




CERTIFICATE OF APPROPRIATENESS

MINOR OR MAINTENANCE ONLY

Date 5/19/26	COA 26-05
Address: 281 N Marion Ave. Lake City FL 32055	
Parcel Number: 12655-000	
Owner: Marion Street Deli and Pub, LLC	
Address of Owner: Same as above	
Description of Structure: one story commercial building	
The described structure or portion of the structure has been reviewed for compliance with the requirements of the City Historic Preservation Land Development Regulations for the exterior construction as submitted by the applicant per Ordinance Number 2020-2176	
 _____	
Scott Thomason, CBO Director of Growth Management	
Code Edition: 2023 (8th) Edition of the Florida Building Codes, 2023 (8th) Edition of the Florida Fire Prevention Code and the 2017 U.S. Secretary of the Interior's Standards for Rehabilitation	
Description of Approved Construction:	
Replacing the existing roof with a new TPO roof. Roof can not be seen from the street level.	
Special Conditions:	

The City of Lake City's Growth Management Department and the City Historic Preservation Committee

205 N Marion Avenue

Lake City, Florida 32055

(386) 719-5750



DEPARTMENT OF GROWTH MANAGEMENT
 205 North Marion Avenue
 Lake City, Florida 32055
 Telephone: (386) 752-2031
growthmanagement@lcfla.com

COA 26-05

HISTORIC PRESERVATION AGENCY (HPA)

Certificate of Appropriateness (COA) Application

USE THIS FORM TO

Apply for approval for projects located within historic districts. Projects may require either a Agency-level review or a Staff-level review.

Once application is submitted it will be reviewed for completeness. Once verified complete the applicant will be notified.

PROJECT TYPE

New Construction Addition Demolition Fence Paint

Repair Relocation Re-Roof/Roof-Over SignShed Garage

Classification of Work (see LDR 10.11.3)

Routine Maintenance Minor Work Major Work

Type of Review	Reviewed By	Date
Certificate of Appropriateness (COA): Staff Review		
Certificate of Appropriateness (COA): HPA Review - Single Family Structure or Its Accessory Structure		
Certificate of Appropriateness (COA): HPA Review - All Other Structures		
After-the-Fact Certificate of Appropriateness (COA): if work begun prior to issuance of a COA		

APPROVAL TYPE: Staff Approval

See Certificate of Appropriateness Matrix Board Approval: Conceptual or Final

PROPERTY INFORMATION: *Property information can be found at the Columbia County Property Appraiser's Website*

Historic District: Lake Isabella Historical Residential District
 Downtown Historical District

Site Address: 281 N Marion ave 32055

Parcel ID #(s) 00-00-00-12655-000

OWNER OF RECORD	As recorded with the Columbia County Property Appraiser	APPLICANT OR AGENT	If other than owner. If an agent will be representing the owner, an Owner's Authorization for Agent Representation form must be included
Owner(s) Name	Ronald Robbins	Applicant Name	Nic Tyre
Company (if applicable)	Marion St Deli + Pub	Company (if applicable)	Creative Concepts
Street Address	281 N Marion Ave	Street Address	618 SW Florida gateway
City State Zip	Lake city FL 32055	City State Zip	Lake city FL 32024
Telephone Number	386	Telephone Number	386 984 9838
E-Mail Address	N/A	E-Mail Address	Creative Concepts, inc @outlook.com

BASIS FOR REVIEW
 All applications, whether Staff or HPA review, are reviewed for consistency with the City of Lake City Comprehensive Plan, Land Development Code, and applicable guidelines such as the Guidelines for the Historic Districts are based on the U.S. Secretary of the Interior's Standards for Rehabilitation.

Historic Preservation Agency Meetings are held the 1st Tuesday of the month at 5:30PM in the City Council Chambers (205 N Marion Ave.)

Application Deadline (12:30PM)	Dec 01, 2023	Jan 03, 2024	Feb 01, 2024	Mar 01, 2024	Apr 01, 2024	May 01, 2024	Jun 01, 2024	Jul 01, 2024	Aug 01, 2024	Sep 01, 2024	Oct 01, 2024	Nov 01, 2024
Meeting Date	Jan 03, 2024	Feb 06, 2024	Mar 05, 2024	Apr 02, 2024	May 07, 2024	Jun 04, 2024	Jul 02, 2024	Aug 06, 2024	Sep 04, 2024	Oct 01, 2024	Nov 05, 2024	Dec 03, 2024

IMPORTANT NOTES

PRE-APPLICATION MEETING

To guide you through the process and to ensure that your application is properly processed, you'll need to meet with the Planner prior to submitting your application. This should be done prior to your anticipated submittal date to allow time for review.

Staff approval applications are accepted on a rolling basis and are generally completed within 10 business days. Please note that projects can only begin after receiving a Certificate of Appropriateness (COA) and a building permit (if required).

CONCEPTUAL APPROVALS

Conceptual approvals are provided by the HPA as a courtesy to the applicant in an effort to allow comment from the Historic Preservation Agency during the conceptual design process. The HPA will provide the applicant with feedback and guidance relating to the proposal. In all cases, the applicant must return to the HPA to seek final approval of their projects.

APPLICATION REQUIREMENTS

- A complete/ signed application. (If all requirements are not submitted it could delay your approval);
- Proof of Ownership (copy of deed or tax statement);
- A current survey of the property, for new construction and any change to existing footprint. (no older than two years);
- 1 digital set of elevations & plans (to scale);
- Photographs;
- Any additional backup materials, as necessary;
- If applying as an agent, *Owner's Authorization for Agent Representation* form must be signed/ notarized and submitted as part of the application;
- For window replacement, a *Window Survey* must be completed.

PROJECT DESCRIPTION

DESCRIBE THE PROPOSED PROJECT AND MATERIALS.

Describe the proposed project in terms of size, affected architectural elements, materials, and relationship to the existing structure(s).

re roof

List proposed materials:

Project Scope	Manufacturer	Product Description	Color (Name/Number)
Exterior Fabric			
Doors			
Windows			
Roofing	mulchide	TPO roofing	white
Fascia/Trim			
Foundation			
Shutters			
Porch/Deck			
Fencing			
Driveways/Sidewalks			
Signage			
Other			

PLEASE SUBMIT ALL PRODUCT BROCHURES, PAINT COLOR SAMPLES, AND MATERIAL SAMPLES WITH YOUR APPLICATION.

DID YOU REMEMBER

Review the Historic District Application Checklist (Article 10 LDR) to ensure you are including all required materials. If all requirements are not submitted, it will delay your approval.

Review the applicable Guidelines (Article 10 LDR)

A pre-application meeting is required before a final application for HPA Review. (Please call 386-752-2031 to schedule an appointment)

Please see the City of Lake City Land Development Regulations for detailed information.

Historic Preservation Districts maps are located on the city web site (www.lcfla.org)

Historic Preservation Agency can be found in the LDR Article 10.

Variances can be found in the LDR Article 11

The Land Development Regulations can be located on the city web site (www.lcfla.org)

APPEALS

Agency Decisions – Persons with standing, as listed in LDR Article 10, Section 10.11.6, may appeal a decision of the HPA, as outlined in Article 11, Section 11.1.4

Administrative Decisions – Persons with standing, as listed in LDR Article 10, Section 10.11.6, may appeal a decision of the Administrator, as outlined in Article 10, Section 10.11.5.

DEMOLITIONS (if applicable)

Please identify any unique qualities of historic and/or architectural significance, the prevalence of these features within the region, city, or neighborhood, and feasibility of reproducing such a building, structure, or object.

no demo

Discuss measures taken to save the building/structure/object from collapse. Also, address whether it is capable of earning a reasonable economic return on its value.

responsible, by code, roofing

RELOCATIONS (if applicable)

For relocations, address the context of the proposed future site and proposed measures to protect the physical integrity of the building.

no relocating

Additional criteria for relocations and demolitions: Please describe the future planned use of the subject property once vacated and its effect on the historical context.

n/a

MODIFICATION OF EXISTING ZONING REQUIREMENTS (If Applicable)

Any change shall be based on competent demonstration by the petitioner of Article 4 of the Land Development Code.

Modification of dimensional requirements. To facilitate new construction, redevelopment, rehabilitation, or relocation of buildings or structures in historic districts or individually listed on the local register, the Administrator or the appropriate board within the development review process may determine dimensional requirements such as front, side, and rear setbacks, building height, separation between buildings, floor area ratios, and maximum lot coverage for buildings and structures based on historic development patterns. Any change shall be based on competent demonstration by the petitioner of the following:

- a. *The proposed development will not affect the public safety, health, or welfare of abutting property owners or the district;*
- b. *The proposed change is consistent with historic development, design patterns or themes in the historic district. Such patterns may include reduced front, rear, and side yard setbacks, maximum lot coverage and large floor area ratios;*
- c. *The proposal reflects a particular theme or design pattern that will advance the development pattern of the historic district; and*
- d. *The proposed complies with utility, stormwater, access requirements, and other requirements related to site design in the Land Development Code.*

Where the proposed modification would encroach into a side or rear yard setback that adjoins an existing lot, notice shall be provided to the adjacent property owner. Staff or the appropriate reviewing board will document the basis for its decision. If staff makes the decision, it will provide a written determination on the complete modification request within 21 calendar days of receiving the request. If the adjacent property owner objects to the encroachment in writing within 16 calendar days of the date from which the notice was mailed, the request shall be referred to the Board of Adjustment, which shall review the request using the same standards in this section used by staff. If the decision is to be made by a board, the board shall hear the objection of the adjacent property owner as part of its public hearing. The remainder of the requirements, regulations and procedures set forth in this chapter shall remain applicable.

Modification of building code requirements. Structures and buildings listed individually on the local register or deemed contributing to the character of a district listed on the local register shall be deemed historic and entitled to modified enforcement of the standard codes where appropriate.

Please describe the requested zoning modification, addressing a through d above:

The requested modification will change the following zoning or building requirement in this manner:

(select only those that apply)	Required	Existing	Proposed
Front, Side, or Rear building Setback Lines			
Building Height			
Building Separation			
Floor Area Ratio (FAR)			
Maximum Lot Coverage			

CERTIFICATION

By signing below, I certify that the information contained in this application is true and correct to the best of my knowledge at the time of the application. I acknowledge that I understand and have complied with all of the submittal requirements and procedures and have read and understand the following:

1. I/We hereby attest to the fact that the above supplied property address(es), parcel number(s) and legal description(s) is (are) the true and proper identification of the area of this petition.
2. I/We authorize staff from the Department of Growth Management to enter onto the property in question during regular city business hours in order to take photos which will be placed in the permanent file.
3. I/We understand that the COA review time period will not commence until the application is deemed complete by staff and may take up to 10 days to process. I further understand that an incomplete application submittal may cause my application to be deferred to the next posted deadline date.
4. I/We understand that, for Agency review cases, an agenda and staff report will be available on the City's website approximately one week before the Historic Preservation Agency meeting.
5. I/We understand that the Historic Preservation Agency meetings are conducted in a quasi-judicial hearing and as such, ex parte communications are prohibited (Communication about your project with a Historic Preservation Agency member).
6. I/We understand that the approval of this application by the Historic Preservation Agency or staff in no way constitutes approval of a Building Permit for construction from the City of Lake City Growth Management.
7. I/We understand that all changes to the approved scope of work stated in a COA have to be approved by the HPA before work commences on those changes. There will be no charge for a revision to a COA. Making changes that have not been approved can result in a Stop Work Order being placed on the entire project.
8. I/We understand that any decision of the HPA may be appealed to the City Council. A person with standing, as described in LDR Article 10, Section 10.11.6, may file a petition to appeal and shall be presented within thirty (30) days after the decision of the HPA; otherwise the decision of the HPA will be final.
9. I/We understand that Certificates of Appropriateness are only valid for one (1) year from issuance.

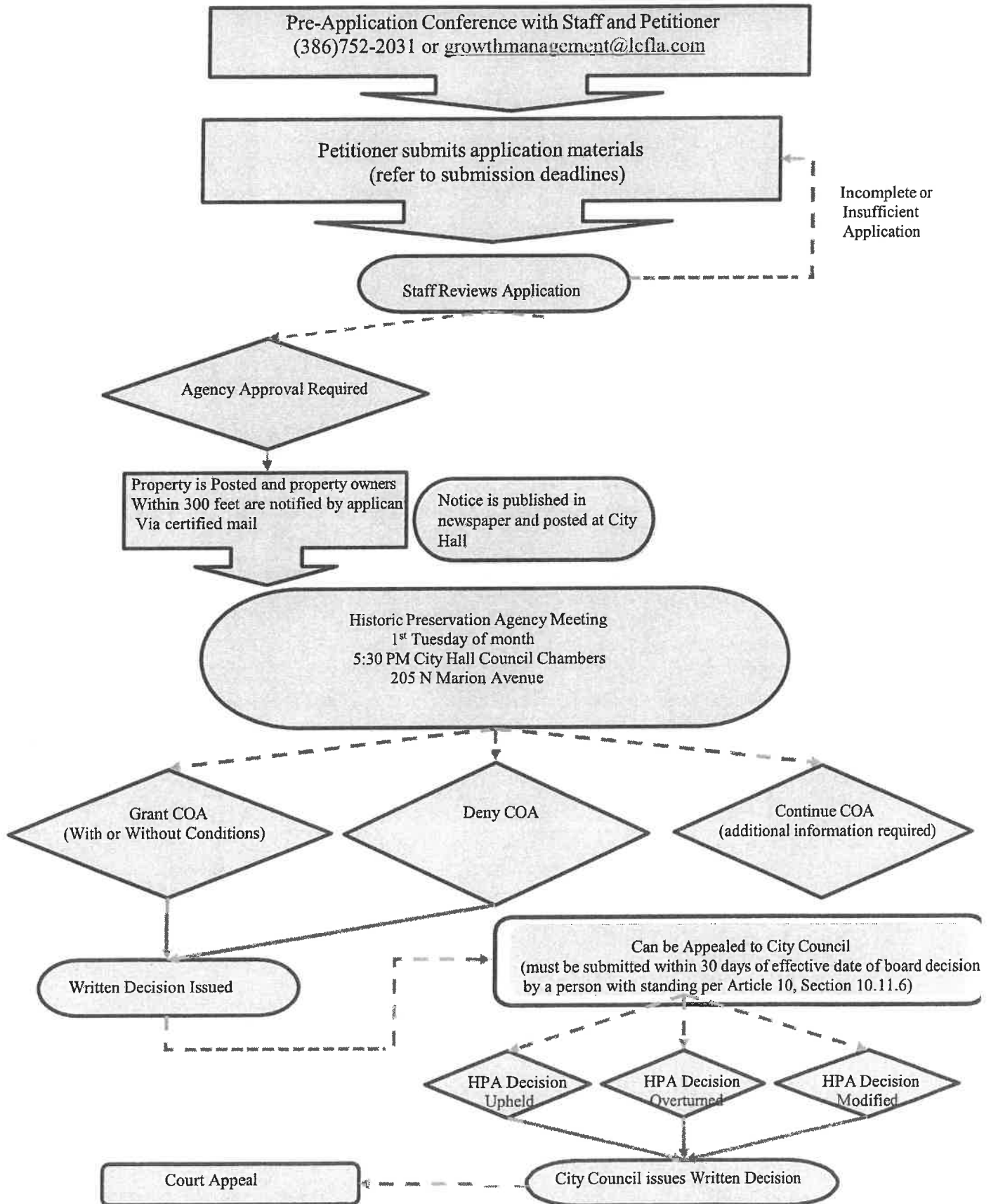
Nic Tyre
Applicant (Signature)

5/15/26
Date

Nic Tyre
Applicant (Print)

Please submit this application And all required supporting Materials via email to: growthmanagement@lcfla.com Once the application is received and deemed complete, the applicant will be notified as to whether this will be a staff review or HPA review.	TO BE COMPLETED BY CITY ADMINISTRATOR		Date Received 5/19/26	Received By: 5/19/26
	COA <u>26-05</u>		<input type="checkbox"/> Staff Approval	
	Zoning: <u>C-CBD</u>		<input type="checkbox"/> Single Family Structure or its Accessory Structure	
	Contributing	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Multi-Family requiring HPA approval	
	Pre-Conference	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> After-The-Fact Certificate of Appropriateness	
	Application Complete	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Request for Modification of Setbacks	<input type="checkbox"/> Yes <input type="checkbox"/> No			

CERTIFICATE OF APPROPRIATENESS PROCESS FLOWCHART

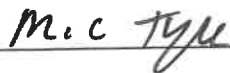
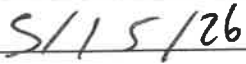


PRODUCT APPROVAL SPECIFICATION SHEET

As required by Florida Statute 553.842 and Florida Administrative Code 9B-72, please provide the information and approval numbers on the building components listed below if they will be utilized on the construction project for which you are applying for a building permit. We recommend you contact your local product supplier should you not know the product approval number for any of the applicable listed products. Statewide approved products are listed online at www.floridabuilding.org.

Category/Subcategory	Manufacturer	Product Description	Approval Number(s)
1. EXTERIOR DOORS			
A. SWINGING			
B. SLIDING			
C. SECTIONAL/ROLL UP			
D. OTHER			
2. WINDOWS			
A. SINGLE/DOUBLE HUNG			
B. HORIZONTAL SLIDER			
C. CASEMENT			
D. FIXED			
E. MULLION			
F. SKYLIGHTS			
G. OTHER			
3. PANEL WALL			
A. SIDING			
B. SOFFITS			
C. STOREFRONTS			
D. GLASS BLOCK			
E. OTHER			
4. ROOFING PRODUCTS	Mulhede	TPO roof	#
A. ASPHALT SHINGLES			
B. NON-STRUCT METAL			
C. ROOFING TILES			
D. SINGLE PLY ROOF			
E. OTHER			
5. STRUCT COMPONENTS			
A. WOOD CONNECTORS			
B. WOOD ANCHORS			
C. TRUSS PLATES			
D. INSULATION FORMS			
E. LINTELS			
F. OTHERS			
6. NEW EXTERIOR			
A. ENVELOPE PRODUCTS			

The products listed below did not demonstrate product approval at plan review. I understand that at the time of inspection of these products, the following information must be available to the inspector on the jobsite; (1) copy of the product approval (2) performance characteristics which the product was tested and certified to comply with (3) copy of the applicable manufacturer's installation requirements. Further, I understand these products may have to be removed if approval cannot be demonstrated during inspection.

APPLICANT SIGNATURE

DATE

Rev 01/01/2024

PLOT/SITE PLAN

Builder/Contractor: _____ Homeowner: _____
Telephone: _____ FAX: _____ Telephone: _____ FAX: _____
Parcel Description:
Subdivision: _____ Lot: _____ Block: _____ Plat Book: _____ Page: _____
Unrecorded: Yes No Parcel ID #: _____
Lot Address: _____

Legends/Symbols:

↑
North
Scale: _____

Zoning:

FLUM Category: _____
Zoning District: _____

Flood:

Flood Zone: _____
Base Flood Elevation: _____
Community Panel #: _____
Effective Date: _____

Required Setbacks:

Front: _____
Left Side: _____
Right Side: _____
Rear: _____
Other: _____



DEPARTMENT OF GROWTH MANAGEMENT
205 North Marion Avenue
Lake City, Florida 32055
Telephone: (386) 752-2031
growthmanagement@lcfla.com

OWNER'S AUTHORIZATION FOR AGENT REPRESENTATION

USE THIS FORM TO: Grant an agent authorization to represent you in applying for applications to the City of Lake City Department of Growth Management.

I /WE Ronald Robbins
(print name of property owner(s))

hereby authorize: Creative Concepts
(print name of agent)

to represent me/us in processing an application for: re-roof
(print type of application)

on our behalf. In authorizing the agent to represent me/us, I/we, as owner/owners, attest that the application is made in good faith and that any information contained in the application is accurate and complete.

(Signature of owner)

(Signature of owner)

Ronald Robbins

(Print name of owner)

(Print name of owner)

STATE OF FLORIDA }
COUNTY OF }



ALEXANDER MITCHELL
Commission # HH 493761
Expires February 18, 2028



ALEXANDER MITCHELL
Commission # HH 493761
Expires February 18, 2028

Sworn to (or affirmed) and subscribed before me by means of physical presence or online notarization,
this 15 day of MAY, 2026, by

Alex Mitchell
Notary Public

Alex Mitchell
Printed Name

2/18/2028
My Commission Expires

Personally Known OR

Produced Identification

ID Produced: _____



ALEXANDER MITCHELL
Commission # HH 493761
Expires February 18, 2028



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Detail by Entity Name

Florida Limited Liability Company
MARION STREET DELI AND PUB, LLC

Filing Information

Document Number	L13000173070
FEI/EIN Number	46-4309676
Date Filed	12/16/2013
Effective Date	12/16/2013
State	FL
Status	ACTIVE

Principal Address

281 N. MARION AVE
LAKE CITY, FL 32055

Mailing Address

281 N. MARION AVE
LAKE CITY, FL 32055

Registered Agent Name & Address

ROBBINS, RONALD A
281 N. Marion Ave
LAKE CITY, FL 32055

Address Changed: 04/28/2022

Authorized Person(s) Detail

Name & Address

Title MGR

ROBBINS, RONALD A
281 N. MARION AVE
LAKE CITY, FL 32055

Title Authorized Member

Robbins, Riley
281 N. Marion Ave.
Lake City, FL 32055

Annual Reports

Report Year	Filed Date
2024	03/04/2024
2025	01/15/2025
2026	04/12/2026

Document Images

04/12/2026 -- ANNUAL REPORT	View image in PDF format
01/15/2025 -- ANNUAL REPORT	View image in PDF format
03/04/2024 -- ANNUAL REPORT	View image in PDF format
04/28/2023 -- ANNUAL REPORT	View image in PDF format
04/28/2022 -- ANNUAL REPORT	View image in PDF format
04/12/2021 -- ANNUAL REPORT	View image in PDF format
03/16/2020 -- ANNUAL REPORT	View image in PDF format
04/05/2019 -- ANNUAL REPORT	View image in PDF format
04/13/2018 -- ANNUAL REPORT	View image in PDF format
03/16/2017 -- ANNUAL REPORT	View image in PDF format
03/15/2016 -- ANNUAL REPORT	View image in PDF format
04/24/2015 -- ANNUAL REPORT	View image in PDF format
04/19/2014 -- ANNUAL REPORT	View image in PDF format
12/16/2013 -- Florida Limited Liability	View image in PDF format

Florida Department of State, Division of Corporations

Clear this history

Google Street View

Jan 2026 [See more dates](#)



Google Maps

Image capture: Jan 2026 © 2026 Google



COLUMBIA COUNTY Property Appraiser

Parcel 00-00-00-12655-000 <https://search.ccpafl.com/parcel/12655000000000>

120 NE HAMILTON ST

Owners

MARION STREET DELI AND PUB LLC
281 N MARION AVE
LAKE CITY, FL 32055

Use: 2100: RESTAURANT/CAFE

Subdivision: CEN DIV

Legal Description

C DIV: BEG NW COR OF BLOCK 10 RUN S 44 FT,
CONT S 33.50 FT, E 105 FT, CONT 15 FT, N
33.50 FT, CONT N 44.02 FT, W 15 FT, CONT
W 105 FT TO POB & COMM NW COR OF E1/2 OF
BLK 10, E 15 FT FOR POB, CONT E 12 FT,...





TPO-C Membrane (Standard, FR & Clean Film)

Polyester Reinforced, Heat-Weldable Membrane

PRODUCT DATA SHEET



DESCRIPTION

MuleHide TPO-C Membrane is a polyester reinforced, .045 or .060 thick, polyolefin-based, thermoplastic, heat-weldable membrane. High breaking strength, tearing strength, and puncture resistance is achieved by encapsulating a strong polyester fabric between the top and bottom plies. MuleHide TPO-C FR membrane is formulated with additional flame retardant (compared to Standard) for higher slope fire code approvals. The TPO-C membrane is also available in a 0.80" thickness (see Product Data Sheet for TPO-C EXTRA). The membrane is environmentally friendly and safe to install.

BASIC USES

The TPO-C membrane is used in mechanically attached, induction welded, and fully adhered roofing systems in new construction, reroofing and recover (retrofit) applications. It may also be used as flexible membrane flashings for walls, curbs, etc., when installing TPO-C membrane roofing systems. The system must be installed over acceptable roof insulation or other suitable substrates. See the MuleHide TPO Specifications Manual for complete specifications and details. MuleHide's 16' wide sheet is only available for fully adhered and induction welded roofs. The maximum sheet width that may be used for mechanically attached roof systems is 12' wide TPO membranes.

OPTIONAL CLEAN FILM

The TPO-C membrane is available with an optional CLEAN Film (Standard colors only), a temporary protective film factory-applied to the top surface of the membrane. By protecting the membrane surface from scuffs and dirt accumulation during installation, this protective film can save labor and time by helping to eliminate the need for roof cleaning upon project completion. CLEAN Film can be left in place for up to 90 days. Durable and easy to remove, CLEAN Film helps to improve the aesthetics and

long-term reflectivity and is ideal for use on re-roofing, re-cover and new construction projects. CLEAN Film is available on TPO-C 60-mil membranes supplied in 6' x 100' and 10' x 100' rolls.

BENEFITS AND SUPPLEMENTAL STATEMENTS

- Wide window of weldability
- Outstanding puncture resistance
- Chlorine-free with no halogenated flame retardants
- UL 2218 Class 4 hail rating available on select systems
- Excellent low-temperature impact resistance
- Excellent chemical resistance to acids, bases, restaurant oils and greases
- Plasticizer-free, does not contain liquid or polymeric plasticizer
- Exceptional resistance to solar UV, ozone and oxidation
- Low water vapor permeance and water absorption
- Hot melt extrusion processed for complete scrim encapsulation
- Non-woven reinforcement fabric for smooth surface and greater thickness-over-scrim
- Polyester reinforcing fabric which is resistant to degradation by bacteria, mildew and fungi
- TPO-C is 100% recyclable
- Meets and exceeds requirements of ASTM D6878 Standard Specification for Thermal Plastic Polyolefin Based Sheet Roofing
- CLEAN Film guards the TPO membrane surface from scuffs and dirt accumulation during installation, helping to improve the roof systems appearance and maintain long-term reflectivity.
- CLEAN Film can be left in place for up to 90 days due to its excellent heat and UV resistance.
- MuleHide's tan and white TPO membranes are CRRR listed and California Title 24 compliant and can contribute toward LEED® (Leadership in Energy and Environmental Design) credits.

SPECIFICATIONS

Standard colors: White, Gray and Tan

Colorway colors: Medium Bronze, Patina Green, Rock Brown, Slate Gray and Terra Cotta

Materials: .045" (standard colors only) and .060" (nominal) thick polyester reinforced thermoplastic

Sizes: Standard colors: 4', 6', 8', 10', 12' and 16' sheet widths by 100' length
Colorway colors: 5' and 10' sheet widths by 100' length



TPO-C Membrane (Standard, FR & Clean Film)

Polyester Reinforced, Heat-Weldable Membrane

PRODUCT DATA SHEET

INSTALLATION INSTRUCTIONS

1. Approved insulation shall be attached to the roof deck with an approved insulation adhesive or approved fasteners and plates. Install insulation with its largest dimension perpendicular to the direction of the membrane seams where possible.
2. Mechanically Attached Roofing System
 - a. Perimeter sheets to be installed in an approved pattern along all exterior roof edges.
 - b. Mechanical fasteners and plates are installed in the seams of both the perimeter sheets and field sheets and into the roof deck. Use approved fasteners and maintain proper penetration for specific roof decks.
 - c. 12' wide sheet is the maximum sheet width for mechanically attached systems.
3. Fully Adhered Roofing System
 - a. Perimeter sheets are not required.
 - b. The membrane is required to be mechanically attached at the base of all vertical surfaces, roof edges, and angle changes.
 - c. The field of the roof is fully adhered to the substrate with a MuleHide approved adhesive.
4. Induction-Welded Roofing System
 - a. Membrane is attached over a suitable substrate utilizing an induction welding tool being placed over the membrane where a fastened TPO induction welding plate is located to weld the two components together.
5. Remove CLEAN Film from areas that are to be heat-welded together. In areas not requiring heat-welding, CLEAN Film can be left in place for up to 90 days. Upon completion of the TPO roofing system, remove the CLEAN film and discard.
6. All seams are hot-air welded and checked by probing.
7. All details will be done in accordance with MuleHide details.
8. On projects where a MuleHide System Warranty is requested, an authorized MuleHide representative shall inspect all completed work. This is only a brief summary and not the complete specification. MuleHide's specifications, details, technical bulletins, and associated documents should be thoroughly reviewed prior to starting any project. Contact the MuleHide Technical Department for additional information.

PRECAUTIONS

- Maximum sustained temperature not to exceed 160°F (71°C) for TPO membrane.
- Use proper stacking procedures to ensure roll stability. Avoid creasing the membrane.
- Surfaces may be slippery when wet, or due to frost and ice build-up. Exercise caution to prevent falls.

- MuleHide TPO membranes are highly reflective to sunlight. Workers should dress appropriately, wear sunscreen, and wear sunglasses that filter out UV light.
- Exercise care when working near roof edge as edges may not be visible when surrounding area is covered with snow.
- Store MuleHide membrane in original wrappings in a cool, shaded area. Cover with light-colored, breathable, waterproof tarpaulins. MuleHide membrane that has been exposed to the weather must be prepared with Weathered Membrane Cleaner prior to hot-air welding.
- Use proper stacking procedures to ensure sufficient stability of the rolls.
- Take care not to stand or place heavy objects on the edge of folded-over membrane, as this could cause a hard crease in the membrane.
- Do not use razor blades or other sharp tools to cut the CLEAN Film while it is still adhered to the TPO membrane as damage to the underlying membrane may occur. Pull the protective film away from the membrane prior to cutting.
- Remove CLEAN Film by pulling towards the center of the roof. Do not remove the film by pulling towards the roof edge.
- A static electricity charge may develop when removing the CLEAN Film from the surface of the membrane sheet. To avoid the possibility of ignition, lids must be closed on any flammable products and fire extinguishers should be readily available.
- Color membranes will 'fade' over time mainly due to the ultraviolet portion of sunlight. Since most roof surfaces are exposed to variable sunlight, some areas will be more susceptible to color changes caused by UV fading. Warranties for color membranes do not cover fading of colors.

EXTREME TESTING FOR SEVERE CLIMATES

ASTM Standard D6878 is the material specification for Thermoplastic Polyolefin-Based Sheet Roofing. It covers material property requirements for TPO roof sheeting and includes initial and aged properties after heat and xenon-arc exposure. As stated in the standard, "the tests and property limits used to characterize the sheet are values intended to ensure minimum quality for the intended purpose." MuleHide's goal is to provide TPO that delivers maximum performance for the intended purpose of roofing membranes. Maximum performance requires the membrane to far exceed the requirements of ASTM Standard D6878.



TPO-C Membrane (Standard, FR & Clean Film)

Polyester Reinforced, Heat-Weldable Membrane

PRODUCT DATA SHEET

Heat Aging accelerates the oxidation rate that roughly doubles for each 18°F (10°C) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.

HEAT AGING		
Test Method	ASTM Requirement	Typical Results
ASTM Test - 240°F (116°C) No visible cracks	32 Weeks**	>128 Weeks
**Heat exposure comparable to 3,120 weeks (80 years) at 185°F for 8 hours per day.		
Test specimen is 2" by 6" piece of 45-mil membrane un-backed, placed in circulating hot-air oven. Criterion-no visible cracks after bending aged test sample around 3" diameter mandrel.		
Heat Aging accelerates the oxidation rate that roughly doubles for each 10° C (18° F) increase in roof membrane temperature. Oxidation (reaction with oxygen) is one of the primary chemical degradation mechanisms of roofing materials.		

Q-Trac testing combines accelerated weathering with real-world conditions using an array of ten mirrors to reflect and concentrate full spectrum sunlight onto membrane test specimens. The Q-Trac device automatically tracks the sun's path from morning to night. Also, it adjusts to compensate for seasonal changes in the sun's altitude. Eight years in Q-Trac testing is equal to 40 years of real-world exposure. MuleHide requires its TPO membranes to pass the equivalent of 40 years exposure in the Q-Trac.

Q-TRAC TESTING		
Test Method	ASTM Requirement	MH Requirement
ASTM Test N/A	NA	Equivalent of 40 years exposure
Environmental Cycling subjects the membrane to repeated cycles of heat aging, hot-water immersion and xenon-arc exposure.		
Test specimen is 2.75" by 5.5" piece of membrane with edges sealed. - 10 days heat aging at 240°F (116°C) followed by - 5 days water Immersion at 158°F (70°C) followed by - 5,040 kJ/m ² (2000 hours at 0.70 W/m ² irradiance) xenon-arc exposure		
Criterion - after 3 completed cycles, test specimens shall remain flexible and not have any cracking under 10x magnifications while wrapped around a 3" diameter mandrel.		

SUPPLEMENTAL APPROVALS, STATEMENTS AND CHARACTERISTICS

- TPO-C meets and exceeds the requirements of ASTM D6878 Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing.
- Radiative Properties for Cool Roof Rating Council (CRRC) and LEED.
- CRRC Product ID: TPO-C White 0670-0009.
- MuleHide TPO-C membranes conform to requirements of the U.S.E.P.A. Toxic Leachate Test (40 CFR part 136) performed by an independent analytical laboratory.
- TPO-C was tested for dynamic puncture resistance per ASTM D5635-04 using the most recently modified impact head. 45-mil was watertight after an impact energy of 12.5 J (9.2 ft-lbf) and 60-mil was watertight after an impact energy of 22.5 J (16.6 ft-lbf).
- NSF-P151 Certification for rainwater catchment systems components (Tooele Plant/White Only).

RADIATIVE PROPERTIES FOR CRRC AND LEED

CRRC Description	Test Method	White	Gray	Tan
Initial solar reflectance	ASTM C1549	0.79	0.46	0.71
Solar reflectance after 3 years	ASTM C1549 (uncleaned)	0.70	0.43	0.64
Initial thermal emittance	ASTM C1371	0.90	0.89	0.86
Thermal emittance after 3 years	ASTM C1371 (uncleaned)	0.86	0.88	0.87
Thermal emittance	ASTM E408	0.90	0.88	0.86
SRI (Solar Reflectance Index)	ASTM E1980	99	53	86
SRI (Solar Reflectance Index) after 3 years	ASTM E1980	85	48	77
Product ID Number		0670-0009	0670-0017	0670-0016

Solar Reflectance Index (SRI) is calculated per ASTM E 1980. The SRI is a measure of the roof's ability to reject solar heat, as shown by a small temperature rise. It is defined so that a standard black (reflectance 0.05, emittance 0.90) is 0 and a standard white (reflectance 0.80, emittance 0.90) is 100. Materials with the highest SRI values are the coolest choices for roofing. Due to the way SRI is defined, particularly hot materials can even take slightly negative values, and particularly cool materials can even exceed 100.

RADIATIVE PROPERTIES (INITIAL) FOR COLORWAY COLORS

Color	Reflectance	Emittance	SRI
Medium Bronze	0.28	0.86	29
Rock Brown	0.25	0.87	26
Slate Gray	0.38	0.87	42
Terra Cotta	0.25	0.86	25
Patina Green	0.25	0.88	25

LEED INFORMATION

Pre-consumer Recycled Content	10%
Post-consumer Recycled Content	0%
Manufacturing Location	Senatobia, MS Tooele, UT Carlisle, PA
Solar Reflectance Index (SRI)	99 (white) 86 (tan)

PROTECTION & SAFETY

MuleHide maintains safety data sheets on all of its non-exempt products. Safety data sheets contain health and safety information for your development of appropriate product handling procedures to protect your employees and customers. MuleHide's safety data sheets should be read and understood by all of your supervisory personnel and employees before using MuleHide products in your facilities.



TPO-C Membrane (Standard, FR & Clean Film)

Polyester Reinforced, Heat-Weldable Membrane

PRODUCT DATA SHEET

TYPICAL PHYSICAL PROPERTIES					
Physical Properties*	Test Method	Requirement	45-mil	60-mil	80-mil
Thickness tolerance on nominal, %	ASTM D751	±15, -10	±10	±10	±10
Thickness over scrim, in. (mm) (average of 3 areas)	ASTM D6878 (Optical Method)	0.015 min. (0.380)	0.018 typical (0.457)	0.024 typical (0.610)	0.034 typical (0.864)
Breaking strength, lbf (kN)	ASTM D751 (Grab Method)	220 (976 N) minimum	225 (1.0) min. 320 (1.4) typical	250 (1.1) min. 360 (1.6) typical	350 (1.6) min. 425 (1.9) typical
Elongation at break of fabric, %	ASTM D751 (Grab Method)	15 minimum	15 minimum 25 typical	15 minimum 25 typical	15 minimum 25 typical
Tear strength, lbf (N) 8 by 8 in. specimen	ASTM D751 (B Tongue Tear)	55 (245) minimum	55 (245) min. 130 (578) typical	55 (245) min. 130 (578) typical	55 (245) min. 130 (578) typical
Brittleness point, °F (°C)	ASTM D2137	-40 (-40) maximum	-40°F (-40°C) max -50°F (-46°C) typical	-40°F (-40°C) max -50°F (-46°C) typical	-40°F (-40°C) max -50°F (-46°C) typical
Linear dimensional change (shrinkage) % change	ASTM D1204 6 hrs at 158°F (70°C)	±1 maximum	±1 max -0.2 typical	±1 max -0.2 typical	±1 max -0.2 typical
Ozone resistance, 100 pphm, 168 hrs.	ASTM D1149	PASS	PASS	PASS	PASS
UV exposure (Xenon Arc), no cracks 7 x min. exposure 10,080 kJ/m ² (4,000 hrs - 0.70W/m ²)	ASTM G155	PASS	PASS	PASS	PASS
Factory seam strength, lbf/in (kN/m)	ASTM D751	66 (290) min	66 (290) minimum	66 (290) minimum	66 (290) minimum
Field seam strength, lbf/in (kN/m) Seams tested in peel	ASTM D1876	No requirement	25 (4.4) min. 50 (8.8) typical	25 (4.4) min. 60 (10.5) typical	40 (7.0) min. 70 (12.3) typical
Water vapor permeance, perms	ASTM E96 proc. B	No requirement	0.10 max. 0.05 typical	0.10 max. 0.05 typical	0.10 max. 0.05 typical
Water absorption resistance, mass % top surface only @ 158F, 166 hours	ASTM D471	No requirement	3.0 max. 0.90 typical	3.0 max. 0.90 typical	3.0 max. 0.90 typical
Puncture resistance, lbf (N)	FTM 101C (Method 2031)	No requirement	250 (1.1) min. 325 (1.4) typical	300 (1.3) min. 350 (1.6) typical	400 (1.8) min. 450 (2.0) typical
Properties after heat aging	ASTM D573, 32 weeks at 240°F or 8 weeks at 275°F No cracking when bent around 3" dia. Madrel Weight change, %	PASS No Cracking ±1.0 max	PASS No Cracking ±1.0 max	PASS No Cracking ±1.0 max	PASS No Cracking ±1.0 max
Typical weights lb/ft ² (kg/m ²)	N/A	N/A	0.25	0.33	0.45
Air Permeance	ASTM E2178	No Requirement	Pass	Pass	Pass

*Typical properties and characteristics are based on samples tested and are not guaranteed for all samples of this product. This data and information is intended as a guide and does not reflect the specification range for any particular property of this product.

ADDITIONAL INFORMATION

On projects where a MuleHide Standard or Premium Warranty is requested, an authorized MuleHide representative shall inspect all completed work.

The information given on this PDS is subject to change without notice. Always check the MuleHide website at www.mulehide.com for the latest information, changes and updates or contact MuleHide at 800-786-1492.

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