TYPICAL VALUE	ASTM #30 FELT TYPICAL VALUE
Permeability ASTM E96	.05 Perm	1.75 Perm
Water Transmission ASTM D6899	Fees	Fees
Tear Strength ASTM D4533	MD 33 lbs (15 kg) CD 24 lbs (11 kg)	MD 4 lbs (1.8 kg) CD 2 lbs (0.9 kg)
Tensile Strength ASTM D751	MD 88 lbs (40 kg) CD 70 lbs (32 kg)	MD 70 lbs (32 kg) CD 38 lbs (17 kg)
Burnt Strength ASTM D751	158 psi (1089 kPa)	62 psi (430 kPa)
Elongation ASTM D751	MD 20% CD 20%	MD 2% CD 2%
Weight per Square ASTM D5261	2.25 lbs (1.02 kg)	27.5 lbs (125 kg)
Normal Thickness ASTM D1777	7 mils (0.18 mm)	60 mils (1.5 mm)
Service Temperature Range	-40°F to 240°F (-40°C to 115°C)	

SPECIFICATIONS

LENGTH PER ROLL:	286' / 87 m
WIDTH PER ROLL:	42" / 1.1 m
WEIGHT PER ROLL:	23.5 lbs / 10.6 kg
ROLL SIZE:	10 sq / 93 m ²
ROLLS PER PALLET:	67
PALLET WEIGHT:	1,626 lbs / 738 kg

*Test data is based on average taken over several production runs and should not be considered or interpreted as minimum or maximum values. Values are typical data and not limiting specifications. Vertical and horizontal laps reduce the net coverage. All values ± 10%. RhinoRoof U20 is manufactured in accordance with national standards which allow for non-critical variances in weights and measurements. © 2015 InterWrap. All rights reserved. BR-U20 230c-2015

InterWrap® Inc. Roofing Products Division
Charleston, SC • Vancouver, BC • Mission, BC • Montréal, QC
www.InterWrap.com/RhinoRoof
Toll Free: 888 713 7663 | Tel: 778 945 2888
E-mail: info@interwrap.com

INSTALLATION INSTRUCTIONS

RhinoRoof® U20 is an air, water and vapor barrier and therefore must be installed above a properly ventilated space(s). Follow ALL building codes applicable to your geographical region and structure type as it is considered a vapor barrier.

DECK PREP: All protrusions from the deck area must be removed and ensure the deck has no voids, damaged or unsupported areas. Deck surface should be free of debris, dirt and moisture free.

USE: RhinoRoof U20 must be covered by primary roofing within 60 days of application. U20 is designed for use under asphalt shingles, synthetic shingles, residential metal roofing and cedar shakes.

APPLICATION: For slopes from 4:12 and higher RhinoRoof U20 is to be laid out horizontally (parallel) to the eave with the printed side up. Horizontal laps should be 4" and Vertical laps should be 6" and anchored approximately 1" in from the edge. For low slope (less than 4:12) applications it is recommended to overlap 50% plus 1", for complete definition of low slope and guidelines consult authorities having jurisdiction. U20 product is not recommended for slopes less than 2:12. The use of roofing hammer, pneumatic air or gas driven fastener tools is acceptable. The use of straight edge cutting knives is recommended.

FASTENERS: For same day coverage with primary roofing RhinoRoof U20 can be anchored with corrosive resistant 3/8" head x 1" leg roofing nails (ring shank preferred, smooth leg acceptable). The use of every other anchoring location printed on the product is also acceptable. **DO NOT USE STAPLES;** the use of staples to penetrate RhinoRoof U20 will void warranty.

ANCHORING: All anchoring nails must be flush, 90 degrees to the roof deck, and tight with the underlayment surface and the structural roof deck. Where seams and joints require sealant or adhesive use a low solvent plastic roofing cement meeting ASTM D-4586 Type 1, or Federal Spec SS-153 Type 1 such as Karnak, Henry, DAP, MB, Geocel or equivalent. Acceptable alternatives are butyl rubber, urethane, and EDPM based caulk or tape sealant.

EXTENDED EXPOSURE: If RhinoRoof U20 product will be exposed longer than 24 hours and up to 60 days then product must be attached to the structural roof deck using a minimum 1" diameter plastic or metal cap roofing nails (ring shank preferred but smooth leg acceptable). Miami-Dade approved tin tags or metal caps are also acceptable, and it is recommended for best performance to use with the rough edge facing up. For extended exposure it is always recommended to anchor on every printed position on the face. RhinoRoof U20 is not designed for indefinite outdoor exposure. For extended exposure conditions where driving rain or strong winds are expected it is recommended to take additional precautions such as doubling the lap widths. Alternately or in addition to a compatible sealant could be used between the laps or a peel and stick tape could be applied to the overlaps.

CAUTION - READ GOOD SAFETY PRACTICES BELOW

Good safety practices should be followed on steep slope roofs, such as use of tie-offs, toe boards, ladders and/or safety ropes and personal body harnesses. Follow OSHA guidelines. Slip resistance may vary with surface conditions from debris that accumulates, weather, footwear and roof pitch. Failure to use proper safety gear can result in serious injury. Depending on roof pitch and surface conditions, blocking may be required to support materials on the roof and is good safety practice. Remember to seal the nail holes after removing blocking.

The Original



SYNTHETIC ROOFING UNDERLAYMENT

For use under Asphalt Shingles, Synthetic Shingles, Residential Metal Roofing and Cedar Shakes

Break free from felt™



Brought to you by the manufacturer of Titanium



For use under Asphalt Shingles, Synthetic Shingles, Residential Metal Roofing and Cedar Shakes

Say goodbye to traditional asphalt saturated felt paper - Break free from felt™ with RhinoRoof® U20 synthetic roofing underlayment!

RhinoRoof U20 is a highly engineered, mechanically attached, coated woven synthetic roofing underlayment for sloped roofs. RhinoRoof's durable and high strength design along with its fiber grip walking surface provides a considerable improvement over asphalt saturated felt. The fiber grip textured walking surface can also be chalked just like felt.

Gain an edge in productivity and profits; RhinoRoof's light weight, 42" width and 286 ft run length allows for fewer laps, cuts, and easier roll handling compared to felt. This means you can do more jobs in less time, use less labor, and inventory fewer rolls.

Gone are the days of blow-offs and call backs! RhinoRoof U20 is 12 times stronger than #30 felt and therefore offers superior wind resistance and durability through heavy roof traffic and adverse weather conditions. Stay on track, take on more jobs and sleep assured your U20 projects will remain intact and dried-in. RhinoRoof U20 will save you time and money with less material damage and fewer post-install repairs.

Unlike traditional asphalt saturated felts, RhinoRoof U20 can be used in extremely low temperatures without becoming stiff and difficult to unroll. It also does not dry out, crack, or leach oils in the heat like felt. RhinoRoof U20 is 100% synthetic and will not absorb water and wrinkle like felt. It lays flat and will remain 100% impervious to mold.

RhinoRoof U20 can also be used in conjunction with RhinoRoof RSA or Titanium® PSU30 self-adhered underlayments for ice damming protection along the eaves and in the valley areas.

RhinoRoof U20 will continue to protect your long life primary roofing long after felt has turned to dust! Unlike felt, RhinoRoof U20 is also backed by a 20 year manufacturer's limited warranty.

Break free from felt, choose RhinoRoof U20 synthetic roofing underlayment from InterWrap.

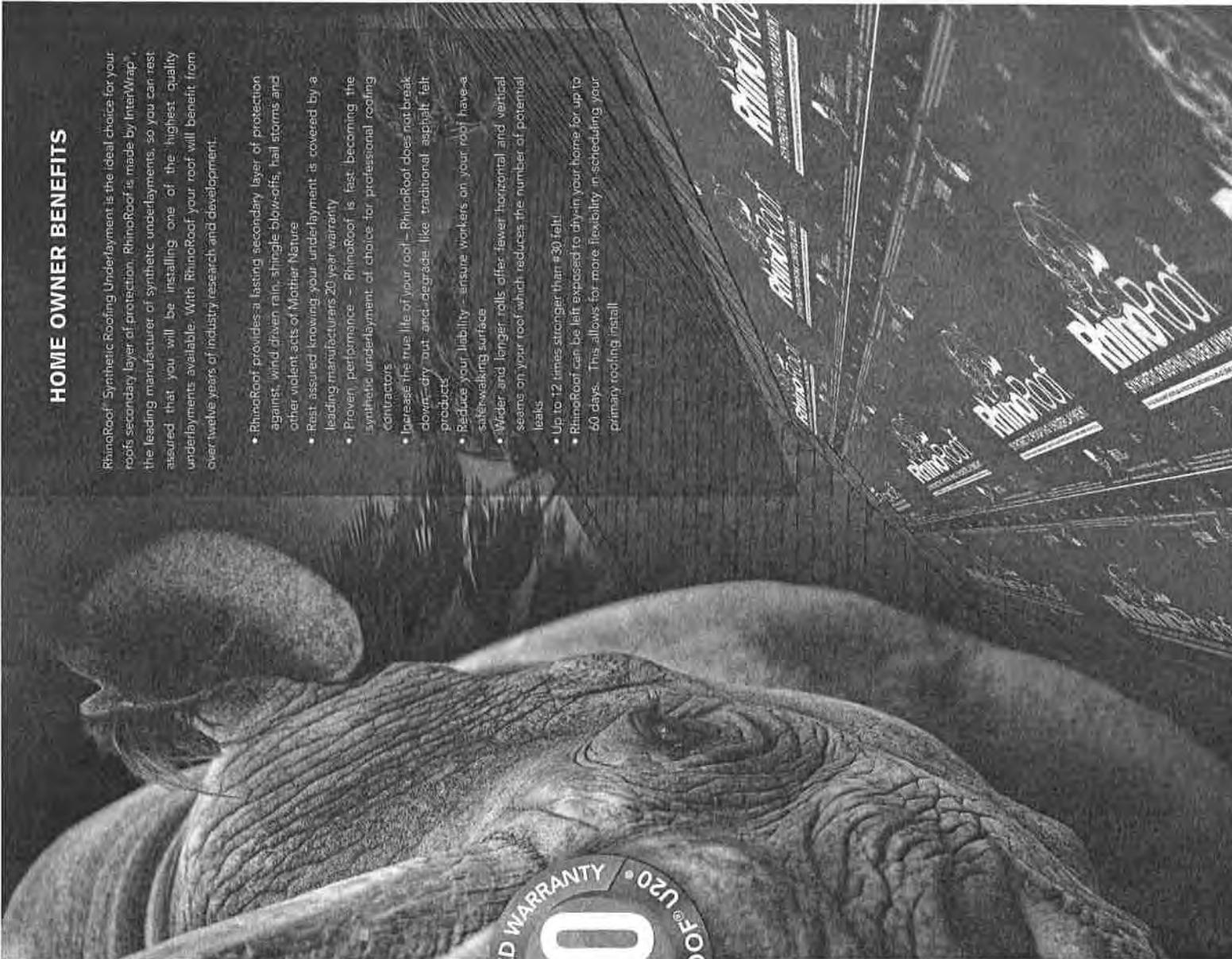


weaving a better world™

HOME OWNER BENEFITS

RhinoRoof® Synthetic Roofing Underlayment is the ideal choice for your roof's secondary layer of protection. RhinoRoof is made by InterWrap, the leading manufacturer of synthetic underlayments, so you can rest assured that you will be installing one of the highest quality underlayments available. With RhinoRoof your roof will benefit from over twelve years of industry research and development.

- RhinoRoof provides a lasting secondary layer of protection against wind driven rain, shingle blow-offs, hail storms and other violent acts of Mother Nature
- Fast, assured knowing your underlayment is covered by a leading manufacturer's 20 year warranty
- Proven performance - RhinoRoof is fast becoming the synthetic underlayment of choice for professional roofing contractors
- Increase the true life of your roof - RhinoRoof does not break down, dry out and degrade like traditional asphalt felt products
- Reduce your liability - ensure workers on your roof have a safe walking surface
- Wider and longer rolls offer fewer horizontal and vertical seams on your roof which reduces the number of potential leaks
- Up to 12 times stronger than #30 felt!
- RhinoRoof can be left exposed to dry in your home for up to 60 days. This allows for more flexibility in scheduling your primary roofing install

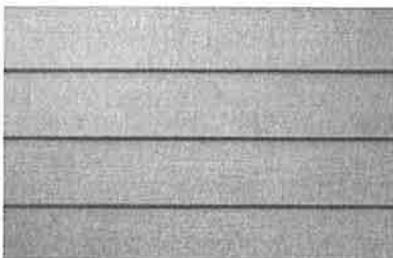


HardiePlank® Lap Siding Product Description

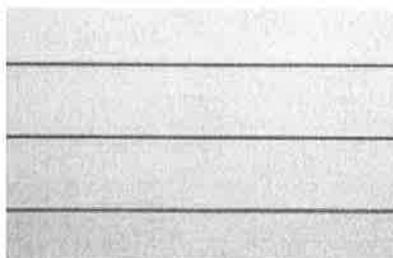
HardiePlank® lap siding is factory-primed fiber-cement lap siding available in a variety of styles and textures. Please see your local James Hardie® product dealer for product availability. HardiePlank lap siding comes in 12 ft. lengths. Nominal widths from 5 1/4 in. to 12 in. create a range of exposures from 4 in. to 10 3/4 in.

HardiePlank lap siding is also available with ColorPlus® Technology as one of James Hardie's prefinished products. ColorPlus® Technology is a factory applied, oven-baked finish available on a variety of James Hardie siding and trim products. See your local dealer for details and availability of products, colors, and accessories.

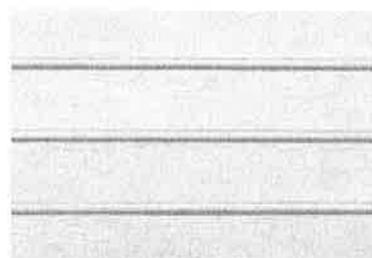
The HZ5® product line is right at home in climates with freezing temperatures, seasonal temperature variations, snow and ice. HZ5® boards are the result of our generational evolution of our time-tested products. We've evolved our substrate composition to be specifically designed to perform in conditions found in these climates. To ensure that its beauty matches its durability, we've engineered the surface for higher performance, giving it superior paint adhesion and moisture resistance. In addition, we've added a drip edge to the HardiePlank® HZ5® lap siding product to provide improved water management in conditions specific to HZ5® climates.



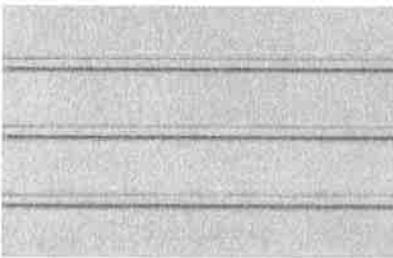
Select Cedarmill®



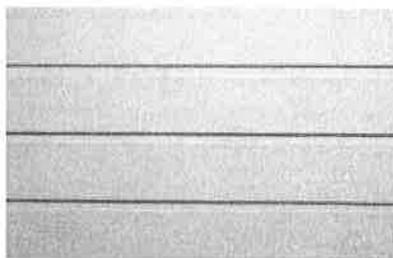
Smooth



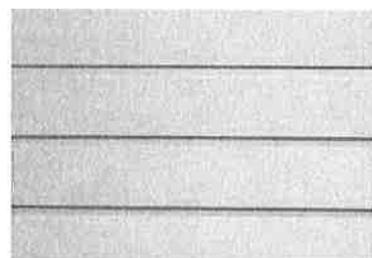
Beaded Cedarmill®



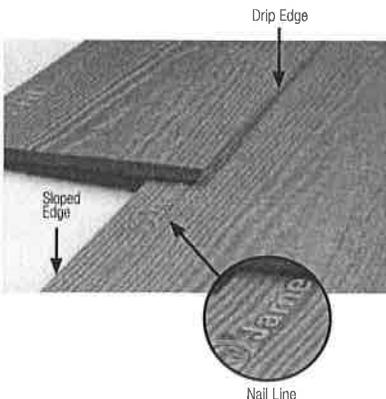
Beaded Smooth



Custom Colonial Roughsawn®



Custom Colonial Smooth®

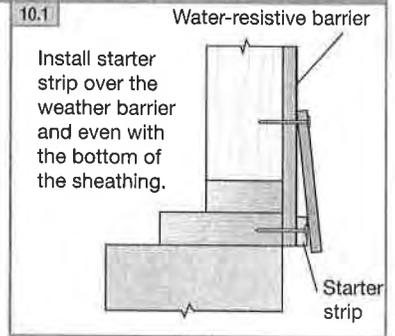


Installation of HardiePlank® Lap Siding

INSTALL A STARTER STRIP

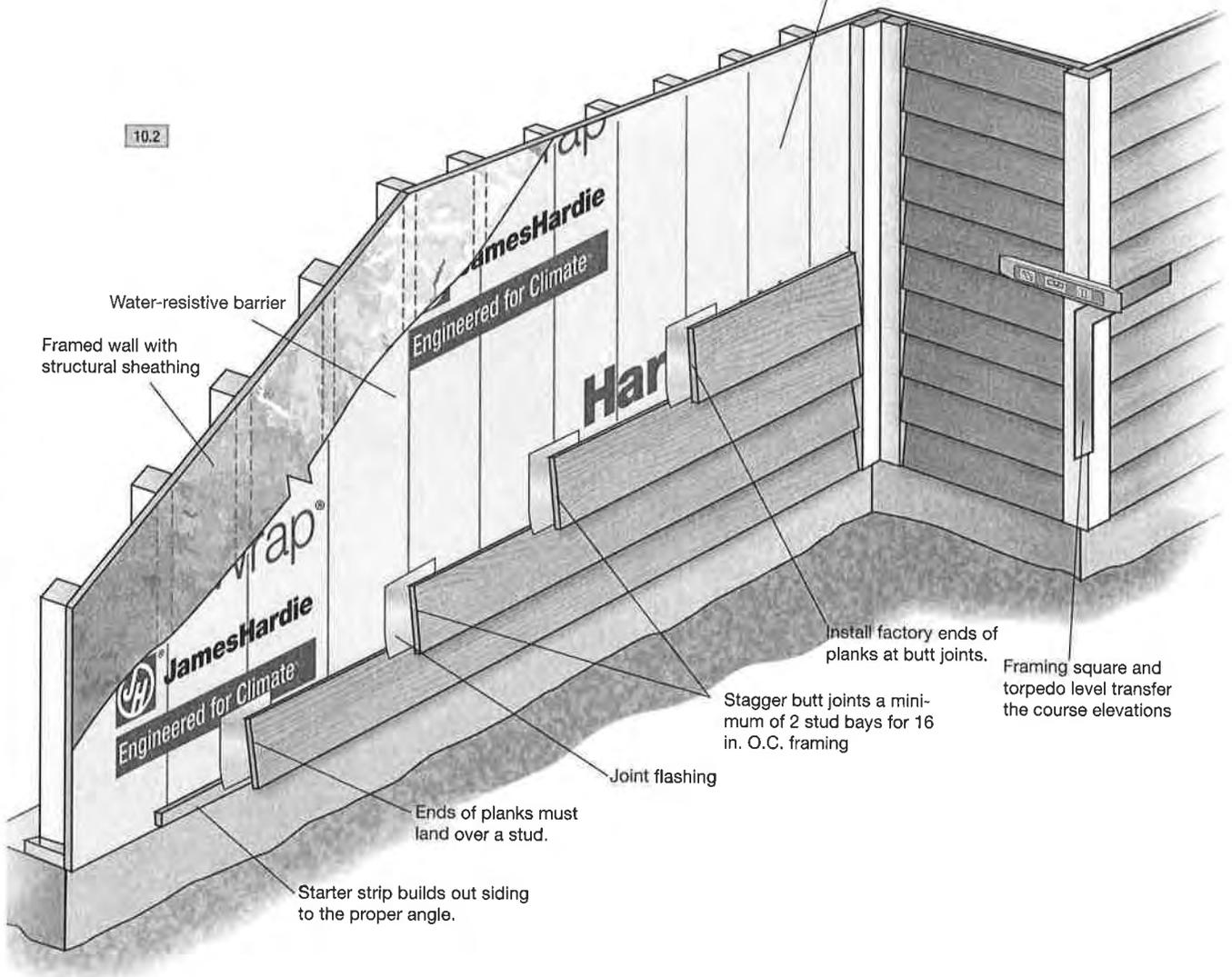
HardiePlank® lap siding requires a starter strip beneath the first course to set it on the proper angle and to create a proper drip edge at the bottom of the siding. Starter strips are easily made by ripping 1¼ in. pieces of HardiePlank siding from full or partial planks.

The bottom of the starter strip should be installed even with the bottom of the mudsill or the bottom edge of the sheathing. The strip must be installed over the water-resistant barrier, but occasional gaps should be left in the starter strip to allow any accumulated moisture behind the siding to drain away safely.



OVERVIEW OF HARDIEPLANK LAP SIDING

TIP: For accurate fastening, snap vertical chalk lines on the water-resistant barrier at the center of every stud location.

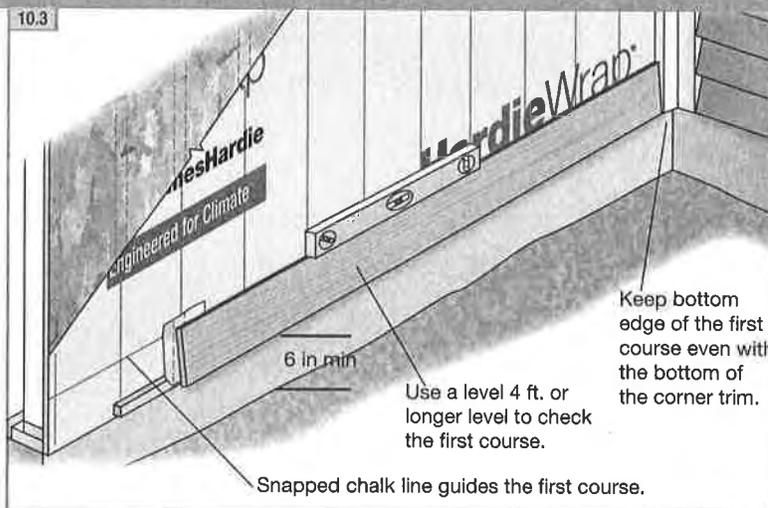


INSTALLING THE PLANKS

The first course of HardiePlank® siding is critical to the proper installation of the plank on the rest of the building. The first course should start at the lowest point of the house and within required clearances. Special attention should be made to ensure that it's straight and level. Attention should also be paid to staggering any butt joints in the planks so that the installation is attractive while making efficient use of material.

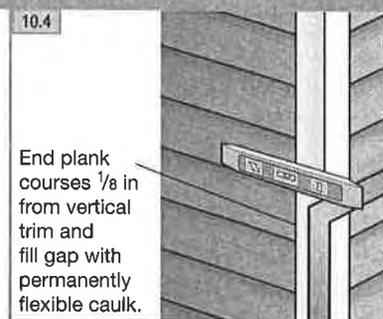
1. Use a level (4 ft. or longer) or chalked level line to be sure that the first course is level. As installation proceeds up the wall, periodically check the level and straightness of the courses. When correcting for flatness over products such as exterior insulation, use drywall shims. It is good practice to snap a chalk line every 3 to 5 courses to keep the planks straight and level.
2. Position the bottom edge of the first course of siding a minimum $\frac{1}{4}$ in below the edge of the starter strip (maintain required clearances) and secure.
3. Run the siding to the HardieTrim® board leaving a $\frac{1}{8}$ in. gap between the siding and trim.

The bottom of the siding should be kept even with the bottom of the trim, or if desired, the trim may extend below the bottom of the siding. But the siding should never hang below the trim. ***When installing the first course make sure ground clearances are in accordance with James Hardie requirements and those of local codes.**



PLANK ALIGNMENT AT CORNERS

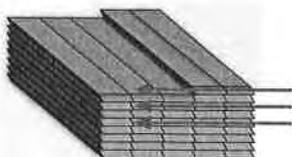
For the best looking installation, make sure that the heights of the plank courses match on both sides of a corner. Use a framing square, speed square or a level to match up the plank heights. Check every few courses to make sure proper heights are being maintained.



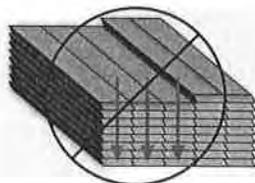
HANDLING

IMPORTANT: To prevent damage to the drip edge, extra care should be taken when removing planks from the pallet, while handling, and when installing with a lap gauge. Planks are interlocked together on the pallet, therefore they should be removed from the pallet horizontally (side to side) to allow planks to unlock themselves from one another.

Pull from across the stack



Do not go down the stack



TIP: When taking planks from the pallet installation, avoid repeating the texture pattern by working across the pallet. Two to four planks can be removed from a stack at one time. But then material should be taken from adjacent stacks, again working across the pallet. Texture repeat is typically a concern on large walls with few breaks such as windows or doors.

Installation of HardiePlank® Lap Siding (cont.)

BLIND NAILING (nailing through top of plank)

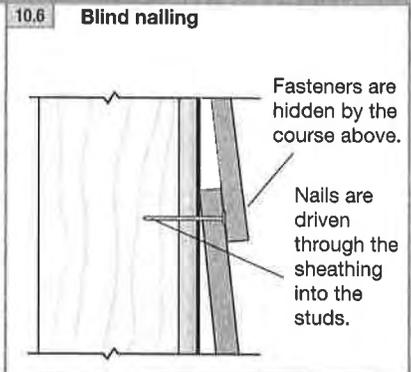
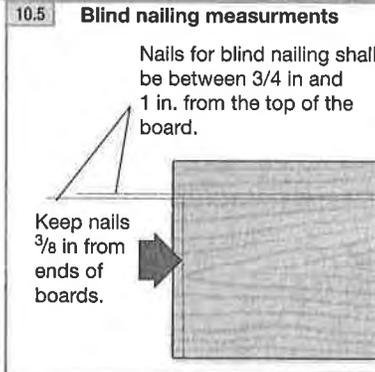
Blind nailing is recommended for installing any type of HardiePlank® lap siding including ColorPlus® siding. With blind nailing, each course covers the fasteners on the course below, which provides a better looking installation.

For blind nailing HardiePlank lap siding, James Hardie recommends driving fasteners 1 in. from the top edge of the plank. Additionally fasteners should be

placed no closer than 3/8 in from the ends of the plank.

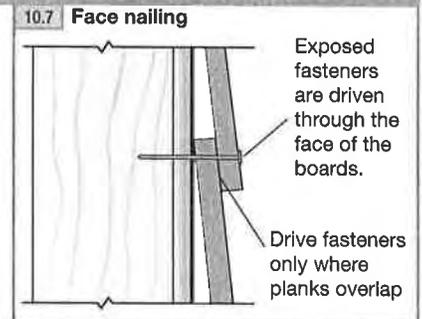
HardiePlank® HZ5® Lap Siding is manufactured with a nail line that should be used as a guide for proper nail placement when blind nailing. This nail line should not be used as a lap line.

Avoid placing fasteners near the top edge of the plank. This practice, called "high nailing", may lead to loose planks, unwanted gaps or rattling. **Pin-backed corners may be done for aesthetic purposes only. Finish nails are recommended for pin-backs. Headed siding nails are allowed. Place pin-backs no closer than 1 in. from plank ends & 3/4 in. from plank edge into min. 3/8 in. wood structural panel. Pin-backs are not a substitute for blind or face nailing**



FACE NAILING (nailing through the overlap at the bottom of the plank)

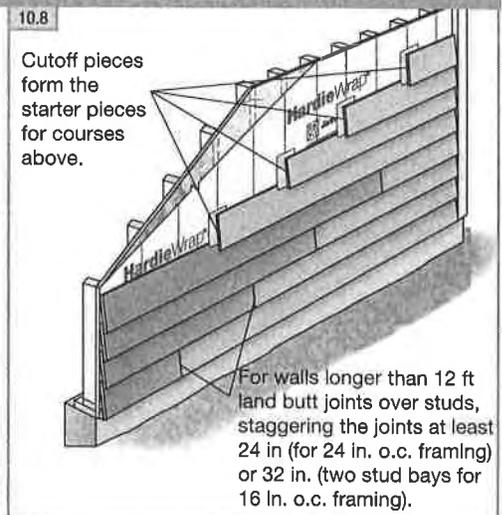
Although blind nailing is recommended by James Hardie, face nailing may be required for certain installations including: installations in high wind areas, fastening into OSB or equivalent sheathing without penetrating a stud, or when dictated by specific building codes. Refer to Appendix D for related code matters.



STAGGERING THE BUTT JOINTS

For walls longer than 12 ft, it is necessary to butt joint additional lengths of HardiePlank siding. These butt joints should be staggered to avoid noticeable patterns, which is determined by the placement of the first course. Butt joints between consecutive courses should be spaced apart by at least two stud bays for 16 in, o.c. framing or one bay for 24 in. o.c. framing.

While random placement of the planks is usually the most aesthetically pleasing, a progressive stagger pattern can make the job easier and faster without the pattern becoming too noticeable. With this strategy, the cut off piece for one course becomes the starter piece for a course above, making efficient use of materials and ensuring that all butt joints land on studs. The pattern can be modified for different stud placement.



JOINT FLASHING

One or more of the following joint treatment options are required by code (as referenced 2009 IRC R703.10.2)

- A. Joint Flashing (James Hardie recommended)
- B. Caulking* (Caulking is not recommended for ColorPlus for aesthetic reasons as the Caulking and ColorPlus will weather differently. For the same reason, do not caulk nail heads on ColorPlus products.)
- C. "H" jointer cover

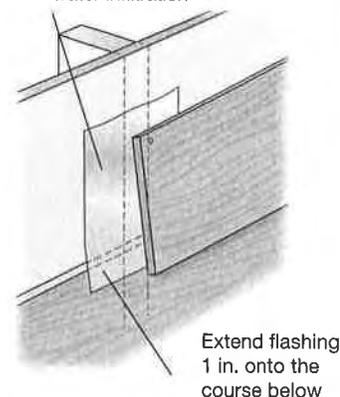
Flashing behind butt joints provides an extra level of protection against the entry of water at the joint. James Hardie recommends 6 in. wide flashing that overlaps the course below by 1 in. Some local building codes may require different size flashing.

Joint-flashing material must be durable, waterproof materials that do not react with cement products. Examples of suitable material include finished coil stock and code compliant water-resistive barriers. Other products may also be suitable.

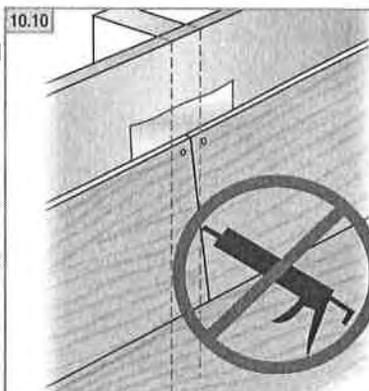
TIP: Joint flashing can be quickly and easily made by cutting a 6 in. wide section off a roll of housewrap. Tape the roll tightly at the cut mark and cut the section off using a miter saw with a carbide blade. Individual sheets then can be cut to length with a utility knife.

TIP: Use light-colored joint flashing when using light-colored ColorPlus lap siding or other siding with a light-colored finish. Dark-color joint flashings should be used on siding with dark finishes.

10.9 Flashing behind to add an additional layer of protection from water infiltration



Extend flashing 1 in. onto the course below

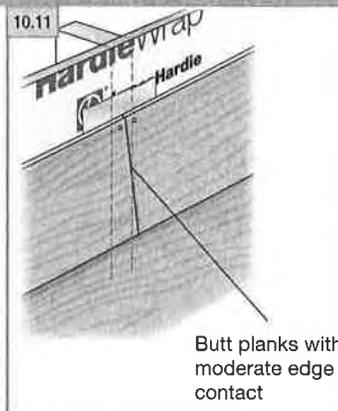


Caulking at HardiePlank lap siding butt joints is not recommended for ColorPlus for aesthetic reasons as the caulking and ColorPlus will weather differently. For the same reason, do not caulk exposed nail heads. Refer to the ColorPlus touch-up section for details

JOINT PLACEMENT AND TREATMENT

Butt joints in HardiePlank lap siding should always land on a stud. Butt joints between studs are not recommended and should be avoided. Whenever possible, factory-finished ends should be used at butt joints.

Place cut ends where the siding meets a corner, door, window trim, or other break in the wall where the joint is to be caulked. If cut ends are used in a butt joint between planks, James Hardie requires sealing cut ends for all products. For ColorPlus products, use the color-matched edge coater to seal the cut end.



COLORPLUS® TIP: When installing HardiePlank lap siding with ColorPlus Technology, position the plank in the immediate area where the plank is to be fastened. Do not place the plank on the course below and slide into position. Doing so may scuff or scratch the ColorPlus finish on the installed piece.

Installation of HardiePlank® Lap Siding (cont.)

CONTINUING THE INSTALLATION

Once the initial course of HardiePlank® siding is fastened to the wall, continue installing successive courses with full 12 ft. pieces (follow the stagger pattern for longer walls), or until a window, door or other opening interrupts the course (fig 10.12). Notch planks as needed to fit around windows and doors. Again, be sure to seal all cut edges. Avoid placing butt joints directly above or below windows or above doors. Separate the joint from the opening by at least one course of siding.

Where butt joints land on a stud, make sure there is enough stud space for plank on both sides of the joint to land properly. Optimally both sides of a butt joint should land in the middle of a stud with 3/4 in landing space for each side. The minimum stud space for a plank to land is 3/8 in

Pay special attention to window, doors, and corners that have been trimmed before the siding goes on. Vertical trim boards may cover the king studs beside windows or doors, or they may cover up corner studs leaving no room for nailing the siding. In these places add extra studs as needed.

If corners are trimmed with HardieTrim® 5/4, 4/4 boards, it may be necessary to measure and cut the first pieces of siding to make sure the butt joints land on studs.

INSTALLING HARDIEPLANK® SIDING ON GABLE WALLS

Siding gable walls can be challenging, and some of the keys to siding gable walls efficiently are determining the angle and pitch of the roof, properly staging materials, and ensuring that the plank lengths are measured accurately.

To estimate the amount of siding needed to complete a gable end, use the estimating tools located in Appendix C.

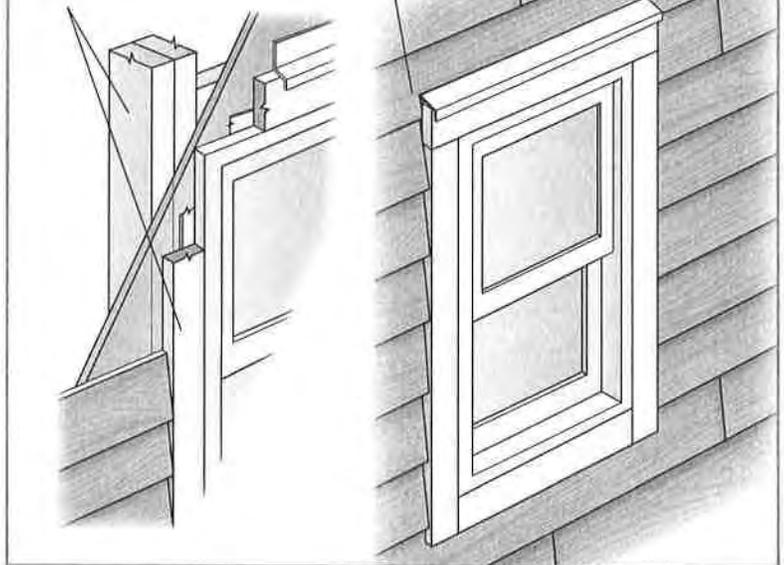
Stage enough material on the pump jacks or scaffolding to complete the gable end, but take care not to overload the staging. When possible, a cut table should be located on the pump jacks or scaffolding, which frees up crew members to work on other walls.

10.12 Planking around windows

Add an extra stud if necessary for nailing the ends of the planks.

Notch plank around window trim and flashing.

Keep butt joints more than one course away from top of window.



COLORPLUS TIP: HardiePlank lap siding with ColorPlus Technology is shipped with a protective laminate slip sheet, which should be left in place during cutting and fastening to reduce marring and scratching. The sheet should be removed immediately after each plank is installed.



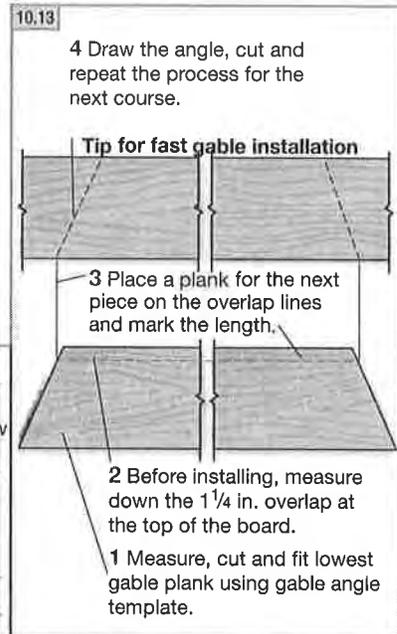
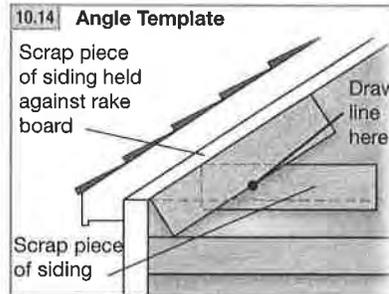
To cut planks for the gable:

1. Tack up a small scrap piece of siding where the first gable course is going.
2. Hold a second small piece of siding against the eave or rake board.
3. Trace the angle onto the scrap.
4. Cut that line and label the scrap as the template for the gable angle. The template can then be used to transfer the angle onto the larger pieces for cutting and installation.
5. Periodically check the angle as you progress up the wall.

The quickest way to measure and cut consecutive courses of siding for a gable is to work off the previous piece.

1. Cut and fit the lowest course of siding.
2. Before installing, lay it flat and measure down 1 1/4 in. from the top edge of the plank for the course overlap. Make a mark on both ends.
3. Set a piece of uncut siding on top of the first piece, aligning the bottom edge with the overlap marks. Transfer the length directly to the uncut piece.
4. Draw the gable angle with the template, cut the angle and then repeat the process for the next course.

TIP: Stainless steel fasteners are recommended when installing James Hardie® products.



HARDIEPLANK® SIDING FASTENER SPECIFICATIONS

The Fastener Specifications table shows fastener options for a variety of different nailing substrates. Please refer to the applicable ESR report online (see back page) to determine which fastener meets your wind load design criteria.

Fastener Substrate	Fastener Type	Approved Fastener		
wood studs	blind nail	16 in o.c.	2, 3, 9, 16	
	blind nail	24 in o.c.	3, 9, 16	
	face nail	16 in o.c.	2, 5	
		24 in o.c.	2, 5	
	steel studs*	blind nail	16 in o.c.	8, 13
		blind nail	24 in o.c.	8, 13
face nail		16 in o.c.	7, 12	
		24 in o.c.	7, 12	
Direct to Masonry		14		
7/16 in OSB or equivalent (face nailed)		4		

Fastener Type	Dimensions	Notes
2	.113 in x .267 in x 2 in	6D common
3	.093 in x .222 in x 2 in	6D siding nail
9	No 11ga 1.25 in long	roofing nail
7	Ribbed Bugle-Head No. 8 .323 in x 1.625 in	screws
8	Ribbed Wafer-Head No. 8 (.375 in x 1.25 in)	screws
12	[AKN-100] .100 in x .25 in x 1.5 in	ET&F
13	[AGS-100] .100 in x .313 in x 1.5 in	ET&F
14	[ASTM C-90] ASM-144-125 (P/C) .30 in x .14 in x 1.25 in	masonry nail
5	.113 in x .260 in x 2.375 in	8D common
16	No 11ga 1.75 in long	roofing nail
4	.091 in x .221 in x 1.5 in	4D siding nail

*When blind fastening 9.5 in or wider product onto steel studs, use screws.

● indicates recommended fasteners

General Product Information
Working Safety
Tools for Cutting and Fastening
General Installation Requirements
General Fastener Requirements
Finishing and Maintenance
HardieWrap® Weather Barrier
HardieTrim® Boards/Battens
HardieSoft® Panels
HardiePlank® Lap Siding
HardieShingle® Siding
HardiePanel® Vertical Siding
Appendix/Glossary
ESR-1844 & 2290 Report



HardiePlank® Lap Siding

EFFECTIVE SEPTEMBER 2019

IMPORTANT; FAILURE TO FOLLOW JAMES HARDIE WRITTEN INSTALLATION INSTRUCTIONS AND COMPLY WITH APPLICABLE BUILDING CODES MAY VIOLATE LOCAL LAWS, AFFECT BUILDING ENVELOPE PERFORMANCE AND MAY AFFECT WARRANTY COVERAGE. FAILURE TO COMPLY WITH ALL HEALTH AND SAFETY REGULATIONS WHEN CUTTING AND INSTALLING THIS PRODUCT MAY RESULT IN PERSONAL INJURY. BEFORE INSTALLATION, CONFIRM YOU ARE USING THE CORRECT HARDIEZONE® PRODUCT INSTRUCTIONS BY VISITING HARDIEZONE.COM OR CALL 1-866-942-7343 (866-9-HARDIE)

STORAGE & HANDLING:

Store flat and keep dry and covered prior to installation. Installing siding wet or saturated may result in shrinkage at butt joints. Carry planks on edge. Protect edges and corners from breakage. James Hardie is not responsible for damage caused by improper storage and handling of the product.



CUTTING INSTRUCTIONS

OUTDOORS

- Position cutting station so that airflow blows dust away from the user and others near the cutting area.
- Cut using one of the following methods:
 - Best:** Circular saw equipped with a HardieBlade® saw blade and attached vacuum dust collection system. Shears (manual, pneumatic or electric) may also be used, not recommended for products thicker than 7/16 in.
 - Better:** Circular saw equipped with a dust collection feature (e.g. Roan® saw) and a HardieBlade saw blade.
 - Good:** Circular saw equipped with a HardieBlade saw blade.

INDOORS

DO NOT grind or cut with a power saw indoors. Cut using shears (manual, pneumatic or electric) or the score and snap method, not recommended for products thicker than 7/16 in.

- DO NOT dry sweep dust; use wet dust suppression or vacuum to collect dust.
- For maximum dust reduction, James Hardie recommends using the "Best" cutting practices. Always follow the equipment manufacturer's instructions for proper operation.
- For best performance when cutting with a circular saw, James Hardie recommends using HardieBlade® saw blades.
- Go to jameshardiepros.com for additional cutting and dust control recommendations.

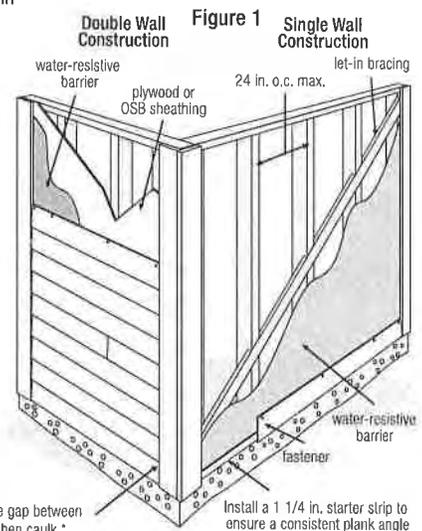
IMPORTANT: The Occupational Safety and Health Administration (OSHA) regulates workplace exposure to silica dust. For construction sites, OSHA has deemed that cutting fiber cement with a circular saw having a blade diameter less than 8 inches and connected to a commercially available dust collection system per manufacturer's instructions results in exposures below the OSHA Permissible Exposure Limit (PEL) for respirable crystalline silica, without the need for additional respiratory protection.

If you are unsure about how to comply with OSHA silica dust regulations, consult a qualified industrial hygienist or safety professional, or contact your James Hardie technical sales representative for assistance. James Hardie makes no representation or warranty that adopting a particular cutting practice will assure your compliance with OSHA rules or other applicable laws and safety requirements.

IMPORTANT: To prevent damage to the drip edge, extra care should be taken when removing planks from the pallet, while handling, and when installing with a lap gauge. Please see additional handling requirements on page 4.

GENERAL REQUIREMENTS:

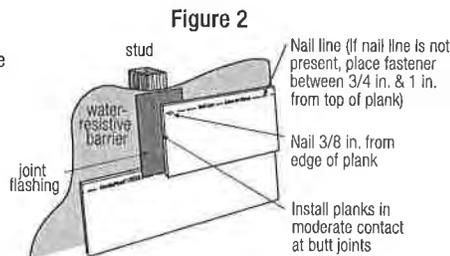
- HardiePlank® lap siding can be installed over braced wood or steel studs, 20 gauge (33 mils) minimum to 16 gauge (54 mils) maximum, spaced a maximum of 24 in o.c. or directly to minimum 7/16 in thick OSB sheathing. See General Fastening Requirements. Irregularities in framing and sheathing can mirror through the finished application. Correct irregularities before installing siding.
- Information on installing James Hardie products over non-nailable substrates (ex: gypsum, foam, etc.) can be located in JH Tech Bulletin 19 at www.jameshardie.com
- A water-resistive barrier is required in accordance with local building code requirements. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements. James Hardie will assume no responsibility for water infiltration. James Hardie does manufacture HardieWrap® Weather Barrier, a non-woven non-perforated housewrap¹, which complies with building code requirements.
- Adjacent finished grade must slope away from the building in accordance with local building codes - typically a minimum of 6 in. in the first 10 ft..
- Do not use HardiePlank lap siding in Fascia or Trim applications.
- Do not install James Hardie products, such that they may remain in contact with standing water.
- HardiePlank lap siding may be installed on flat vertical wall applications only.
- For larger projects, including commercial and multi-family projects, where the span of the wall is significant in length, the designer and/or architect should take into consideration the coefficient of thermal expansion and moisture movement of the product in their design. These values can be found in the Technical Bulletin "Expansion Characteristics of James Hardie® Siding Products" at www.jameshardie.com.
- James Hardie Building Products provides installation /wind load information for buildings with a maximum mean roof height of 85 feet. For information on installations above 60 feet, please contact JH technical support.



INSTALLATION: JOINT TREATMENT

One or more of the following joint treatment options are required by code (as referenced 2009 IRC R703.10.2)

- Joint Flashing (James Hardie recommended)
- Caulking* (Caulking is not recommended for ColorPlus for aesthetic reasons as the Caulking and ColorPlus will weather differently. For the same reason, do not caulk nail heads on ColorPlus products.)
- "H" jointer cover



Note: Field painting over caulking may produce a sheen difference when compared to the field painted PrimePlus. *Refer to Caulking section in these instructions.

¹For additional information on HardieWrap® Weather Barrier, consult James Hardie at 1-866-4Hardie or www.hardiewrap.com



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Visit jameshardiepros.com for the most recent version.



HS11117 P1/4 09/19



CLEARANCE AND FLASHING REQUIREMENTS

Figure 3
Roof to Wall

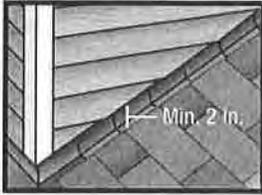


Figure 4
Horizontal Flashing



Figure 5
Kickout Flashing



Figure 6
Slabs, Path, Steps to Siding

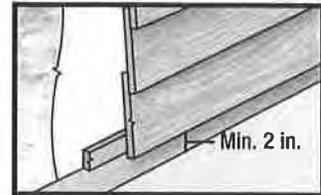


Figure 7
Deck to Wall

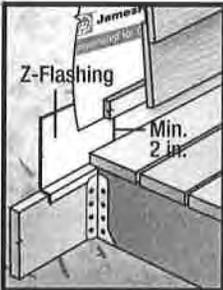


Figure 8
Ground to Siding

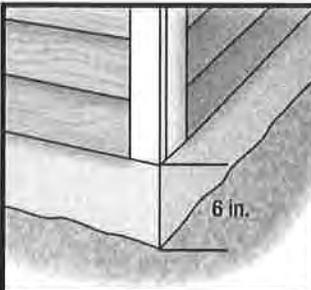


Figure 9
Gutter to Siding



Figure 10
Sheltered Areas

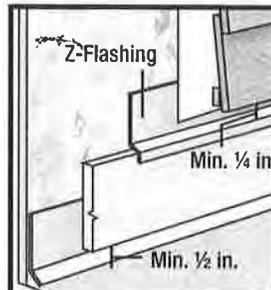


Figure 11
Mortar/Masonry

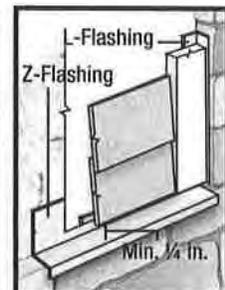


Figure 12
Drip Edge

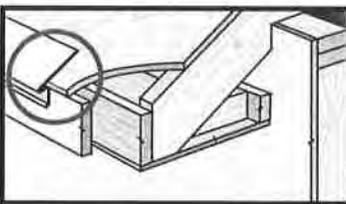


Figure 13
Block Penetration

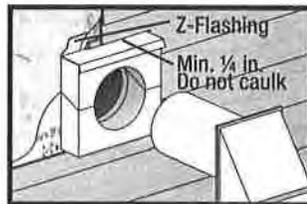


Figure 14
Valley/Shingle Extension



FASTENER REQUIREMENTS*

Refer to the applicable ESR report online to determine which fastener meets your wind load design criteria.

Blind Nailing is the preferred method of installation for HardiePlank® lap siding products. Face nailing should only be used where required by code for high wind areas and must not be used in conjunction with Blind nailing (Please see JH Tech bulletin 17 for exemption when doing a repair).

BLIND NAILING

Nails - Wood Framing

- Siding nail (0.09 in. shank x 0.221 in. HD x 2 in. long)
- 11ga. roofing nail (0.121 in. shank x 0.371 in. HD x 1.25 in. long)

Screws - Steel Framing

- Ribbed Wafer-head or equivalent (No. 8 x 1 1/4 in. long x 0.375 in. HD) Screws must penetrate 3 threads into metal framing.

Nails - Steel Framing

- ET & F Panelfast® nails or equivalent (0.10 in. shank x 0.313 in. HD x 1-1/2 in. long)
- Nails must penetrate minimum 1/4 in. into metal framing.

OSB minimum 7/16 in.

- Siding nail (0.09 in. shank x 0.215 in. HD x 1-1/2 in. long)
- Ribbed Wafer-head or equivalent (No. 8 x 1 5/8 in. long x 0.375 in. HD).

FACE NAILING

Nails - Wood Framing

- 6d (0.113 in. shank x 0.267 in. HD x 2 in. long)
- Siding nail (0.09" shank x 0.221" HD x 2" long)

Screws - Steel Framing

- Ribbed Bugle-head or equivalent (No. 8-18 x 1-5/8 in. long x 0.323 in. HD) Screws must penetrate 3 threads into metal framing.

Nails - Steel Framing

- ET & F pin or equivalent (0.10 in. shank x 0.25 in. HD x 1-1/2 in. long)
- Nails must penetrate minimum 1/4 in. into metal framing.

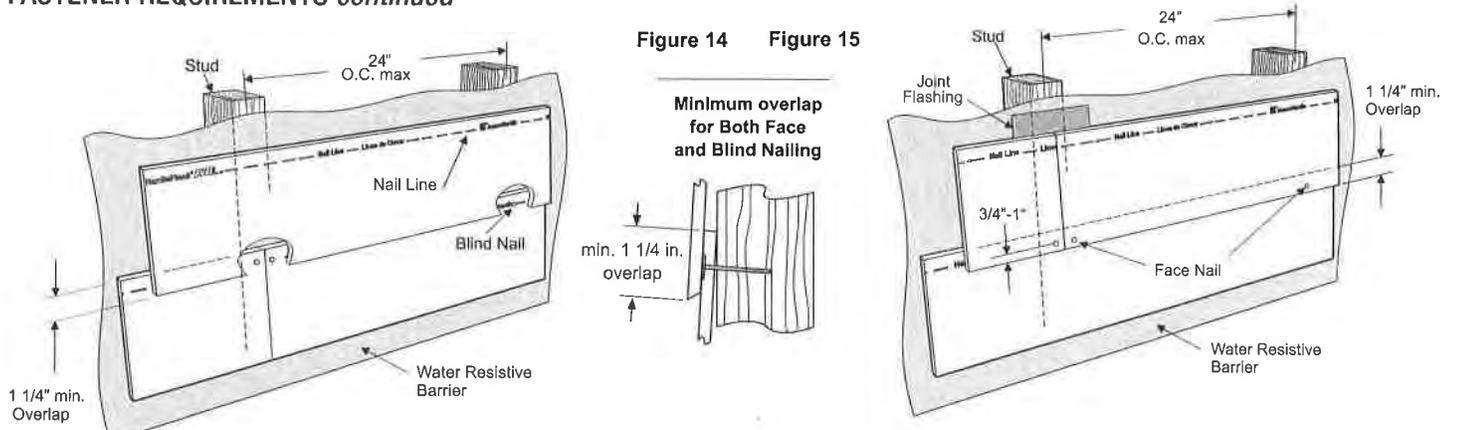
OSB minimum 7/16 in.

- Siding nail (0.09 in. shank x 0.221 in. HD x 1-1/2 in. long)

*Also see General Fastening Requirements; and when considering alternative fastening options refer to James Hardie's Technical Bulletin USTB 5 - Fastening Tips for HardiePlank Lap Siding.



FASTENER REQUIREMENTS *continued*



Laminate sheet to be removed immediately after installation of each course for ColorPlus® products.

Pin-backed corners may be done for aesthetic purposes only. Finish nails are recommended for pin-backs. Headed siding nails are allowed. Place pin-backs no closer than 1 in. from plank ends and 3/4 in. from plank edge into min. 3/8 in. wood structural panel. Pin-backs are not a substitute for blind or face nailing.

GENERAL FASTENING REQUIREMENTS

Fasteners must be corrosion resistant, galvanized, or stainless steel. Electro-galvanized are acceptable but may exhibit premature corrosion. James Hardie recommends the use of quality, hot-dipped galvanized nails. James Hardie is not responsible for the corrosion resistance of fasteners. Stainless steel fasteners are recommended when installing James Hardie® products near the ocean, large bodies of water, or in very humid climates.

Manufacturers of ACQ and CA preservative-treated wood recommend spacer materials or other physical barriers to prevent direct contact of ACQ or CA preservative-treated wood and aluminum products. Fasteners used to attach HardieTrim Tabs to preservative-treated wood shall be of hot dipped zinc-coated galvanized steel or stainless steel and in accordance to 2009 IRC R317.3 or 2009 IBC 2304.9.5

- Consult applicable product evaluation or listing for correct fasteners type and placement to achieve specified design wind loads.
- NOTE: Published wind loads may not be applicable to all areas where Local Building Codes have specific jurisdiction. Consult James Hardie Technical Services if you are unsure of applicable compliance documentation.
- Drive fasteners perpendicular to siding and framing.
- Fastener heads should fit snug against siding (no air space).
- NOTE: Whenever a structural member is present, HardiePlank should be fastened with even spacing to the structural member. The tables allowing direct to OSB or plywood should only be used when traditional framing is not available.

CUT EDGE TREATMENT

Caulk, paint or prime all field cut edges. James Hardie touch-up kits are required to touch-up ColorPlus products.

CAULKING

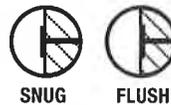
For best results use an Elastomeric Joint Sealant complying with ASTM C920 Grade NS, Class 25 or higher or a Latex Joint Sealant complying with ASTM C834. Caulking/Sealant must be applied in accordance with the caulking/sealant manufacturer's written instructions. **Note: some caulking manufacturers do not allow "tooling".**

PAINTING

DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® products. Factory-primed James Hardie products must be painted within 180 days of installation. 100% acrylic topcoats are recommended. Do not paint when wet. For application rates refer to paint manufacturers specifications. Back-rolling is recommended if the siding is sprayed.

PNEUMATIC FASTENING

James Hardie products can be hand nailed or fastened with a pneumatic tool. Pneumatic fastening is highly recommended. Set air pressure so that the fastener is driven snug with the surface of the siding. A flush mount attachment on the pneumatic tool is recommended. This will help control the depth the nail is driven. If setting the nail depth proves difficult, choose a setting that under drives the nail. (Drive under driven nails snug with a smooth faced hammer - Does not apply for installation to steel framing).



DO NOT



UNDER DRIVE

DO NOT



OVER DRIVE

SLANT

DO NOT USE



ALUMINUM FASTENERS

IF, THEN

WOOD FRAME



HAMMER FLUSH

STEEL FRAME



REMOVE & REPLACE

IF, THEN ADDITIONAL NAIL

FACE NAIL



COUNTERSINK & FILL



CLIPPED HEAD NAILS



STAPLES



COLORPLUS® TECHNOLOGY CAULKING, TOUCH-UP & LAMINATE

- Care should be taken when handling and cutting James Hardie ColorPlus® products. During installation use a wet soft cloth or soft brush to gently wipe off any residue or construction dust left on the product, then rinse with a garden hose.
- Touch up nicks, scrapes and nail heads using the ColorPlus® Technology touch-up applicator. Touch-up should be used sparingly. If large areas require touch-up, replace the damaged area with new HardiePlank® lap siding with ColorPlus® Technology.
- Laminate sheet must be removed immediately after installation of each course.
- Terminate non-factory cut edges into trim where possible, and caulk. Color matched caulks are available from your ColorPlus® product dealer.
- Treat all other non-factory cut edges using the ColorPlus Technology edge coat, available from your ColorPlus product dealer.

Note: James Hardie does not warrant the usage of third party touch-up or paints used as touch-up on James Hardie ColorPlus products.

Problems with appearance or performance arising from use of third party touch-up paints or paints used as touch-up that are not James Hardie touch-up will not be covered under the James Hardie ColorPlus Limited Finish Warranty.

COVERAGE CHART/ESTIMATING GUIDE

Number of 12 ft. planks, does not include waste

COVERAGE AREA LESS OPENINGS	HARDIEPLANK® LAP SIDING WIDTH									
	SQ (1 SQ = 100 sq.ft.)	5 1/4 (exposure) 4	6 1/4 5	7 1/4 6	7 1/2 6 1/4	8 6 3/4	8 1/4 7	9 1/4 8	9 1/2 8 1/4	12 10 3/4
1		25	20	17	16	15	14	13	13	9
2		50	40	33	32	30	29	25	25	19
3		75	60	50	48	44	43	38	38	28
4		100	80	67	64	59	57	50	50	37
5		125	100	83	80	74	71	63	63	47
6		150	120	100	96	89	86	75	75	56
7		175	140	117	112	104	100	88	88	65
8		200	160	133	128	119	114	100	100	74
9		225	180	150	144	133	129	113	113	84
10		250	200	167	160	148	143	125	125	93
11		275	220	183	176	163	157	138	138	102
12		300	240	200	192	178	171	150	150	112
13		325	260	217	208	193	186	163	163	121
14		350	280	233	224	207	200	175	175	130
15		375	300	250	240	222	214	188	188	140
16		400	320	267	256	237	229	200	200	149
17		425	340	283	272	252	243	213	213	158
18		450	360	300	288	267	257	225	225	167
19		475	380	317	304	281	271	238	238	177
20		500	400	333	320	296	286	250	250	186

PAINTING JAMES HARDIE® SIDING AND TRIM PRODUCTS WITH COLORPLUS® TECHNOLOGY

When repainting ColorPlus products, James Hardie recommends the following regarding surface preparation and topcoat application:

- Ensure the surface is clean, dry, and free of any dust, dirt, or mildew
- Repriming is normally not necessary
- 100% acrylic topcoats are recommended
- DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products.
- Apply finish coat in accordance with paint manufacturers written instructions regarding coverage, application methods, and application temperature
- DO NOT caulk nail heads when using ColorPlus products, refer to the ColorPlus touch-up section

This coverage chart is meant as a guide. Actual usage is subject to variables such as building design. James Hardie does not assume responsibility for over or under ordering of product.

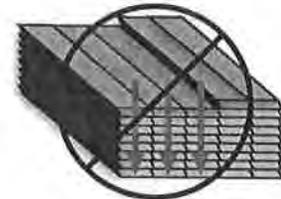
ADDITIONAL HANDLING REQUIREMENTS

IMPORTANT: To prevent damage to the drip edge, extra care should be taken when removing planks from the pallet, while handling, and when installing with a lap gauge. Planks are interlocked together on the pallet, therefore they should be removed from the pallet horizontally (side to side) to allow planks to unlock themselves from one another.

Pull from across the stack



Do not go down the stack

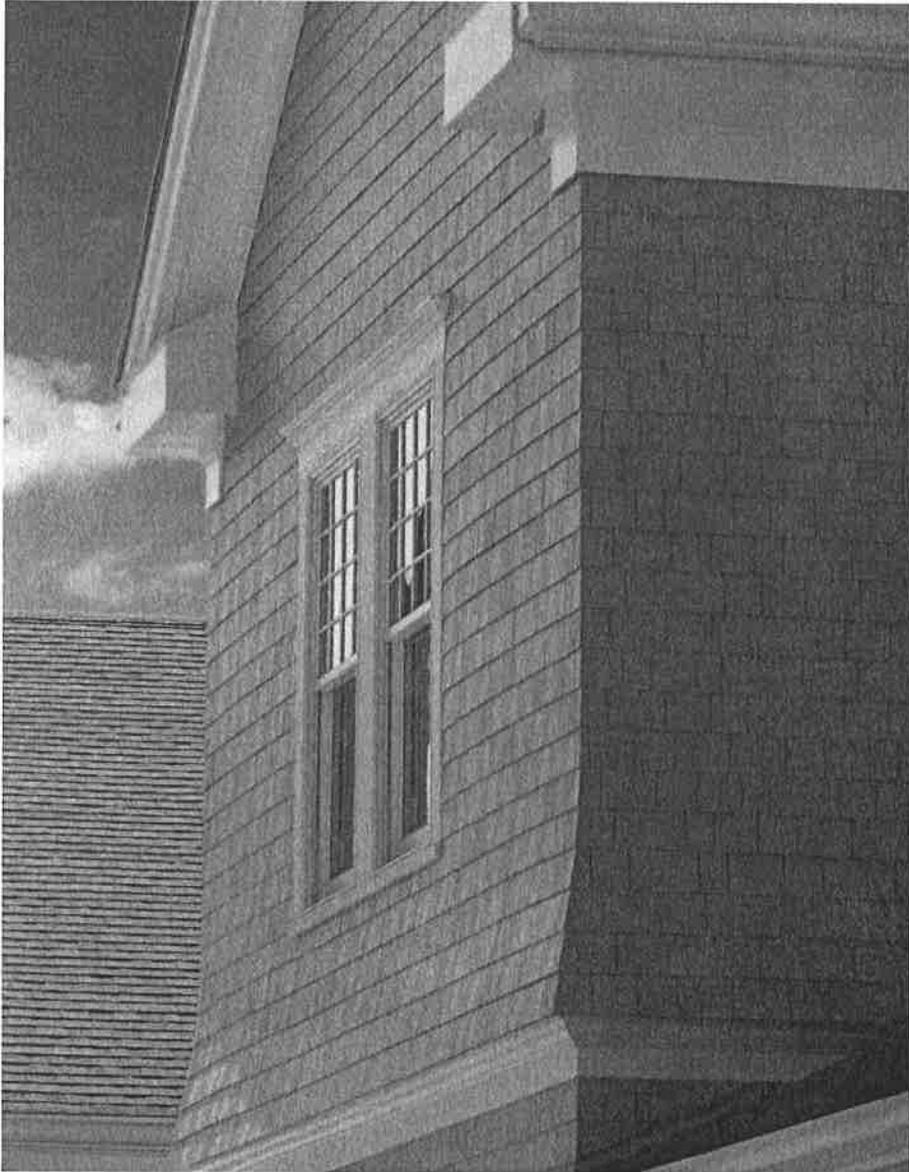


HS1117 P4/4 09/19

SILICA WARNING **DANGER:** May cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product. Refer to the current product Safety Data Sheet before use. The hazard associated with fiber cement arises from crystalline silica present in the dust generated by activities such as cutting, machining, drilling, routing, sawing, crushing, or otherwise abrading fiber cement, and when cleaning up, disposing of or moving the dust. When doing any of these activities in a manner that generates dust you must (1) comply with the OSHA standard for silica dust and/or other applicable law, (2) follow James Hardie cutting instructions to reduce or limit the release of dust; (3) warn others in the area to avoid breathing the dust; (4) when using mechanical saw or high speed cutting tools, work outdoors and use dust collection equipment; and (5) if no other dust controls are available, wear a dust mask or respirator that meets NIOSH requirements (e.g. N-95 dust mask). During clean-up, use a well maintained vacuum and filter appropriate for capturing fine (respirable) dust or use wet clean-up methods - never dry sweep.

WARNING: This product can expose you to chemicals including respirable crystalline silica, which is known to the State of California to cause cancer. For more information go to P65Warnings.ca.gov.

RECOGNITION: In accordance with ICC-ES Evaluation Report ESR-2290, HardiePlank® lap siding is recognized as a suitable alternate to that specified in the 2006, 2009, 2012 & 2015 International Residential Code for One and Two-Family Dwellings, and the 2006, 2009, 2012 & 2015 International Building Code. HardiePlank lap siding is also recognized for application in the following: City of Los Angeles Research Report No. 24862, State of Florida Product Approval FL#13192, Miami-Dade County Florida NOA No. 17-0406.06, U.S. Dept. of HUD Materials Release 1263f, Texas Department of Insurance Product Evaluation EC-23, City of New York MEA 223-93-M, and California DSA PA-019. These documents should also be consulted for additional information concerning the suitability of this product for specific applications.



TIMELESS STYLE.
LASTING DURABILITY.

www.HardieShingle.com



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HardieShingle® *HL5* Siding



STRAIGHT EDGE, STAGGERED EDGE, HALF-ROUND PANELS & INDIVIDUAL SHINGLES
INSTALLATION REQUIREMENTS - PRIMED & COLORPLUS® PRODUCTS

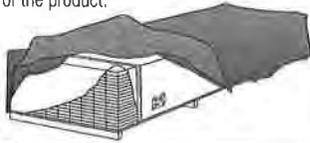
EFFECTIVE SEPTEMBER 2013

Visit www.jameshardie.com for the most recent version.

IMPORTANT: FAILURE TO INSTALL AND FINISH THIS PRODUCT IN ACCORDANCE WITH APPLICABLE BUILDING CODES AND JAMES HARDIE WRITTEN APPLICATION INSTRUCTIONS MAY LEAD TO PERSONAL INJURY, AFFECT SYSTEM PERFORMANCE, VIOLATE LOCAL BUILDING CODES, AND VOID THE PRODUCT ONLY WARRANTY. BEFORE INSTALLATION, CONFIRM THAT YOU ARE USING THE CORRECT HARDIEZONE™ INSTRUCTIONS. TO DETERMINE WHICH HARDIEZONE™ APPLIES TO YOUR LOCATION, VISIT WWW.HARDIEZONE.COM OR CALL 1-866-942-7343 (866 9HARDIE)

STORAGE & HANDLING:

Store flat and keep dry and covered prior to installation. Installing siding wet or saturated may result in shrinkage at butt joints. Carry planks on edge. Protect edges and corners from breakage. James Hardie is not responsible for damage caused by improper storage and handling of the product.



⚠ CUTTING INSTRUCTIONS

OUTDOORS

- Position cutting station so that wind will blow dust away from user and others in working area.
- Use one of the following methods:
 - Best: i. Shears (manual, electric or pneumatic)
 - Better: i. Dust reducing circular saw equipped with a HardieBlade® saw blade and HEPA vacuum extraction
 - Good: i. Dust reducing circular saw with a HardieBlade saw blade (only use for low to moderate cutting)

INDOORS

- Cut only using shears (manual, electric or pneumatic).
 - Position cutting station in well-ventilated area
- NEVER use a power saw indoors
 - NEVER use a circular saw blade that does not carry the HardieBlade saw blade trademark
 - NEVER dry sweep – Use wet suppression or HEPA Vacuum

Important Note: For maximum protection (lowest respirable dust production), James Hardie recommends always using "Best"-level cutting methods where feasible.

NIOSH-approved respirators can be used in conjunction with above cutting practices to further reduce dust exposures. Additional exposure information is available at www.jameshardie.com to help you determine the most appropriate cutting method for your job requirements. If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

GENERAL REQUIREMENTS:

- HardieShingle® panels can be installed over braced wood or steel studs spaced a maximum of 24" o.c. or directly to minimum 7/16" thick sheathing. See general fastening requirements.
- Information on installing James Hardie products over foam can be located in [JH Tech Bulletin 19](#) at www.jameshardie.com
- A water-resistive barrier is required in accordance with local building code requirements. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements. James Hardie will assume no responsibility for water infiltration. James Hardie does manufacture HardieWrap® Weather Barrier, a non-woven non-perforated housewrap¹, which complies with building code requirements.
- When installing James Hardie® products all clearance details in figs. 1,2,3,4,5,6 & 7 must be followed.
- Adjacent finished grade must slope away from the building in accordance with local building codes - typically a minimum of 6" in the first 10'.
- Do not install James Hardie products, such that they may remain in contact with standing water.
- HardieShingle panels may be installed on vertical wall applications only.
- DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products.

CLEARANCES

Install siding and trim products in compliance with local building code requirements for clearance between the bottom edge of the siding and the adjacent finished grade.

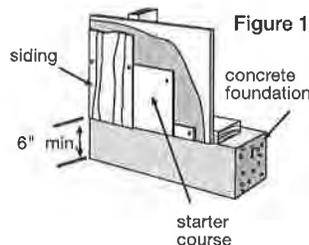


Figure 1

Maintain a minimum 2" clearance between James Hardie® products and paths, steps and driveways.

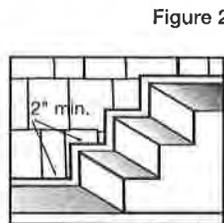


Figure 2

Maintain a minimum 2" clearance between James Hardie products and decking material.

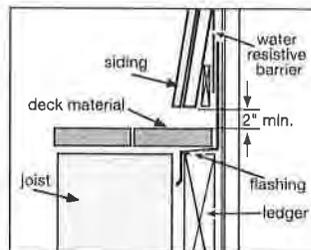


Figure 3

At the juncture of the roof and vertical surfaces, flashing and counterflashing shall be installed per the roofing manufacturer's instructions. Provide a minimum 2" clearance between the roofing and the bottom edge of the siding and trim.

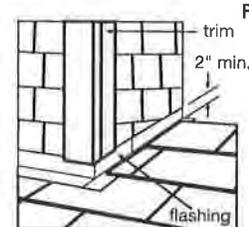


Figure 4

¹For additional information on HardieWrap® Weather Barrier, consult James Hardie at 1-866-4Hardie or www.hardiewrap.com

† The illustration (figure 7) and associated text was reprinted with permission of THE JOURNAL OF LIGHT CONSTRUCTION. For subscription information, visit www.jlconline.com.

WARNING: AVOID BREATHING SILICA DUST

James Hardie® products contain respirable crystalline silica, which is known to the State of California to cause cancer and is considered by IARC and NIOSH to be a cause of cancer from some occupational sources. Breathing excessive amounts of respirable silica dust can also cause a disabling and potentially fatal lung disease called silicosis, and has been linked with other diseases. Some studies suggest smoking may increase these risks. During installation or handling: (1) work in outdoor areas with ample ventilation; (2) use fiber cement shears for cutting or, where not feasible, use a HardieBlade® saw blade and dust-reducing circular saw attached to a HEPA vacuum; (3) warn others in the immediate area; (4) wear a properly-fitted, NIOSH-approved dust mask or respirator (e.g. N-95) in accordance with applicable government regulations and manufacturer instructions to further limit respirable silica exposures. During clean-up, use HEPA vacuums or wet cleanup methods - never dry sweep. For further information, refer to our installation instructions and Material Safety Data Sheet available at www.jameshardie.com or by calling 1-800-9HARDIE (1-800-942-7343). FAILURE TO ADHERE TO OUR WARNINGS, MSDS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

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Maintain a 1/4" clearance between the bottom of James Hardie® products and horizontal flashing. Do not caulk gap.

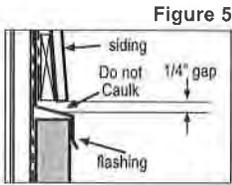


Figure 5

Maintain a minimum 1" gap between gutter end caps and siding & trim.

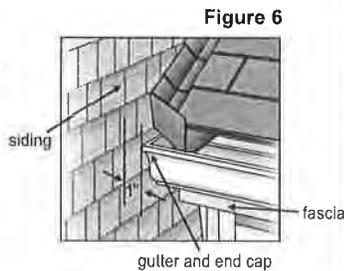
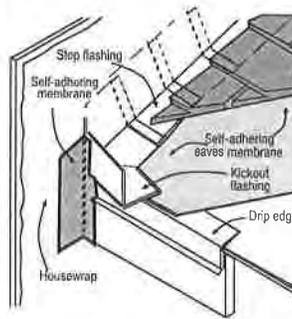


Figure 6

Figure 7



KICKOUT FLASHING

Because of the volume of water that can pour down a sloped roof, one of the most critical flashing details occurs where a roof intersects a sidewall. The roof must be flashed with stop flashing. Where the roof terminates, install a kickout to deflect water away from the siding.

It is best to install a self-adhering membrane on the wall before the subfascia and trim boards are nailed in place, and then come back to install the kickout.

Figure 7, Kickout Flashing To prevent water from dumping behind the siding and the end of the roof intersection, install a "kickout" as required by IRC code R905.2.8.3 : "...flashing shall be a min. of 4" high and 4" wide." James Hardie recommends the kickout be angled between 100° - 110° to maximize water deflection

TRIM CONSIDERATION:

Minimum 1" trim thickness is needed as Panels stack at a depth of roughly 15/16" for the 7" reveal. If additional trim depth is desired, you can place a spacer under the trim (Fig. 8C & 8D) DO NOT install trim over HardieShingle.

BLOCKED PENETRATIONS

Penetrations such as hose bibs and holes 1 1/2" or larger such as dryer vents shall have a block of trim around point of penetration.

Figure 8A

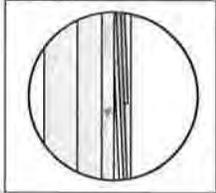


Figure 8B

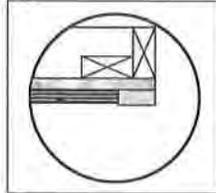


Figure 8C

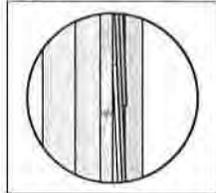
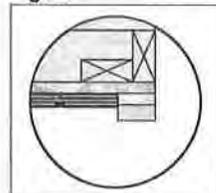


Figure 8D



GABLE INSTALLATION:

Installation over sheathing is recommended (Required for Individuals) for gables.*

- 1) Find the center stud of your of your Gable and snap a caulk line down
- 2) Measure out 16" to both the left and the right of the center line and snap a caulk line
- 3) Measure up 2" if you are off a roof line or 1/4" if you are starting above a band board
- 4) Set the bottom of your 1 1/4" starter strip at that line
- 5) Place your 8 1/4" Starter Course -bottom level with the bottom of the starter strip
- 6) Set your first row of Shingle - starting the first piece at the vertical line left of center (If you are using staggered edged shingles Trim down the first row to the shortest shingle length)
- 7) Drive nails approximately 1/4" above Key ways 5 per full panel Center Nail can be either one of the keyways. (Stay by keyway to avoid shiners) (EX1) Blue Dots show nail placement
- 8) Measure up 7" with straight and 6" with Staggered edge and snap a caulk line to get your proper exposure
- 9) The second row line will start at the center line
- 10) The Third row will start at the line right of center
- 11) As you work your way up the gable make sure you Keep your Cut Pieces you will use the pieces on the edges of the gable (EX2)
- 12) Edges Gable butting into trim leave a 1/8" Gap (for house movement and Caulking)
- 13) Make sure to sure siding nails on the small pieces on the edges (Do not use a trim nail to install!)

Figure 9

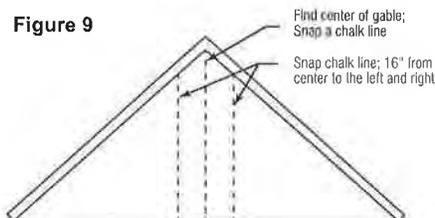


Figure 10

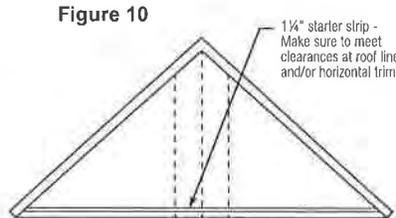


Figure 11

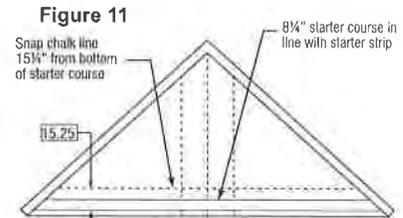


Figure 12

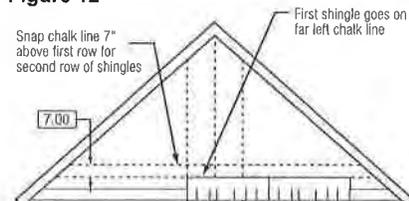


Figure 13

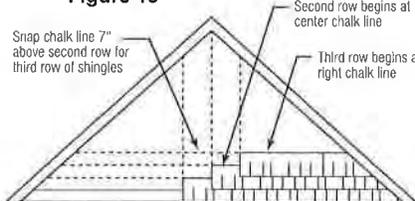
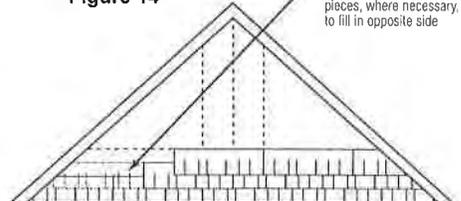


Figure 14



*Panels can also be installed direct to stud up to 24"OC.

Note: Snapped chalk lines help guide installation, when installing straight edge panels or Individual shingles use a straight edge on bottom edges if uniform straight edge is desired

HARDIESHINGLE® STAGGERED EDGE PANELS INSTALLATION

Fastener Requirements

0.083" x 0.187" HD x 1 1/2" long ringshank nails are used for fastening HardieShingle® Staggered Edge Panels to both framing and to 7/16" thick APA rated sheathing.

HardieShingle® Staggered Edge Panel Installation

Install HardieShingle® panels with joints butted in moderate contact. Due to overlapping of the joints, caulk is not required except where panels abut trim boards. (fig. 13 & 15). Ensure keyways do not line up on subsequent courses.

- 1) Install a 1-1/4" starter strip, then install a 8-1/4" wide HardiePlank® lap siding starter course.
- 2) Place first panel so that panel end centers over stud. Trim panel as needed. Butt the cut end into trim as shown (figs 13 & 15). When installing over a band board or any horizontal surface, leave 1/4" gap between bottom of siding and flashing.
- 3) Secure panel, leaving 1/8" gap for caulk at trim and continue the course along the wall.
- 4) Start the second course, by removing the equivalent of one full stud cavity (16" or 24" OC), again abutting the cut end into the trim (figs 13 & 15). This is to prevent pattern repetition. Repeat step 3.
- 5) Start the third course, by removing the equivalent of two full stud cavities (figs 13 & 15) and repeat step 3.
- 6) Continue up the wall repeating steps 2 through 6 until desired height is reached.

Note: For aesthetic purposes you may trim the bottom of the panel to create a straight edge. If doing so, ensure all cuts ends are properly sealed and painted (fig 14)

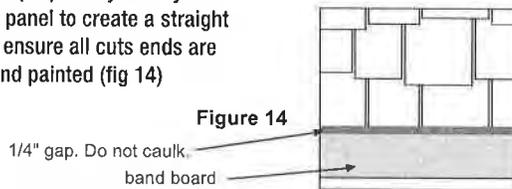
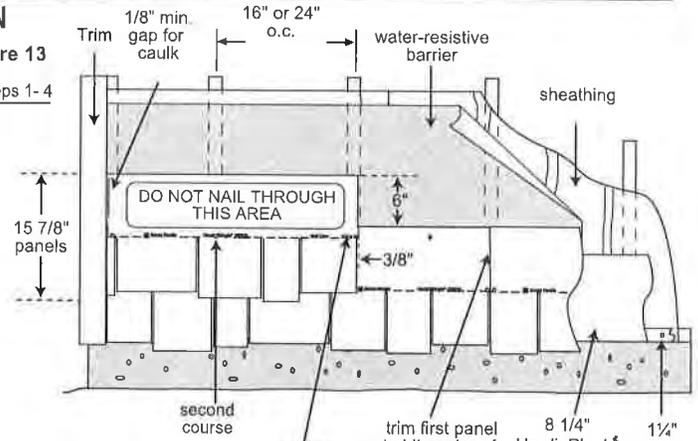


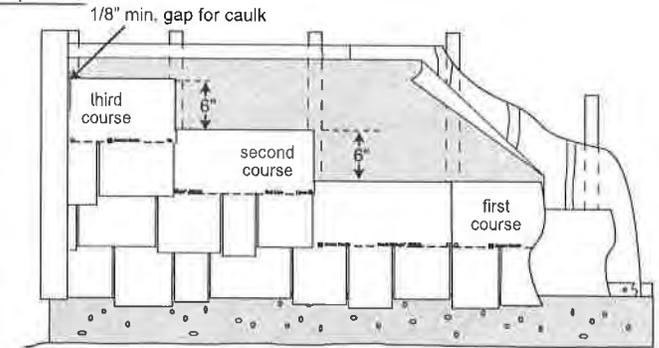
Figure 14

Figure 13
Steps 1 - 4



position nails on nail line and secure into framing. Only when application is to minimum 7/16" thick APA rated sheathing, position nails on nail line spaced a maximum of 13 3/4" o.c. Allow 3/8" from panel edges.

Steps 5 & 6



HARDIESHINGLE® STAGGERED EDGE PANEL COVERAGE

Panels for sidewall applications are available in 48" lengths. Pieces needed for one square (100sq.ft.) of product coverage = approximately 50, based on a maximum 6" exposure from the top edge of HardieShingle panels in subsequent courses (refer to Figure 13).

7" EXPOSURE HARDIESHINGLE® STRAIGHT EDGE PANELS INSTALLATION (For 5" exposure product please go to page 6)

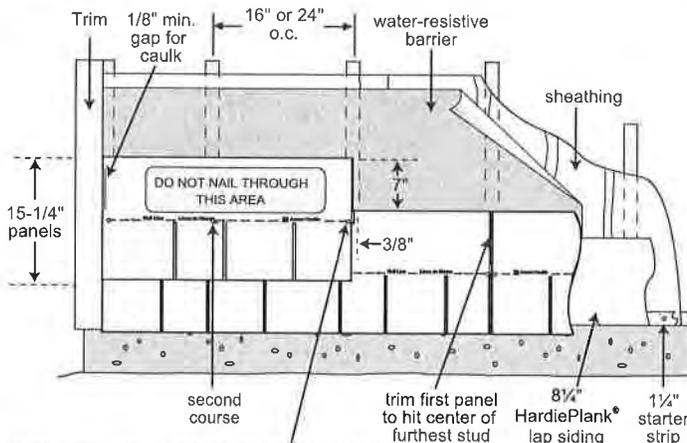
Maximum Exposure of 7"

REFER TO STAGGERED EDGE INSTRUCTIONS ABOVE

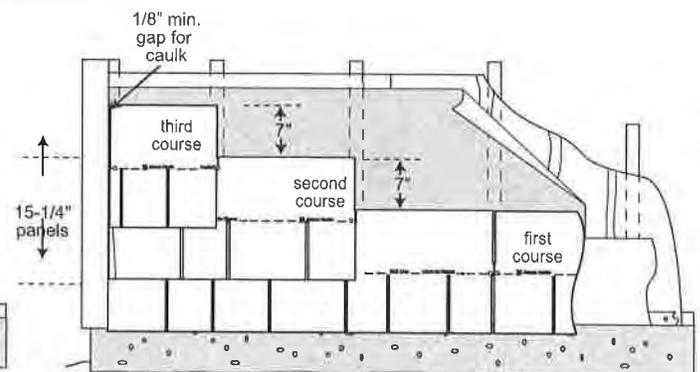
Steps 1 - 4

Figure 15

Steps 5 & 6



position nails on nail line and secure into framing. Only when application is to minimum 7/16" thick APA rated sheathing, position nails on nail line spaced a maximum of 13 3/4" o.c. Allow 3/8" from panel edges.



HARDIESHINGLE® STRAIGHT EDGE PANEL COVERAGE

Panels for sidewall applications are available in 48" lengths. Pieces needed for one square (100sq.ft.) of product coverage = approximately 43, based on maximum 7" exposure.

HARDIESHINGLE® INDIVIDUAL SHINGLE INSTALLATION

HardieShingle® Individual Shingles must be installed with the widest part of the shingle placed downwards and directly to minimum 7/16" thick sheathing.

Fastener Requirements

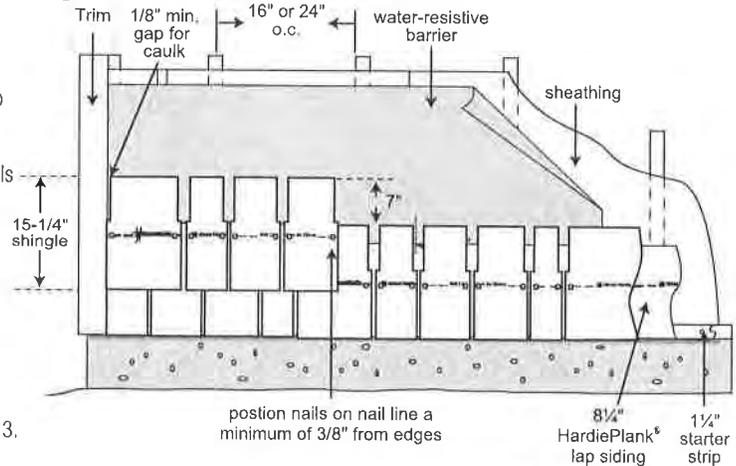
0.091" x 0.221" HD x 1 1/2" or 0.121" x 0.371" HD x 1 1/4" long corrosion resistant siding nails are used for fixing HardieShingle siding to 7/16" thick APA rated sheathing.

HardieShingle® Individual Shingle Installation

Due to overlapping of the joints, caulk is not required except where panels butt trim boards. Space shingles a maximum 1/4" apart and leave a minimum lap of 1 1/2" between successive courses (fig. 17).

- 1) Install 1 1/4" starter strip and a 8 1/4" wide HardiePlank® siding starter course.
- 2) Install first shingle from the end abutting trim. Install widest part of shingle placed downwards. (fig. 16).
- 3) Secure shingle, leaving a 1/8" gap for caulk at trim and continue the course along the wall.
- 4) Start the second course, leaving a minimum lap of 1 1/2" between successive courses, again from the end abutting the trim. Repeat step 3.
- 5) Continue up the wall repeating steps 2 through 5 until desired height is reached.

Figure 16

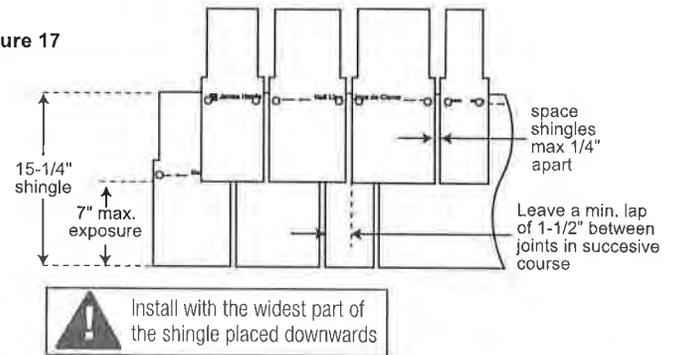


HARDIESHINGLE® INDIVIDUAL SHINGLE COVERAGE

Individual Shingles for sidewall applications are available in assorted widths as listed below. Bundles needed for one square (100 sq. ft.) of product coverage:

Shingle Width	Number of Bundles	Pieces per Bundle
4-3/16"	3	15
5-1/2"	6	15
6-3/4"	3	15
7-1/4"	6	15
10"	3	15

Figure 17



HARDIESHINGLE® HALF-ROUND PANELS INSTALLATION

Fastener Requirements

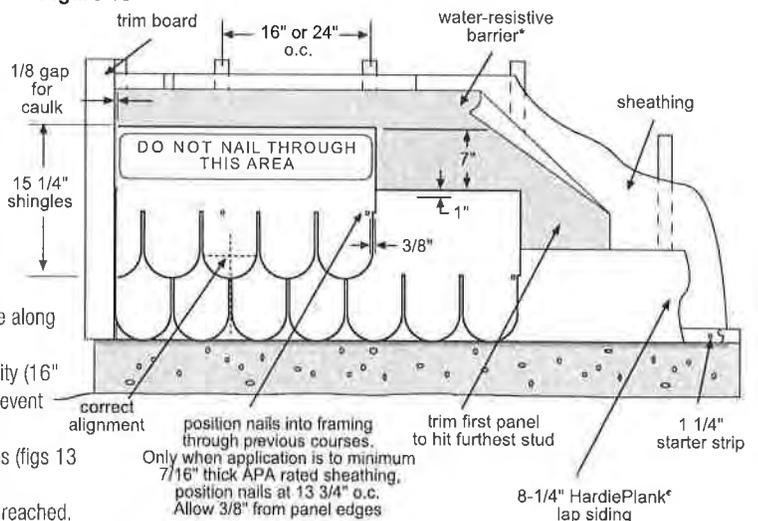
0.083" x 0.187" HD x 1 1/2" long ringshank nails are used for fastening HardieShingle® Half-Round Panels to both framing and to 7/16" thick APA rated sheathing.

HardieShingle Half-Round Panel Installation

Install HardieShingle® panels with joints butted in moderate contact. Due to overlapping of the joints, caulk is not required except where panels abut trim boards. (fig. 18). Ensure keyways do not line up on subsequent courses.

- 1) Install a 1-1/4" starter strip, then install a 8-1/4" wide HardiePlank® lap siding starter course.
- 2) Place first panel so that panel end centers over stud. Trim panel as needed. Butt the cut end into trim as shown (figs 18). When installing over a band board or any horizontal surface, leave 1/4" gap between bottom of siding and flashing.
- 3) Secure panel, leaving 1/8" gap for caulk at trim and continue the course along the wall.
- 4) Start the second course, by removing the equivalent of one full stud cavity (16" or 24" OC), again abutting the cut end into the trim (fig 18). This is to prevent pattern repetition. Repeat step 3.
- 5) Start the third course, by removing the equivalent of two full stud cavities (figs 13 & 15) and repeat step 3.
- 6) Continue up the wall repeating steps 2 through 6 until desired height is reached.

Figure 18

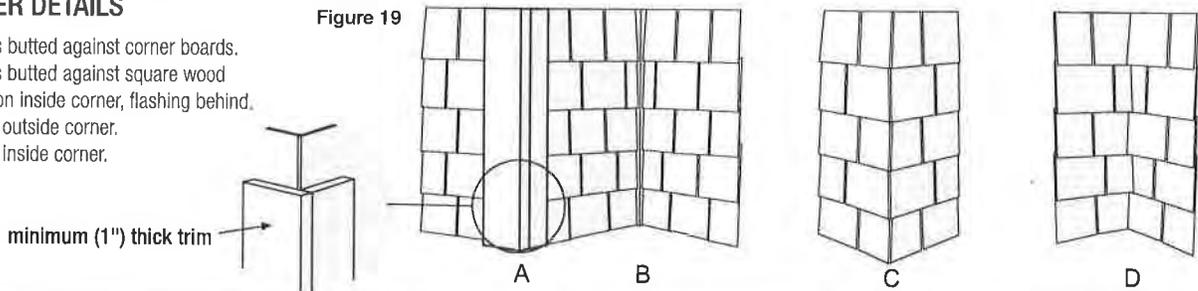


HARDIESHINGLE HALF-ROUND PANEL COVERAGE

Panels for sidewall applications are available in 48" lengths. Pieces needed for one square (100 sq. ft.) of product coverage=43 pieces with 7" exposure.

CORNER DETAILS

- A. Panels butted against corner boards.
- B. Panels butted against square wood strip on inside corner, flashing behind.
- C. Laced outside corner.
- D. Laced Inside corner.



WINDOWS AND DOORS

Building wall components such as windows, doors and other exterior wall penetrations shall be installed in accordance with the component manufacturer's written installation instructions and local building codes. Where windows or doors are installed, continue the application of siding as if the wall is complete. Trimming for the opening and using the resulting piece may throw off the spacing above the break.

GENERAL FASTENING REQUIREMENTS

Fasteners must be corrosion resistant, galvanized, or stainless steel. Electro-galvanized are acceptable but may exhibit premature corrosion. James Hardie recommends the use of quality, hot-dipped galvanized nails. James Hardie is not responsible for the corrosion resistance of fasteners. Stainless steel fasteners are recommended when installing James Hardie® products near the ocean, large bodies of water, or in very humid climates.

- Consult applicable product evaluation or listing for correct fasteners type and placement to achieve specified design wind loads.
- NOTE: Published wind loads may not be applicable to all areas where Local Building Codes have specific jurisdiction. Consult James Hardie Technical Services if you are unsure of applicable compliance documentation.
- Drive fasteners perpendicular to siding and framing.
- Fastener heads should fit snug against siding (no air space). (fig. A)
- Do not over-drive nail heads or drive nails at an angle.
- If nail is countersunk, fill nail hole and add a nail. (fig. B)
- For wood framing, under driven nails should be hit flush to the plank with a hammer (For steel framing, remove and replace nail).
- Do not use aluminum fasteners, staples, or clipped head nails.



PNEUMATIC FASTENING

James Hardie products can be hand nailed or fastened with a pneumatic tool. Pneumatic fastening is highly recommended. Set air pressure so that the fastener is driven snug with the surface of the siding. A flush mount attachment on the pneumatic tool is recommended. This will help control the depth the nail is driven. If setting the nail depth proves difficult, choose a setting that under drives the nail. (Drive under driven nails snug with a smooth faced hammer - Does not apply for installation to steel framing).

CUT EDGE TREATMENT

Caulk, paint or prime all field cut edges. James Hardie touch-up kits are required to touch-up ColorPlus products.

CAULKING

For best results use an Elastomeric Joint Sealant complying with ASTM C920 Grade NS, Class 25 or higher or a Latex Joint Sealant complying with ASTM C834. Caulking/Sealant must be applied in accordance with the caulking/sealant manufacturer's written instructions. **Note: OSI Quad as well as some other caulking manufacturers DO NOT allow tooling.**

PRIMING & PAINTING

DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products. James Hardie® products must be painted within 180 days for primed product and 90 days for unprimed. In addition non ColorPlus® product versions of HardieShingle® Siding require a field applied prime coat. 100% acrylic primers and topcoats are recommended. Do not paint when wet. For application rates refer to paint manufacturers specifications. Back rolling is recommended when paint is spray applied.

COLORPLUS® TECHNOLOGY CAULKING, TOUCH-UP & LAMINATE

- Care should be taken when handling and cutting James Hardie ColorPlus products. During installation use a wet soft cloth or soft brush to gently wipe off any residue or construction dust left on the product, then rinse with a garden hose.
- Touch up nicks, scrapes and nail heads using the ColorPlus® Technology touch up applicator. Touch-up should be used sparingly. If large areas require touch-up, replace the damaged area with new HardieShingle® siding with ColorPlus Technology.
- Laminate sheet must be removed immediately after installation of each course.
- Terminate non-factory cut edges into trim where possible, and caulk. Color matched caulks are available from your ColorPlus® product dealer.
- Treat all other non-factory cut edges using the ColorPlus Technology edge coaters, available from your ColorPlus product dealer.

Note: James Hardie does not warrant the usage of third party touch-up or paints used as touch-up on James Hardie ColorPlus products.

Problems with appearance or performance arising from use of third party touch-up paints or paints used as touch-up that are not James Hardie touch-up, will not be covered under the James Hardie ColorPlus Limited Finish Warranty.

PAINTING JAMES HARDIE® SIDING AND TRIM PRODUCTS WITH COLORPLUS® TECHNOLOGY

When repainting ColorPlus products, James Hardie recommends the following regarding surface preparation and topcoat application:

- Ensure the surface is clean, dry, and free of any dust, dirt, or mildew
- Repriming is normally not necessary
- 100% acrylic topcoats are recommended
- DO NOT use stain, oil/alkyd base paint, or powder coating on James Hardie® Products.
- Apply finish coat in accordance with paint manufacturers written instructions regarding coverage, application methods, and application temperature
- DO NOT caulk nail heads when using ColorPlus products, refer to the ColorPlus touch-up section

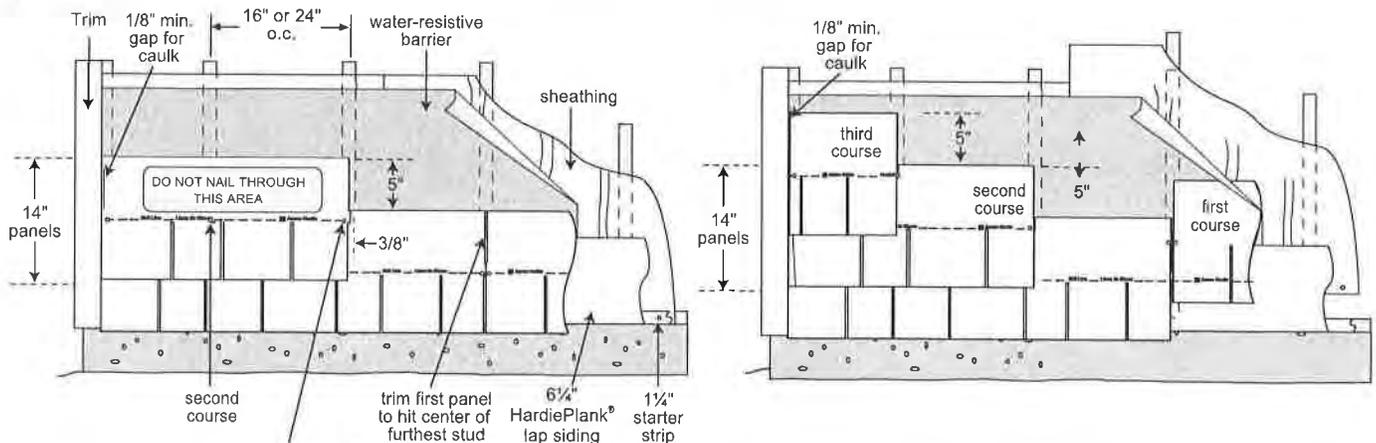
5" EXPOSURE HARDIESHINGLE® STRAIGHT EDGE PANELS INSTALLATION (For 7" exposure product please go to page 3)

Maximum Exposure of 5"

REFER TO STAGGERED EDGE INSTRUCTIONS ON PAGE 3

Steps 1 - 4

Figure 20 Steps 5 & 6



position nails on nail line and secure into framing. Only when application is to minimum 7/16" thick APA rated sheathing, position nails on nail line spaced a maximum of 13 3/4" o.c. Allow 3/8" from panel edges.

HARDIESHINGLE® STRAIGHT EDGE PANEL COVERAGE

Panels for sidewall applications are available in 48" lengths. Pieces needed for one square (100sq.ft.) of product coverage = approximately 60, based on maximum 5" exposure.

HARDIESHINGLE® INDIVIDUAL SHINGLE INSTALLATION

HardieShingle® Individual Shingles must be installed with the widest part of the shingle placed downwards and directly to minimum 7/16" thick sheathing.

Fastener Requirements

0.091" x 0.221" HD x 1 1/2" or 0.121" x 0.371" HD x 1 1/4" long corrosion resistant siding nails are used for fixing HardieShingle siding to 7/16" thick APA rated sheathing.

HardieShingle® Individual Shingle Installation

Due to overlapping of the joints, caulk is not required except where panels butt trim boards. Space shingles a maximum 1/4" apart and leave a min. lap of 1 1/2" between successive courses (fig. 17).

- 1) Install 1 1/4" starter strip and a 6 1/4" wide HardiePlank® siding starter course.
- 2) Install first shingle from the end abutting trim. Install widest part of shingle placed downwards. (fig. 16).
- 3) Secure shingle, leaving a 1/8" gap for caulk at trim and continue the course along the wall.
- 4) Start the second course, leaving a minimum lap of 1 1/2" between successive courses, again from the end abutting the trim. Repeat step 3.
- 5) Continue up the wall repeating steps 2 through 5 until desired height is reached.

5" EXPOSURE HARDIESHINGLE® INDIVIDUAL SHINGLE COVERAGE

Individual Shingles for sidewall applications are available in assorted widths as listed below. Bundles needed for one square (100 sq. ft.) of product coverage:

Shingle Width	Number of Bundles	Pieces per Bundle
3-1/2"	3	20
4-1/2"	6	20
5-1/2"	6	20
7"	6	20
8-3/4"	3	20

Figure 16

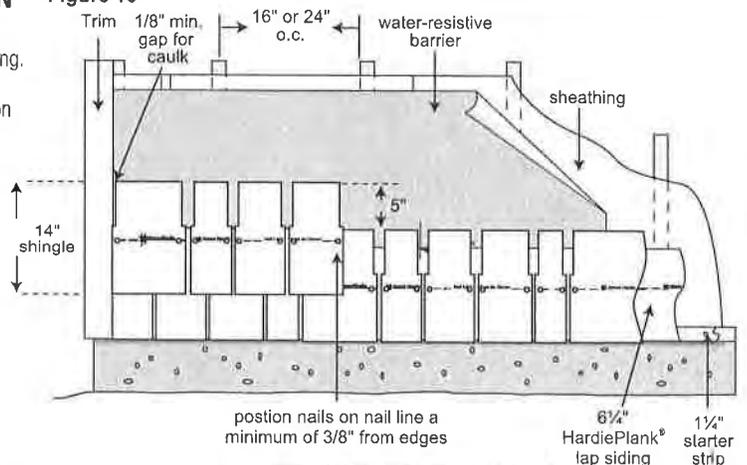
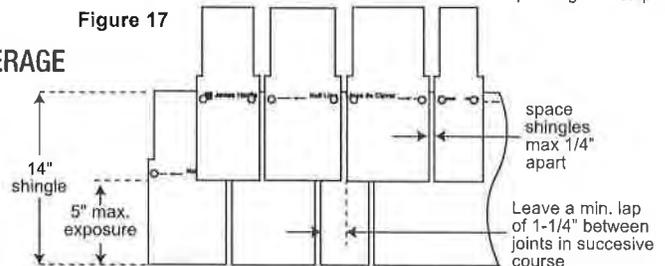


Figure 17



! Install with the widest part of the shingle placed downwards

RECOGNITION: In accordance with ICC-ES Evaluation Report ESR-2290, HardieShingle lap siding is recognized as a suitable alternate to that specified in: the 2006, 2009, & 2012 International Residential Code for One- and Two-Family Dwellings, and the 2006, 2009, & 2012 International Building Code. HardieShingle lap siding is also recognized for application in the following: City of Los Angeles Research Report No. 24862, State of Florida listing FL#889, Dade County, Florida NOA No. 02-0729.02, U.S. Dept. of HUD Materials Release 1263c, Texas Department of Insurance Product Evaluation EC-23, City of New York MEA 223-93-M, and California DSA PA-019. These documents should also be consulted for additional information concerning the suitability of this product for specific applications

SHINGLE INSTALLATION

Start at either rake and lay in either direction

First Course:

Start with full shingle

Second Course:

Trim 6" (152mm) off first shingle

Third Course:

Trim 11" (279mm) off first shingle

Fourth Course:

Trim 17" (432mm) off first shingle

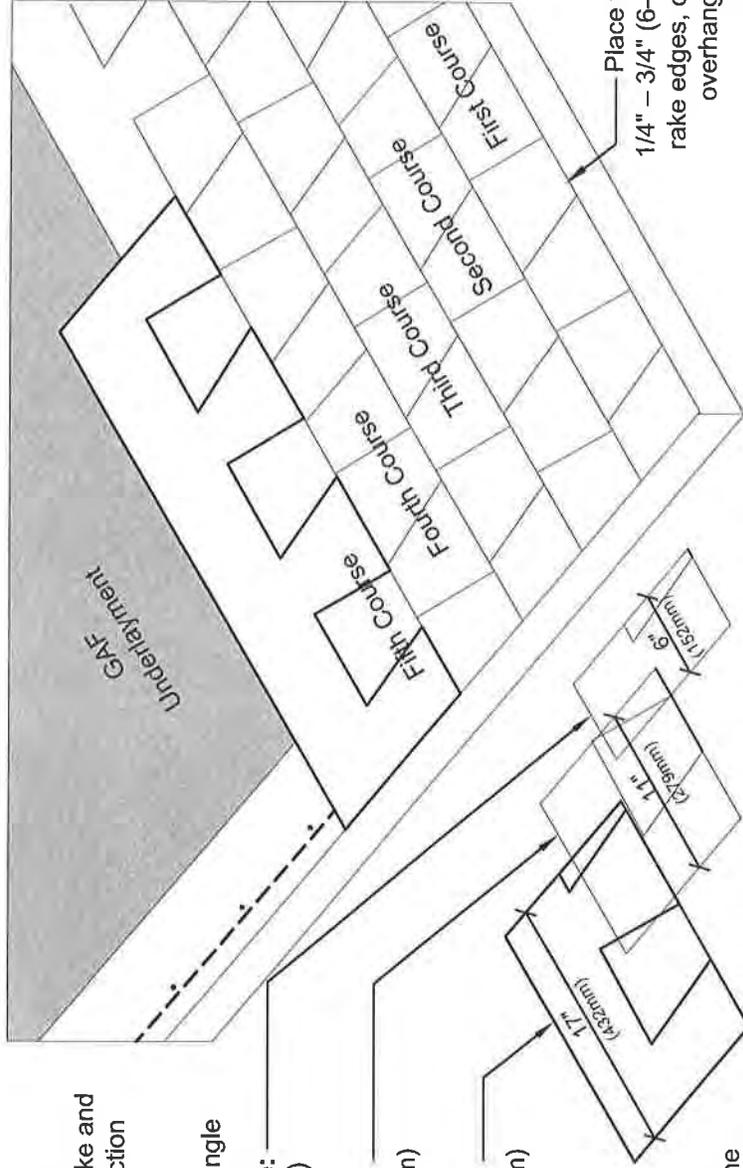
Remaining Courses:

Repeat the 1st - 4th course instructions on the remaining courses, starting the fifth course with a full shingle.

NOTES:

1. Continue each course with whole shingles.

2. Strike a chalk line about every 6 courses to check parallel alignment with eaves.



Place first course of shingles 1/4" - 3/4" (6-19mm) over eave and rake edges, covering starter course overhang, to provide drip edge.

BRAND SERIES

TIMBERLINE
SERIES
Lifetime Shingles

REVISION DATE

1-01-12

SCALE

N.T.S

DETAIL NUMBER

04

DETAIL REFERENCE

SS-TS



1361 Alps Rd.
Wayne, NJ 07470
www.gaf.com

SHINGLE INSTALLATION DETAIL



Lifestyle Series Casement

Product Selection Guide	
Size and Performance Data.....	LS-CM-2
Features and Options	LS-CM-3
Combination Assemblies.....	LS-CM-4
Glazing Performance	
Dual-Pane	LS-CM-5
Triple-Pane.....	LS-CM-8
Grille Types.....	LS-CM-12
Size Tables	
Dual-Pane	LS-CM-13
Triple-Pane.....	LS-CM-15
Design Data	
Special Sizes and Dimensions, Shade Operator Handling.....	LS-CM-17
Dual-Pane	LS-CM-18
Triple-Pane.....	LS-CM-22
Detailed Product Descriptions.....	LS-CM-26
Unit Sections	
Dual-Pane	LS-CM-27
Triple-Pane.....	LS-CM-28

Document Navigation Tips:

Items listed in the table of contents above are active links that will take you to the corresponding page. The Pella logo on each page is a link back to this table of contents. Bookmarks are also included in this PDF document and are available as an additional navigation option.

Supporting documents for this product:

Test Reports:

- https://media.pella.com/professional/adm/CertificationReports/Test_Reports_LS-Dual.pdf
- https://media.pella.com/professional/adm/CertificationReports/Test_Reports_LS-Triple.pdf

CSI Specs (readable using Microsoft Word or other text editing application):

- https://media.pella.com/professional/adm/Wood-CSI_Specs/08551.rtf

Detailed Product Description (readable using Microsoft Word or other text editing application):

- https://media.pella.com/professional/adm/Clad-Wood-LS/PellaLifestyleSrs-CM_DPD.rtf

Size Tables (requires appropriate CAD software to read and use):

- https://media.pella.com/professional/adm/Clad-Wood-LS/LSCCME_D.dwg

CAD cross sections (requires appropriate CAD software to read and use):

- https://media.pella.com/professional/adm/Clad-Wood-LS/LS-CM_XSEC.dwg

3D & BIM (requires appropriate software to read and use):

- https://media.pella.com/professional/adm/RevitFiles/LS-Revit/Window-Casement-Pella-Lifestyle_Series.zip

Sketchup (requires appropriate software to read and use):

- https://media.pella.com/professional/adm/Clad-Wood-LS/PellaSKP_LifestyleSeries_Casement.zip

Combination Recommendations:

- https://media.pella.com/professional/adm/Clad-Wood/D_Combinations.pdf

Installation Details:

- https://media.pella.com/professional/adm/Clad-Wood/F_InstallationDetails.pdf

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Lifestyle Series Casement

Performance Data

Size and Performance Data

	Dual-Pane Glazing	Triple-Pane Glazing
Sizes		
Standard vent/fixed sizes	●	●
Special sizes available	●	●
Performance₁		
Meets or Exceeds AAMA/WDMA Ratings	LC30 - LC50 Hallmark Certified	R20 - LC50 Hallmark Certified
Air Infiltration (cfm/ft ² of frame @ 1.57 psf wind pressure)	0.05	0.05
Water Resistance	6.06 - 14.62 psf	7.5 psf
Design Pressure	30 - 50 psf	20 - 50 psf
Other Performance Criteria		
Forced Entry Resistance Level (Minimum Security Grade) ₂	40	40
Operating Force (lb) Initiate Motion / Maintain Motion (of Hallmark tested size and glazing) ₃	15/6	15/6

Sound Transmission Class / Outdoor-Indoor Transmission Class

Frame Size Tested ₄	Glazing System				STC Rating	OITC Rating
	Overall Glazing Thickness	Exterior Glass Thickness	Interior Glass Thickness	Third Pane Thickness (ML)		
VENT - Dual-Pane Glass						
23" x 59"	11/16"	2.5mm	2.5mm	–	25	22
23" x 59"	11/16"	5mm	3mm	–	31	26
FIXED - Dual-Pane Glass						
47" x 59"	11/16"	3mm	3mm	–	29	25
47" x 59"	11/16"	5mm	3mm	–	32	27
VENT - Triple-Pane Glass						
23" x 59"	11/16"	2.5mm	2.5mm	2.5mm	31	25
23" x 59"	11/16"	5mm	3mm	4mm	36	31
23" x 59" with blind	11/16"	5mm	3mm	4mm	36	32
23" x 59" with shade	11/16"	5mm	3mm	4mm	37	34
FIXED - Triple-Pane Glass						
47" x 59"	11/16"	3mm	3mm	3mm	33	27
47" x 59"	11/16"	5mm	3mm	4mm	35	30
47" x 59" with blind	11/16"	5mm	3mm	4mm	35	30
47" x 59" with shade	11/16"	5mm	3mm	4mm	37	31
47" x 59"	11/16"	4mm	6mm	4mm	34	29
47" x 59" with blind	11/16"	4mm	6mm	4mm	36	30
47" x 59" with shade	11/16"	4mm	6mm	4mm	37	31

(1) Maximum performance for single unit when glazed with the appropriate glass thickness. See Design Data pages in this section for specific product performance class and grade values. Values shown are for standard and special sizes; Custom sizes may not have the same values. Contact your local sales representative for complete information.

(2) The higher the level, the greater the product's ability to resist forced entry.

(3) Glazing configurations may result in higher operational forces

(4) ASTM E 1425 defines standard sizes for acoustical testing. Ratings achieved at that size are representative of all sizes of the same configuration.



Lifestyle Series Casement

Features and Options

Standard	Options / Upgrades
Glazing	
Glazing Type	
Dual-Pane Glazing	Triple-Pane Glazing with Clear Moveable Light
Insulated Glass Options/Low-E Types	
Advanced Low-E	SunDefense™ Low-E
	AdvancedComfort Low-E
	NaturalSun Low-E
Glass Performance Package Options	
Base Package (Dual-Pane)	Performance Package - Triple-Pane
	Sound Control Package - Triple-Pane with STC glass
	Energy Efficiency Package - Triple-Pane with AdvancedComfort Low-E
	Ultimate Performance Package - Triple-Pane with AdvancedComfort Low-E and STC glass
Additional Glass Options	
Annealed Glass	STC Glazing Options
	Tempered Glass
	Obscure Glass,
Gas Fill/High Altitude	
Argon	High altitude (Air-filled only)
Exterior	
EnduraClad® Cladding Colors 1	
12 Standard colors	12 Standard Colors
Interior:	
Unfinished wood	Factory primed, Factory prefinished paint, Factory prefinished stain
Wood Types	
Pine	-
Hardware	
Champagne, White, Brown or Matte Black	Satin Nickel, Oil-Rubbed Bronze
Sash Locks	
Innovative Locking System, Unison Lock System ²	-
Hinging	
Wash hinge hardware	Side-Pivot
Grilles	
Room-side Removable Grilles (Dual-Pane glazing only)	
-	Traditional, Custom - Equally Divided
Simulated-Divided-Light with Optional Spacer (Dual-Pane glazing)	
-	Traditional, Prairie, Top Row, Cross, Custom - Equally Divided
Simulated-Divided-Light with Grilles-Between-the-Glass (Triple-Pane glazing)	
-	Traditional, Prairie, Top Row, Cross, Custom - Equally Divided
Grilles-Between-the-Glass	
-	Traditional, Prairie, Top Row, Cross, Custom - Equally Divided
Integrated Between-the-Glass Options (Triple-Pane Only):	
Cellular Fabric Shades	
-	Raise-and-lower bottom-up
Slimshade® Blinds	
-	Raise-and-lower bottom-up
Screens	
-	InView™ screens, Vivid View® screens, Rolscreen® Retractable Screen

(-) = Not Available

(1) Contact your local Pella sales representative for current designs and color options.

(2) Unit height determines availability.



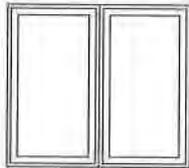
Lifestyle Series Casement

Combination Assemblies

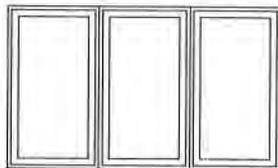
Combinations are a great way to create visual interest in any project. A combination is an assembly formed by two or more separate windows or doors whose frames are mullied together by a combination or reinforcing mullion.

Pella window combinations are available in an endless variety of arrangements. Below are available factory-assembled combinations. Some units can be fixed or vent depending on availability. Refer to Combinations section for typical combinations and requirements and limitations related to mulling various combinations.

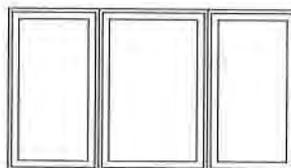
Contact your local Pella sales representative for more information.



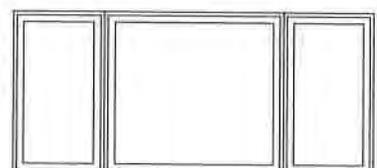
Two-Wide



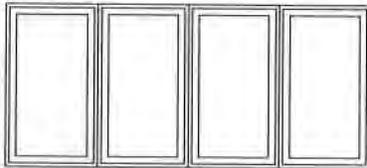
Three-Wide Equal



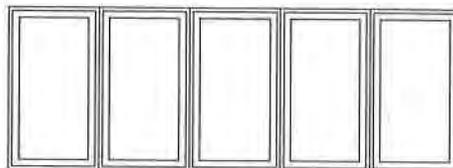
Three-Wide Unequal



Center Fixed with Flankers



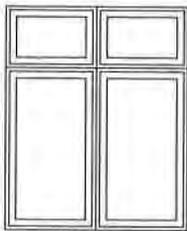
Four-Wide



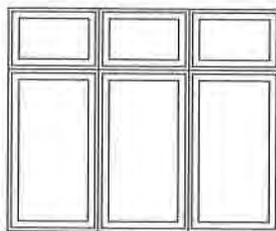
Five-Wide



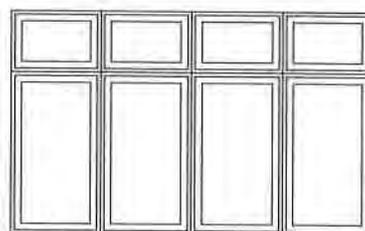
Transom over Single



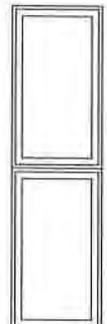
Two-Wide Transom over Two-Wide



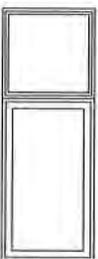
Three-Wide Transom over Three-Wide



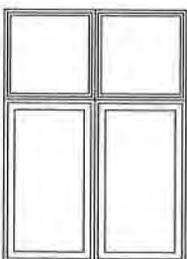
Four-Wide Transom over Four-Wide



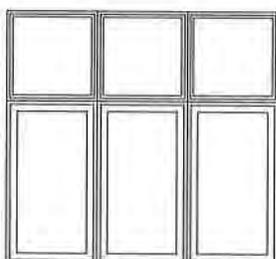
Two-High



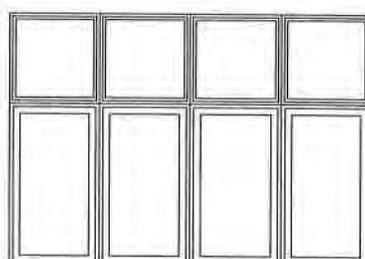
Clad Frame over Single



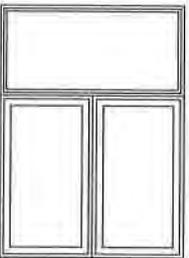
Two-Wide Clad Frame over Two-Wide



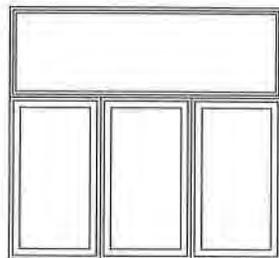
Three-Wide Clad Frame over Three-Wide



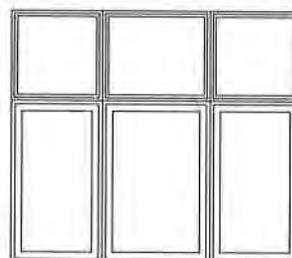
Four-Wide Clad Frame over Four-Wide



Single Clad Frame over Two-Wide



Single Clad Frame over Three-Wide



Three-Wide Clad Frame over Three-Wide Unequal



Lifestyle Series Casement

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values 1				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada2	
										Zone				ER	Zone
Dual-Pane Vent										N	NC	SC	S	CA	
11/16"	Advanced Low-E IG	PEL-N-14-00677-00001	2.5	2.5	Argon	0.29	0.27	0.51	58		NC				
	with grilles-between-the-glass	PEL-N-14-00678-00001				0.29	0.25	0.47	58		NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00679-00001				0.29	0.25	0.47	58		NC	SC	S		
11/16"	Advanced Low-E IG	PEL-N-14-00685-00001	3	3	Argon	0.28	0.27	0.51	58		NC				
	with grilles-between-the-glass	PEL-N-14-00686-00001				0.28	0.25	0.46	58		NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00687-00001				0.29	0.25	0.46	58		NC	SC	S		
11/16"	SunDefense™ Low-E IG	PEL-N-14-00777-00001	2.5	2.5	Argon	0.28	0.20	0.48	59		NC	SC	S		
	with grilles-between-the-glass	PEL-N-14-00778-00001				0.28	0.19	0.43	59		NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00779-00001				0.29	0.19	0.43	59		NC	SC	S		
11/16"	SunDefense Low-E IG	PEL-N-14-00785-00001	3	3	Argon	0.28	0.20	0.47	58		NC	SC	S		
	with grilles-between-the-glass	PEL-N-14-00786-00001				0.28	0.19	0.43	58		NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00787-00001				0.29	0.19	0.43	58		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00645-00001	2.5	2.5	Argon	0.25	0.27	0.50	46	N	NC				
	with grilles-between-the-glass	PEL-N-14-00738-00001				0.25	0.25	0.46	46	N	NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00739-00001				0.25	0.25	0.46	46	N	NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00745-00001	3	3	Argon	0.25	0.27	0.50	45	N	NC				
	with grilles-between-the-glass	PEL-N-14-00746-00001				0.25	0.25	0.45	45	N	NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00747-00001				0.26	0.25	0.45	45	N	NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-14-00637-00001	2.5	2.5	Argon	0.29	0.51	0.58	58	N					
	with grilles-between-the-glass	PEL-N-14-00638-00001				0.29	0.47	0.53	58	N					
	with Simulated Divided Light	PEL-N-14-00639-00001				0.30	0.47	0.53	58	N					
11/16"	NaturalSun Low-E IG	PEL-N-14-00645-00001	3	3	Argon	0.29	0.50	0.58	57	N					
	with grilles-between-the-glass	PEL-N-14-00646-00001				0.29	0.46	0.52	57	N					
	with Simulated Divided Light	PEL-N-14-00647-00001				0.30	0.46	0.52	57	N					
Dual-Pane Vent - High Altitude Glazing															
11/16"	Advanced Low-E IG	PEL-N-14-00673-00001	2.5	2.5	Air	0.32	0.28	0.51	55						
	with grilles-between-the-glass	PEL-N-14-00674-00001				0.32	0.25	0.47	55						
	with Simulated Divided Light	PEL-N-14-00675-00001				0.32	0.25	0.47	55						
11/16"	Advanced Low-E IG	PEL-N-14-00681-00001	3	3	Air	0.32	0.28	0.51	54						
	with grilles-between-the-glass	PEL-N-14-00682-00001				0.32	0.25	0.46	54						
	with Simulated Divided Light	PEL-N-14-00683-00001				0.33	0.25	0.46	54						
11/16"	SunDefense™ Low-E IG	PEL-N-14-00773-00001	2.5	2.5	Air	0.31	0.21	0.48	55						
	with grilles-between-the-glass	PEL-N-14-00774-00001				0.31	0.19	0.43	55						
	with Simulated Divided Light	PEL-N-14-00775-00001				0.32	0.19	0.43	55						
11/16"	SunDefense Low-E IG	PEL-N-14-00781-00001	3	3	Air	0.32	0.21	0.47	54						
	with grilles-between-the-glass	PEL-N-14-00782-00001				0.32	0.19	0.43	54						
	with Simulated Divided Light	PEL-N-14-00783-00001				0.32	0.19	0.43	54						
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00733-00001	2.5	2.5	Air	0.27	0.27	0.50	43	N	NC				
	with grilles-between-the-glass	PEL-N-14-00734-00001				0.27	0.25	0.46	43	N	NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00735-00001				0.28	0.25	0.46	43		NC	SC	S		
11/16"	AdvancedComfort Low-E IG	PEL-N-14-00741-00001	3	3	Air	0.27	0.27	0.50	42	N	NC				
	with grilles-between-the-glass	PEL-N-14-00742-00001				0.27	0.25	0.45	42	N	NC	SC	S		
	with Simulated Divided Light	PEL-N-14-00743-00001				0.28	0.25	0.45	42		NC	SC	S		
11/16"	NaturalSun Low-E IG	PEL-N-14-00633-00001	2.5	2.5	Air	0.33	0.51	0.58	54						
	with grilles-between-the-glass	PEL-N-14-00634-00001				0.33	0.47	0.53	54						
	with Simulated Divided Light	PEL-N-14-00635-00001				0.33	0.47	0.53	54						
11/16"	NaturalSun Low-E IG	PEL-N-14-00641-00001	3	3	Air	0.33	0.50	0.58	54						
	with grilles-between-the-glass	PEL-N-14-00642-00001				0.33	0.46	0.52	54						
	with Simulated Divided Light	PEL-N-14-00643-00001				0.34	0.46	0.52	54						

R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance
 ER = Canadian Energy Rating

Climate Zones



(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2016 (Version 6) criteria.
 (2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.
 See the Product Performance section for more detailed information or visit www.energystar.gov for Energy Star guidelines.



Lifestyle Series Casement

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ¹				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown						
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.				Canada ²		
										Zone				ER	Zone	
Dual-Pane Fixed										N	NC	SC	S	CA		
11/16"	Advanced LowE IG	PEL-N-229-00861-00001	2.5	2.5	argon	0.27	0.31	0.58	58		NC					
	with grilles-between-the-glass	PEL-N-229-00862-00001				0.27	0.28	0.52	58		NC					
	with Simulated Divided Light	PEL-N-229-00863-00001				0.28	0.28	0.52	58		NC					
11/16"	Advanced LowE IG	PEL-N-229-00949-00001	3	3	argon	0.27	0.31	0.58	57		NC					
	with grilles-between-the-glass	PEL-N-229-00950-00001				0.27	0.28	0.51	57		NC					
	with Simulated Divided Light	PEL-N-229-00951-00001				0.28	0.28	0.51	57		NC					
11/16"	Advanced LowE IG	PEL-N-229-00965-00001	4	4	argon	0.28	0.30	0.57	58		NC					
	with grilles-between-the-glass	PEL-N-229-00966-00001				0.29	0.28	0.51	58		NC					
	with Simulated Divided Light	PEL-N-229-00967-00001				0.29	0.28	0.51	58		NC					
11/16"	SunDefense™ Low-E IG	PEL-N-229-01045-00001	2.5	2.5	argon	0.27	0.23	0.54	58	N	NC	SC	S			
	with grilles-between-the-glass	PEL-N-229-01046-00001				0.27	0.21	0.48	58	N	NC	SC	S			
	with Simulated Divided Light	PEL-N-229-01047-00001				0.28	0.28	0.51	58		NC					
11/16"	SunDefense Low-E IG	PEL-N-229-01053-00001	3	3	argon	0.27	0.23	0.53	57	N	NC	SC	S			
	with grilles-between-the-glass	PEL-N-229-01054-00001				0.27	0.21	0.48	57	N	NC	SC	S			
	with Simulated Divided Light	PEL-N-229-01055-00001				0.28	0.21	0.48	57		NC	SC	S			
11/16"	SunDefense Low-E IG	PEL-N-229-01061-00001	4	4	argon	0.28	0.23	0.53	55		NC	SC	S			
	with grilles-between-the-glass	PEL-N-229-01062-00001				0.29	0.21	0.47	55		NC	SC	S			
	with Simulated Divided Light	PEL-N-229-01063-00001				0.29	0.21	0.47	55		NC	SC	S			
11/16"	AdvancedComfort Low-E IG	PEL-N-229-00997-00001	2.5	2.5	argon	0.23	0.30	0.57	46	N	NC					
	with grilles-between-the-glass	PEL-N-229-00998-00001				0.23	0.27	0.51	46	N	NC					
	with Simulated Divided Light	PEL-N-229-00999-00001				0.24	0.27	0.51	46	N	NC					
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01005-00001	3	3	argon	0.23	0.30	0.56	45	N	NC					
	with grilles-between-the-glass	PEL-N-229-01006-00001				0.23	0.27	0.50	45	N	NC					
	with Simulated Divided Light	PEL-N-229-01007-00001				0.24	0.27	0.50	45	N	NC					
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01013-00001	4	4	argon	0.24	0.30	0.55	43	N	NC					
	with grilles-between-the-glass	PEL-N-229-01014-00001				0.25	0.27	0.50	43	N	NC					
	with Simulated Divided Light	PEL-N-229-01015-00001				0.25	0.27	0.50	43	N	NC					
11/16"	NaturalSun LowE IG	PEL-N-229-00901-00001	2.5	2.5	argon	0.28	0.58	0.66	57						38	CA
	with grilles-between-the-glass	PEL-N-229-00902-00001				0.28	0.52	0.59	57						35	CA
	with Simulated Divided Light	PEL-N-229-00903-00001				0.29	0.52	0.59	57						34	CA
11/16"	NaturalSun LowE IG	PEL-N-229-00909-00001	3	3	argon	0.28	0.57	0.65	56						38	CA
	with grilles-between-the-glass	PEL-N-229-00910-00001				0.28	0.51	0.58	56						34	CA
	with Simulated Divided Light	PEL-N-229-00911-00001				0.29	0.51	0.58	56							
11/16"	NaturalSun LowE IG	PEL-N-229-00917-00001	4	4	argon	0.29	0.55	0.65	55						35	CA
	with grilles-between-the-glass	PEL-N-229-00918-00001				0.30	0.50	0.58	55							
	with Simulated Divided Light	PEL-N-229-00919-00001				0.30	0.50	0.58	55							

R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500 ENERGY STAR® values are updated to 2016 (Version 6) criteria.
 (2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative. For more information, see the ENERGY STAR guidelines.

Climate Zones





Lifestyle Series Casement

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)		Gap Fill	Performance Values ¹				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown				
			Ext.	Int.		U-Factor	SHGC	VLT	CR	U. S.		Canada ²		
										Zone		ER	Zone	
Dual-Pane Fixed - High Altitude Glazing										N	NC	SC	S	CA
11/16"	Advanced LowE IG	PEL-N-229-00857-00001	2.5	2.5	air	0.31	0.31	0.58	54					
	with grilles-between-the-glass	PEL-N-229-00858-00001				0.31	0.28	0.52	54					
	with Simulated Divided Light	PEL-N-229-00859-00001				0.32	0.28	0.52	54					
11/16"	Advanced LowE IG	PEL-N-229-00945-00001	3	3	air	0.31	0.31	0.58	53					
	with grilles-between-the-glass	PEL-N-229-00946-00001				0.31	0.28	0.51	53					
	with Simulated Divided Light	PEL-N-229-00947-00001				0.32	0.28	0.51	53					
11/16"	Advanced LowE IG	PEL-N-229-00961-00001	4	4	air	0.33	0.31	0.57	51					
	with grilles-between-the-glass	PEL-N-229-00962-00001				0.34	0.28	0.51	51					
	with Simulated Divided Light	PEL-N-229-00963-00001				0.34	0.28	0.51	51					
11/16"	SunDefense™ Low-E IG	PEL-N-229-01041-00001	2.5	2.5	air	0.31	0.23	0.54	55				S	
	with grilles-between-the-glass	PEL-N-229-01042-00001				0.31	0.21	0.48	55				S	
	with Simulated Divided Light	PEL-N-229-01043-00001				0.28	0.21	0.48	53		NC	SC	S	
11/16"	SunDefense Low-E IG	PEL-N-229-01049-00001	3	3	air	0.31	0.23	0.53	54				S	
	with grilles-between-the-glass	PEL-N-229-01050-00001				0.31	0.21	0.48	54				S	
	with Simulated Divided Light	PEL-N-229-01051-00001				0.32	0.21	0.48	54				S	
11/16"	SunDefense Low-E IG	PEL-N-229-01057-00001	4	4	air	0.32	0.23	0.53	52				S	
	with grilles-between-the-glass	PEL-N-229-01058-00001				0.34	0.21	0.47	52				S	
	with Simulated Divided Light	PEL-N-229-01059-00001				0.34	0.21	0.47	52				S	
11/16"	AdvancedComfort Low-E IG	PEL-N-229-00993-00001	2.5	2.5	air	0.26	0.30	0.57	42	N	NC			
	with grilles-between-the-glass	PEL-N-229-00994-00001				0.26	0.27	0.51	42	N	NC			
	with Simulated Divided Light	PEL-N-229-00995-00001				0.26	0.27	0.51	42	N	NC			
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01001-00001	3	3	air	0.26	0.30	0.56	41	N	NC			
	with grilles-between-the-glass	PEL-N-229-01002-00001				0.26	0.27	0.50	41	N	NC			
	with Simulated Divided Light	PEL-N-229-01003-00001				0.27	0.27	0.50	41	N	NC			
11/16"	AdvancedComfort Low-E IG	PEL-N-229-01009-00001	4	4	air	0.27	0.30	0.55	39		NC			
	with grilles-between-the-glass	PEL-N-229-01010-00001				0.28	0.27	0.50	39		NC			
	with Simulated Divided Light	PEL-N-229-01011-00001				0.28	0.27	0.50	39		NC			
11/16"	NaturalSun LowE IG	PEL-N-229-00897-00001	2.5	2.5	air	0.32	0.57	0.66	54					
	with grilles-between-the-glass	PEL-N-229-00898-00001				0.32	0.52	0.59	54					
	with Simulated Divided Light	PEL-N-229-00899-00001				0.33	0.52	0.59	54					
11/16"	NaturalSun LowE IG	PEL-N-229-00905-00001	3	3	air	0.32	0.56	0.65	53					
	with grilles-between-the-glass	PEL-N-229-00906-00001				0.32	0.51	0.58	53					
	with Simulated Divided Light	PEL-N-229-00907-00001				0.33	0.51	0.58	53					
11/16"	NaturalSun LowE IG	PEL-N-229-00913-00001	4	4	air	0.34	0.55	0.65	51					
	with grilles-between-the-glass	PEL-N-229-00914-00001				0.35	0.49	0.58	51					
	with Simulated Divided Light	PEL-N-229-00915-00001				0.35	0.49	0.58	51					

R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance

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(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative. For more information, see the ENERGY STAR guidelines.

Climate Zones





Lifestyle Series Casement

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ¹				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown										
			Ext.	Mid	Int.		U-Factor ¹	SHGC	VLT	CR	U. S.				Canada ²						
											Zone				ER	Zone					
Triple-Pane Vent with Clear ML											N	NC	SC	S							
11/16"	Advanced Low-E IG	PEL-N-245-00101-00001	2.5	2.5	2.5	Argon	0.25	0.23	0.41	67	N	NC	SC	S							
11/16"	Advanced Low-E IG w/ GBG	PEL-N-245-00102-00001	2.5	2.5	2.5	Argon	0.25	0.21	0.37	67	N	NC	SC	S							
11/16"	Advanced Low-E IG w/ SDL	PEL-N-245-00102-00002	2.5	2.5	2.5	Argon	0.25	0.21	0.37	67	N	NC	SC	S							
11/16"	Advanced Low-E IG	PEL-N-245-00103-00001	3	3	3	Argon	0.25	0.22	0.41	67	N	NC	SC	S							
11/16"	Advanced Low-E IG w/ GBG	PEL-N-245-00104-00001	3	3	3	Argon	0.25	0.20	0.37	67	N	NC	SC	S							
11/16"	Advanced Low-E IG w/ SDL	PEL-N-245-00104-00002	3	3	3	Argon	0.25	0.20	0.37	67	N	NC	SC	S							
11/16"	Advanced Low-E IG	PEL-N-245-00137-00001	5	3	4	Argon	0.25	0.22	0.40	67	N	NC	SC	S							
11/16"	Advanced Low-E IG w/ GBG	PEL-N-245-00138-00001	5	3	4	Argon	0.26	0.20	0.36	67	N	NC	SC	S							
11/16"	Advanced Low-E IG w/ SDL	PEL-N-245-00138-00002	5	3	4	Argon	0.26	0.20	0.36	67	N	NC	SC	S							
11/16"	AdvancedComfort Low-E IG	PEL-N-245-00025-00001	2.5	2.5	2.5	Argon	0.20	0.22	0.40	73	N	NC	SC	S	28					CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-245-00026-00001	2.5	2.5	2.5	Argon	0.20	0.20	0.36	73	N	NC	SC	S	26					CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-245-00026-00002	2.5	2.5	2.5	Argon	0.20	0.20	0.36	73	N	NC	SC	S	26					CA	
11/16"	AdvancedComfort Low-E IG	PEL-N-245-00027-00001	3	3	3	Argon	0.20	0.22	0.40	73	N	NC	SC	S	28					CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-245-00028-00001	3	3	3	Argon	0.20	0.20	0.36	73	N	NC	SC	S	26					CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-245-00028-00002	3	3	3	Argon	0.20	0.20	0.36	73	N	NC	SC	S	26					CA	
11/16"	AdvancedComfort Low-E IG	PEL-N-245-00073-00001	5	3	4	Argon	0.21	0.21	0.39	73	N	NC	SC	S	26					CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-245-00074-00001	5	3	4	Argon	0.21	0.20	0.35	73	N	NC	SC	S	25					CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-245-00074-00002	5	3	4	Argon	0.21	0.20	0.35	73	N	NC	SC	S	25					CA	
11/16"	SunDefense™ Low-E IG	PEL-N-245-00125-00001	2.5	2.5	2.5	Argon	0.25	0.17	0.38	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-245-00126-00001	2.5	2.5	2.5	Argon	0.25	0.15	0.35	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-245-00126-00002	2.5	2.5	2.5	Argon	0.25	0.15	0.35	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG	PEL-N-245-00127-00001	3	3	3	Argon	0.24	0.17	0.38	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-245-00128-00001	3	3	3	Argon	0.24	0.15	0.34	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-245-00128-00002	3	3	3	Argon	0.24	0.15	0.34	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG	PEL-N-245-00145-00001	5	3	4	Argon	0.25	0.17	0.37	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-245-00146-00001	5	3	4	Argon	0.25	0.15	0.34	67	N	NC	SC	S							
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-245-00146-00002	5	3	4	Argon	0.25	0.15	0.34	67	N	NC	SC	S							
11/16"	NaturalSun Low-E IG	PEL-N-245-00089-00001	2.5	2.5	2.5	Argon	0.25	0.42	0.47	67	N										
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-245-00090-00001	2.5	2.5	2.5	Argon	0.25	0.38	0.42	67	N	NC									
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-245-00090-00002	2.5	2.5	2.5	Argon	0.25	0.38	0.42	67	N	NC									
11/16"	NaturalSun Low-E IG	PEL-N-245-00091-00001	3	3	3	Argon	0.25	0.41	0.46	67	N										
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-245-00092-00001	3	3	3	Argon	0.25	0.37	0.42	67	N	NC									
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-245-00092-00002	3	3	3	Argon	0.25	0.37	0.42	67	N	NC									
11/16"	NaturalSun Low-E IG	PEL-N-245-00153-00001	5	3	4	Argon	0.26	0.39	0.46	66	N	NC									
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-245-00154-00001	5	3	4	Argon	0.26	0.35	0.41	66	N	NC									
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-245-00154-00002	5	3	4	Argon	0.26	0.35	0.41	66	N	NC									

R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2016 (Version 6) criteria.

(2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative.

For more information, see the ENERGY STAR guidelines.

Climate Zones





Lifestyle Series Casement

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown					
			Ext.	Mid	Int.		U-Factor ₁	SHGC	VLT	CR	U. S.				Canada ₂	
											Zone				ER	Zone
Triple-Pane Vent with High Altitude Glazing and Clear ML											N	NC	SC	S		CA
11/16"	Advanced Low-E HA IG	PEL-N-245-00107-00001	2.5	2.5	2.5	Air	0.27	0.23	0.41	66	N	NC	SC	S		
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-245-00108-00001	2.5	2.5	2.5	Air	0.27	0.21	0.37	66	N	NC	SC	S		
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-245-00108-00002	2.5	2.5	2.5	Air	0.27	0.21	0.37	66	N	NC	SC	S		
11/16"	Advanced Low-E HA IG	PEL-N-245-00109-00001	3	3	3	Air	0.27	0.23	0.41	66	N	NC	SC	S		
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-245-00110-00001	3	3	3	Air	0.27	0.21	0.37	66	N	NC	SC	S		
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-245-00110-00002	3	3	3	Air	0.27	0.21	0.37	66	N	NC	SC	S		
11/16"	Advanced Low-E HA IG	PEL-N-245-00141-00001	5	3	4	Air	0.28	0.22	0.40	64		NC	SC	S		
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-245-00142-00001	5	3	4	Air	0.28	0.20	0.36	64		NC	SC	S		
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-245-00142-00002	5	3	4	Air	0.28	0.20	0.36	64		NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG	PEL-N-245-00031-00001	2.5	2.5	2.5	Air	0.22	0.22	0.40	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-245-00032-00001	2.5	2.5	2.5	Air	0.22	0.20	0.36	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-245-00032-00002	2.5	2.5	2.5	Air	0.22	0.20	0.36	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG	PEL-N-245-00033-00001	3	3	3	Air	0.22	0.22	0.40	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-245-00034-00001	3	3	3	Air	0.22	0.20	0.36	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-245-00034-00002	3	3	3	Air	0.22	0.20	0.36	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG	PEL-N-245-00077-00001	5	3	4	Air	0.23	0.21	0.39	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-245-00078-00001	5	3	4	Air	0.23	0.20	0.35	72	N	NC	SC	S		
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-245-00078-00002	5	3	4	Air	0.23	0.20	0.35	72	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG	PEL-N-245-00131-00001	2.5	2.5	2.5	Air	0.26	0.17	0.38	66	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-245-00132-00001	2.5	2.5	2.5	Air	0.26	0.16	0.35	66	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-245-00132-00002	2.5	2.5	2.5	Air	0.26	0.16	0.35	66	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG	PEL-N-245-00133-00001	3	3	3	Air	0.27	0.17	0.38	66	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-245-00134-00001	3	3	3	Air	0.27	0.16	0.34	66	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-245-00134-00002	3	3	3	Air	0.27	0.16	0.34	66	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG	PEL-N-245-00149-00001	5	3	4	Air	0.27	0.17	0.37	65	N	NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-245-00150-00001	5	3	4	Air	0.28	0.16	0.34	65		NC	SC	S		
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-245-00150-00002	5	3	4	Air	0.28	0.16	0.34	65		NC	SC	S		
11/16"	NaturalSun Low-E HA IG	PEL-N-245-00095-00001	2.5	2.5	2.5	Air	0.27	0.41	0.47	66	N					
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-245-00096-00001	2.5	2.5	2.5	Air	0.27	0.38	0.42	66	N	NC				
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-245-00096-00002	2.5	2.5	2.5	Air	0.27	0.38	0.42	66	N	NC				
11/16"	NaturalSun Low-E HA IG	PEL-N-245-00097-00001	3	3	3	Air	0.27	0.40	0.46	65	N	NC				
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-245-00098-00001	3	3	3	Air	0.27	0.37	0.42	65	N	NC				
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-245-00098-00002	3	3	3	Air	0.27	0.37	0.42	65	N	NC				
11/16"	NaturalSun Low-E HA IG	PEL-N-245-00157-00001	5	3	4	Air	0.28	0.39	0.46	64	N	NC				
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-245-00158-00001	5	3	4	Air	0.28	0.35	0.41	64	N	NC				
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-245-00158-00002	5	3	4	Air	0.28	0.35	0.41	64	N	NC				

R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance

(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2016 (Version 6) criteria.
 (2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative. For more information, see the ENERGY STAR guidelines.

Climate Zones





Lifestyle Series Casement

Glazing Performance - Total Unit

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values 1				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown						
			Ext.	Mid	Int.		U-Factor 1	SHGC	VLT	CR	U. S.				Canada 2		
											Zone				ER	Zone	
Triple-Pane Fixed with Clear ML											N	NC	SC	S			
11/16"	Advanced Low-E IG	PEL-N-244-00101-00001	2.5	2.5	2.5	Argon	0.23	0.27	0.50	67	N	NC					
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00102-00001	2.5	2.5	2.5	Argon	0.23	0.24	0.44	67	N	NC	SC	S			
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00102-00002	2.5	2.5	2.5	Argon	0.23	0.24	0.44	67	N	NC	SC	S			
11/16"	Advanced Low-E IG	PEL-N-244-00103-00001	3	3	3	Argon	0.23	0.26	0.49	67	N	NC					
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00104-00001	3	3	3	Argon	0.23	0.24	0.43	67	N	NC	SC	S			
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00104-00002	3	3	3	Argon	0.23	0.24	0.43	67	N	NC	SC	S			
11/16"	Advanced Low-E IG	PEL-N-244-00105-00001	4	4	4	Argon	0.24	0.26	0.48	67	N	NC					
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00106-00001	4	4	4	Argon	0.24	0.23	0.43	67	N	NC	SC	S			
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00106-00002	4	4	4	Argon	0.24	0.23	0.43	67	N	NC	SC	S			
11/16"	Advanced Low-E IG	PEL-N-244-00137-00001	5	3	4	Argon	0.23	0.26	0.48	67	N	NC					
11/16"	Advanced Low-E IG w/ GBG	PEL-N-244-00138-00001	5	3	4	Argon	0.24	0.23	0.43	67	N	NC	SC	S			
11/16"	Advanced Low-E IG w/ SDL	PEL-N-244-00138-00002	5	3	4	Argon	0.24	0.23	0.43	67	N	NC	SC	S			
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00025-00001	2.5	2.5	2.5	Argon	0.19	0.26	0.48	73	N	NC			31	CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00026-00001	2.5	2.5	2.5	Argon	0.19	0.24	0.43	73	N	NC	SC	S	30	CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00026-00002	2.5	2.5	2.5	Argon	0.19	0.24	0.43	73	N	NC	SC	S	30	CA	
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00027-00001	3	3	3	Argon	0.19	0.26	0.48	73	N	NC			31	CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00028-00001	3	3	3	Argon	0.19	0.23	0.42	73	N	NC	SC	S	29	CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00028-00002	3	3	3	Argon	0.19	0.23	0.42	73	N	NC	SC	S	29	CA	
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00029-00001	4	4	4	Argon	0.19	0.25	0.47	72	N	NC	SC	S	31	CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00030-00001	4	4	4	Argon	0.20	0.23	0.42	72	N	NC	SC	S	28	CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00030-00002	4	4	4	Argon	0.20	0.23	0.42	72	N	NC	SC	S	28	CA	
11/16"	AdvancedComfort Low-E IG	PEL-N-244-00073-00001	5	3	4	Argon	0.19	0.25	0.47	73	N	NC	SC	S	31	CA	
11/16"	AdvancedComfort Low-E IG w/ GBG	PEL-N-244-00074-00001	5	3	4	Argon	0.20	0.23	0.42	73	N	NC	SC	S	28	CA	
11/16"	AdvancedComfort Low-E IG w/ SDL	PEL-N-244-00074-00002	5	3	4	Argon	0.20	0.23	0.42	73	N	NC	SC	S	28	CA	
11/16"	SunDefense™ Low-E IG	PEL-N-244-00125-00001	2.5	2.5	2.5	Argon	0.23	0.20	0.46	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00126-00001	2.5	2.5	2.5	Argon	0.23	0.18	0.41	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00126-00002	2.5	2.5	2.5	Argon	0.23	0.18	0.41	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG	PEL-N-244-00127-00001	3	3	3	Argon	0.22	0.20	0.45	68	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00128-00001	3	3	3	Argon	0.22	0.18	0.40	68	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00128-00002	3	3	3	Argon	0.22	0.18	0.40	68	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG	PEL-N-244-00129-00001	4	4	4	Argon	0.23	0.20	0.45	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00130-00001	4	4	4	Argon	0.24	0.18	0.40	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00130-00002	4	4	4	Argon	0.24	0.18	0.40	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG	PEL-N-244-00145-00001	5	3	4	Argon	0.23	0.20	0.44	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ GBG	PEL-N-244-00146-00001	5	3	4	Argon	0.24	0.18	0.40	67	N	NC	SC	S			
11/16"	SunDefense™ Low-E IG w/ SDL	PEL-N-244-00146-00002	5	3	4	Argon	0.24	0.18	0.40	67	N	NC	SC	S			
11/16"	NaturalSun Low-E IG	PEL-N-244-00089-00001	2.5	2.5	2.5	Argon	0.23	0.49	0.56	67	N				40	CA	
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00090-00001	2.5	2.5	2.5	Argon	0.23	0.44	0.50	67	N				37	CA	
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00090-00002	2.5	2.5	2.5	Argon	0.23	0.44	0.50	67	N				37	CA	
11/16"	NaturalSun Low-E IG	PEL-N-244-00091-00001	3	3	3	Argon	0.23	0.48	0.55	67	N				39	CA	
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00092-00001	3	3	3	Argon	0.23	0.43	0.49	67	N				36	CA	
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00092-00002	3	3	3	Argon	0.23	0.43	0.49	67	N				36	CA	
11/16"	NaturalSun Low-E IG	PEL-N-244-00093-00001	4	4	4	Argon	0.24	0.47	0.55	66	N				37	CA	
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00094-00001	4	4	4	Argon	0.25	0.42	0.49	66	N						
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00094-00002	4	4	4	Argon	0.25	0.42	0.49	66	N						
11/16"	NaturalSun Low-E IG	PEL-N-244-00153-00001	5	3	4	Argon	0.24	0.46	0.55	67	N				37	CA	
11/16"	NaturalSun Low-E IG w/ GBG	PEL-N-244-00154-00001	5	3	4	Argon	0.24	0.42	0.49	67	N				34	CA	
11/16"	NaturalSun Low-E IG w/ SDL	PEL-N-244-00154-00002	5	3	4	Argon	0.24	0.42	0.49	67	N				34	CA	

Climate Zones



R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance

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Lifestyle Series Casement

Glazing Thickness	Type of Glazing	NFRC Certified Product #	Glass (mm)			Gap Fill	Performance Values ₁				Shaded Areas Meet ENERGY STAR® Performance Criteria in Zones Shown				
			Ext.	Mid	Int.		U-Factor ₁	SHGC	VLT	CR	U. S.				Canada ₂
											Zone				ER
Triple Pane Fixed with High Altitude Glazing and Clear ML											N	NC	SC	S	CA
11/16"	Advanced Low-E HA IG	PEL-N-244-00107-00001	2.5	2.5	2.5	Air	0.25	0.27	0.50	66	N	NC			
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00108-00001	2.5	2.5	2.5	Air	0.25	0.24	0.44	66	N	NC	SC	S	
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00108-00002	2.5	2.5	2.5	Air	0.25	0.24	0.44	66	N	NC	SC	S	
11/16"	Advanced Low-E HA IG	PEL-N-244-00109-00001	3	3	3	Air	0.25	0.27	0.49	66	N	NC			
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00110-00001	3	3	3	Air	0.25	0.24	0.43	66	N	NC	SC	S	
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00110-00002	3	3	3	Air	0.25	0.24	0.43	66	N	NC	SC	S	
11/16"	Advanced Low-E HA IG	PEL-N-244-00111-00001	4	4	4	Air	0.26	0.26	0.48	64	N	NC			
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00112-00001	4	4	4	Air	0.27	0.24	0.43	64	N	NC	SC	S	
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00112-00002	4	4	4		0.27	0.24	0.43	64	N	NC	SC	S	
11/16"	Advanced Low-E HA IG	PEL-N-244-00141-00001	5	3	4		0.26	0.26	0.48	65	N	NC			
11/16"	Advanced Low-E HA IG w/ GBG	PEL-N-244-00142-00001	5	3	4		0.27	0.24	0.43	65	N	NC	SC	S	
11/16"	Advanced Low-E HA IG w/ SDL	PEL-N-244-00142-00002	5	3	4	Air	0.27	0.24	0.43	65	N	NC	SC	S	
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00031-00001	2.5	2.5	2.5	Air	0.20	0.26	0.48	72	N	NC			30 CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00032-00001	2.5	2.5	2.5	Air	0.20	0.23	0.43	72	N	NC	SC	S	28 CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00032-00002	2.5	2.5	2.5	Air	0.20	0.23	0.43	72	N	NC	SC	S	28 CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00033-00001	3	3	3	Air	0.21	0.26	0.48	72	N	NC			29 CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00034-00001	3	3	3	Air	0.21	0.23	0.42	72	N	NC	SC	S	27 CA
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00034-00002	3	3	3	Air	0.21	0.23	0.42	72	N	NC	SC	S	27 CA
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00035-00001	4	4	4	Air	0.21	0.25	0.47	72	N	NC	SC	S	28 CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00036-00001	4	4	4		0.22	0.23	0.42	72	N	NC	SC	S	
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00036-00002	4	4	4		0.22	0.23	0.42	72	N	NC	SC	S	
11/16"	AdvancedComfort Low-E HA IG	PEL-N-244-00077-00001	5	3	4		0.21	0.25	0.47	72	N	NC	SC	S	28 CA
11/16"	AdvancedComfort Low-E HA IG w/ GBG	PEL-N-244-00078-00001	5	3	4	Air	0.22	0.23	0.42	72	N	NC	SC	S	
11/16"	AdvancedComfort Low-E HA IG w/ SDL	PEL-N-244-00078-00002	5	3	4	Air	0.22	0.23	0.42	72	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00131-00001	2.5	2.5	2.5	Air	0.25	0.20	0.46	67	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00132-00001	2.5	2.5	2.5	Air	0.25	0.18	0.41	67	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00132-00002	2.5	2.5	2.5		0.25	0.18	0.41	67	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00133-00001	3	3	3		0.25	0.20	0.45	66	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00134-00001	3	3	3		0.25	0.18	0.40	66	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00134-00002	3	3	3	Air	0.25	0.18	0.40	66	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00135-00001	4	4	4	Air	0.26	0.20	0.45	65	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00136-00001	4	4	4	Air	0.27	0.18	0.40	65	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00136-00002	4	4	4	Air	0.27	0.18	0.40	65	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG	PEL-N-244-00149-00001	5	3	4	Air	0.26	0.20	0.44	65	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ GBG	PEL-N-244-00150-00001	5	3	4	Air	0.26	0.18	0.40	65	N	NC	SC	S	
11/16"	SunDefense™ Low-E HA IG w/ SDL	PEL-N-244-00150-00002	5	3	4	Air	0.26	0.18	0.40	65	N	NC	SC	S	
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00095-00001	2.5	2.5	2.5	Air	0.25	0.49	0.56	66	N				37 CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00096-00001	2.5	2.5	2.5	Air	0.25	0.44	0.50	66	N				34 CA
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00096-00002	2.5	2.5	2.5	Air	0.25	0.44	0.50	66	N				34 CA
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00097-00001	3	3	3	Air	0.26	0.48	0.55	66	N				35 CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00098-00001	3	3	3		0.26	0.43	0.49	66	N				
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00098-00002	3	3	3		0.26	0.43	0.49	66	N				
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00099-00001	4	4	4		0.27	0.46	0.55	64	N				
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00100-00001	4	4	4	Air	0.27	0.41	0.49	64	N				
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00100-00002	4	4	4	Air	0.27	0.41	0.49	64	N				
11/16"	NaturalSun Low-E HA IG	PEL-N-244-00157-00001	5	3	4	Air	0.26	0.46	0.55	64	N				34 CA
11/16"	NaturalSun Low-E HA IG w/ GBG	PEL-N-244-00158-00001	5	3	4	Air	0.27	0.41	0.49	64	N				
11/16"	NaturalSun Low-E HA IG w/ SDL	PEL-N-244-00158-00002	5	3	4	Air	0.27	0.41	0.49	64	N				

Climate Zones



R-Value = 1/U-Factor
 SHGC = Solar Heat Gain Coefficient
 VLT % = Visible Light Transmission
 CR = Condensation Resistance

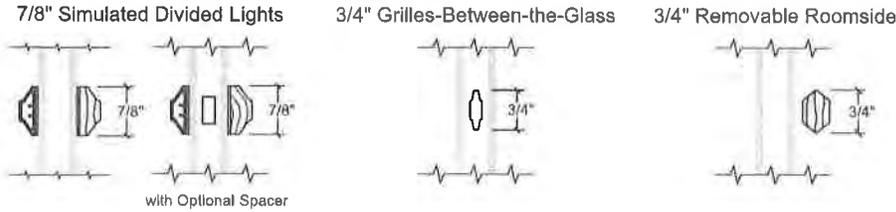
(1) Glazing performance values are calculated based on NFRC 100, NFRC 200 and NFRC 500. ENERGY STAR® values are updated to 2016 (Version 6) criteria.
 (2) The values shown are based on Canada's updated ENERGY STAR® 2020 initiative. For more information, see the ENERGY STAR guidelines.



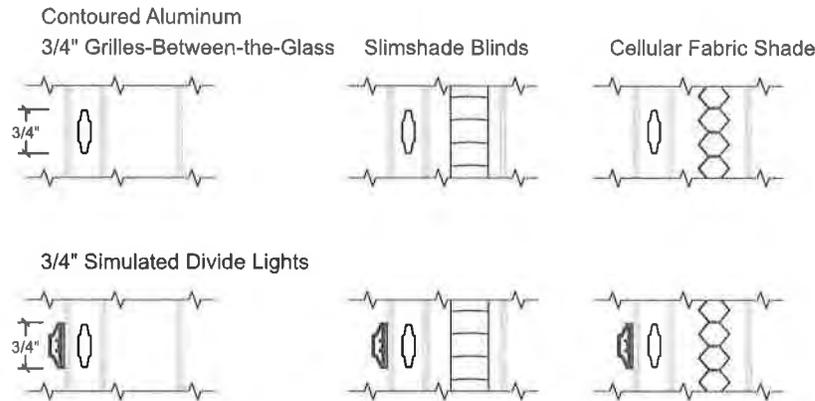
Lifestyle Series Casement

Grilles

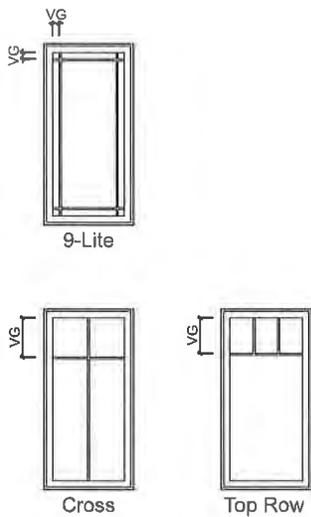
Grille Profiles - Dual-Pane



Grille Profiles - Triple-Pane



Grille Patterns



- 9-Lite Prairie**
- Standard corner lite dimension for Prairie patterns = 2-1/2" VG.
 - Available in transoms \geq 1'3" height and width.
- Cross**
- Minimum DH frame height 35".
 - Horizontal bar will be at 1/2" of the VG height of the top sash.
- Top Row**
- Minimum DH frame height 35".
 - Horizontal bar will be at 1/2" of the VG height of the top sash.

For traditional patterns, see size tables.

VG = Visible Glass
Lite dimensions noted can vary.
For size and pattern availability; contact your local Pella sales representative.



Lifestyle Series Casement

Standard Size Tables - Dual Pane

Transoms

Opening	(451)	(552)	(603)	(654)	(756)	(832)	(908)
	(432)	(533)	(594)	(635)	(737)	(813)	(889)
Frame	1' 5"	1' 9"	1' 11"	2' 1"	2' 5"	2' 8"	2' 11"
1' 5 3/4"	1717	2117	2317	2517	2917	3217	3517
1' 9 3/4"	1721	2121	2321	2521	2921	3221	3521
1' 11 3/4"	1723	2123	2323	2523	2923	3223	3523
2' 1 3/4"	1725	2125	2325	2525	2925	3225	3525
2' 5 3/4"	1729	2129	2329	2529	2929	3229	3529

Vent Units

2' 8 3/4"	1732	2132	2332	2532	2932	3232	3532
2' 11 3/4"	1735	2135	2335	2535	2935	3235	3535
3' 5"	1741	2141	2341	2541	2941	3241	3541
3' 11"	1747	2147	2347	2547	2947	3247	3547
4' 5"	1753	2153	2353	2553	2953	3253	3553
4' 11"	1759	2159	2359	2559	2959	3259	3559
5' 5"	1765	2165	2365	2565	2965	3265	3565
5' 11"	1771	2171	2371	2571	2971	3271	3571
6' 1"	1773	2173	2373	2573	2973	3273	3573

Egress Notes:

Check all applicable local codes for emergency egress requirements.

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².
- E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

See Design Data pages in this section for clear opening dimensions.

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

Consult your local building code to ensure products with Rolcreens meet egress requirements.

Not to scale

(F) Fixed Units only

(V) Fixed units typical, vent units available

(T) = Tempered glass required due to aspect ratio

Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.

Transom standard sizes available up to 73" wide, see fixed size table for details



Lifestyle Series Casement

Standard Size Tables - Dual Pane

Fixed Units

	(451) (432)	(552) (533)	(603) (584)	(654) (635)	(756) (737)	(832) (813)	(908) (889)	(1 060) (1 041)	(1 213) (1 194)	(1 365) (1 346)	(1 518) (1 499)	(1 873) (1 854)
Opening	1' 5 3/4"	1' 9 3/4"	1' 11 3/4"	2' 1 3/4"	2' 5 3/4"	2' 8 3/4"	2' 11 3/4"	3' 5 3/4"	3' 11 3/4"	4' 5 3/4"	4' 11 3/4"	6' 1 3/4"
Frame	1' 5"	1' 9"	1' 11"	2' 1"	2' 5"	2' 8"	2' 11"	3' 5"	3' 11"	4' 5"	4' 11"	6' 1"
1' 5"	1717	2117	2317	2517	2917	3217	3517	4117	4717	5317	5917	7317
1' 9"	1721	2121	2321	2521	2921	3221	3521	4121	4721	5321	5921	7321
1' 11"	1723	2123	2323	2523	2923	3223	3523	4123	4723	5323	5923	7323
2' 1"	1725	2125	2325	2525	2925	3225	3525	4125	4725	5325	5925	7325
2' 5"	1729	2129	2329	2529	2929	3229	3529	4129	4729	5329	5929	7329
2' 8"	1732	2132	2332	2532	2932	3232	3532	4132	4732	5332	5932	
2' 11"	1735	2135	2335	2535	2935	3235	3535	4135	4735	5335	5935	
3' 5"	1741	2141	2341	2541	2941	3241	3541	4141	4741	5341	5941	
3' 11"	1747	2147	2347	2547	2947	3247	3547	4147	4747	5347	5947	
4' 5"	1753	2153	2353	2553	2953	3253	3553	4153	4753	5353	5953	
4' 11"	1759	2159	2359	2559	2959	3259	3559	4159	4759	5359	5959	
5' 5"	1765	2165	2365	2565	2965	3265	3565	4165	4765	5365	5965	
5' 11"	1771	2171	2371	2571	2971	3271	3571	4171	4771	5371	5971	
6' 1"	1773	2173	2373	2573	2973	3273	3573	4173	4773	5373	5973	

Not to scale.

(T) = Tempered glass required due to aspect ratio.

Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.



Lifestyle Series Casement

Standard Size Tables - Triple Pane

Transoms

Opening	1' 5 3/4"	1' 9 3/4"	1' 11 3/4"	2' 1 3/4"	2' 5 3/4"	2' 8 3/4"	2' 11 3/4"
Frame	1' 5"	1' 9"	1' 11"	2' 1"	2' 5"	2' 8"	2' 11"
(451) (432)	(552) (533)	(603) (584)	(654) (635)	(756) (737)	(832) (813)	(908) (889)	
1' 5"	1717	2117	2317	2517	2917	3217	3517
1' 9"	1721	2121	2321	2521	2921	3221	3521
1' 11"	1723	2123	2323	2523	2923	3223	3523
2' 1"	1725	2125	2325	2525	2925	3225	3525
2' 5"	1729	2129	2329	2529	2929	3229	3529

Vent Units

Opening	2' 8"	2' 11"	3' 5"	3' 11"	4' 5"	4' 11"	5' 5"	5' 11"	6' 1"
2' 8"	1732	2132	2332	2532	2932	3232	3532		
2' 11"	1735	2135	2335	2535	2935	3235	3535		
3' 5"	1741	2141	2341	2541	2941	3241	3541		
3' 11"	1747	2147	2347	2547	2947	3247	3547		
4' 5"	1753	2153	2353	2553	2953	3253	3553		
4' 11"	1759	2159	2359	2559	2959	3259	3559		
5' 5"	1765	2165	2365	2565	2965	3265	3565		
5' 11"	1771	2171	2371	2571	2971	3271	3571		
6' 1"	1773	2173	2373	2573	2973	3273	3573		

Egress Notes:

Check all applicable local codes for emergency egress requirements.

- E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².
- E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².
- E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product. Consult your local building code to ensure products with Rolscreens meet egress requirements.

See Design Data pages in this section for clear opening dimensions.

Not to scale.

(F) Fixed Units only

(V) Fixed units typical, vent units available

(T) = Tempered glass required due to aspect ratio

Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.

Transom standard sizes available up to 73" wide, see fixed size table for details



Lifestyle Series Casement

Standard Size Tables - Triple Pane

Fixed Units

	(451) (432)	(552) (533)	(603) (584)	(654) (635)	(756) (737)	(832) (813)	(908) (889)	(1 060) (1 041)	(1 213) (1 194)	(1 365) (1 346)	(1 518) (1 499)
Opening	1' 5 3/4"	1' 9 3/4"	1' 11 3/4"	2' 1 3/4"	2' 5 3/4"	2' 8 3/4"	2' 11 3/4"	3' 5 3/4"	3' 11 3/4"	4' 5 3/4"	4' 11 3/4"
Frame	1' 5"	1' 9"	1' 11"	2' 1"	2' 5"	2' 8"	2' 11"	3' 5"	3' 11"	4' 5"	4' 11"
(451) (451)	1717	2117	2317	2517	2917	3217	3517	4117	4717	5317	5917
(552) (533)	1721	2121	2321	2521	2921	3221	3521	4121	4721	5321	5921
(603) (584)	1723	2123	2323	2523	2923	3223	3523	4123	4723	5323	5923
(654) (635)	1725	2125	2325	2525	2925	3225	3525	4125	4725	5325	5925
(756) (737)	1729	2129	2329	2529	2929	3229	3529	4129	4729	5329	5929
(832) (813)	1732	2132	2332	2532	2932	3232	3532	4132	4732	5332	5932
(908) (889)	1735	2135	2335	2535	2935	3235	3535	4135	4735	5335	5935
(1 060) (1 041)	1741	2141	2341	2541	2941	3241	3541	4141	4741	5341	5941
(1 213) (1 194)	1747	2147	2347	2547	2947	3247	3547	4147	4747	5347	5947
(1 365) (1 346)	1753	2153	2353	2553	2953	3253	3553	4153	4753	5353	5953
(1 518) (1 499)	1759	2159	2359	2559	2959	3259	3559	4159	4759	5359	5959
(1 670) (1 651)	1765	2165	2365	2565	2965	3265	3565	4165	4765	5365	5965
(1 822) (1 803)	1771	2171	2371	2571	2971	3271	3571	4171	4771	5371	5971
(1 873) (1 854)	1773	2173	2373	2573	2973	3273	3573	4173	4773	5373	5973

Not to scale

(T) = Tempered glass required due to aspect ratio.

Traditional grille patterns shown. Refer to Grilles page for additional patterns and profiles.

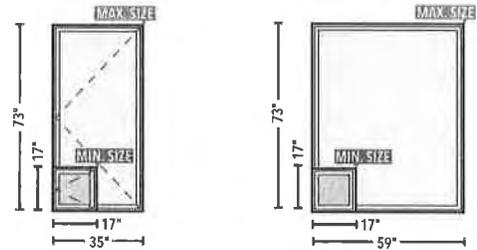


Lifestyle Series Casement

Special Sizes and Dimensions

Casement Special Size Frame Dimensions*

	Minimum	Maximum
Vent Dual-Pane	1'5" W x 1'5" H (17" x 17") (432 x 432)	2'11" W x 6'1" H (35" x 73") (889 x 1 854)
Fixed Dual-Pane	1'5" W x 1'5" H (17" x 17") (432 x 432)	4'11" W x 6'1" H (59" x 73") (1499 x 1 854)
Vent Triple-Pane	1'5" W x 1'5" H (17" x 17") (432 x 432)	2'11" W x 6'1" H (35" x 73") (889 x 1 854)
Fixed Triple-Pane	1'5" W x 1'5" H (17" x 17") (432 x 432)	4'11" W x 6'1" H (59" x 73") (1 499 x 1 854)



Clear Opening Height

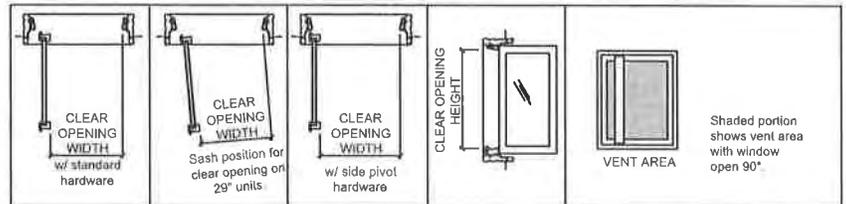
Frame Height - 4-1/8"

Clear Opening Width

Hinge	Frame Width	Formula
Standard	FW < 29"	FW - 9-3/4"
Standard	FW ≥ 29" and ≤ 30-1/2"	FW - 9"
Standard	FW > 30-1/2"	FW - 9-3/4"
Side Pivot	FW ≥ 25" and < 35"	FW - 4-3/8"

Casement Glass Formulas

Visible Glass Dual-Pane	Width = Frame - 4.92" Height = Frame - 4.92"
Visible Glass Triple-Pane	Width = Frame - 5.938" Height = Frame - 5.938"
Actual Glass Dual-Pane	Width = Frame - 4" Height = Frame - 4"
Actual Glass Triple-Pane	Width = Frame - 5" Height = Frame - 5"



Triple-Pane Integrated Window Fashions - Operator Handing Guide

Unit Type	Shade Operator Location from Exterior	Interior Hinged Glass Hinge Style
Right-Hand Vent	Right	Bottom Hinge
Left-Hand Vent	Left	Bottom Hinge
Fixed	Left	Bottom Hinge
Large Fixed	Left	Bottom Hinge

* Available within size range shown.

Keep frame dimensions to the nearest 1/4" increment. Frame height cannot exceed frame width on special size dual-pane vent units.

(1) Actual glass of exterior light Interior Moveable Light is 9/16" smaller.

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product. You should consult your local building code to ensure products with Rolcreens meet egress requirements.

To convert areas to square meters (m2), multiply square feet by 0.0929.



Lifestyle Series Casement

Design Data

Dual-Pane Vent									
Unit	Egress	Clear Opening			Vent Area Ft ²	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾
		Width (Inches)	Height (Inches)	Ft ²			Annealed	Tempered	
1717		7-1/4	12-7/8	0.6	0.8	1.0	2.5	3	LC50
1732		7-1/4	27-7/8	1.4	1.9	2.3	2.5	3	LC50
1735		7-1/4	30-7/8	1.6	2.1	2.5	2.5	3	LC50
1741		7-1/4	36-7/8	1.9	2.5	3.0	2.5	3	LC50
1747		7-1/4	42-7/8	2.2	3.0	3.5	2.5	3	LC50
1753		7-1/4	48-7/8	2.5	3.4	4.0	2.5	3	LC50
1759		7-1/4	54-7/8	2.8	3.8	4.5	2.5	3	LC50
1765		7-1/4	60-7/8	3.1	4.2	5.0	2.5	3	LC50
1771T		7-1/4	66-7/8	3.4	4.7	5.5	—	3	LC50
1773T		7-1/4	68-7/8	3.5	4.8	5.7	—	3	LC50
2121		11-1/4	16-7/8	1.3	1.5	1.8	2.5	3	LC50
2132		11-1/4	27-7/8	2.2	2.6	3.0	2.5	3	LC50
2135		11-1/4	30-7/8	2.4	2.9	3.4	2.5	3	LC50
2141		11-1/4	36-7/8	2.9	3.5	4.0	2.5	3	LC50
2147		11-1/4	42-7/8	3.3	4.1	4.7	2.5	3	LC50
2153		11-1/4	48-7/8	3.8	4.7	5.4	2.5	3	LC50
2159		11-1/4	54-7/8	4.3	5.3	6.0	2.5	3	LC45/LC50
2165		11-1/4	60-7/8	4.8	5.9	6.7	2.5	3	LC45/LC50
2171		11-1/4	66-7/8	5.2	6.5	7.4	2.5	3	LC40/LC50
2173		11-1/4	68-7/8	5.4	6.7	7.6	2.5	3	LC40/LC50
2323		13-1/4	18-7/8	1.7	2.0	2.3	2.5	3	LC50
2332		13-1/4	27-7/8	2.6	3.0	3.4	2.5	3	LC50
2335		13-1/4	30-7/8	2.8	3.3	3.8	2.5	3	LC50
2341		13-1/4	36-7/8	3.4	4.0	4.5	2.5	3	LC50
2347		13-1/4	42-7/8	3.9	4.7	5.3	2.5	3	LC50
2353		13-1/4	48-7/8	4.5	5.4	6.0	2.5	3	LC50
2359		13-1/4	54-7/8	5.0	6.0	6.8	2.5	3	LC45/LC50
2365		13-1/4	60-7/8	5.6	6.7	7.5	2.5	3	LC40/LC50
2371		13-1/4	66-7/8	6.2	7.4	8.3	2.5	3	LC35/LC50
2373		13-1/4	68-7/8	6.3	7.6	8.5	2.5	3	LC35/LC50
2525		15-1/4	20-7/8	2.2	2.5	2.8	2.5	3	LC50
2532		15-1/4	27-7/8	3.0	3.4	3.8	2.5	3	LC50
2535		15-1/4	30-7/8	3.3	3.8	4.2	2.5	3	LC50
2541	E3	20-5/8	36-7/8	5.3	4.5	5.0	2.5	3	LC50
2547	E2	20-5/8	42-7/8	6.1	5.3	5.9	2.5	3	LC50
2553	E2	20-5/8	48-7/8	7.0	6.1	6.7	2.5	3	LC50
2559	E2	20-5/8	54-7/8	7.9	6.8	7.5	2.5	3	LC45/LC50
2565	E2	20-5/8	60-7/8	8.7	7.5	8.4	2.5	3	LC40/LC50
2571	E2	20-5/8	66-7/8	9.6	8.3	9.2	2.5	3	LC35/LC50
2573	E2	20-5/8	68-7/8	9.9	8.6	9.5	2.5	3	LC30/LC50

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Egress Notes:

Check all applicable local codes for emergency egress requirements.

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

(-) = Not Applicable

T = Tempered required due to aspect ratio

(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.



Lifestyle Series Casement

Design Data

Dual-Pane Vent									
Unit	Egress	Clear Opening			Vent Area Ft ²	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹
		Width (Inches)	Height (Inches)	Ft ²			Annealed	Tempered	
2929		20	24-7/8	3.5	3.7	4.0	2.5	3	LC50
2932		20	27-7/8	3.9	4.1	4.5	2.5	3	LC50
2935	E3	24-5/8	30-7/8	5.3	4.6	5.0	2.5	3	LC50
2941	E1, E2	24-5/8	36-7/8	6.3	5.5	6.0	2.5	3	LC50
2947	E	20	42-7/8	6.0	6.4	7.0	2.5	3	LC50
2953	E	20	48-7/8	6.8	7.4	8.0	2.5	3	LC50
2959	E	20	54-7/8	7.6	8.3	9.0	2.5	3	LC45/LC50
2965	E	20	60-7/8	8.5	9.2	10.0	2.5	3	LC30/LC50 ⁽²⁾
2971	E	20	66-7/8	9.3	10.1	11.1	3	3	LC30/LC50 ⁽²⁾
2973	E	20	68-7/8	9.6	10.4	11.4	3	3	LC30/LC50 ⁽²⁾
3232		22-1/4	27-7/8	4.3	4.7	5.1	2.5	3	LC50
3235	E2	27-5/8	30-7/8	5.9	5.2	5.7	2.5	3	LC50
3241	E1, E2	27-5/8	36-7/8	7.1	6.2	6.8	2.5	3	LC50
3247	E	22-1/4	42-7/8	6.6	7.3	7.9	2.5	3	LC50
3253	E	22-1/4	48-7/8	7.5	8.3	9.0	2.5	3	LC50
3259	E	22-1/4	54-7/8	8.4	9.4	10.2	2.5	3	LC45/LC50
3265	E	22-1/4	60-7/8	9.4	10.4	11.3	3	3	LC30/LC50 ⁽²⁾
3271	E	22-1/4	66-7/8	10.3	11.5	12.4	3	3	LC30/LC50 ⁽²⁾
3273	E	22-1/4	68-7/8	10.6	11.8	12.8	3	3	LC30/LC50 ⁽²⁾
3535	E1, E2	30-5/8	30-7/8	6.6	5.8	6.3	2.5	3	LC50
3541	E	25-1/4	36-7/8	6.5	7.0	7.5	2.5	3	LC50
3547	E	25-1/4	42-7/8	7.5	8.2	8.8	2.5	3	LC50
3553	E	25-1/4	48-7/8	8.6	9.3	10.0	2.5	3	LC45/LC50
3559	E	25-1/4	54-7/8	9.6	10.5	11.3	3	3	LC50
3565	E	25-1/4	60-7/8	10.7	11.7	12.6	3	3	LC30/LC50 ⁽²⁾
3571	E	25-1/4	66-7/8	11.7	12.9	13.8	3	3	LC30/LC50 ⁽²⁾
3573	E	25-1/4	68-7/8	12.1	13.3	14.2	3	3	LC30/LC50 ⁽²⁾

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

Consult your local building code to ensure products with Rolcreens meet egress requirements.

(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.

(2) Second number shown requires tempered glass and DP Kit.



Lifestyle Series Casement

Design Data

Dual-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Annealed	Tempered	Annealed	Tempered
		1717	1.0	2.5	3
1721	1.3	2.5	3	LC50	LC50
1723	1.5	2.5	3	LC50	LC50
1725	1.7	2.5	3	LC50	LC50
1729	2.0	2.5	3	LC50	LC50
1732	2.3	2.5	3	LC50	LC50
1735	2.5	2.5	3	LC50	LC50
1741	3.0	2.5	3	LC50	LC50
1747	3.5	2.5	3	LC50	LC50
1753	4.0	2.5	3	LC50	LC50
1759	4.5	2.5	3	LC50	LC50
1765	5.0	2.5	3	LC50	LC50
1771T	5.5	-	3	-	LC50
1773T	5.7	-	3	-	LC50
2117	1.3	2.5	3	LC50	LC50
2121	1.8	2.5	3	LC50	LC50
2123	2.0	2.5	3	LC50	LC50
2125	2.2	2.5	3	LC50	LC50
2129	2.7	2.5	3	LC50	LC50
2132	3.0	2.5	3	LC50	LC50
2135	3.4	2.5	3	LC50	LC50
2141	4.0	2.5	3	LC50	LC50
2147	4.7	2.5	3	LC50	LC50
2153	5.4	2.5	3	LC50	LC50
2159	6.0	2.5	3	LC45	LC50
2165	6.7	2.5	3	LC45	LC50
2171	7.4	2.5	3	LC40	LC50
2173	7.6	2.5	3	LC40	LC50
2317	1.5	2.5	3	LC50	LC50
2321	2.0	2.5	3	LC50	LC50
2323	2.3	2.5	3	LC50	LC50
2325	2.5	2.5	3	LC50	LC50
2329	3.0	2.5	3	LC50	LC50
2332	3.4	2.5	3	LC50	LC50
2335	3.8	2.5	3	LC50	LC50
2341	4.5	2.5	3	LC50	LC50
2347	5.3	2.5	3	LC50	LC50
2353	6.0	2.5	3	LC50	LC50
2359	6.8	2.5	3	LC45	LC50
2365	7.5	2.5	3	LC40	LC50
2371	8.3	2.5	3	LC35	LC50
2373	8.5	2.5	3	LC35	LC50

Dual-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Annealed	Tempered	Annealed	Tempered
		2517	1.7	2.5	3
2521	2.2	2.5	3	LC50	LC50
2523	2.5	2.5	3	LC50	LC50
2525	2.8	2.5	3	LC50	LC50
2529	3.4	2.5	3	LC50	LC50
2532	3.8	2.5	3	LC50	LC50
2535	4.2	2.5	3	LC50	LC50
2541	5.0	2.5	3	LC50	LC50
2547	5.9	2.5	3	LC50	LC50
2553	6.7	2.5	3	LC50	LC50
2559	7.5	2.5	3	LC45	LC50
2565	8.4	2.5	3	LC40	LC50
2571	9.2	2.5	3	LC35	LC50
2573	9.5	2.5	3	LC30	LC50
2917	2.0	2.5	3	LC50	LC50
2921	2.7	2.5	3	LC50	LC50
2923	3.0	2.5	3	LC50	LC50
2925	3.4	2.5	3	LC50	LC50
2929	4.0	2.5	3	LC50	LC50
2932	4.5	2.5	3	LC50	LC50
2935	5.0	2.5	3	LC50	LC50
2941	6.0	2.5	3	LC50	LC50
2947	7.0	2.5	3	LC50	LC50
2953	8.0	2.5	3	LC50	LC50
2959	9.0	2.5	3	LC45	LC50
2965	10.0	2.5	3	LC30	LC30
2971	11.1	3	3	LC30	LC30
2973	11.4	3	3	LC30	LC30
3217	2.3	2.5	3	LC50	LC50
3221	3.0	2.5	3	LC50	LC50
3223	3.4	2.5	3	LC50	LC50
3225	3.8	2.5	3	LC50	LC50
3229	4.5	2.5	3	LC50	LC50
3232	5.1	2.5	3	LC50	LC50
3235	5.7	2.5	3	LC50	LC50
3241	6.8	2.5	3	LC50	LC50
3247	7.9	2.5	3	LC50	LC50
3253	9.0	2.5	3	LC50	LC50
3259	10.2	2.5	3	LC45	LC50
3265	11.3	3	3	LC30	LC30
3271	12.4	3	3	LC30	LC30
3273	12.8	3	3	LC30	LC30

Continued on next page

(-) = Not Applicable

T = Tempered required due to aspect ratio

(1) Maximum performance when glazed with the appropriate glass thickness

(2) Glass thickness shown for Advanced Low-E. Other Low-E types and clear use 3mm glass.

To convert areas to square meters (m²), multiply square feet by 0.0929.



Lifestyle Series Casement

Design Data

Dual-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Annealed	Tempered	Annealed	Tempered
3517	2.5	2.5	3	LC50	LC50
3521	3.4	2.5	3	LC50	LC50
3523	3.8	2.5	3	LC50	LC50
3525	4.2	2.5	3	LC50	LC50
3529	5.0	2.5	3	LC50	LC50
3532	5.7	2.5	3	LC50	LC50
3535	6.3	2.5	3	LC50	LC50
3541	7.5	2.5	3	LC50	LC50
3547	8.8	2.5	3	LC50	LC50
3553	10.0	2.5	3	LC45	LC50
3559	11.3	3	3	LC50	LC50
3565	12.6	3	3	LC30	LC30
3571	13.8	3	3	LC30	LC30
3573	14.2	3	3	LC30	LC30
4117	3.0	2.5	3	LC50	LC50
4121	4.0	2.5	3	LC50	LC50
4123	4.5	2.5	3	LC50	LC50
4125	5.0	2.5	3	LC50	LC50
4129	6.0	2.5	3	LC50	LC50
4132	6.8	2.5	3	LC50	LC50
4135	7.5	2.5	3	LC50	LC50
4141	9.0	2.5	3	LC30	LC30
4147	10.5	3	3	LC30	LC30
4153	12.0	3	3	LC30	LC30
4159	13.6	3	3	LC30	LC30
4165	15.1	3	3	LC30	LC30
4171	16.6	3	3	LC30	LC30
4173	17.1	3	3	LC30	LC30
4717	3.5	2.5	3	LC50	LC50
4721	4.7	2.5	3	LC50	LC50
4723	5.3	2.5	3	LC50	LC50
4725	5.9	2.5	3	LC50	LC50
4729	7.0	2.5	3	LC50	LC50
4732	7.9	2.5	3	LC50	LC50
4735	8.8	2.5	3	LC50	LC50
4741	10.5	3	3	LC30	LC30
4747	12.3	3	3	LC30	LC30
4753	14.1	3	3	LC30	LC30
4759	15.8	3	3	LC30	LC30
4765	17.6	3	3	LC30	LC30
4771	19.3	4	4	LC30	LC30
4773	19.9	4	4	LC30	LC30

Dual-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Annealed	Tempered	Annealed	Tempered
5317	4.0	2.5	3	LC50	LC50
5321	5.4	2.5	3	LC50	LC50
5323	6.0	2.5	3	LC50	LC50
5325	6.7	2.5	3	LC50	LC50
5329	8.0	2.5	3	LC50	LC50
5332	9.0	2.5	3	LC50	LC50
5335	10.0	2.5	3	LC45	LC50
5341	12.0	3	3	LC30	LC30
5347	14.1	3	3	LC30	LC30
5353	16.1	3	4	LC30	LC30
5359	18.1	4	4	LC30	LC30
5365	20.1	4	4	LC30	LC30
5371	22.1	4	4	LC30	LC30
5373	22.7	4	4	LC30	LC30
5917	4.5	2.5	3	LC50	LC50
5921	6.0	2.5	3	LC45	LC50
5923	6.8	2.5	3	LC45	LC50
5925	7.5	2.5	3	LC45	LC50
5929	9.0	2.5	3	LC45	LC50
5932	10.2	2.5	3	LC45	LC50
5935	11.3	3	3	LC50	LC50
5941	13.6	3	3	LC30	LC30
5947	15.8	3	3	LC30	LC30
5953	18.1	4	4	LC30	LC30
5959	20.3	4	4	LC30	LC30
5965	22.6	4	4	LC30	LC30
5971	24.8	4	4	LC30	LC30
5973	25.6	5	5	LC30	LC30
7317T	5.7	-	3	-	LC50
7321	7.6	2.5	3	LC40	LC50
7323	8.5	2.5	3	LC35	LC50
7325	9.5	2.5	3	LC30	LC50
7329	11.4	3.0	3	LC30	LC30

(1) Maximum performance when glazed with the appropriate glass thickness.
To convert areas to square meters (m²), multiply square feet by 0.0929.



Lifestyle Series Casement

Design Data

Triple-Pane Vent									
Unit	Egress	Clear Opening			Vent Area Ft ²	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾
		Width (Inches)	Height (Inches)	Ft ²			Annealed	Tempered	
1717		7-1/4	12-7/8	0.6	0.8	0.8	2.5	3	LC50
1732		7-1/4	27-7/8	1.4	1.8	2.0	2.5	3	LC50
1735		7-1/4	30-7/8	1.6	2.0	2.2	2.5	3	LC50
1741		7-1/4	36-7/8	1.9	2.4	2.7	2.5	3	LC50
1747		7-1/4	42-7/8	2.2	2.8	3.2	2.5	3	LC50
1753		7-1/4	48-7/8	2.5	3.2	3.6	2.5	3	LC50
1759		7-1/4	54-7/8	2.8	3.6	4.1	2.5	3	LC50
1765T		7-1/4	60-7/8	3.1	4.0	4.5	-	3	LC50
1771T		7-1/4	66-7/8	3.4	4.4	5.0	-	3	LC50
1773T		7-1/4	68-7/8	3.5	4.6	5.2	-	3	LC50
2121		11-1/4	16-7/8	1.3	1.5	1.6	2.5	3	LC50
2132		11-1/4	27-7/8	2.2	2.5	2.7	2.5	3	LC50
2135		11-1/4	30-7/8	2.4	2.8	3.0	2.5	3	LC50
2141		11-1/4	36-7/8	2.9	3.4	3.7	2.5	3	LC45/LC50
2147		11-1/4	42-7/8	3.3	4.0	4.3	2.5	3	LC35/LC50
2153		11-1/4	48-7/8	3.8	4.5	4.9	2.5	3	LC35/LC50
2159		11-1/4	54-7/8	4.3	5.1	5.6	2.5	3	LC30/LC50
2165		11-1/4	60-7/8	4.8	5.7	6.2	2.5	3	LC25/LC50
2171		11-1/4	66-7/8	5.2	6.2	6.8	2.5	3	LC25/LC50
2173		11-1/4	68-7/8	5.4	6.4	7.0	2.5	3	LC25/LC50
2323		13-1/4	18-7/8	1.7	1.9	2.0	2.5	3	LC50
2332		13-1/4	27-7/8	2.6	2.9	3.1	2.5	3	LC50
2335		13-1/4	30-7/8	2.8	3.2	3.4	2.5	3	LC50
2341		13-1/4	36-7/8	3.4	3.9	4.2	2.5	3	LC45/LC50
2347		13-1/4	42-7/8	3.9	4.5	4.9	2.5	3	LC35/LC50
2353		13-1/4	48-7/8	4.5	5.2	5.6	2.5	3	LC30/LC50
2359		13-1/4	54-7/8	5.0	5.8	6.3	2.5	3	LC25/LC50
2365		13-1/4	60-7/8	5.6	6.5	7.0	2.5	3	LC25/LC50
2371		13-1/4	66-7/8	6.2	7.2	7.7	2.5	3	R20/LC50
2373		13-1/4	68-7/8	6.3	7.4	7.9	2.5	3	R20/LC50
2525		15-1/4	20-7/8	2.2	2.4	2.5	2.5	3	LC50
2532		15-1/4	27-7/8	3.0	3.3	3.4	2.5	3	LC50
2535		15-1/4	30-7/8	3.3	3.6	3.8	2.5	3	LC50
2541	E3	20-5/8	36-7/8	5.3	4.4	4.6	2.5	3	LC45/LC50
2547	E2	20-5/8	42-7/8	6.1	5.1	5.4	2.5	3	LC35/LC50
2553	E2	20-5/8	48-7/8	7.0	5.9	6.2	2.5	3	LC30/LC50
2559	E2	20-5/8	54-7/8	7.9	6.6	7.0	2.5	3	LC25/LC50
2565	E2	20-5/8	60-7/8	8.7	7.3	7.8	2.5	3	R20/LC50
2571	E2	20-5/8	66-7/8	9.6	8.1	8.6	2.5	3	R20/LC50
2573	E2	20-5/8	68-7/8	9.9	8.3	8.9	2.5	3	R20/LC50

Continued on next page

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

Consult your local building code to ensure products with Rolscreens meet egress requirements.

(-) = Not Applicable

T = Tempered required due to aspect ratio.

(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.



Lifestyle Series Casement

Design Data

Triple-Pane Vent									
Unit	Egress	Clear Opening			Vent Area Ft ²	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾
		Width (Inches)	Height (Inches)	Ft ²			Annealed	Tempered	
2929		20	24-7/8	3.5	3.6	3.7	2.5	3	LC50
2932		20	27-7/8	3.9	4.0	4.2	2.5	3	LC50
2935	E3	24-5/8	30-7/8	5.3	4.5	4.7	2.5	3	LC50
2941	E1, E2	24-5/8	36-7/8	6.3	5.4	5.6	2.5	3	LC45/LC50
2947	E	20	42-7/8	6.0	6.3	6.6	2.5	3	LC35/LC50
2953	E	20	48-7/8	6.8	7.2	7.5	2.5	3	LC30/LC50
2959	E	20	54-7/8	7.6	8.1	8.5	2.5	3	LC25/LC50
2965	E	20	60-7/8	8.5	9.0	9.5	2.5	3	R20/LC50
2971	E	20	66-7/8	9.3	9.9	10.4	3	3	LC25/LC50
2973	E	20	68-7/8	9.6	10.2	10.7	3	3	LC25/LC50
3232		22-1/4	27-7/8	4.3	4.6	4.7	2.5	3	LC50
3235	E2	27-5/8	30-7/8	5.9	5.1	5.3	2.5	3	LC45/LC50
3241	E1, E2	27-5/8	36-7/8	7.1	6.1	6.3	2.5	3	LC40/LC50
3247	E	22-1/4	42-7/8	6.6	7.1	7.4	2.5	3	LC35/LC50
3253	E	22-1/4	48-7/8	7.6	8.2	8.5	2.5	3	LC30/LC50
3259	E	22-1/4	54-7/8	8.5	9.2	9.6	2.5	3	LC25/LC50
3265	E	22-1/4	60-7/8	9.4	10.2	10.7	3	3	LC30/LC50
3271	E	22-1/4	66-7/8	10.3	11.3	11.8	3	3	LC25/LC50
3273	E	22-1/4	68-7/8	10.6	11.6	12.1	3	3	LC25/LC50
3535	E1, E2	30-5/8	30-7/8	6.6	5.7	5.9	2.5	3	LC40/LC50
3541	E	25-1/4	36-7/8	6.5	6.9	7.1	2.5	3	LC35/LC50
3547	E	25-1/4	42-7/8	7.5	8.0	8.3	2.5	3	LC30/LC50
3553	E	25-1/4	48-7/8	8.6	9.2	9.5	2.5	3	LC25/LC50
3559	E	25-1/4	54-7/8	9.6	10.3	10.7	3	3	LC35/LC50
3565	E	25-1/4	60-7/8	10.7	11.5	11.9	3	3	LC30/LC50
3571	E	25-1/4	66-7/8	11.7	12.6	13.1	3	3	LC25/LC50
3573	E	25-1/4	68-7/8	12.1	13.0	13.5	3	3	LC25/LC50

Egress Notes:

Check all applicable local codes for emergency egress requirements.

E = Window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E1 = Window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

E2 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.7 ft².

E3 = With optional side pivot hardware, window meets minimum clear opening of 24" height, 20" width, and 5.0 ft².

Clear opening (egress) information does not take into consideration the addition of a Rolscreen (or any other accessory) to the product.

Consult your local building code to ensure products with Rolcreens meet egress requirements.

(1) Maximum performance when glazed with the appropriate glass thickness. Second value, where shown, requires tempered glass.



Lifestyle Series Casement

Design Data

Triple-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾	
		Annealed	Tempered	Annealed	Tempered
		1717	0.8	2.5	3
1721	1.2	2.5	3	CW50	CW50
1723	1.3	2.5	3	CW50	CW50
1725	1.5	2.5	3	CW50	CW50
1729	1.8	2.5	3	CW50	CW50
1732	2.0	2.5	3	CW50	CW50
1735	2.2	2.5	3	CW50	CW50
1741	2.7	2.5	3	CW50	CW50
1747	3.2	2.5	3	CW50	CW50
1753	3.6	2.5	3	CW50	CW50
1759	4.1	2.5	3	CW50	CW50
1765T	4.5	-	3	-	CW50
1771T	5.0	-	3	-	CW50
1773T	5.2	-	3	-	CW50
2117	1.2	2.5	3	CW50	CW50
2121	1.6	2.5	3	CW50	CW50
2123	1.8	2.5	3	CW50	CW50
2125	2.0	2.5	3	CW50	CW50
2129	2.4	2.5	3	CW50	CW50
2132	2.7	2.5	3	CW50	CW50
2135	3.0	2.5	3	CW50	CW50
2141	3.7	2.5	3	CW45	CW50
2147	4.3	2.5	3	CW35	CW50
2153	4.9	2.5	3	CW35	CW50
2159	5.6	2.5	3	CW30	CW50
2165	6.2	2.5	3	LC25	CW50
2171	6.8	2.5	3	LC25	CW50
2173	7.0	2.5	3	LC25	CW50
2317	1.3	2.5	3	CW50	CW50
2321	1.8	2.5	3	CW50	CW50
2323	2.0	2.5	3	CW50	CW50
2325	2.3	2.5	3	CW50	CW50
2329	2.7	2.5	3	CW50	CW50
2332	3.1	2.5	3	CW50	CW50
2335	3.4	2.5	3	CW50	CW50
2341	4.2	2.5	3	CW45	CW50
2347	4.9	2.5	3	CW35	CW50
2353	5.6	2.5	3	CW30	CW50
2359	6.3	2.5	3	LC25	CW50
2365	7.0	2.5	3	LC25	CW50
2371	7.7	2.5	3	R20	CW50
2373	7.9	2.5	3	R20	CW50

Triple-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ⁽¹⁾	
		Annealed	Tempered	Annealed	Tempered
		2517	1.5	2.5	3
2521	2.0	2.5	3	CW50	CW50
2523	2.3	2.5	3	CW50	CW50
2525	2.5	2.5	3	CW50	CW50
2529	3.1	2.5	3	CW50	CW50
2532	3.4	2.5	3	CW50	CW50
2535	3.8	2.5	3	CW50	CW50
2541	4.6	2.5	3	CW45	CW50
2547	5.4	2.5	3	CW35	CW50
2553	6.2	2.5	3	CW30	CW50
2559	7.0	2.5	3	LC25	CW50
2565	7.8	2.5	3	R20	CW50
2571	8.6	2.5	3	R20	CW50
2573	8.9	2.5	3	R20	CW50
2917	1.8	2.5	3	CW50	CW50
2921	2.4	2.5	3	CW50	CW50
2923	2.7	2.5	3	CW50	CW50
2925	3.1	2.5	3	CW50	CW50
2929	3.7	2.5	3	CW50	CW50
2932	4.2	2.5	3	CW50	CW50
2935	4.7	2.5	3	CW50	CW50
2941	5.6	2.5	3	CW45	CW50
2947	6.6	2.5	3	CW35	CW50
2953	7.5	2.5	3	CW30	CW50
2959	8.5	2.5	3	LC25	CW50
2965	9.5	2.5	3	R20	CW50
2971	10.4	3	3	LC25	CW50
2973	10.7	3	3	LC25	CW50
3217	2.0	2.5	3	CW50	CW50
3221	2.7	2.5	3	CW50	CW50
3223	3.1	2.5	3	CW50	CW50
3225	3.4	2.5	3	CW50	CW50
3229	4.2	2.5	3	CW50	CW50
3232	4.7	2.5	3	CW50	CW50
3235	5.3	2.5	3	CW45	CW50
3241	6.3	2.5	3	CW40	CW50
3247	7.4	2.5	3	CW35	CW50
3253	8.5	2.5	3	CW30	CW50
3259	9.6	2.5	3	LC25	CW50
3265	10.7	3.0	3	CW30	CW50
3271	11.8	3	3	LC25	CW50
3273	12.1	3	3	LC25	CW50

Continued on next page

(-) = Not Applicable

T = Tempered required due to aspect ratio

(1) Maximum performance when glazed with the appropriate glass thickness.

To convert areas to square meters (m²), multiply square feet by 0.0929.



Lifestyle Series Casement

Design Data

Triple-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Annealed	Tempered	Annealed	Tempered
3517	2.2	2.5	3	CW50	CW50
3521	3.0	2.5	3	CW50	CW50
3523	3.4	2.5	3	CW50	CW50
3525	3.8	2.5	3	CW50	CW50
3529	4.7	2.5	3	CW50	CW50
3532	5.3	2.5	3	CW45	CW50
3535	5.9	2.5	3	CW40	CW50
3541	7.1	2.5	3	CW35	CW50
3547	8.3	2.5	3	CW30	CW50
3553	9.5	2.5	3	LC25	CW50
3559	10.7	3	3	CW35	CW50
3565	11.9	3	3	CW30	CW50
3571	13.1	3	3	LC25	CW50
3573	13.5	3	3	LC25	CW50
4117	2.7	2.5	3	CW50	CW50
4121	3.7	2.5	3	CW45	CW50
4123	4.2	2.5	3	CW45	CW50
4125	4.6	2.5	3	CW45	CW50
4129	5.6	2.5	3	CW45	CW50
4132	6.3	2.5	3	CW40	CW50
4135	7.1	2.5	3	CW35	CW50
4141	8.5	2.5	3	CW30	CW50
4147	10.0	2.5	3	LC25	CW50
4153	11.5	3	3	CW35	CW50
4159	12.9	3	3	CW30	CW50
4165	14.4	3	3	CW30	CW50
4171	15.8	3	3	LC25	CW50
4173	16.3	3	3	LC25	CW50
4717	3.2	2.5	3	CW50	CW50
4721	4.3	2.5	3	CW35	CW50
4723	4.9	2.5	3	CW35	CW50
4725	5.4	2.5	3	CW35	CW50
4729	6.6	2.5	3	CW35	CW50
4732	7.4	2.5	3	CW35	CW50
4735	8.3	2.5	3	CW30	CW50
4741	10.0	2.5	3	LC25	CW50
4747	11.7	3	3	CW35	CW50
4753	13.4	3	3	CW30	CW50
4759	15.1	3	3	LC25	CW50
4765	16.8	3	3	LC25	CW50
4771	18.6	4	4	CW30	CW50
4773	19.1	4	4	CW30	CW50

Triple-Pane Fixed					
Unit	Visible Glass Ft ²	Standard Glass Thickness (mm)		Performance Class & Grade ¹	
		Annealed	Tempered	Annealed	Tempered
5317	3.6	2.5	3	CW50	CW50
5321	4.9	2.5	3	CW35	CW50
5323	5.6	2.5	3	CW30	CW50
5325	6.2	2.5	3	CW30	CW50
5329	7.5	2.5	3	CW30	CW50
5332	8.5	2.5	3	CW30	CW50
5335	9.5	2.5	3	LC25	CW50
5341	11.5	3	3	CW35	CW50
5347	13.4	3	3	CW30	CW50
5353	15.4	3	3	LC25	CW50
5359	17.3	3	3	LC25	CW50
5365	19.3	4	4	CW30	CW50
5371	21.3	4	4	CW30	CW50
5373	21.9	4	4	CW30	CW50
5917	4.1	2.5	3	CW50	CW50
5921	5.6	2.5	3	CW30	CW50
5923	6.3	2.5	3	LC25	CW50
5925	7.0	2.5	3	LC25	CW50
5929	8.5	2.5	3	LC25	CW50
5932	9.6	2.5	3	LC25	CW50
5935	10.7	3	3	CW35	CW50
5941	12.9	3	3	CW30	CW50
5947	15.1	3	3	LC25	CW50
5953	17.3	3	3	LC25	CW50
5959	19.6	4	4	CW30	CW50
5965	21.8	4	4	CW30	CW50
5971	24.0	4	4	LC25	CW50
5973	24.7	4	4	LC25	CW50

(1) Maximum performance when glazed with the appropriate glass thickness
 To convert areas to square meters (m²), multiply square feet by 0.0929.



Lifestyle Series Casement

Detailed Product Description

Frame

- Select softwood, immersion treated with Pella's EnduraGuard* wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum.
- Components are assembled with screws, staples and concealed corner locks.
- Overall frame depth is 5" (127mm) for a wall depth of 3-11/16" (94mm).
- Optional factory-applied jamb extensions available between 3-13/16" (97) and 9-3/16" (233).
- Optional factory-installed fold-out installation fins with flexible fin corners.
- Optional factory-applied EnduraClad* exterior trim.

Sash

- Select softwood, immersion treated with Pella's EnduraGuard* wood protection formula in accordance with WDMA I.S.-4. The EnduraGuard formula includes three active ingredients for protection against the effects of moisture, decay, stains from mold and mildew. Plus, an additional ingredient adds protection against termite damage.
- Interior exposed surfaces are clear pine.
- Exterior surfaces are clad with aluminum, lap-jointed and sealed.
- Corners mortised and tenoned, glued and secured with metal fasteners.
- Sash thickness is [1-3/4" (45mm) dual-pane] [2-3/16" (55mm) triple-pane, (2-1/4" (57mm) including hinged glass panel)].

Weatherstripping

- Dual weatherstripping.
 - Flexible santoprene material compressed between frame and sash for positive seal on all four sides.
 - Secondary thermoplastic vulcanizate (TPV) weatherstrip between edge of sash and frame [Dual-Pane: leaf-type on the vertical sides and bottom side, and Santoprene* bulb-type weatherstrip on the top side] [Triple-Pane: leaf-type on all four sides].

Glazing System 1

- Quality float glass complying with ASTM C 1036.
- High altitude glazing available.
- Silicone-glazed 11/16" [obscure] dual-seal insulating glass [[annealed] [tempered]] [[Advanced Low-E] [SunDefense™ Low-E] [AdvancedComfort Low-E] [NaturalSun Low-E] with argon].
- or -
- Triple-Pane Glazing System:
 - Exterior silicone-glazed 11/16" [obscure] dual-seal insulating glass, [[annealed] [tempered]] [[Advanced Low-E] [SunDefense™ Low-E] [AdvancedComfort Low-E] [NaturalSun Low-E] with argon].
 - Interior hinged glass panel set in a [veneered fiberglass composite] [aluminum (advanced comfort)] frame finished to match interior (aluminum frames are veneered for stain finishes), fitted to sash with continuous gasket seal, clear [annealed] [tempered] glass.
 - Airspace between insulating glass and hinge glass panel is 1-1/32".

Exterior

- Exterior aluminum surfaces are finished with EnduraClad* protective finish, in a multi-step, baked-on finish.
- Finish color:
 - Dual-pane [White] [Tan] [Putty] [Brown] [Poplar White] [Portobello] [Hartford Green] [Morning Sky Gray] [Brick Red] [Black].
 - Triple-pane [White] [Tan] [Putty] [Brown] [Poplar White] [Portobello] [Hartford Green] [Morning Sky Gray] [Brick Red] [Black] [Almond] [Fossil] [Iron Ore].

Interior

- [Unfinished, ready for site finishing] [factory primed with one coat acrylic latex] [factory prefinished [White] [Linen White] [Bright White] [stain₁]].

Hardware

- Roto operator assembly
 - Steel worm gear sash operator with hardened gears.
 - Operator base to be zinc die cast with painted finish.
 - Operator linkage, hinge slide, and hinge arms are stainless steel.
 - Exposed fasteners are stainless steel.
 - Hardware will exceed 1,000 hours salt spray exposure per ASTM B 117.
- Innovative Locking System – A single handle locking system which operates positive-acting arms that reach out and pull the sash into a locked position: one operating lock installed on units with lock-side frame dimension [Dual-pane ≤ 29"] [Triple-pane ≤ 41"] , two unison operating locks are installed on units with lock-side frame dimension [Dual pane > 29"] [Triple-pane > 41"] .
- Standard Integrated fold-away crank and lock handle finish is [baked enamel [Champagne] [White] [Brown] [Matte Black]] [Oil-Rubbed Bronze] [Satin Nickel].

Optional Products

Grilles

- Roomside Removable Grilles (Dual-Pane glazing only)
 - 3/4" [Traditional] [Custom - Equally Divided] removable solid pine wood bars steel-pinned at joints and fitted to sash with steel clips and tacks.
 - Interior [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [White] [Linen White] [Bright White] [stain₁]].
 - Exterior [unfinished, ready for site finishing] [factory primed] [factory prefinished, finish color matched to exterior cladding₄].
- or -
- Simulated-Divided-Light [with optional spacer] (Dual-pane glazing)
 - 7/8" Grilles permanently bonded to the interior and exterior of glass.
 - Patterns are [Traditional] [Prairie] [Cross] [Top Row] [Custom - Equally Divided].
 - Interior surfaces are [unfinished, ready for site finishing] [factory primed] [pine: factory prefinished [White] [Linen White] [Bright White] [stain₁]].
 - Exterior color to match the exterior cladding color.
- Simulated-Divided-Light with Grilles-Between-the-Glass (Triple-pane glazing)
 - 3/4" Grilles permanently bonded to the exterior of glass.
 - Patterns are [Traditional] [Prairie] [Cross] [Top Row] [Custom - Equally Divided].
 - Exterior color to match the exterior cladding color.
 - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
 - Interior color is [White] [Ivory] [Tan₃] [Brickstone] [Black] [Putty₃] [Brown₃] [Harvest] [Cordova].
- or -
- Grilles-Between-the-Glass₂
 - Insulating glass contains 3/4" contoured aluminum grilles permanently installed between two panes of glass.
 - Patterns are [Traditional] [9-Lite Prairie] [Top Row] [Cross] [Custom - Equally Divided].
 - Interior color is [White] [Ivory] [Tan₃] [Brickstone] [Black] [Putty₃] [Brown₃] [Harvest] [Cordova].
 - Exterior color [matched to the exterior cladding color] [White]₄.

Flat Insect Screen

- InView™ Screens
 - Vinyl-coated 18/18 mesh fiberglass screen cloth complying with the performance requirements of SMA 1201, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
 - Screen frame finish is baked enamel, [Champagne] [White] [Brown] [Black].
- or -
- Vivid View* Screens
 - PVDF 21/17 mesh, minimum 78 percent light transmissive screen, set in aluminum frame fitted to inside of window, supplied complete with all necessary hardware.
 - Screen frame finish is baked enamel, [Champagne] [White] [Brown] [Black].
- or -
- Rolscreen* Soft-close Retractable Screen
 - InView™ Screen cloth, self-storing, rolling, black vinyl-coated 18/18 mesh fiberglass screen cloth complying with ASTM D 3656 and the performance requirements of SMA 1201 mounted behind overhead cover.
 - Cover finish is [factory prefinished paint₁] [pine veneer wrapped over extruded aluminum with factory prefinished stain₁].
 - Guides are aluminum extrusion with [pine veneer wrapped over extruded aluminum with factory prefinished stain₁] [factory prefinished paint₁].

Integrated Between-the-Glass Window Fashions (Triple-Pane glazing only) 1

- Slimshade® Blinds
 - 15 mm aluminum slat, bottom-up blinds with polyester cord ladder
 - Installed in sash between double glazing and interior hinged glass panel.
 - Operated with cordless operator or motorized with Insynctive® technology.
- or -
- Cellular Fabric Shades
 - 11/16" width, bottom-up shades with hidden polyester cord, spun bond Polyethylene Terephthalate (PET) cellular fabric.
 - Installed in sash between double glazing and interior hinged glass panel.
 - Operated with cordless operator or motorized with Insynctive® technology.

Hardware

- Optional factory applied limited opening hardware available for vent units in stainless steel; nominal 3" opening.
- Optional window opening control device available for field installation. Device allows window to open less than 4" with normal operation, with a release mechanism that allows the sash to open completely. Complies with ASTM F2090-17.

Sensors

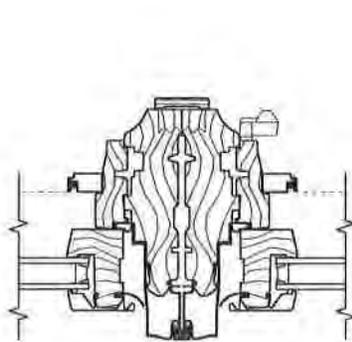
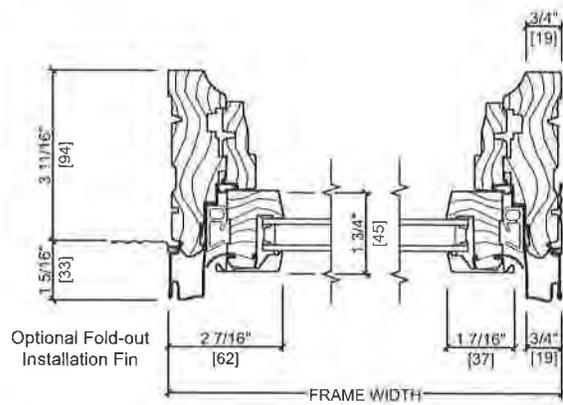
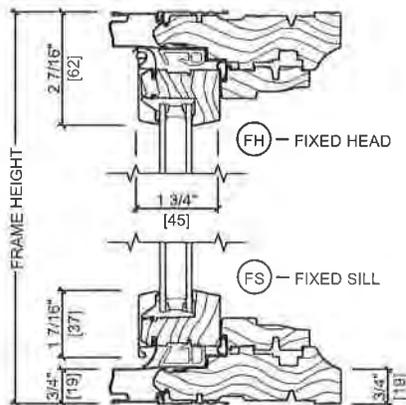
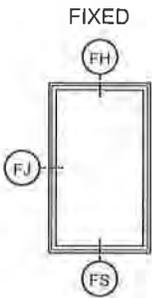
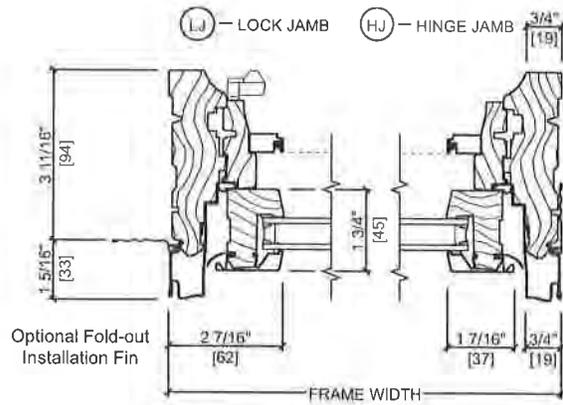
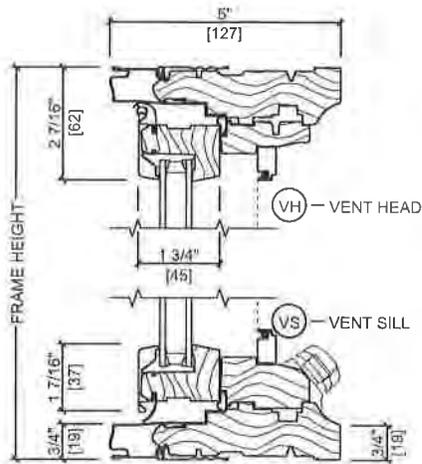
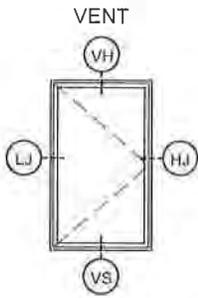
- Optional factory installed integrated security sensors available in vent units.

- (1) Contact your local Pella sales representative for current designs and color options.
- (2) Available on units glazed with Low-E insulated glass with argon, and obscure insulated glass.
- (3) Tan, brown and putty Interior GBG colors are available only with matching interior and exterior colors.
- (4) Appearance of exterior grille color will vary depending on Low-E coating on glass.

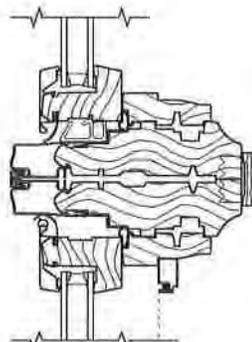


Lifestyle Series Casement

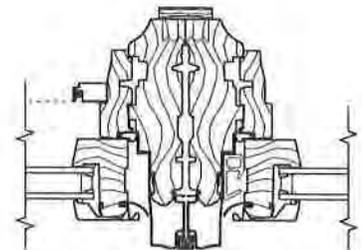
Unit Sections - Dual Pane



VERTICAL JOINING MULLION
VENT / VENT



HORIZONTAL JOINING MULLION
FIXED / VENT



VERTICAL JOINING MULLION
VENT / FIXED

Scale 3" = 1' 0"

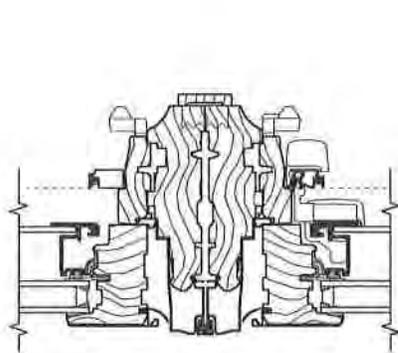
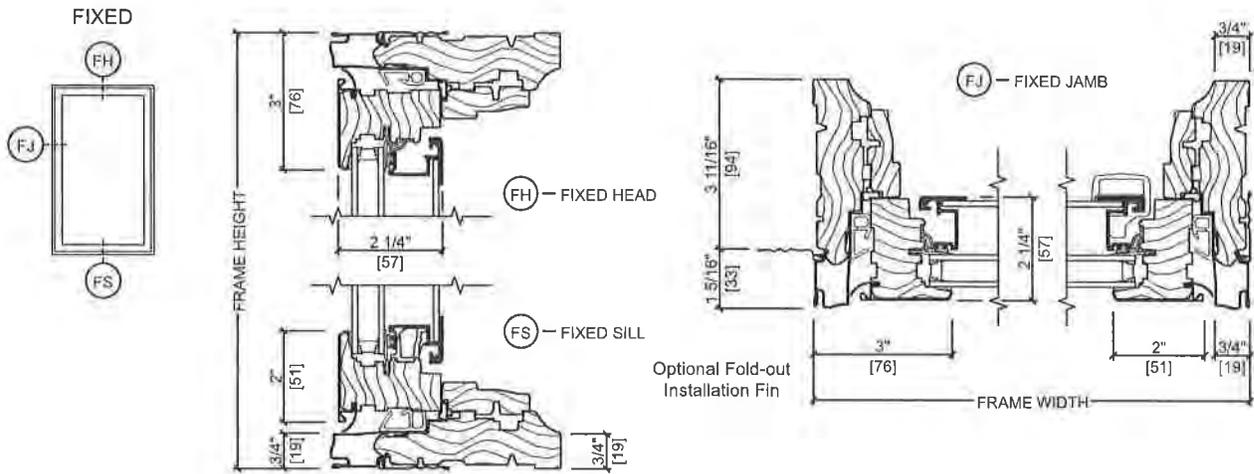
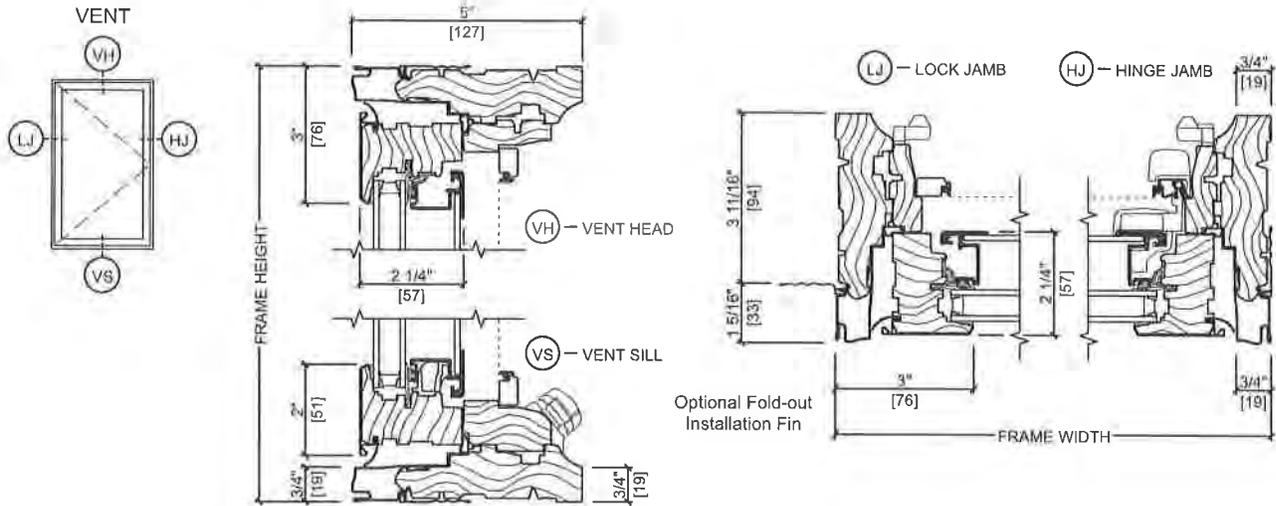
All dimensions are approximate.

See www.Pella.com for mullion limitations and reinforcing requirements.

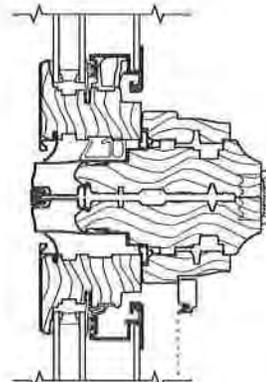


Lifestyle Series Casement

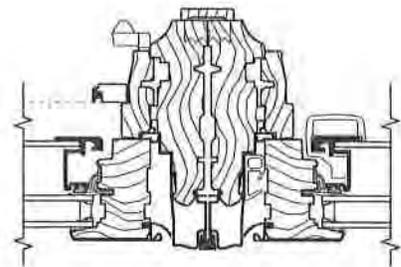
Unit Sections - Triple Pane



VERTICAL JOINING MULLION
VENT / VENT



HORIZONTAL JOINING MULLION
TRANSOM / VENT



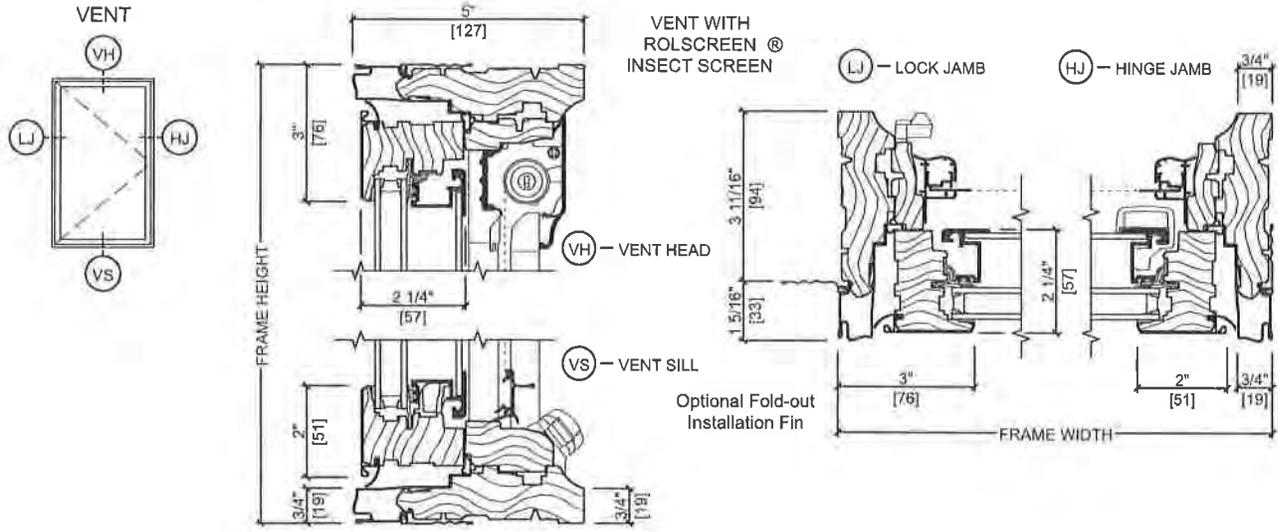
VERTICAL JOINING MULLION
VENT / FIXED

Scale 3" = 1' 0"
All dimensions are approximate.
See www.Pella.com for mullion limitations and reinforcing requirements.



Lifestyle Series Casement

Unit Sections - Triple Pane



Scale 3" = 1' 0"

All dimensions are approximate.

See www.Pella.com for mullion limitations and reinforcing requirements.

Timberline HD® Shingles

Made to protect your home. Your story. And those of over 50 million of your fellow Americans!

GAF® **TIMBERLINE HD**
LIFETIME HIGH DEFINITION SHINGLES

Timberline HD® Shingles Provide These Unique Benefits:

Great Value

Architecturally stylish but practically priced

Dimensional Look

Features GAF proprietary color blends and enhanced shadow effect for a genuine wood-shake look

Highest Roofing Fire Rating

UL Class A, Listed to ANSI/UL 790

High Performance

Designed with Advanced Protection® Shingle Technology, which reduces the use of natural resources while providing excellent protection for your home (visit gaf.com/APS/ to learn more)

Stays in Place

Dura Grip™ Adhesive seals each shingle tightly and reduces the risk of shingle blow-off. Shingles warranted to withstand winds up to 130 mph (209 km/h)¹

StainGuard® Protection

Helps ensure the beauty of your roof against unsightly blue-green algae²

Peace of Mind

Lifetime Ltd. transferable warranty with Smart Choice® Protection (non-prorated material and installation labor coverage) for the first ten years³

Perfect Finishing Touch

For the best look, use Timbertex® Premium Ridge Cap Shingles or Ridglass® Premium Ridge Cap Shingles⁴

¹This wind speed coverage requires special installation; see *GAF Shingle & Accessory Ltd. Warranty* for details

²StainGuard® Protection applies only to shingles with StainGuard®-labeled packaging. See *GAF Shingle & Accessory Ltd. Warranty* for complete coverage and restrictions.

³See *GAF Shingle & Accessory Ltd. Warranty* for complete coverage and restrictions. The word "Lifetime" refers to the length of coverage provided by the *GAF Shingle & Accessory Ltd. Warranty* and means as long as the original individual owner(s) of a single-family detached residence (or the second owner(s) in certain circumstances) owns the property where the shingles are installed. For owners/structures not meeting the above criteria, Lifetime coverage is not applicable.

⁴These products are not available in all areas. See www.gaf.com/ridgecapavailability for details.

Colors & Availability

Regional Availability

Northeast, Southeast, Southwest,
West, and Central Areas

	<i>Copper Canyon</i>	<i>Patriot Red</i>
	<i>Driftwood</i>	<i>Pewter Gray</i>
	<i>Fox Hollow Gray</i>	<i>Shakewood</i>
<i>Barkwood</i>	<i>Golden Amber</i>	<i>Slate</i>
<i>Birchwood</i>	<i>Hickory</i>	<i>Sunset Brick</i>
<i>Biscayne Blue</i>	<i>Hunter Green</i>	<i>Weathered Wood</i>
<i>Canadian Driftwood</i> <small>sold in Canada only</small>	<i>Mission Brown</i>	<i>White</i>
<i>Charcoal</i>	<i>Oyster Gray</i>	<i>Williamsburg Slate</i>

Applicable Standards & Protocols

- UL Listed to ANSI/UL 790 Class A
- Miami-Dade County Product Control approved
- State of Florida approved
- UL 997 modified to 110 mph
- Classified by UL in accordance with ICC-ES AC438
- Meets ASTM D7158, Class H
- Meets ASTM D3161, Class F
- Meets ASTM D3018, Type 1
- Meets ASTM D3462¹
- ICC-ES Evaluation Reports ESR-1475 and ESR-3267
- Texas Department of Insurance listed
- CSA A123.5²
- ENERGY STAR[®] Certified (White Only) (U.S. Only)
- Rated by the CRRC
- Can be used to comply with Title 24 cool roof requirements
- Meets the cool roof requirements of the Los Angeles Green Building Code (Birchwood, Copper Canyon, Golden Amber, and White Only)

Product/System Specifics³

- Fiberglass Asphalt Construction
- Dimensions (approx.): 13 1/4" x 39 3/8" (337 x 1,000 mm)

- Exposure: 5 5/8" (143 mm)
- Bundles/Square: 3
- Pieces/Square: 64
- StainGuard[®] Protection: Yes⁴
- Hip/Ridge: Timbertex[®]; Seal-A-Ridge[®]; Z[®] Ridge; Ridglass[®]
- Starter: Pro-Start[®] & WeatherBlocker[™]

Installation

Detailed installation instructions are provided on the inside of each bundle wrapper of Timberline HD[®] Shingles. Installation instructions may also be obtained at gaf.com.

¹Periodically tested by independent and internal labs to ensure compliance with ASTM D3462 at time of manufacture.

²Refers to shingles sold in Canada only.

³Refer to complete published installation instructions.

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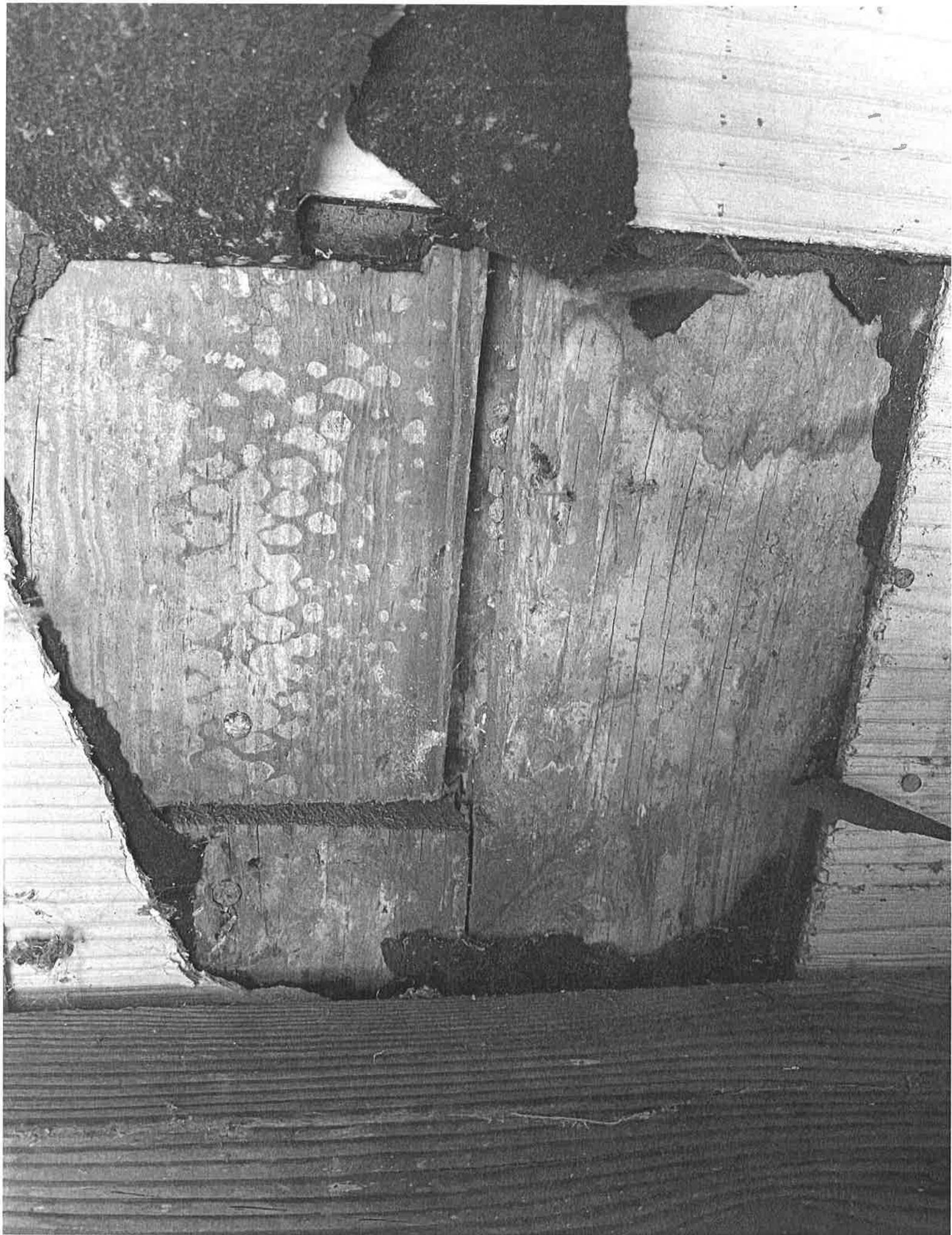
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Note: It is difficult to reproduce the color clarity and actual color blends of these products. Before selecting your color, please ask to see several full-size shingles













514 Miller
COA Request

Property Location: **514 Miller Ave
Miller Historic District**

COA Request: **(HD 22-04) Consideration of the Certificate of Appropriateness for the removal of a non-original addition on the rear of the house, the replacement of 24 deteriorated wood windows, the replacement of front and rear doors, and the installation of a set of double doors on rear of the house, for the property located at 514 Miller Avenue.**

Applicant/Owner: **Lisa Bridges and Dedra Fite**

Background Information:

Historical Information

2004 Miller Historic District Nomination Survey Information:

Ca. 1920. Bungalow/Craftsman. This contributing, one-story, aluminum-sided, single dwelling has a red brick foundation and an asphalt-covered, front-gabled roof. The wood windows are six-over-one hung and the single wood door is glazed paneled with wood louvers. The full-width porch is sheltered by the principal roof and has red brick piers topped by tapered wood columns and brick walls. Other exterior features include a central red brick chimney. Decorative details include double and triple windows and exposed rafters. There is a weatherboard, gable-roofed, single car garage with swinging doors to the rear.

Sanborn Map Information:

The primary and accessory structures are indicated at their present location on the 1925 and 1944 Sanborn map. The non-original rear addition is not present on the Sanborn maps, indicating that it is a post 1944 addition.

Property History:

There have been no Certificate of Appropriateness requests for this property.

Project Description:

The applicants have recently purchased this property and are in the process of remodeling the house to fit their needs. The non-original addition on the rear is in poor structural shape and the applicants wish to remove it and replace it with a 296 square foot deck. A review of the Sanborn Maps indicate that this was probably originally a porch which may have been enclosed. Since the proposed deck is under 300 square feet, it can be approved by Administrative Bypass and does not require review by the Commission.

The windows in the house are in poor shape and have also suffered damage in the recent October hail storm. The owners have requested the contractors, Old Home Rescue, to assess the windows for repair along with the rest of the exterior of the house. Old Home Rescue has recommended the replacement of all the windows due to significant deterioration. The proposed new windows will be of wood, same window pane configuration, size and muntin profile.

The applicants would also like to restore, if possible, the front and rear door. However, if this is not possible, they propose to replace the doors with wood doors of similar design to the existing doors.

Finally, the applicants would like to install a set of wood double doors that will access the new deck from the rear bedroom. Currently there is a set of double windows which were slated for replacement anyway but now would be replaced with a set of double wood doors.

In addition to these requests, the property owners have hired Old Home Rescue to provide extensive repair work for the house and the garage. The contractor will remove the existing metal siding on the house to reveal original wood siding. Old Home Rescue will replace and repair any wood siding, trim, and cornices with wood of the same size and profile. Old Home Rescue will also be performing extensive repairs to the original historic garage structure as well. None of this work requires review by the Historic District Commission.

The applicants will be installing a new wood fence in the rear yard to replace the existing chain link and wire fence. This does not require review by the Historic District Commission.

Ordinances & Guidelines:

Historic District Ordinance

429.3.1(g): To safeguard the heritage of the City by preserving and regulating historic district structures in such a way that maintains or restores their historic integrity while allowing modern day uses and conveniences for their residents. (0-0910-12).

429.3.3(c): Changes to rear elevations do require a COA; however the rear elevation of a historic structure is considered a secondary elevation and is therefore regulated to a lower standard to allow flexibility for additions or other modern day appurtenances. (0-0910-12).

Preservation Guidelines

Guidance can be provided by looking at the sections of the Historic District Guidelines listed below:

1.4 Secretary of the Interior Standards for Rehabilitation

1. Make Minimal Changes. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. Retain Historic Character. The historic character of a property shall be retained and preserved. The removal of historical materials or alterations of features and spaces that characterize a property shall be avoided.

3. Avoid False Historical Impressions. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Acknowledge Changes Over Time. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Preserve Distinctive Features. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.

6. Repair Rather Than Replace. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacements of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Avoid Harsh Treatments. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

8. Protect Archaeological Resources. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. Make Compatible Additions. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

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

3.5 Guidelines for Windows and Doors:

.1 Retain Original Windows. Retain and preserve original windows, including glass, frames, sash, muntins, sills, heads, moldings, surrounds, and hardware.

.2 Retain Historic Glass. Retain original glass in historic windows if at all possible. Leaded glass windows shall be preserved. Bubbles and waves give old glass its distinctive look and add to the historic character of the house.

.3 Preserve Original Doors. Retain and preserve original doors and door surrounds including frames, glazing, panels, sidelights, fanlights, surrounds, thresholds, and hardware.

.4 Replace Only Deteriorated Features. If replacement of a deteriorated window or door feature or details is necessary, replace only the deteriorated feature in kind rather than the entire unit. Broken sash cords, for example, can be repaired and do not necessitate replacing an entire window. Match the original in design, dimension, placement, and material.

.5 Replacement Doors. Replacement doors and door surrounds shall be appropriate to the style of the structure. Doors shall be relocated, enlarged, or introduced only when the alteration is appropriate to the style of the building.

.6 Storm/Screen Doors. Wood framed screen doors and full-light storm doors do not require a COA or Administrative Bypass.

.7 Window Replacement by Administrative Bypass. A deteriorated window may be replaced "like with like," based on the following criteria:

Typically all wood construction

Muntin width and profile are very similar to the original in width and profile

Light pattern is the same as the original

True divided lights (window panes) are the same as the original

Size and dimension of all window components are the same as the original

.8 Window Replacement by COA. A deteriorated window replacement, other than "like with like" as defined above requires a COA and shall conform to the following: Shall have a wood exterior, unless replacing a metal casement window•

Aluminum or vinyl cladding is not appropriate

Light patterns same as the original

Size and dimension the same as the original

Double-pane simulated divided lights with wood muntins on the exterior and interior and a shadow bar between the panes may be allowed for windows on the side or rear that are not visible from the street.

.9 Retain Original Metal Windows. Replace original metal casement windows only as a last resort after weatherization measures have proven unsuccessful.

.10 Preserve Original Openings. Do not create new openings in the front or side facades of historic structures. Do not enlarge or diminish existing openings to fit stock window and door sizes. If new openings are necessary to meet code requirements, they shall be compatible with historic windows for that structure in proportion, shape, location, pattern, size, materials, and details.

.11 Locate Privacy Glass in Rear. Privacy glass may be installed where required in divided light windows (such as in a bathroom) but only located in the rear 50% of the structure. Smoked or tinted glass is not appropriate for use in historic structures.

.12 Use Wood Windows in Primary Structures and Additions. For construction of new primary structures, choose windows that complement window types in surrounding structures in material, placement, size, shape, and design. While single-pane, true divided-light, wood frame windows are the most desirable choice for new construction in historic districts, double-pane glass wood windows with interior and

exterior applied muntins and shadow bars between the panes are permitted. Aluminum cladding of wooden windows is permissible for use in construction of new primary structures and additions. Vinyl cladding of wood windows is not appropriate.

5.2 Guidelines for Demolition of Structures

.1 A Certificate of Appropriateness (COA) is Required for Demolition and Infill Construction. Applicants must obtain a Certificate of Appropriateness for construction of new primary structures on a demolition site prior to the demolition taking place.

.2 Submit Site Plan. Before demolition occurs, submit a site plan to the Historic District Commission illustrating proposed site development to follow demolition.

.3 Document Structure Thoroughly. Before demolition, record significant structures through photographs and/or measured drawings as specified by the Historic District Commission and City Staff.

Staff Comments:

Staff presents the following comments for Commission's consideration:

Request #1) Removal of a non-original addition on rear of the house.

As indicated by the Sanborn Insurance Maps, the addition is not original to the house. Since it is likely that this section of the house was originally a porch that was enclosed, its removal will be impacting historic material. Since the addition is non-original, the removal of the addition is allowable under the Historic Preservation Guidelines.

Request #2) Replacement of 24 windows in the house with wood windows.

The applicant is requesting to replace all the windows in the house due to hail damage and deterioration. The Historic Preservation Guidelines strongly encourages that windows be retained and repaired if possible as a first option. If replacement is allowed, it should be for a replacement of the same material, configuration and details as the applicant is proposing. The Commission should determine whether or not the original windows are deteriorated beyond reasonable repair and if the proposed replacements meet the Preservation Guidelines for materials, configuration, and details.

Request #3) Replacement of front and rear doors.

The applicants have found the original front door in storage in the garage and will have Old Home Rescue attempt to restore it. If this is not possible, a wood door of similar design is proposed.

The door for the rear of the house will also be restored if possible. If it cannot be restored it would be replaced with a wood door of similar design.

Both of these requests meet the Historic Preservation Guidelines for Doors.

Request #4) Replacement of double windows on the rear with set of double doors.

A set of wood double doors of similar design to the front door are proposed to replace the set of double windows on the rear of the house to provide access to the new deck. This request requires the removal of two original windows, however, as listed above, the Historic District Ordinance allows for the installation of modern day conveniences on the rear elevation which is regulated to a lesser degree. This is a typical modern convenience that the Commission has approved in the past on other structures. The double set of doors will not be visible from the front and therefore will not impact the structure or the surrounding District. Staff would encourage the owners to retain th

Commission Action:

Approve, deny, amend or postpone the Certificate of Appropriateness for the removal of a non-original addition on the rear of the house, the replacement of 24 deteriorated wood windows, the replacement of front and rear doors, and the installation of a set of double doors on rear of the house for the property located at 514 Miller Avenue.

The City of Norman Historic District Commission
FOR CERTIFICATE OF APPROPRIATENESS (COA)

Staff Only Use

HD Case #:

Date:

Received by:

Note: Any relevant building permits must be applied for and paid for separately in the Planning and Community Development Office. 405-366-5311

Address of Proposed Work: 514 Miller Avenue Norman

Applicant's Contact Information:

Applicant's Name: Lisa R Bridges and Dedra A Fite

Applicant's Phone Number(s): 214-454-4353

Applicant's E-mail address: lrb0910@gmail.com

Applicant's Address: 2306 Stone Bridge Drive, Arlington, TX 76006

Applicant's relationship to owner: Contractor Engineer Architect

Owner's Contact Information: (if different than applicant)

Owner's Name: applicant

Owner's Phone Number(s):

Owner's E-mail:

Project(s) proposed: (List each item of proposed work requested. Work not listed cannot be reviewed.)

- 1) 1. Remove Non-Historic Steel Siding; Expose and restore original 6-inch clapboard siding, cornice and trim. Clean, repair and paint.
 2. Repair/maintenance to front porch; repair concrete and posts/columns, paint decking
- 2) 3. Replace existing fences in rear of home with new wood fencing along North, West and South boundaries.
 4. Repair and replace 24 windows. Sashes with replica, true divided lite sash and matching the existing lite/pane glass opening sizes. All remaining window elements to remain intact and repaired as needed.
- 3) 5. Repair or replace front and rear door of home.
 6. Remove non-historical add-on at rear (West) of home.
- 4) 7. Replace double windows on rear (West) of home with double doors; matching design of front and rear door.
 8. Add deck on rear (West) of home. Approximately 296 sqft
 9. Repair original garage siding, doors and windows. Clean and paint in similarity to home structure

Supporting documents such as project descriptions, drawings and pictures are required see checklist page for requirements.

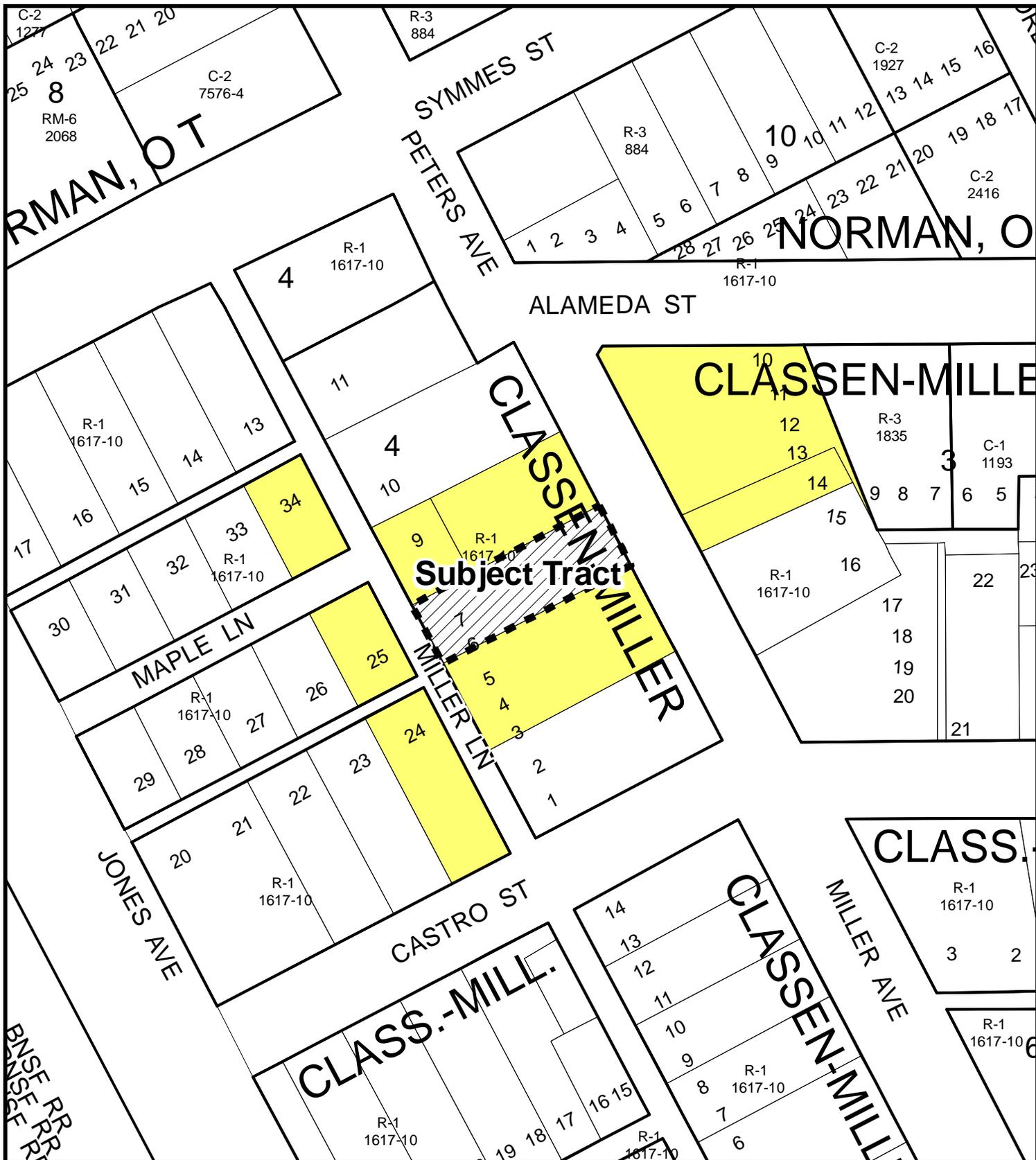
Authorization: I hereby certify that all statements contained within this application, attached documents and transmitted exhibits are true to the best of my knowledge and belief. In the event this proposal is approved and begun, I agree to complete the changes in accordance with the approved plans and to follow all City of Norman regulations for such construction. I authorize the City of Norman to enter the property for the purpose of observing and photographing the project for the presentations and to ensure consistency between the approved proposal and the completed project. I understand that no changes to approved plans are permitted without prior approval from the Historic Preservation Commission or Historic Preservation Officer.

Property Owner's Signature:  **Date:** 12/09/21

(If applicable): I authorize my representative to speak in matters regarding this application. Any agreement made by my representative regarding this proposal will be binding upon me.

Authorized Representative's Printed Name:

Authorized Representative's Signature: _____ **Date:** _____



Radius Map



Adjacent Radius

Map Produced by the City of Norman
Geographic Information System.
The City of Norman assumes no
responsibility for errors or omissions
in the information presented.

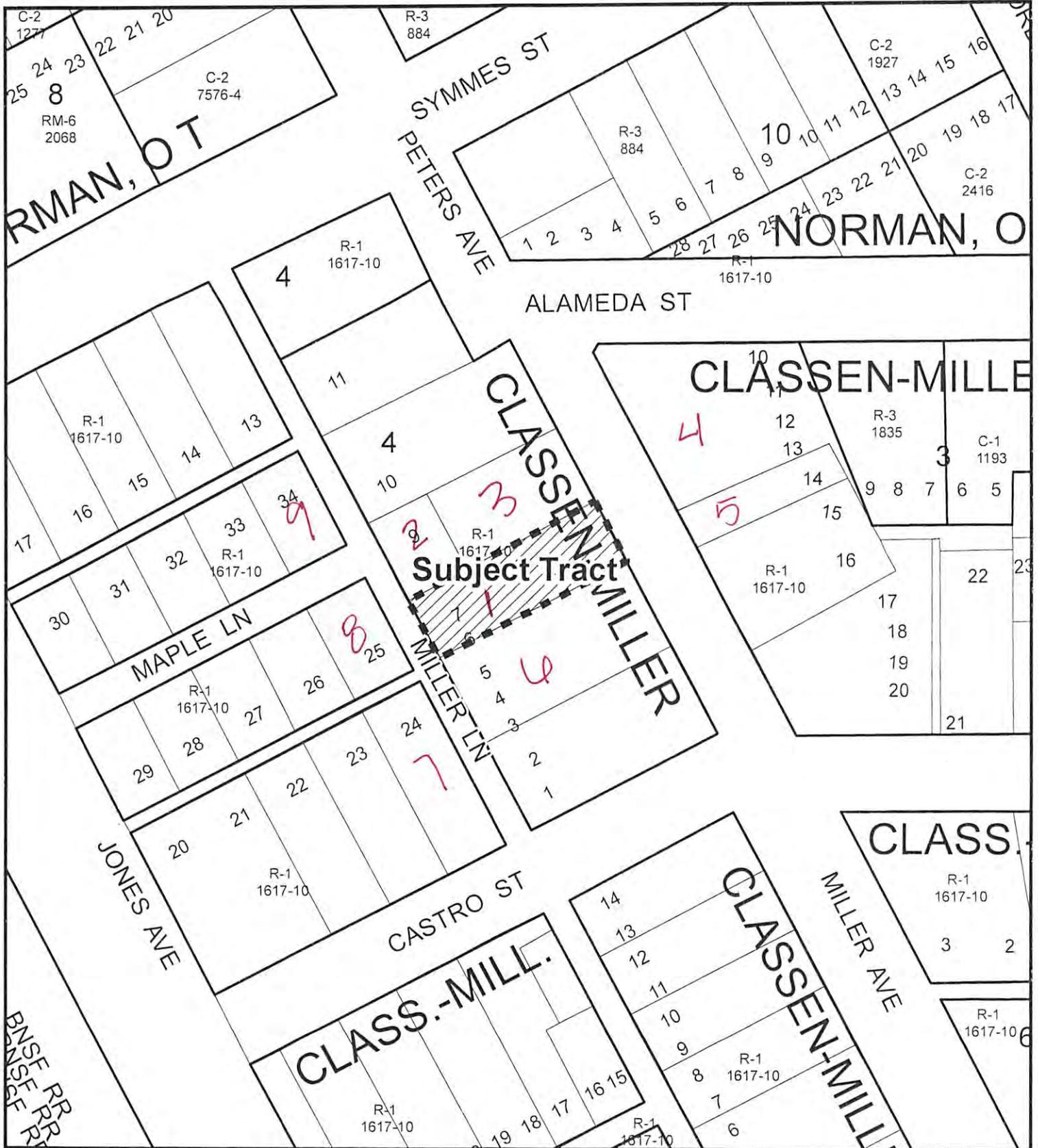


0 40 80 Feet

November 16, 2021

-  Subject Tract
-  Radius
-  Zoning
-  Parcels
-  Notification Area

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Radius Map



Adjacent Radius

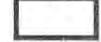
Map Produced by the City of Norman Geographic Information System. The City of Norman assumes no responsibility for errors or omissions in the information presented.



0 40 80 Feet



November 16, 2021

-  Subject Tract
-  Radius
-  Zoning
-  Parcels
-  Notification Area

Ownership List

A list of property owners within the adjacent radius the following described property to-wit:

The North 15 feet of Lot Six (6), all of Lot Seven (7) and the South 10 feet of Lot Eight (8), in Block Four (4), of Classen-Miller Second Addition to Norman, Cleveland County, Oklahoma, according to the recorded plat thereof.

OWNERSHIP LIST
PREPARED BY CHICAGO TITLE OKLAHOMA

1. **Account #** 29446
Legal Description: CLASSEN MILLER ADD LOTS N15` OF 6 AND ALL 7 AND S10` OF 8 BLK 4
Property Address: 514 Miller Avenue, Norman, OK 73069
Owner: Lisa R Bridges
Mailing Address: 2306 Stone Bridge Drive, Arlington, TX 76006
2. **Account #** 119104
Legal Description: CLASSEN MILLER W45` OF N15` LT 8 AND W 45` LT 9 AND W45` OF S25` LT 10 BLK 4
Property Address: 510 – ½ Miller Avenue, Norman, OK 73069
Owner: Joshua P Hadley
Mailing Address: 503 Miller Avenue, Norman, OK 73069
3. **Account #** 119103
Legal Description: CLASSEN MILLER E1 15` OF N15` LT 8 AND E1 15` LT 9 AND E1 15` OF S25` LT 10 BLK 4
Property Address: 510 Miller Avenue, Norman, OK 73069
Owner: Joshua P Hadley
Mailing Address: 503 Miller Avenue, Norman, OK 73069
4. **Account #** 29437
Legal Description: CLASSEN MILLER ADD LOTS 10 11 12 AND W20` OF LOT 9 AND PRT LOT 13 14 15 BEG NE/C LOT 13 SE 8.41` SW 9. 55` S NW/C LOT 15 NW TO NW/C LOT 13 ON N
Property Address: 503 Miller Avenue, Norman, OK 73069
Owner: John R Hadley Revocable Trust UND ½ INT
Mailing Address: 503 Miller Avenue, Norman, OK 73069
5. **Account #** 29439
Legal Description: CLASSEN MILLER ADD PRT LOTS 13 14-15 AND 16 BEG S9.55` NW/C LOT 15 N65D E1 23.52` S28DE30.06` ON EAST LINE LOT 15 S65D W123` BLK 3
Property Address: 0 Miller Avenue, Norman, OK 73069
Owner: John R Hadley Revocable Trust UND ½ INT
Mailing Address: 503 Miller Avenue, Norman, OK 73069
6. **Account #** 29445
Legal Description: CLASSEN MILLER ADD N15` OF LOT 3 AND ALL LOTS 4 AND 5 AND S10` OF LOT 6 BLK 4
Property Address: 518 Miller Avenue, Norman, OK 73069
Owner: Steven B Foster
Mailing Address: 518 Miller Avenue, Norman, OK 73069
7. **Account #** 29460
Legal Description: CLASSEN MILLER LOT 24 BLK 4
Property Address: 113 Castro Street, Norman, OK 73069
Owner: Jerri Ann Gray
Mailing Address: 618 Mary Lee Lane, Edmond, OK 73034
8. **Account #** 29461
Legal Description: CLASSEN MILLER LOT 25 BLK 4
Property Address: 114 Maple Lane, Norman, OK 73069
Owner: Jerri Ann Gray
Mailing Address: 618 Mary Lee Lane, Edmond, OK 73034

9. **Account #** 29470
Legal Description: CLASSEN MILLER LOT 34 BLK 4
Property Address: 109 Maple Lane, Norman, OK 73069
Owner: Moorjani Development, Inc
Mailing Address: 9 Avenue At Port Inperial, Apt 714, West New York, NJ 07093

DOC# R2021-42287 BT: RB B: 6320 P: 671 WD
10/01/2021 01:31:47 PM Pages: 2
Tammy Bellinson - Cleveland County Clerk, OK
Fee: \$20.00 Doc Stamp: \$262.50 bp
Electronically Filed



**(Individual Form)
JOINT TENANCY WARRANTY DEED**

KNOW ALL MEN BY THESE PRESENTS:

Hartsock Joint Revocable Trust dated May 9, 1996 party of the first part, in consideration of the sum of Ten And No/100 Dollars (\$10.00) and other valuable considerations to it in hand paid, the receipt of which is hereby acknowledged does hereby grant, bargain, sell and convey unto

Lisa R. Bridges and Dedra A. Fits

as joint tenants and not as tenants in common, with the right of survivorship, the whole estate to vest in the survivor in the event of the death of either, parties of the second part, the following described real property and premises situate in Cleveland County, State of Oklahoma, to-wit:

For Tax Map ID(s): 29446

The North 15 feet of Lot Six (6), all of Lot Seven (7) and the South 10 feet of Lot Eight (8), in Block Four (4), of Classen-Miller Second Addition to Norman, Cleveland County, Oklahoma, according to the recorded plat thereof.

Subject to easements, rights of way and restrictive covenants of record. Less and except all oil, gas and other minerals previously reserved or conveyed of record.

Together with all the improvements thereon and the appurtenances thereunto belonging, and warrant the title to same.

TO HAVE AND TO HOLD the above described premises unto the said parties of the second part, as joint tenants, and to the heirs and assigns of the survivor forever, free, clear and discharged of and from all former grants, charges, taxes, judgments, mortgages and other liens and encumbrances of whatsoever nature.

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

Signed and delivered September 21, 2021.

Hartsock Joint Revocable Trust dated May 9, 1996

BY: Robert Hartsock
Robert Hartsock
Successor Trustee

The State of OKLAHOMA
County of OKLAHOMA
TRUSTEE ACKNOWLEDGMENT

Before me, the undersigned, a Notary Public, in and for said County and State, on this 21 day of September 2021 personally appeared Robert Hartsock, Trustee(s) of the Hartsock Joint Revocable Trust dated May 9, 1996 to me known to be the identical person(s) who executed the within foregoing instrument as its trustee, and acknowledged to me that (he/she/they) executed the same as (his/her/their) free and voluntary act and deed, for the uses and purposes therein set forth.

Given under my hand and seal the day and year last above written.



MTO FARRIS

Notary Public in and for the State of _____
Notary's Printed Name: _____
Notary's Commission Expires: _____

(Individual Form)
JOINT TENANCY WARRANTY DEED
(continued)

Mail Deed and Tax Statements To:
Lisa R. Bridges and Dedra A. Fite
2306 Stone Bridge Dr
Arlington, TX 76006

Presented for filing by and return to:
Chicago Title Oklahoma Co.
3401 NW 63rd, Suite 300
Oklahoma City, OK 73116
File No.: 710062100403
Title Insurance Commitment, if any, issued by:
Chicago Title Insurance Corp.

Ownership List Certificate

)

State of Oklahoma
County of Cleveland) SS

The undersigned bonded abstractor does hereby certify that the foregoing list of names represents the grantees shown in the most recent conveyances of record. The abstractor does not guarantee the validity of the title of such parties and this instrument is not intended to guarantee title thereto. These conveyances are shown of record in the office of the County Clerk, Cleveland County, Oklahoma together with the legal description and mailing addresses as shown by the County Assessor of each of the following parcels of land:

An adjacent radius of property owners surrounding the following described property, to wit:

The North 15 feet of Lot Six (6), all of Lot Seven (7), and the South 10 feet of Lot Eight (8), in Block Four (4), of Classen-Miller Second Addition to Norman, Cleveland County, Oklahoma, according to the recorded plat thereof.

In witness whereof, Chicago Title Oklahoma Co., has caused by these Presents to be executed by its Vice-President and its Corporate Seal affixed.

EXECUTED at Oklahoma City, Oklahoma, November 15, 2021 at 7:30 A.M.

Chicago Title Oklahoma Co.

By: *Charles Francis*

Vice President, Charles Francis

Date Prepared: November 24, 2021



Order Number: 710512104778

The City of Norman Historic District Commission
APPLICATION FOR CERTIFICATE OF APPROPRIATENESS (COA)

514 Miller Avenue
Norman, OK
Supporting Documentation

Due to the substantial amount of work required to restore the home, property owners have attained services from Old Home Rescue (OHR) to assist in assessing the restoration effort. The following depicts the comments, conclusions and forward projects for completion.

OHR will be performing exterior repair, maintenance and replacement services encompassing windows, doors, siding, trim, cornices, rafter tails and etc.



The following defines those repairs and replacements requested for approval.

Exterior Siding

Removal of all non-historical steel siding and restoration of original wood siding.

Non-historical steel siding has been installed on the home. Aside from the lack of appeal due to the normal wear and tear, the most recent hailstorm has caused irreparable damage to the full north side of the home. The steel siding will be removed and the original wood siding will be repaired and replaced as necessary. Most recent efforts to reveal original siding on the north and west sides indicate the original 6-inch beveled clapboard siding to be in relatively good condition. Work to be conducted by OHR will include

- Siding, cornice and trim to be repaired in like kind and epoxy repairs made where needed to avoid replacement.
 - House is cleaned, not power washed
 - Failed paint scraped by hand
 - Epoxy Repairs
 - Bare wood spot primed
 - Entire surface primed with high build, peel bonding primer
 - Gaps and joints sealed with urethane or high expansion caulking
- Painting of exterior of home using a process specifically for old including clean, scrape, spot prime bare wood with oil primer, high build bonding primer, then top coat with high quality acrylic paint for the body and a urethane/enamel for trim, windows and doors.
- Unknown if gable vents exist underneath siding on front elevation and screen on rear elevation; install period appropriate gable vents if not

Entire siding has deteriorated significantly over the years due to the elements and lack of maintenance. Further, damage to windows, trim and cornices has been sustained due to the improper installation of steel siding, roof and gutters. During the October hailstorms, the North side of home suffered significant, irreparable damage to siding and windows (over 50% of windows with broken glass and muntins).



Steel siding has been removed exposing original 6-inch beveled clapboard.



North Side – Living Room



North Side – Dining Room



North side of home >> excessive, irreparable damage to siding, sill panning, trim cladding and windows

Over 50% of the windows with broken wavy glass and damaged muntins. Further, the storms caused further damage to already impaired sashes

Front Porch

Repair and maintenance to porch floor, columns and concrete

- Porch floor will be painted to improve appearance; porch enamel or a porch epoxy paint will be used for durability.
- Concrete steps will be repaired with epoxy. Steps will be recoated with porch enamel/epoxy paint when porch floor is painted.
- Posts/columns to be repaired and painted in similar manner as siding



Broken front concrete step



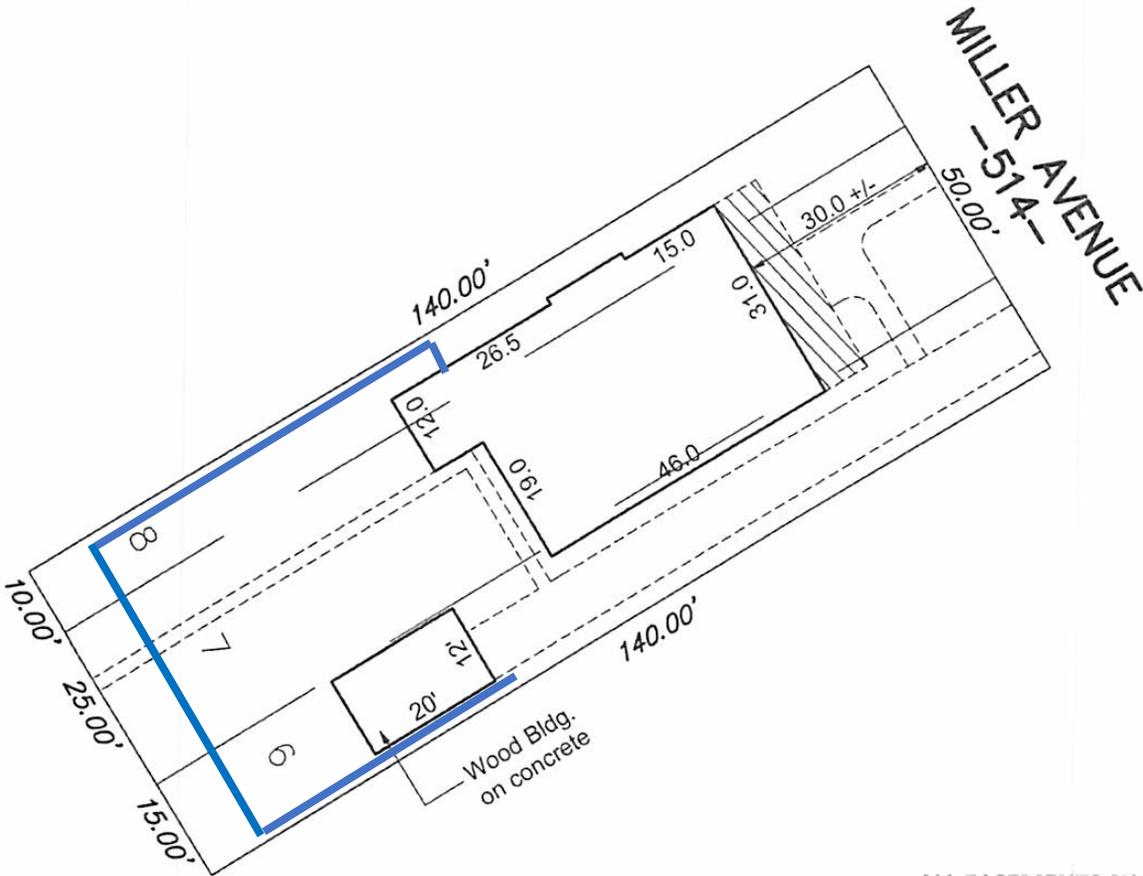
Columns have rotted, separated

Fence

Replace existing fences in rear of home.

Fences are currently falling down, constructed of chicken wire and chain link.

New fence on North and South side to be constructed of wood to 6ft tall and tapering down to the West to 4ft tall with the West fence line being 4ft.



Fence Pattern to be used.



Window Replacement and Repair:

Replacement of all window sashes and repair of sills and trim.

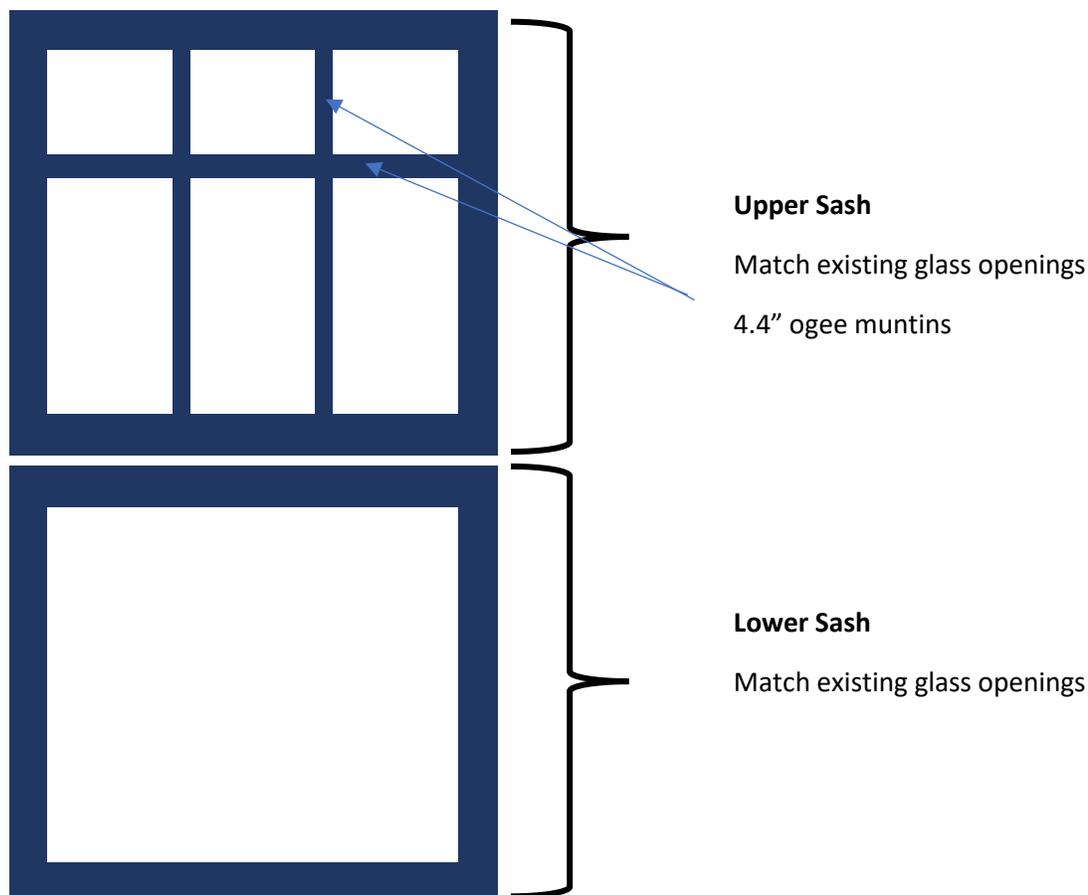
All windows are in need of replica sash due to, but not limited to: i) large quantity of windows with varying degrees of joinery damage, ii) historic glass replaced with plexiglass, iii) past repairs completed below industry standards which are causing additional issues, iii) muntins are missing profiles, iv) improperly installed window AC units and exterior screens resulting in significant water and condensation damage over the many years, and v) additional damage to historic wavy glass and muntins from the recent hail storm.

→ Please refer to **Attachment 1** for pictures depicting damage to windows.

Replacement and repair will be conducted as follows

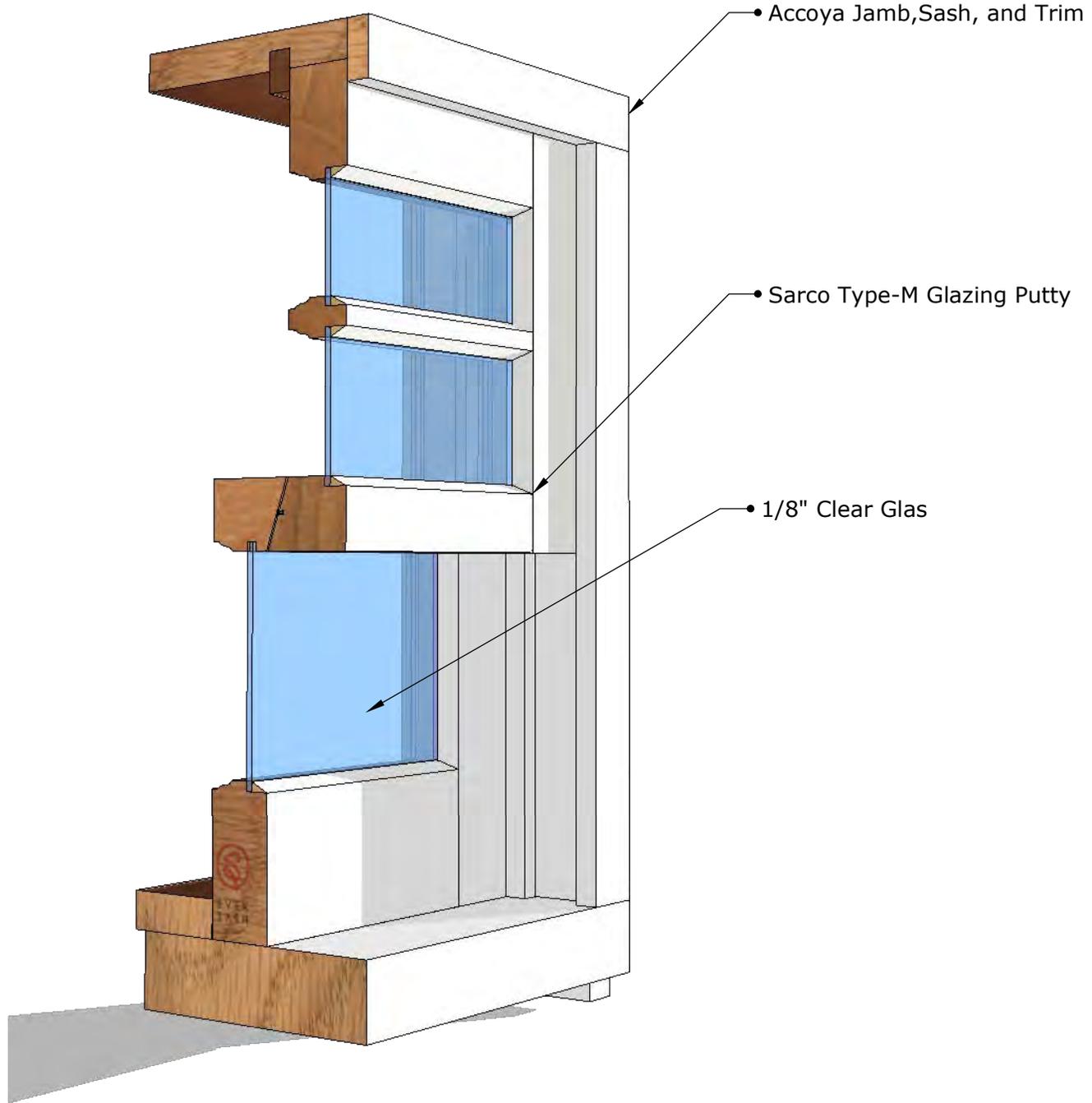
- All windows to be repaired through replica, true divided lite sash with rot resistant Accoya wood and matching the existing lite/pane glass opening sizes.
- Eversash window specs for a typical window.
- 3/4" muntins
- All remaining window elements (interior casing, jamb, sill, subsill, exterior casing and mechanical components) to remain intact and be repaired only as needed with epoxy first.

Sample Sash Replacements > replicas with lights matching the current window dimensions





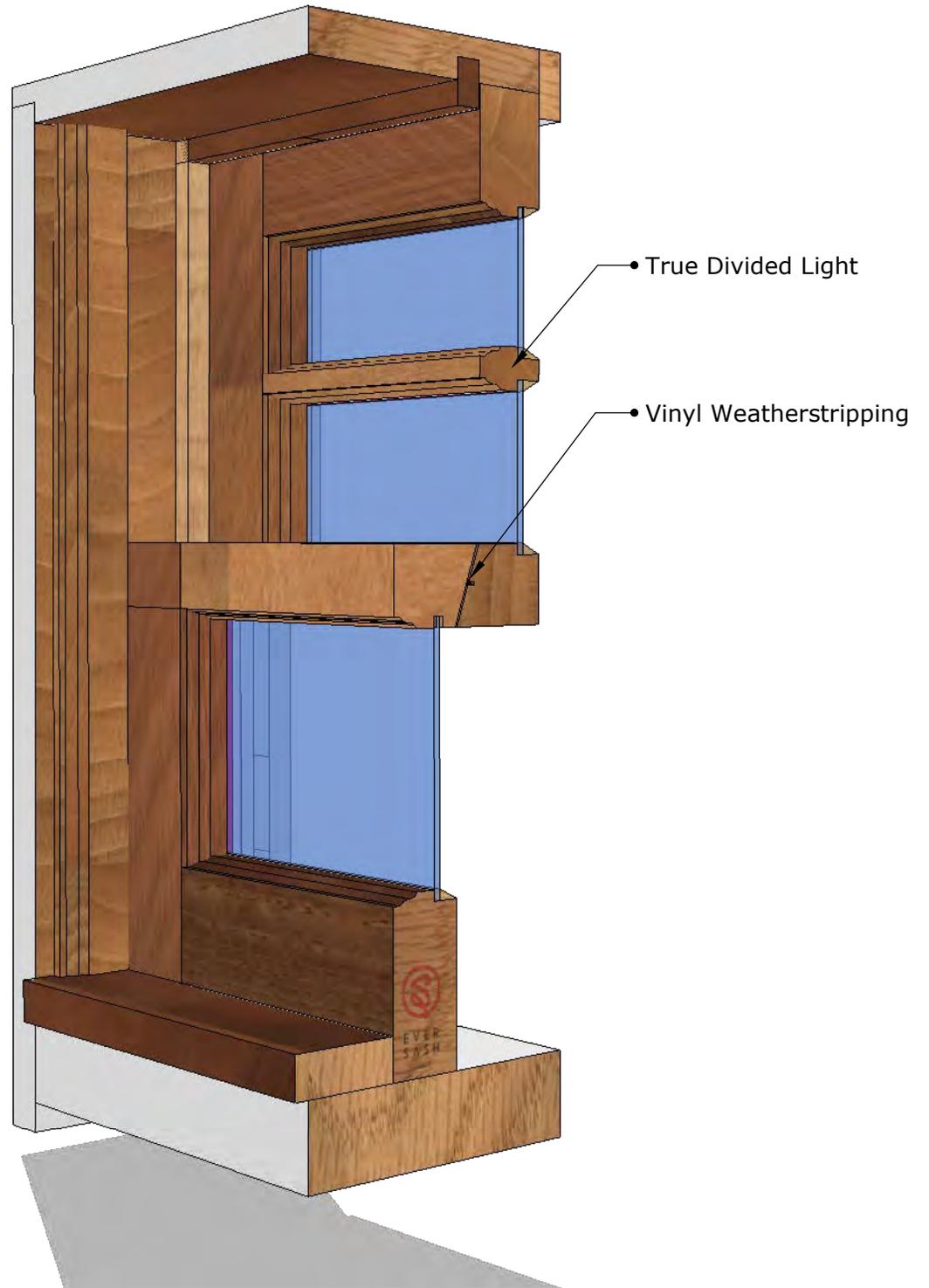
EVERSASH *windows*



Exterior Typical Sash



EVERSASH *windows*

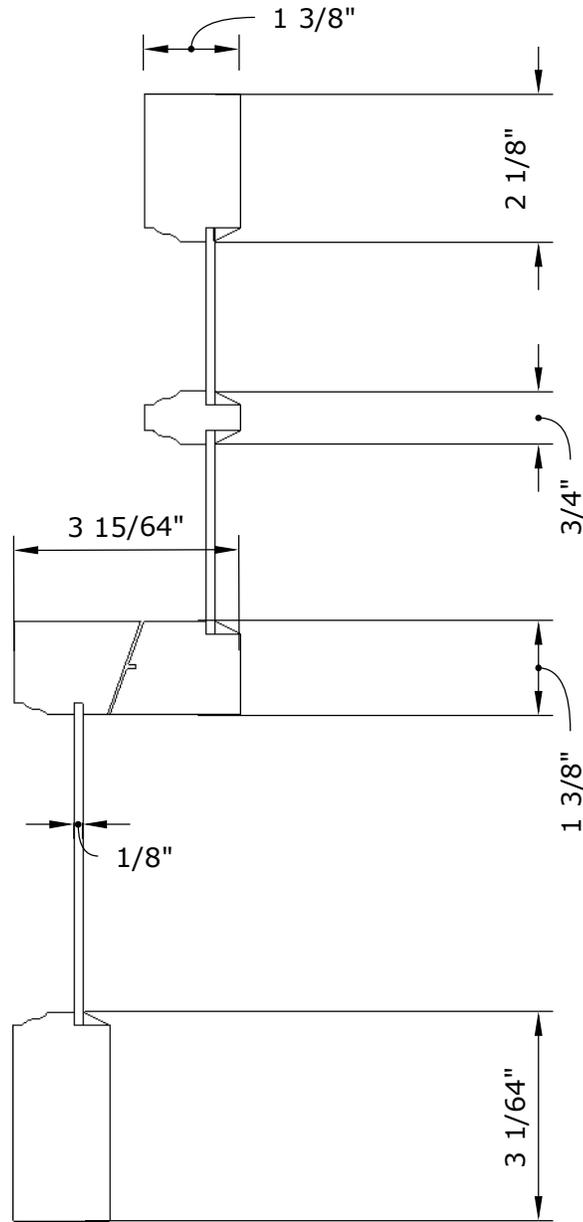


Interior Typical Sash

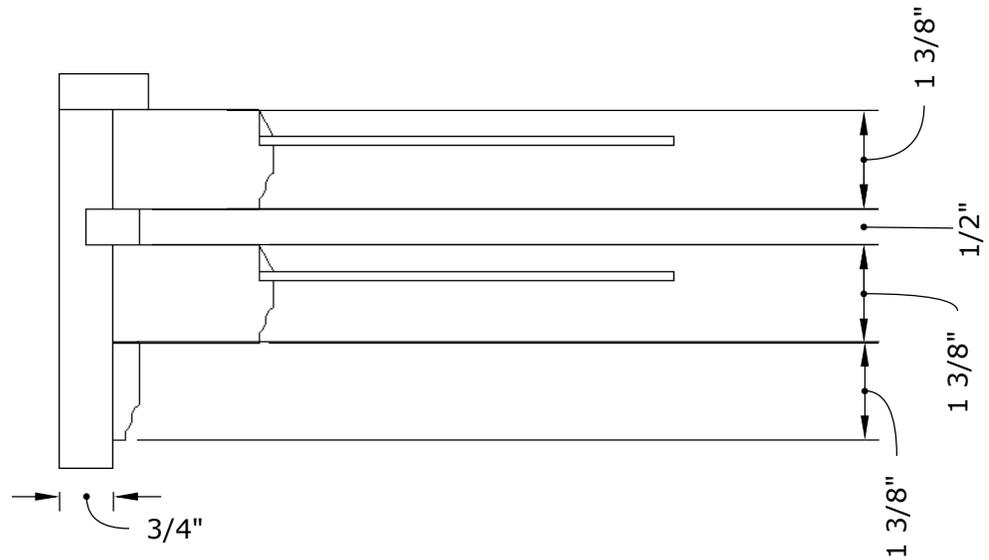


EVERSASH windows

Sash Detail



Jamb Detail



Door Repair or Replacement

Repair or replace front and rear door of the home.

Final solution will be dependent on the ability to repair existing doors. If unable to repair from appearance, safety and energy efficiency perspective, replacement will be made with period appropriate doors.



Front Door. Non-historical fiberglass door to be replaced. Original front door has been found in the garage. The door has deteriorated significantly over time due to elements and improper storage; and we are uncertain as to the ability to appropriately restore.

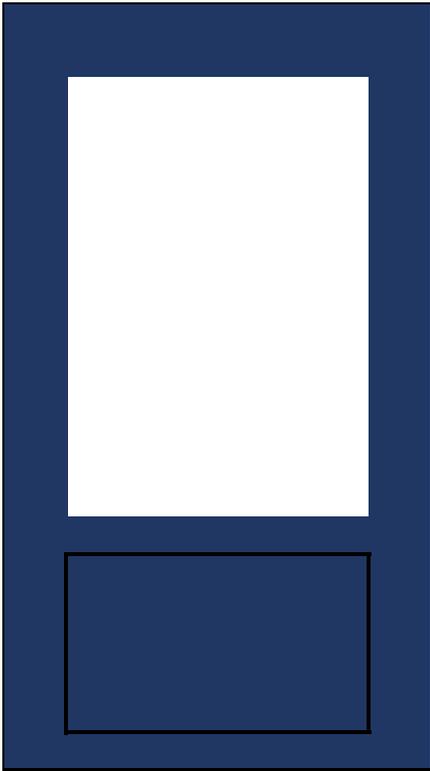
Door's shellac has failed and the veneer is delaminating



Rear Door. Original rear door is currently in the home. The door has deteriorated significantly over time due to elements and usage; and is irreparable.

Door has been split at the door knob and has been impaired with the many added deadbolts and latch locks which are now failing over time.

First alternative will be to restore original Front Door and replace Rear Door with matching; if unable, period appropriate doors will be made in similarity to the below.



Doors will be constructed in similarity to that of the front door.

Wood construction with glass insert.

Removal of Non-Original Add-On

8 x 12 add-on to be removed.

Structure is located on the rear of the home (west elevation). Structure is unstable and falling down, causing damage to the original structure and stem wall.

Interior of structure is irreparable with floor and ceiling collapsing. Further, the structure is incapable of being included within the central HVAC.

This will reveal an original window to the exterior. Further the exterior will receive the same siding repair as the remainder of the home creating a more appropriate appearance.



Structure is on the West (rear) side of the home; north corner.

Structure is outside of the stem wall and lacks appropriate underpinning.



Has sustained significant damage from fallen trees on the roof.

Significant damage to windows and siding in the latest hailstorm.

Replacement of Windows with Double Door

Master Bedroom Double Windows Replaced with Double Doors:

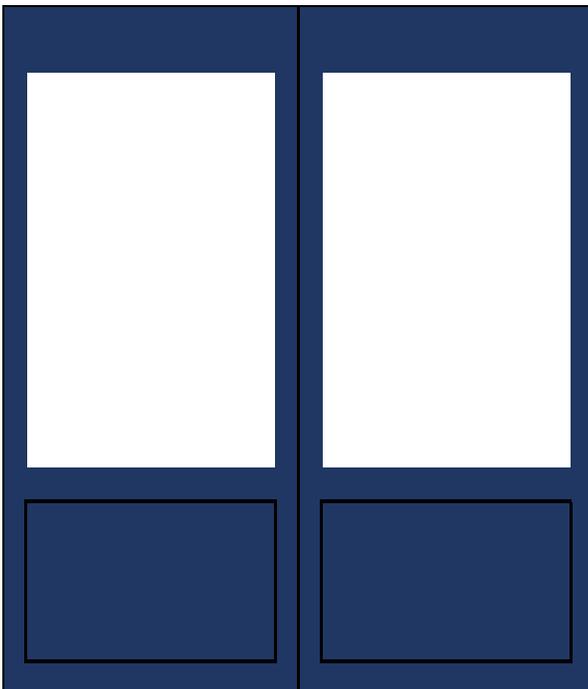
Windows on West (rear of home) will be replaced with double doors. Windows are past point of repair and are intended for replacement. Current window opening will be used with increase of upper and lower opening to accommodate a double doors.



Current existing rear exit door will be exposed to the outside when the add-on is removed from the home.

New double doors will be built and installed to same period appropriate design. Height will be aligned as well to ensure consistency.

Doors will be made to match that of the rear door (as described above).

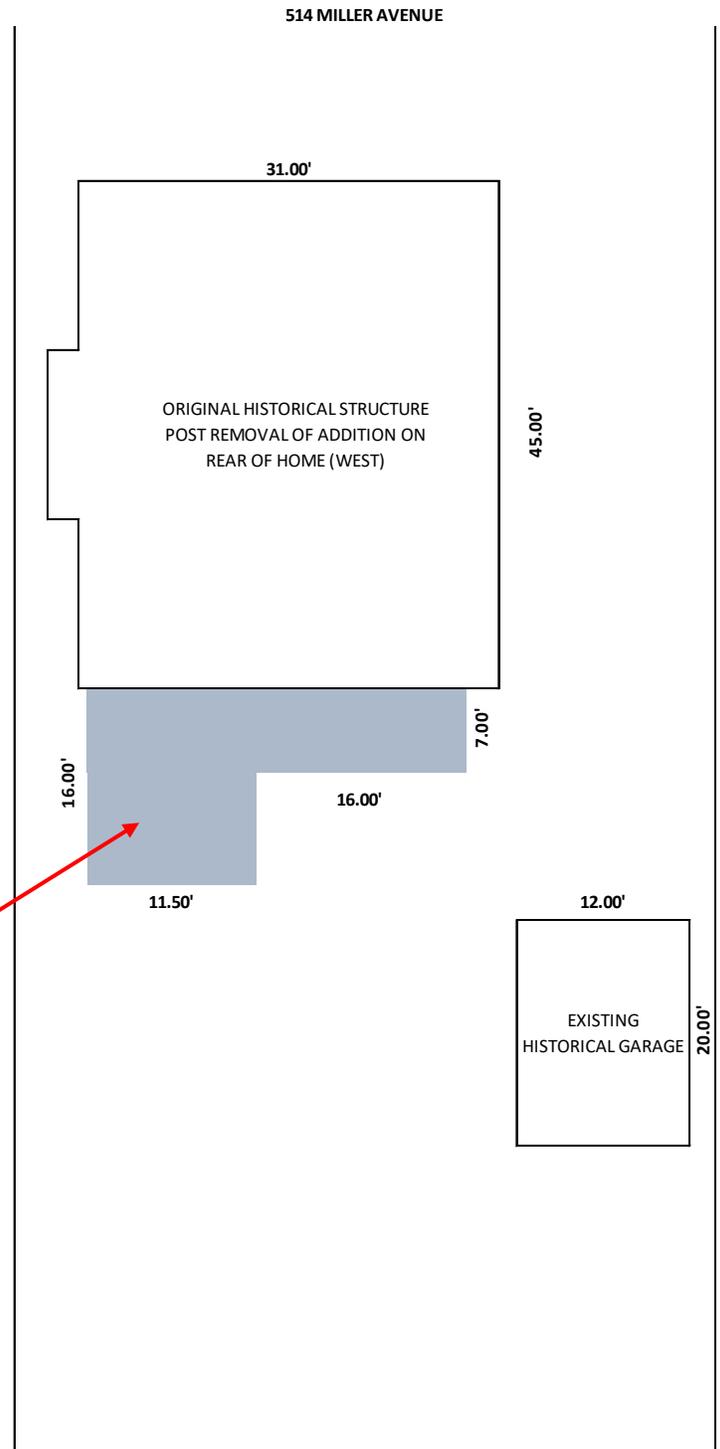


Patio Deck

A patio deck will be built on the West (rear of the home).

Deck will be run along the rear of the home and align to the first floor level (level to the original threshold of the home).

Deck will not be visible to the street and is not located in an area which would diminish architectural element or significant sight features.



Approximate sqft = 296

Approximate 6" set in from North side

Approximate 3.0' set in from South side

Garage Repair

Repair and replace (as necessary) roof, siding, doors and windows.



Garage will receive significant repairs inclusive of roof replacement, epoxy repairs to rafter tails, glass replaced in window, doors repaired with rotted or broken wood replaced.



Flyrafter damaged from fallen tree. Repairs will be made during roof replacement. Siding will be repaired in similar methods to house siding.

Attachment 1: Window Damage Requiring Sash Replica Replacements

Sample of window damage. All windows have sustained significant damage due to i) neglect, ii) weather, iii) extended usage of window AC units and screens, and iv) siding which has created extensive water damage.



North Living – joinery failure



North Living – Muntins Broken
Glass Broken – hail



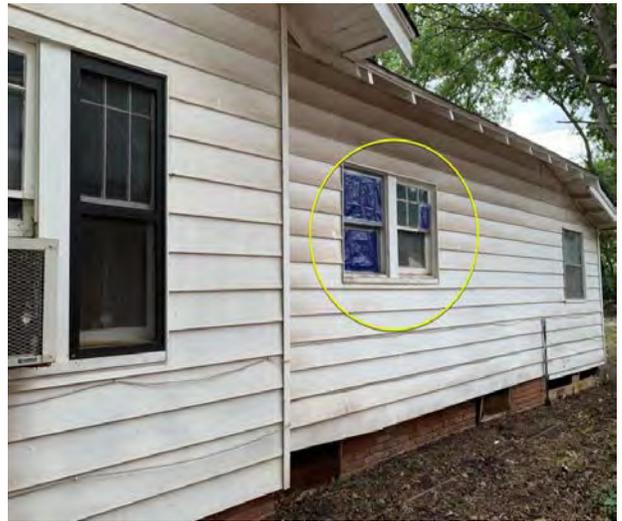
North Dining – multi joint failures
Glass shifted down and gap created
Glass Broken - hail



North Dining - Joinery



North Living – Broken Glass – Hail
Muntins Damaged



North Kitchen – Broken Glass – Hail
Muntins Damaged



North Dining – Broken Glass – Hail
Muntins Damaged
Further damage from window unit and weather





Many south elevation windows have had poor repairs over the life of the home making restoration far more intensive than reasonable



South – Meeting rail separated
Muntin Damage



All south elevation rooms have windows with lower rail and joinery damage caused by window units



Many south elevation windows have bowed upper meeting rails creating separation of joints and infiltration

Morgan Reinart

Old Home Rescue

10/14/2021 | 38 Photos



Lisa Bridges: 514 Miller Ave

Exterior Restoration Plan

514 Miller Ave, Norman

3 bed, 1 bath

1522 sq ft

Roof

Condition:

- Roof was not inspected due to known damage and need for replacement.
- Multiple rafter tails rotted

Recommendations:

- Epoxy repairs to rafter rails

Gutters

Condition:

- Gutters are damaged in multiple areas and likely contain additional damage following the hails storm
- Downspouts are over extended and not appropriately mitigating water

Recommendations:

- Remove gutters during roof inspection
- Observe water runoff from roof
- Weigh options between ground drainage or gutters plus ground drainage.
- Ground drainage exposes rafter tails, stops water from terminating at roofline for future rot prevention, and restores original look and function to home.
- Properly installed gutters with ground drainage will allow for direct water mitigation into drainage

away from your home and neighbors home.

- Note: Aluminum shortages have extended lead times for gutters.

Siding

Condition:

- Non-historic aluminum has been added to home.
- Aluminum cladding can often allow for water infiltration and rot on the original siding, trim and cornice components
- Subsill horns have been removed or damaged during siding installation to allow for window trim to be covered.
- Original 6" beveled clapboard siding was found of rear elevation of home under cladding
- Hail has damaged north side of home on greater than 50% of surface
- Unknown if gable vents exist underneath siding on front elevation and screen on rear elevation

Recommendations:

- Once cladding is removed, siding, cornice and trim should be repaired in like kind, epoxy repairs made where needed to avoid replacement
- Painting of exterior of home using a process specifically for old including; clean, scrape, spot prime bare wood with oil primer, high build bonding primer, then top coat with high quality acrylic paint for the body and a urethane/enamel for trim, windows and doors.
- Install period gable vents based on conditions found after cladding removal

Windows & Doors

Condition:

- All windows are candidates for replica due to the following reasons; varying degrees of joinery damage, historic glass has been replaced with plexiglass, past repairs of poor quality causing additional failures, failed shellac and missing muntins on stain grade windows, plus the damage caused by the recent hail storm further damaged muntins and historic glass.
- At this time, windows can only accept aluminum storm windows due to cladding
- Door believed to be original front door is located in the garage with minor delamination of the veneer

near the glass and failed shellac.

Recommendations:

- All windows should be **repaired** through replica, true divided lite sash with rot resistant Accoya wood that is the best quality alternative to old growth lumber. Woods like pine, cypress, and even Spanish cedar are not as rot resistant as their species of the past.
- All remaining window elements; interior casing, jamb, sill, subsill, exterior casing and mechanical components to remain in tact and be repaired only as needed with epoxy first.
- Restoration and installation of the original door with a wood storm door. Note: Due to delamination of wood, stain grade would be the goal; however, it may need to be painted based on repairs.
- Failed shellac on interior woodwork can be corrected without replacement through 0000 stew wool and acetone
- Any sills and subsills should be repaired to have 7 degree slope (preferred) toward exterior.
- When interior trim carpenter trims windows, it should be completed with 15 gauge nails to ensure sill, stool and apron are properly fastened.

Porch

Condition:

- Non-historic porch installed. While not original, the porch floor is in good condition.
- Concrete steps leading up to porch have missing section

Recommendations:

- Porch floor could be painted to improve appearance. If painted, porch enamel or a porch epoxy paint should be used for durability.
- Concrete steps could be repaired with epoxy rather than replaced. Steps should be recoated with porch enamel/epoxy paint when porch floor is painted.

Garage

Condition:

- Garage condition is fair
- Roof replacement needed
- Broken fly rafter with possible decking damage
- Siding is in good condition, aside from starter run, which has seen rot due to contact with ground.
- Doors are as most garage doors of this age are; sagging, under supported by hinges
- Concrete floor is cracked and shifted
- Window sash has broken glass and is in need of repair.

Recommendations:

- Roof should be replaced and repaired when home's roof is replaced.
- Concrete floor can be left as is until later date or cracks filled and sealed.
- Overall, the expense to fully correct the issues with the garage may be cost prohibitive at this time or be a phase 2 of the project proposed.

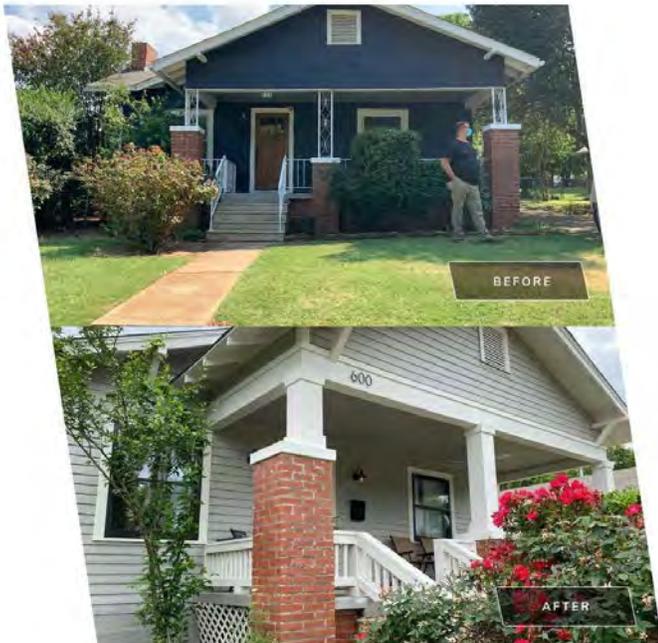
1



Aluminum cladding has been added to home. Typically, cladding completed in this way traps water within or between the layers of siding. Rot is normally found at poorly crafted points of transition; windows, inside corners, etc. Often, the original siding is in good condition and only needs minor repairs.

Project: Lisa Bridges
Date: 10/7/2021, 10:47am
Creator: Morgan Reinart

2



Example exterior restoration including cladding removal, siding restoration, new sash, and storm windows.

Project: Lisa Bridges
Date: 10/14/2021, 3:10pm
Creator: Morgan Reinart
Tags: Before and After

3

Broken glass due to hail
Damaged siding due to hail



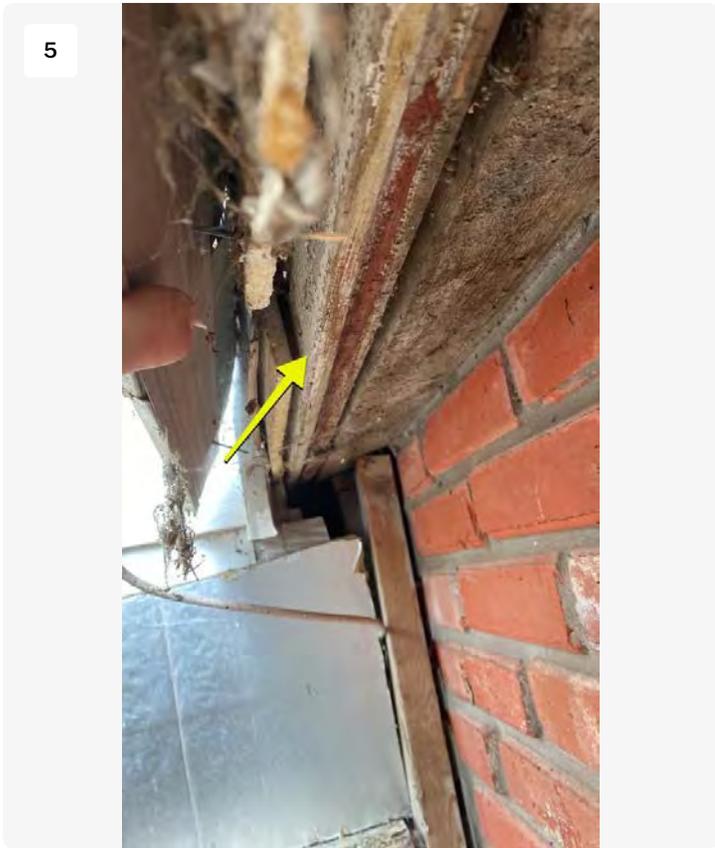
Project: Lisa Bridges
Date: 10/13/2021, 3:16pm
Creator: Morgan Reinart

4

Extensive hail damage to aluminum siding.



Project: Lisa Bridges
Date: 10/13/2021, 3:20pm
Creator: Morgan Reinart



6" beveled siding underneath aluminum cladding

Project: Lisa Bridges
Date: 10/7/2021, 10:55am
Creator: Morgan Reinart



Left: Aluminum wrapped onto subsill
Middle: Point of water infiltration on all windows.
If aluminum is not removed, this gap will need to be caulked and maintained annually

Project: Lisa Bridges
Date: 10/7/2021, 10:52am
Creator: Morgan Reinart

7



Currently the only dedicated roof exhaust.
Gable vents on front and back are acting as intake and exhaust
New roof should be installed with ridge vents with gable vents as intake.

Project: Lisa Bridges
Date: 10/7/2021, 10:59am
Creator: Morgan Reinart

8



Right: Where water would likely land if no gutters were installed
Left: Water is being dropped at foundation with gutters installed.
Ground drainage at downspouts or on south side of the driveway would be an effective solution.

Project: Lisa Bridges
Date: 10/7/2021, 10:57am
Creator: Morgan Reinart

9



Problem areas for windows.
Subsills are typically cut or damaged during installation.
Subsills act as an important part of the water management system of a window and should extend in width to outside edges of exterior casing.

Project: Lisa Bridges
Date: 10/7/2021, 10:56am
Creator: Morgan Reinart

10



Joinery separation

Project: Lisa Bridges
Date: 10/7/2021, 10:52am
Creator: Morgan Reinart

11



Posts have separation on base mouldings. Water is penetrating through gaps shown.

Project: Lisa Bridges
Date: 10/7/2021, 10:48am
Creator: Morgan Reinart

12



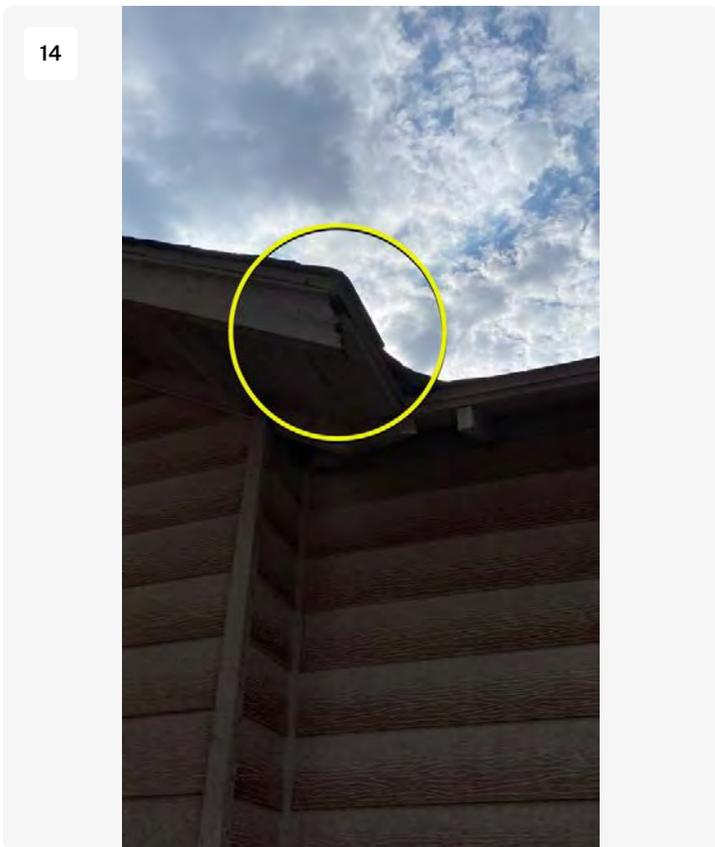
Some screens are installed upside down Screens are screwed directly to window due to aluminum cladding.

Project: Lisa Bridges
Date: 10/7/2021, 10:50am
Creator: Morgan Reinart



Joinery failure

Project: Lisa Bridges
Date: 10/7/2021, 10:52am
Creator: Morgan Reinart



Rot on rafter tails due to improperly installed drip edge. Drip edge should be left with 1/8-1/4" spacing. Before or after roof is replaced, rot on rafter tails can be repaired with epoxy.

Project: Lisa Bridges
Date: 10/7/2021, 10:53am
Creator: Morgan Reinart

15



Crack stone on south porch wall.

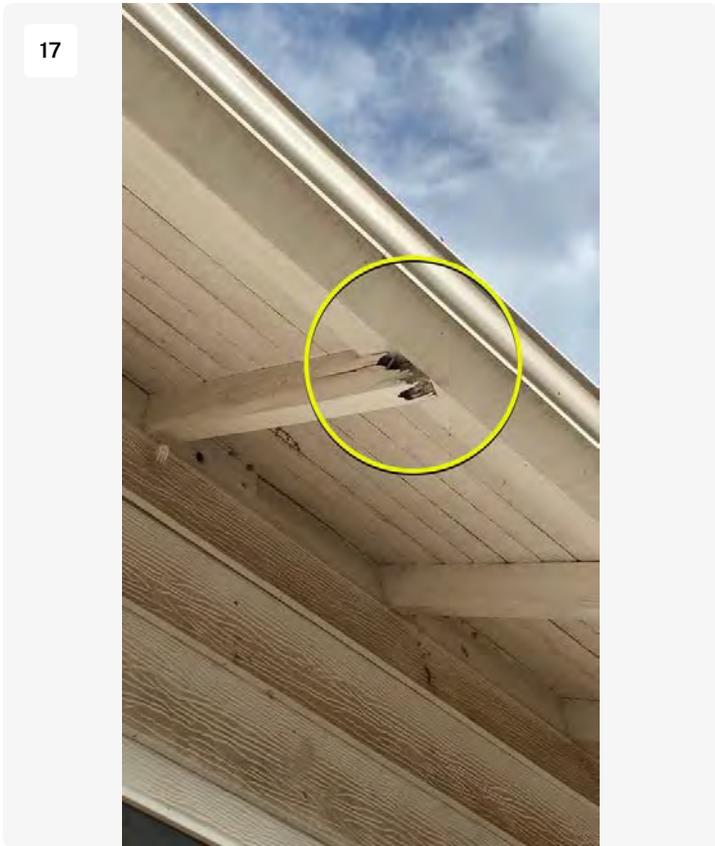
Project: Lisa Bridges
Date: 10/7/2021, 10:49am
Creator: Morgan Reinart

16



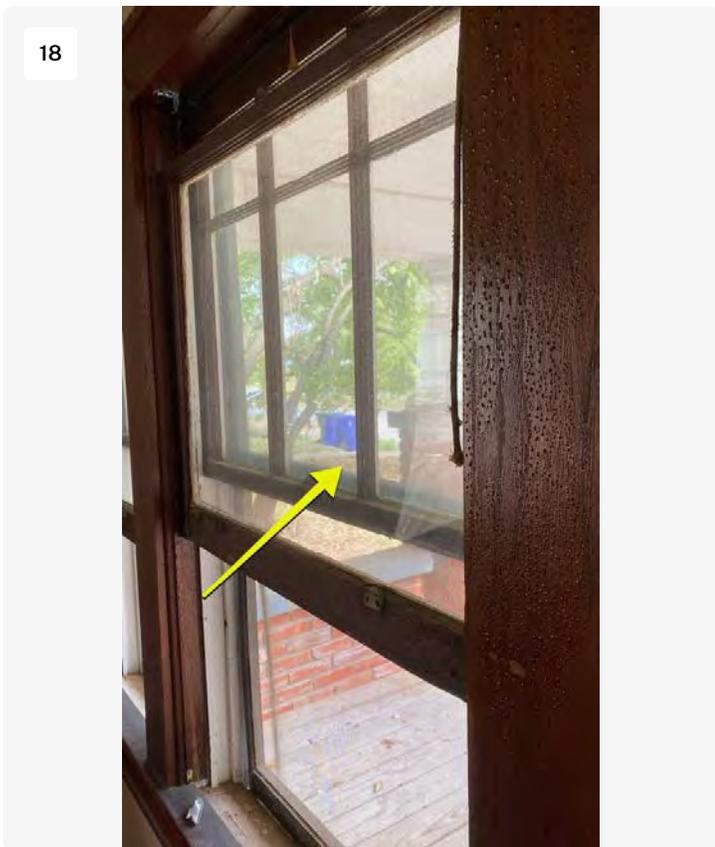
Concrete step has area that is missing Steps can be repaired vs replaced.

Project: Lisa Bridges
Date: 10/7/2021, 10:47am
Creator: Morgan Reinart



Rafter rails rotted Common cause is due to rafter tails being cut to install gutters. Rafters can be repaired in place.

Project: Lisa Bridges
Date: 10/7/2021, 10:57am
Creator: Morgan Reinart



Plexiglass installed
No weatherstripping installed at meeting rail, stiles, header or sill.

Project: Lisa Bridges
Date: 10/7/2021, 11:01am
Creator: Morgan Reinart

19



Joinery damage

Project: Lisa Bridges
Date: 10/7/2021, 11:02am
Creator: Morgan Reinart

20



Missing muntin.

Project: Lisa Bridges
Date: 10/7/2021, 11:03am
Creator: Morgan Reinart

21



Window has multiple joint failures.
Piece replacement of stained sash rarely results in stain match of woodwork.
Glass has shifted down and created gap

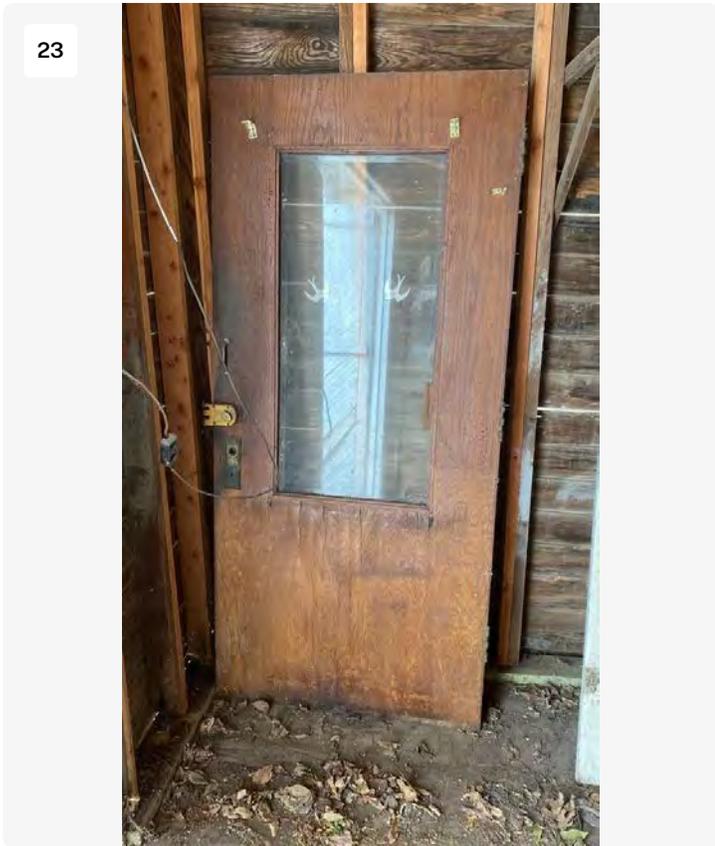
Project: Lisa Bridges
Date: 10/7/2021, 11:03am
Creator: Morgan Reinart

22



Joinery damage

Project: Lisa Bridges
Date: 10/7/2021, 11:04am
Creator: Morgan Reinart



Original front door: Failed shellac is on door like interior woodwork. Veneer is delaminating.

Project: Lisa Bridges
Date: 10/7/2021, 11:18am
Creator: Morgan Reinart



Broken window due to hail storm.

Project: Lisa Bridges
Date: 10/13/2021, 3:24pm
Creator: Morgan Reinart

25



Sill separated from jamb legs creating improper angle for water management to exterior of home. Any sills where this occurs should have sills shimmed as well as aprons installed and sill/apron/stool fasteners installed.

Project: Lisa Bridges
Date: 10/7/2021, 11:04am
Creator: Morgan Reinart

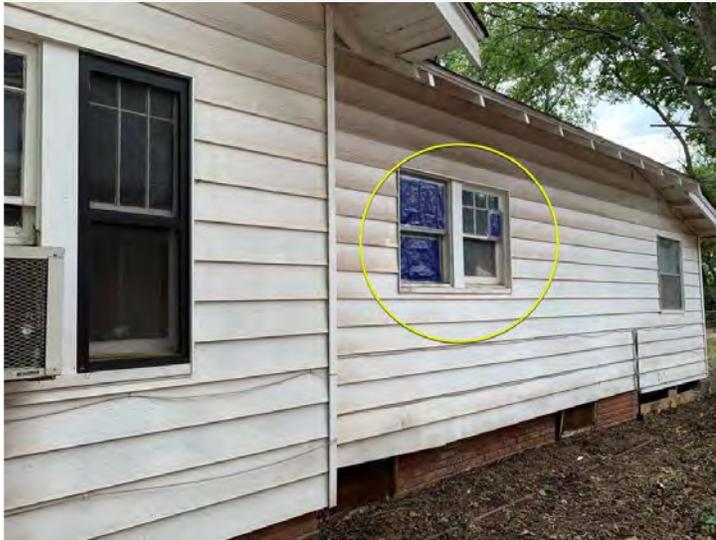
26



Missing apron has caused sill to drop. Water is not being diverted to exterior of home.

Project: Lisa Bridges
Date: 10/7/2021, 11:04am
Creator: Morgan Reinart

27



Hail damage to siding and windows.
Hail damages windows in a way that makes repair difficult, especially when windows are already in such poor condition.

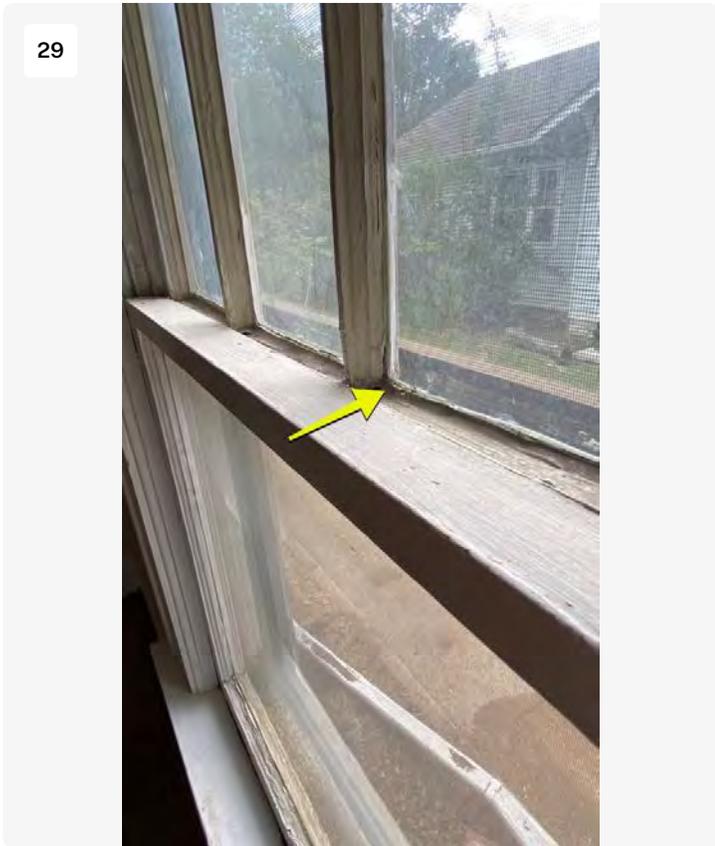
Project: Lisa Bridges
Date: 10/13/2021, 3:19pm
Creator: Morgan Reinart

28



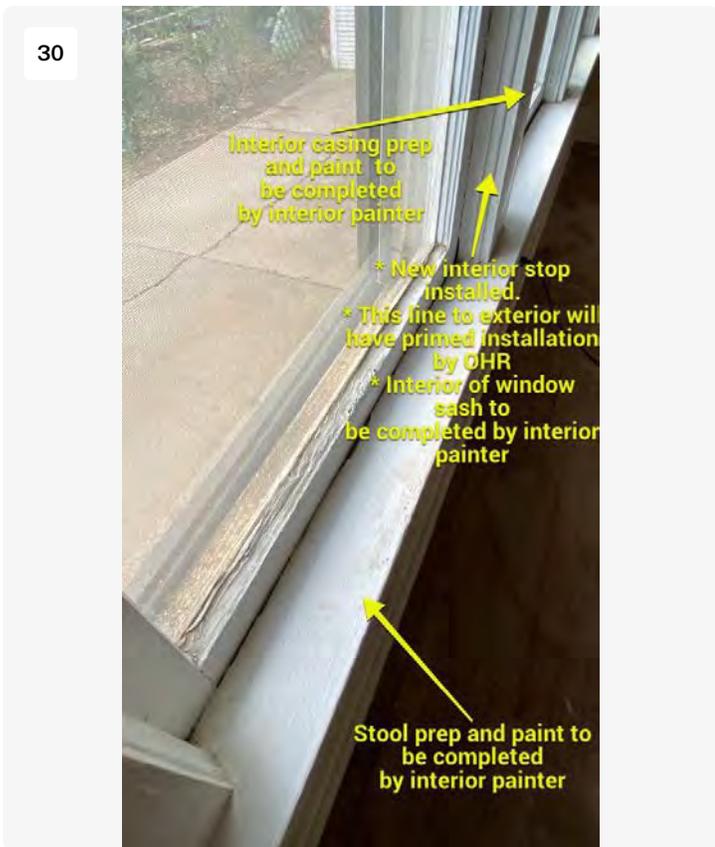
Lower rail and joinery damage caused by window unit.

Project: Lisa Bridges
Date: 10/7/2021, 11:06am
Creator: Morgan Reinart



Bowed upper meeting rail creating separation of joints and air infiltration.

Project: Lisa Bridges
Date: 10/7/2021, 11:07am
Creator: Morgan Reinart



Many south elevation windows have had poor repairs completed over the life of the home, making restoration far more labor intensive than normal.

Project: Lisa Bridges
Date: 10/7/2021, 11:07am
Creator: Morgan Reinart

31



Window painted open
Muntin damage

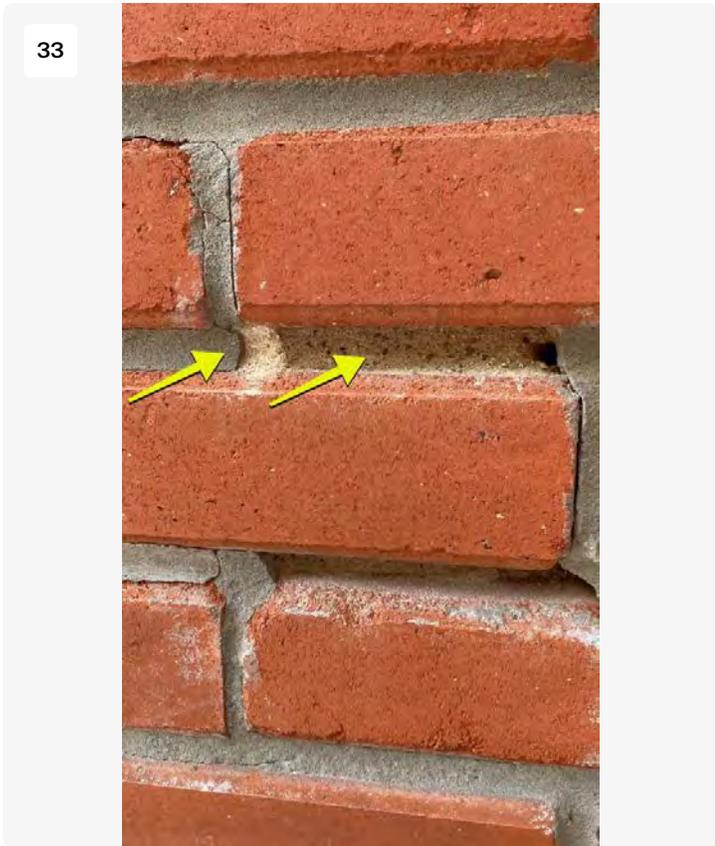
Project: Lisa Bridges
Date: 10/7/2021, 11:07am
Creator: Morgan Reinart

32



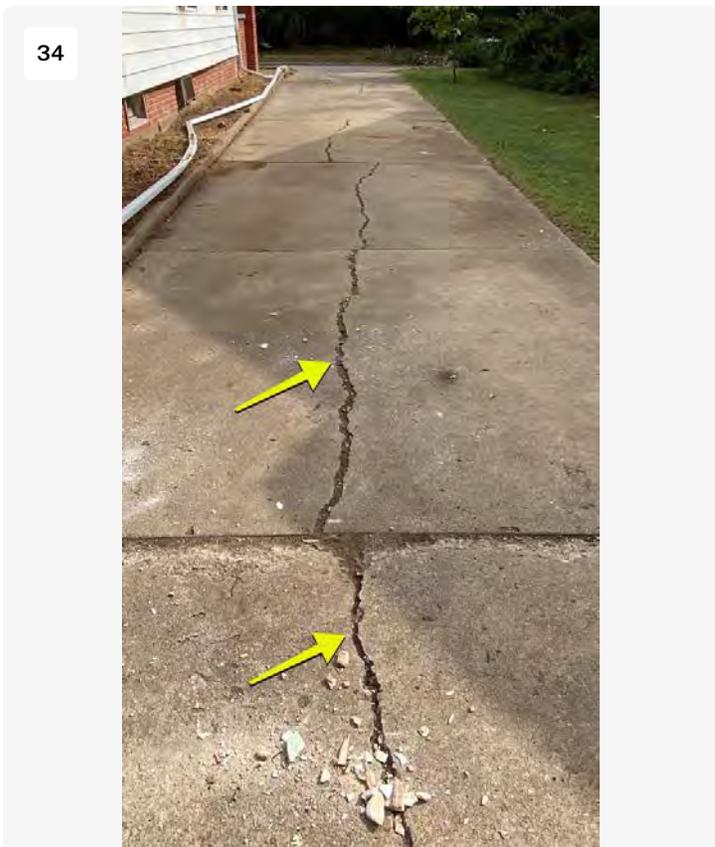
Sill separated from jamb leg
This is the cause for the window being out of square and water diverting inward instead of to exterior

Project: Lisa Bridges
Date: 10/7/2021, 11:08am
Creator: Morgan Reinart



Right: Original lime mortar. Lime mortar is softer than the brick and allows moisture from within to pass through to the exterior. Left: Modern mortar, typically Portland cement, that has been skim coated over the lime mortar. This mortar is harder than the brick will not allow for water to pass through, which can create continued cracking or delamination of the brick.

Project: Lisa Bridges
Date: 10/7/2021, 10:48am
Creator: Morgan Reinart



Large cracks in driveway could be repaired with epoxy products rather than replaced

Project: Lisa Bridges
Date: 10/7/2021, 10:57am
Creator: Morgan Reinart

35

Roof replacement
Epoxy repairs to rafter tails
Glass installed and window painted
Yard needs graded away from foundation.



Project: Lisa Bridges
Date: 10/7/2021, 11:17am
Creator: Morgan Reinart

36

Flyrafter has been damaged due to tree. Should be repaired or replaced during roof replacement.



Project: Lisa Bridges
Date: 10/7/2021, 11:17am
Creator: Morgan Reinart

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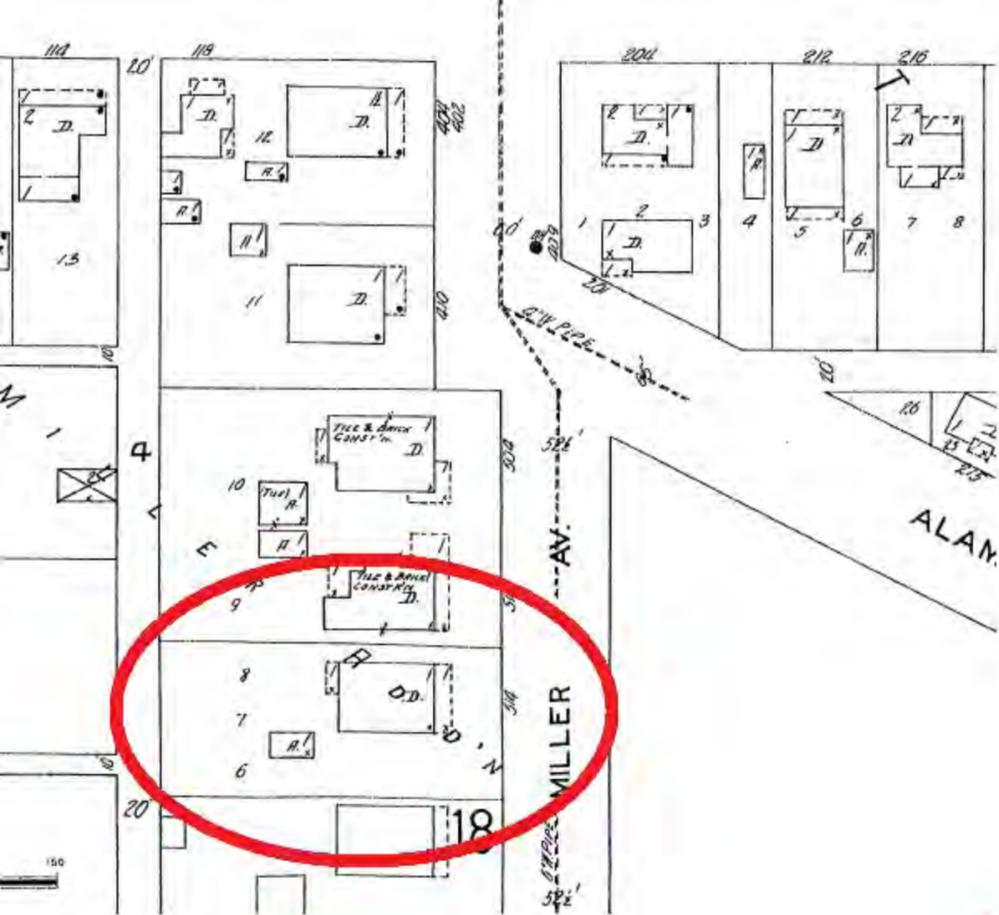
Project: Lisa Bridges
Date: 10/7/2021, 11:17am
Creator: Morgan Reinart

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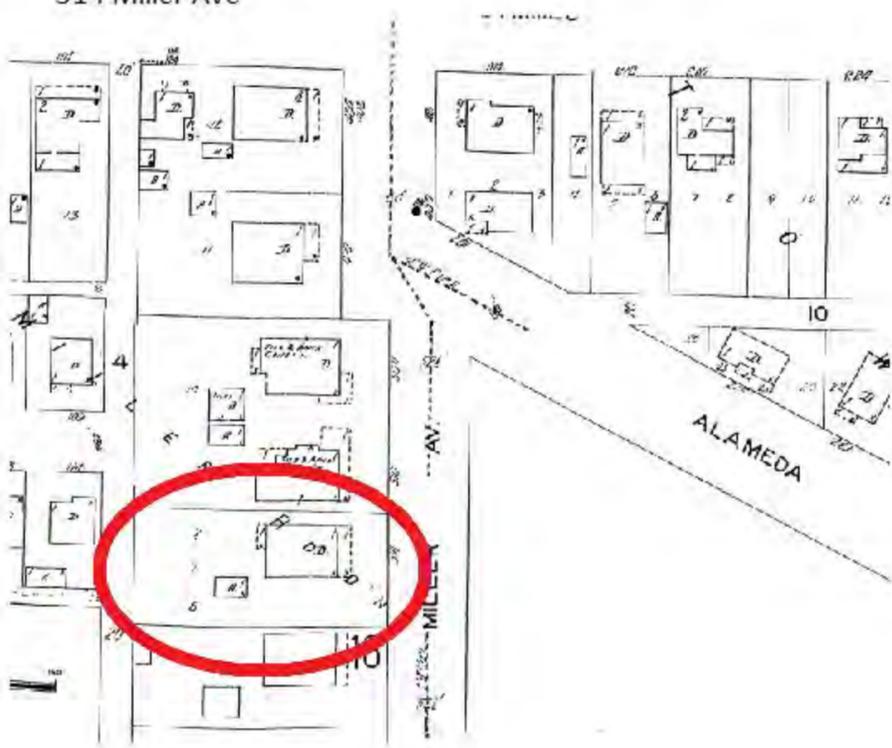


Garage Floor: Cracking can be sealed and recoated or the garage could be lifted and repoured.

Project: Lisa Bridges
Date: 10/7/2021, 11:18am
Creator: Morgan Reinart



1925 Sanborn Maps
514 Miller Ave



1944 Sanborn Map
514 Miller Ave