

Historical Preservation Commission Agenda

Regular Meeting

Monday September 18, 2023 at 4:00 P.M.

City Council Chambers-City Center South

1001 11th Ave, Greeley, CO 80631

Zoom Webinar Link:

<https://greeleygov.zoom.us/j/82695398033>

NOTICE:

Historical Preservation Commission meetings are held on the 1st and 3rd Mondays of each month. Meetings are conducted in a hybrid format, with a Zoom webinar in addition to the in-person meeting in Council Chambers.

Members of the public may participate in Historic Preservation Commission meetings in the manner that works best for them.

Watch Meetings:



Meetings are open to the public and can be attended in person by anyone.

Meetings are livestreamed on YouTube at [youtube.com/CityofGreeley](https://www.youtube.com/CityofGreeley)



Comment in Real Time:

Join the Zoom webinar (link above). During the public hearing, members of the public may address the Commission.



Submit Written Comments:

Email comments about any item on the agenda to cd_admin_team@greeleygov.com



Written comments can be mailed or dropped off at the Planning office at 1100 10th Street, Greeley, CO 80631. Written comments received prior to or during the meeting will be read into the record in real time.



Meeting agendas and minutes are available on the City's meeting portal at [Greeley-co.municodemeetings.com/](https://greeley-co.municodemeetings.com/)

For more information about this meeting or to request reasonable accommodations, contact the administrative team at 970-350-9780 or by email at cd_admin_team@greeleygov.com.



Historic Preservation Commission

September 18, 2023 at 4:00 PM

1001 11th Avenue, City Center South, Greeley, CO 80631

Agenda

1. Call to Order
2. Roll Call
3. Approval of the Agenda
4. Approval of March 20, 2023 Minutes
5. Approval of May 15, 2023 Minutes
6. Approval of July 17, 2023 Minutes
7. Public Hearing to Consider a Request for Designation of the Warnoco Building, 1407 2nd Street, on the Greeley Historic Register, Case No. GHR2023-0002
8. Public Hearing to Consider a Request for Certificate of Approval for Major Alterations of the Warnoco Building, 1407 2nd Street, Case No. HPDR2023-0004
9. Review of Historic Preservation Commission Operating Rules and Procedures
10. Report from Historic Greeley Inc.
11. Commission Member Reports
12. Staff Report
13. Adjournment

Historic Preservation Public Hearing Procedure

Public Hearing to...

1. Chair introduce public hearing item
2. Historic Preservation Staff report
3. Applicant Presentation
4. Commission questions
5. Chair opens public hearing
6. Chair closes public hearing
7. Applicant rebuttal
8. Commission discussion and vote

City of Greeley, Colorado
HISTORIC PRESERVATION COMMISSION PROCEEDINGS
Regular Meeting

March 20, 2023

1. Call to Order

2. Roll Call

Chair Bob Brunswig called the meeting to order at 4:00 p.m.

The hearing clerk called the roll.

PRESENT

Commissioner Doran Azari
Commissioner Christen DePetro
Commissioner Dan Podell
Commissioner Melissa Sizemore

ABSENT

Commissioner Sean Jaehn
Commissioner Gabriel Llanas

3. Approval of Agenda

Elizabeth Kellums, Planner III – Historic Preservation, requested to add the Deputy City Manager Donald Tripp to the agenda.

Commissioner Podell moved to approve the agenda as modified; Commissioner Sizemore seconded the motion. Motion carried 5-0 (2 commissioners absent).

4. Approval of February 06, 2023 Minutes

There were no additions or corrections to the minutes. Commissioner DePetro moved to approve the minutes dated February 06, 2023. Commissioner Azari seconded the motion. Motion carried 5-0 (2 commissioners absent).

5. Introduction of Donald Tripp, Deputy City Manager (item added to agenda during approval).

Mrs. Kellums introduced Donald Tripp, Deputy City Manager. Mr. Tripp came to the podium and thanked the commission for the work they do and provided them with some of his background information and work experience. Mr. Tripp shared his thoughts with the Commission for the type of work that they do and the value that it brings to the community.

Chair Brunswig thanked Mr. Tripp for introducing himself and welcomed him to the City.

6. Consideration of Request for Designation of the Woodcock/Wonenberg House, 1717 13th Avenue, on the Greeley Historic Register (GHR2023-0001)

Mrs. Kellums began with presenting the submitted nomination. The applicants are Terry and Linda Wonenberg and the property is 1717 13th Avenue. She provided the Commission with an overview of the Designation Criteria to be assessed including: Historical, Architectural, Geographical and Integrity necessary to be approved. Mrs. Kellums continued with the historical information about the property including the ownership of the property dating back to 1923 when Nellie C. Kiley purchased it from Myrtle W. Neill. Mrs. Kellums continued to share the history of the property in detail and information about its occupants over the years. The highlights include:

- significance for association with long-term owner and occupant Nellie Woodcock, formerly Nellie Kiley, who lived there from the time it was built until 1969.
- She was significant for her 60-year involvement with long-time dry cleaning and tailor business Kiley Cleaners.
- Other prominent residents who contributed to the community include
 - Dr. Estell Mohr, a prominent music professor at UNC,
 - Prominent community members Joseph and Julianne Haefeli, and Leonard Prothe.

Mrs. Kellums continued her presentation to review photos of the property and some of the architectural attributes including:

- Two-story brick structure featuring a 2-story gable roof brick wing that extends to the west;
- roof eave returns and gutters;
- one-story covered porch with a gabled roof, solid frieze and square classical columns;
- vinyl one-over-one windows with faux eight light dividers in the top sash;
- one round arched window located near roof peak on north and south facades;
- brick chimney on the top of the main gable;
- .
- wood frame detached garage; and
- brick wall, columns, and arch with gate that came from the razed Cranford Hall.

Mrs. Kellums continued, recommending that the Woodcock/Wonenberg House meets criteria in three areas of significance and retains sufficient integrity to convey historical, architectural and geographical significance, and therefore designate the Woodcock/Wonenberg House at 1717 13th Avenue as an historic property on the Greeley Historic Register. Mrs. Kellums asked if the Commission had any questions and also indicated that the applicant was present to answer questions as well. Chair Brunswig invited the applicant to provide any additional

comments or presentation. Linda Wonenberg came to the podium and wanted to provide the commission with more information on why they chose to add Woodcock to the historic designation in honor of the original owner. She shared her and her husband's love for the home, the area and the historical value of the property.

Chair Brunswig opened the public hearing at 4:26 p.m. Seeing none he closed the public hearing at 4:26 p.m.

Commissioner Podell moved to approve a motion, based on the application received and the preceding analysis, that the Commission finds, approves, and concludes that the Woodcock/Wonenberg House meets significance criteria of Section 24-1003(d) and integrity criteria of Section 24-1003(d)(4) of the Greeley Municipal Code, as summarized below, and therefore approve the designation, and Commissioner DePetro seconded the motion.

Motion carried 5-0 (2 commissioners absent).

7. Report from Historic Greeley

Linde Thompson, 1616 12th Avenue, from Historic Greeley Inc. introduced herself. She congratulated the Wonenbergs for their approved designation. She continued by providing that Historic Greeley does continue to pursue new historic designations and they are consistently speaking with property owners and working with them to educate on what historic designation means for them.

8. Commission Member Reports

Chair Brunswig asked the commissioners who attended the Colorado Preservation, Inc. conference to share any reports they had from the conference.

- Commissioner Podell shared his highlights from the conference:
 - preservation links the present to the past;
 - Some historic preservation codes seem restrictive but it is the job of the commissioners consider these items and use appropriate flexibility;
 - does preservation promote some histories and diminish other histories; and,
 - he recommends the conference to others.
- Commissioner Azari enjoyed the conference. Some of his highlights included:
 - He had the opportunity to spend time with a fellow commissioner and learn more about what he does.
 - He liked being able to see Mrs. Kellums give a presentation.
 - He enjoyed Dr. Max Page's National Park's regulations presentation and how to tie historic preservation into these areas.
 - He heard about real world challenges regarding preservation in Colorado with the population growth and keeping preservation a priority through the growth.
 - A tribal historic preservation presenter and how historical

preservation ties into the Native culture and preservation are important to the culture.

Chair Brunswig continued with commissioner member reports including that the American Historical Society of Germans from Russia conference is coming to Greeley, at the DoubleTree Hilton, August 3-5, 2023. There will also be group events coming up for the Sunrise neighborhood and he suggested building this into the May event as well. He continued to share information about his time in Mexico and some of the historical highlights of his trip.

9. Staff Report

Chair Brunswig opened the meeting to Mrs. Kellums for the staff report. She reported that she would be doing the tour in the Sunrise neighborhood for the American Historical Society of Germans from Russia conference. She will also be doing a walking tour for the Chautauquan group in July, the theme this year is "Oh the Places You'll Go". Mrs. Kellums updated the commission that May 18th will be the final meeting for the Cranford survey project. She is also working on a grant due in October for a survey for Sunrise as well. There will be a neighborhood meeting for this at Jefferson High School on May 11th and they plan do a second meeting in Spanish as well.

Mrs. Kellums began the discussion for Historic Preservation Month. She included a memo in the commissioner's packet to share what has been done in the past. She gave some ideas of what the Commission could do to celebrate Historic Preservation Month including a meeting, walking tour, or special event in the Sunrise neighborhood. Chair Brunswig asked for two commissioners to work with Mrs. Kellums to plan the event. Commissioners Sizemore and DePetro volunteered.

Discussion continued regarding plaques for new designations, the cost and budget on them.

Mrs. Kellums indicated that the next meeting on April 3, 2023 is cancelled because there is a neighborhood meeting on the same day. She invited all the commissioners to attend.

10. Adjournment

With no further business before the Commission, Chair Bob Brunswig adjourned the meeting at 5:02 p.m.

Bob Brunswig, Chair

Elizabeth Kellums, Secretary

City of Greeley, Colorado
HISTORIC PRESERVATION COMMISSION PROCEEDINGS
Regular Meeting

May 15, 2023

1. Call to Order

2. Roll Call

Chair Bob Brunswig called the meeting to order at 4:00 p.m.

The hearing clerk called the roll.

PRESENT

Commissioner Doran Azari
Commissioner Christen DePetro
Commissioner Dan Podell
Commissioner Sean Jaehn
Commissioner Gabriel Llanas

ABSENT

Commissioner Melissa Sizemore

3. Approval of Agenda

With no additions or changes, Commissioner Podell moved to approve the agenda, Commissioner Jaehn seconded the motion. Motion carried 6-0 (1 commissioner absent).

4. Historic Preservation Month

Elizabeth Kellums, Planner III – Historic Preservation, began with introducing the discussion on Historic Preservation Month. Posters have been made and are being distributed to businesses. They are available for anyone who would like one. Mrs. Kellums added that in honor of Historic Preservation Month there would be a walking tour later this evening in the Sunrise neighborhood on the west side of the park beginning at 5:30 p.m. There was also a proclamation during the City Council meeting a couple of weeks ago designating May as Historic Preservation Month. Finally, in celebration of Historic Preservation Month, the city will stream previously recorded walking tours and Windows of Time documentaries on GTV8.

5. Report from Historic Greeley

No reports.

6. Commission Member Reports

Chair Brunswig called for commission member reports. He indicated that Commissioner Llanas had a report to give on his attendance at the Colorado Preservation conference earlier this year. Commissioner Llanas began his report by sharing the most important thing he took away from the conference as a new commissioner was the focus on Colorado history and the story telling related to the history around us. He found all the work that is going into preservation in relation to the background and stories behind the history. He really enjoyed the conference and took a lot out of it to better serve him on the Commission and for his future.

Commissioner Azari shared with the Commission that he had the opportunity to attend History Fest at Centennial Village as a co-host. He shared that the event puts Greeley in a positive spotlight. This event is open to children from all over Greeley and the surrounding areas to tour Centennial Village and see different presentations at the different locations and learn about the structures, what they were used for and the history behind them. He thanked the staff of the City for putting the event on and suggested that other commissioners get involved next year.

Chair Brunswig shared that Commissioner DePetro, himself and Mrs. Kellums met last week to discuss the Commission's direction. The outcome is that there is a chance the Commission could expand, and they are going to increase the education on historic preservation and look into adding budget resources. Future meetings may start including presentations from the commissioners at meetings related to Greeley history. He asked the commissioners to think about this and what they would present on if given the opportunity.

7. Staff Report

Chair Brunswig called for staff reports.

Mrs. Kellums thanked Commissioner Azari for his participation in History Fest during the duration of the event. She shared it was fun to work with the kids at the event and seeing them participate. It was a great experience, and she invited the commissioners to join the next one in September.

Mrs. Kellums shared that there was a Sunrise neighborhood meeting at Jefferson School. It was a good opportunity to meet the people who live in the area and share about historic preservation in the neighborhood. She learned that the residents are interested in preservation of their neighborhood; attendees at the meeting expressed concern about developers coming in and demolishing existing homes to build newer buildings. There was a lot of interest in protecting the neighborhood. She found it to be a very productive meeting overall.

She shared that there is a meeting on May 18 for the Cranford neighborhood survey. This meeting will include discussion on the results of the survey.

Mrs. Kellums also indicated that there was also a grant to do a sub-area plan for the housing needs assessment. Currently they are promoting the public survey to be completed on the Speak Up Greeley site. She encouraged the commissioners to complete the survey as well.

8. Adjournment

With no further business before the Commission, Chair Bob Brunswig adjourned the meeting at 4:28 p.m.

Bob Brunswig, Chair

Elizabeth Kellums, Secretary

City of Greeley, Colorado
HISTORIC PRESERVATION COMMISSION PROCEEDINGS
Regular Meeting

July 17, 2023

1. Call to Order

2. Roll Call

Chair Bob Brunswig called the meeting to order at 4:00 p.m.

The hearing clerk called the roll.

PRESENT

Commissioner Doran Azari
Commissioner Christen DePetro
Commissioner Dan Podell
Commissioner Gabriel Llanas
Commissioner Melissa Sizemore

ABSENT

Commissioner Sean Jaehn

3. Approval of Agenda

With no additions or changes, Commissioner Podell moved to approve the agenda. Commissioner DePetro seconded the motion. Motion carried 6-0 (1 commissioner absent).

4. 16th Street Improvement Project Presentation

Elizabeth Kellums introduced Michelle Stevens, Principal with Felsburg, Holt & Ullevig. Ms. Stevens began her presentation with a brief introduction of herself and began reviewing the timeline of the 16th Street Improvement project. It is outlined below:

- August 2021- Started public engagement process.
- November 2021- Stakeholder group meeting
- March 2022- Public open house and online survey
- July 2022- Presentation of conceptual design plans (process was open for contributions).
- January/February 2023- Opportunity to learn about the project and preliminary design elements and public art discussion.

- April to June 2023: Refine by accepting feedback after sharing preliminary sketches and renderings of what the project may look like. Priorities set for the final plans.
- Fall 2023 to Early 2024- Presentation of final design to the community and start of construction. Information sharing on possible impacts to the community as construction progresses.

Ms. Stevens shared the 30% plan including the new roundabouts that will be installed, new parking and crosswalk. She discussed potential art elements and safety features being considered to support people safely utilizing the area.

Ms. Stevens indicated that she was available to answer any questions from the Commission before proceeding further in the presentation. Chair Brunswig asked about potential signage, and Ms. Stevens indicated that the signs would be up to the standards adopted by the city. Discussion continued between Ms. Stevens and the commissioners regarding artwork, landscaping and what the aesthetics could look like when the project is completed. Commissioner DePetro inquired about the widening of 16th Street. Ms. Stevens shared that the city is working with UNC to create potential easements (both temporary and permanent). Temporary easements would be used for parking and construction staging during the construction period and potential permanent easements would accommodate improvements such as amenities like additional seating on the UNC Campus area.

Ms. Stevens continued with her presentation sharing:

- Project funded with local funds and State of Colorado's Revitalizing Main Street grant funding; therefore, the Project is subject to the Colorado State Historic Register Act (CSHRA).
- Colorado DOT (CDOT) will coordinate with SHPO since the project will be constructed per CDOT Standards and Specifications.
- Analysis has been completed of known and potential historic structures within a project area called the Area of Proposed Action (APA).
- All properties directly adjacent to the project are considered eligible to the Colorado State Register for purposes of this project.

Her firm has done the appropriate research, and found that:

- History Colorado's database indicated that the Project APA contains three (3) previously recorded resources:
 - 5WL.843 Greeley Canal No. 3 (Colorado State Register – Eligible)
 - 5WL.3758 Campus Pharmacy Building (Colorado State Register – Eligible)
 - 5WL.7852 Hatch's Texaco Service Station (Colorado State Register – Not Eligible)
- The City of Greeley Historic Register database indicated two (2) additional local sites:
 - Color Portraits Sign (915-921 16th Street).
 - Monroe Avenue Historic District (9th Ave. from Greeley Canal No. 3 to the north), outside APA limits.
- Weld County property records indicate:

- Thirty-two (32) additional properties within the APA meet the 50-year minimum age requirement for eligibility to the Colorado State Register of Historic Properties.
- These properties have not been previously surveyed for eligibility to the State or National Register.
- These properties are being treated as eligible to the Colorado State Register for this Project.

Ms. Stevens shared that they have also made submissions to the Colorado Department of Transportation and received comments back and they are now working through the necessary easements and final items to complete the plans.

The next steps for the project are:

- Final design
- Replacing old sewer line
- XCEL undergrounding
- NEPA concurrence
- Bidding and Letting: December 2023
- Public Meeting with Contractor for Construction Phasing: February 2024
- Construction: begin in 2024

Commissioner DePetro asked how long construction would take once it is started and Ms. Stevens shared it is expected to take 6-8 months. Part of the planning is working with the businesses that this will impact, and the street will either be shut down completely to help speed up the process or the traffic flows will be changed to keep the street open during construction.

Closing the presentation, Ms. Stevens offered to answer any further questions. Commissioner Podell asked what the limits on parking the project would be once is complete, such as time limited or metered. Ms. Stevens shared that there could be some parking spaces that have restricted during certain hours to allow for deliveries, and she shared it would be up to the City to determine any other parking restrictions.

Without further comments from the Commission, Chair Brunswig asked if anyone online or in attendance had any comments. Linde Thompson with Historic Greeley, Inc. and 16th Street property owner shared that this project had its origins years ago when grant money became available and she thought that it had a time limit on the funds to be used. Ms. Stevens shared that for the grant money, the design must be completed this year and that it is on track to do so. Ms. Thompson continued, asking about whether the widening of the sidewalks would trigger the City or DDA to assist with snow removal and Ms. Stevens replied that she would find out and let them know.

5. Report from Historic Greeley Inc.

Linde Thompson, 1616 12th Avenue, with Historic Greeley Inc. shared that in May the group conducted the membership drive, and it was very successful. She

encouraged others to consider joining. The group is working with a few different property owners, and she looks forward to bringing those potential projects to the Commission in the next few months.

6. Commission Member Reports

Chair Brunswig called for commissioner reports.

Commissioner Azari shared that he attended two webinar presentations he was invited to. He shared that whenever he leaves these events, he always feels that historic preservation in Greeley is doing a good job at preservation, and we already meet what the recommended steps are for historic preservation. He is pleased to have Elizabeth Kellums on staff and leading historic preservation for the city. He shared about different grants he learned about from the webinars.

Commissioner DePetro shared she is working on her own personal property, and it will come before the Commission soon., she will recuse herself.

Commissioner Sizemore did not have an update. She shared that she got married, and her name will be changing.

Commissioner Podell did not have any updates.

Commissioner Llanas did not have any updates.

Chair Brunswig shared that informal commissioner-based presentations have been established. This is for commissioners to give presentations on historical aspects of the community. He also shared that the 53rd Annual American Historical Society of Germans from Russia convention will be held from August 3-5th. There will be bus tours to share history and information about historical landmarks and sites in Greeley.

7. Staff Report

Chair Brunswig called for staff reports.

Mrs. Kellums shared with the Commission that the City has switched from using Municode to Civic Clerk for agenda software. She instructed the commissioners on how to access the new site and to reach out to staff if they have any issues.

8. Adjournment

With no further business before the Commission, Chair Bob Brunswig adjourned the meeting at 4:49 p.m.

Bob Brunswig, Chair

Elizabeth Kellums, Secretary

Historic Preservation Commission

Agenda Summary

September 18, 2023

Key Staff Contact: Betsy Kellums, Planner III – Historic Preservation, 970-350-9222

Title:

Consideration of request for approval of GHR2023-0002, Certificate of Designation for the Warnoco Building, 1407 2nd Street

Summary:

Property owner representative Terry Adams, Executive Director of Boys and Girls Club of Weld County, Inc has submitted a complete Greeley Historic Register nomination for 1407 2nd Street, the Warnoco Building. He proposes the building is eligible for historic designation under (1) Criteria (a)(1,3) Historical Significance, (b)(1,3,4,5) Architectural Significance, and (c)(1,2) Geographical Significance of Section 24-1003(d) of the City of Greeley Municipal Code.

Recommended Motion:

A motion, based on the application received and the preceding analysis, that the Commission finds and concludes that the Warnoco Building meets significance criteria of Section 24-1003(d)(1) and integrity criteria of Section 24-1003(d)(4) of the Greeley Municipal Code, as summarized below, and therefore approve the designation and issue a Certificate of Designation to be recorded by the Weld County Clerk and Recorder.

(a) Historical Significance:

1. The property has character, interest and integrity and reflects the heritage and cultural development of the City, State or Nation.
3. Is associated with an important individual or group who contributed in a significant way to the political, social and/or cultural life of the community.

The Warnoco Building has character, interest and integrity and reflects the heritage and cultural development of Greeley. The building is associated with the Norcross family, particularly Warrack and Jay, who brought national recognition to the facility in the area of roller skating.

(b) Architectural Significance:

1. Characterizes an architectural style associated with a particular era and/or ethnic group.
3. Is architecturally unique or innovative.
4. Has a strong or unique relationship to other areas potentially eligible for preservation because of architectural significance.

5. Has visual symbolic meaning or appeal for the community.

The building reflects 20th Century recreational architecture. The building is unique in Greeley and the architecture shows the use as a roller-skating rink. This very well-known building is strongly associated with the adjacent designated Norcross house and has visual meaning and appeal for the community.

(c) Geographical Significance:

1. The property has proximity to a square, park or unique area deserving of preservation.
2. Is a visual feature identifying an area or neighborhood or consists of buildings, homes, replicas, structures, objects, properties, parks, land features, trees and sites historically or geographically associated with an area.

The Warnoco Building is significant for its location near the Norcross House, which is designated on the Greeley Historic Register and is associated with this site. Also, the Warnoco Building is in proximity to Island Grove Park. It is also a visual landmark that identifies the area and is known by Greeley residents from all across the community.

Attachments:

Staff Historic Preservation Commission Summary

Attachment A – Application & Historic Building Inventory Form

Attachment B – Photographs

Attachment C – Existing Site Map

Attachment D – Historic Photographs

HISTORIC PRESERVATION COMMISSION SUMMARY

ITEM: Request for Certificate of Designation for the Warnoco Building/The Club

LOCATION: 1407 2nd Street

APPLICANT: Terry Adams, on behalf of the Boys and Girls Club of Weld County

CASE NUMBER: GHR2023-0002

CASE PLANNER: Betsy Kellums, Planner III – Historic Preservation

HISTORIC PRESERVATION COMMISSION HEARING DATE: September 18, 2023

HISTORIC PRESERVATION COMMISSION FUNCTION:

Review the nomination for eligibility for individual designation on the Greeley Historic Register based on criteria for designation in Section 24-1003(d) of the City of Greeley Municipal Code and approve or deny the request.

PROPERTY OVERVIEW AND BACKGROUND

On July 28, 2023, owner representative Terry Adams, Executive Director of Boys and Girls Club of Weld County, submitted a complete Greeley Historic Register nomination for the Warnoco Building at 1407 2nd Street, including required documentation, photos, and payment of the nomination fee. Please refer to Attachments A through C for the application and historic building inventory, photographs, and the existing site map.

The owners nominated the property for designation based on information in the Historic Structure Assessment and interest in reusing the building. They propose that the rink building is eligible for individual designation under (1) Criteria (a)(1, 3) Historical Significance, (b)(1, 3, 4, 5) Architectural Significance, and (c)(1, 2) Geographical Significance of Section 24-1003(d) of the City of Greeley Municipal Code.

PROPERTY DATA

Legal Description: GR5711-C PT L7 & 8, City of Greeley, County of Weld, State of Colorado

Neighborhood: North Greeley

Year Property Built: 1948 (Source: Historic Structure Assessment)

Architectural Style/Type:

Type: 20th Century Recreational Arena

Dates of Significant Renovations:

Permit #BCX2306-0527 Permit to renovate existing building to new teen center; Owner: Boys and Girls Club; Contractor: Elder Construction; Date: 6/23/2023; Issued: 7/20/2023.

Permit #BCX2306-0471 Permit to demolish 2,289 square foot storage addition; Owner: Boys and Girls Club of Weld County; General Contractor: Robert Rigg; Contractor: Elder Construction; Applicant: Sean Windsor; Date: 6/20/2023; Finaled: 7/31/2023.

Permit #ROOF2303-0350 Permit to replace the roof using TPO; Owner: Boys and Girls Club of Weld County; Contractor: Front Range Roofing Systems; Date: 3/22/2023.

Correspondence b/n Tim Swanson, Chief Building Official and property owner James Emmett; Emmett required to limit storage in the building to less than 12,000 square feet; 11/8/2011.

Permit #10030341; Demolition permit; Owner: City of Greeley; Contractor: Dave Miller, Miller's Backhoe Service; Date: 3/24/2010.

Demolition Approval Notice from Colorado Department of Public Health and Environment; for Warnoco Building at 1407 2nd Street; Issued to Millers Backhoe Services; 1/13/2010.

Memo regarding budget transfer from GURA to Building Inspection for Permit #09110202.

Permit #09110202; New Electric Service; Owner: Greeley Urban Renewal Authority (GURA); Contractor: Haberman Electric; 11/9/2009.

Permit #07100017; Roof replacement – Install modified roofing on dome section and on flat roof on front of building and seal seams on

north side; Owner: GURA; Contractor:
Independent Roofing.

Permit #03120215; Permit to address
code issues for electrical; Owner: GURA;
Contractor: D-JE Electric; Date: 12/29/2003.

Certificate of Completion: 1407 2nd
Street to J.W. Norcross; Date: 10/8/1996.

Permit #790634; Build 12x12 tumbling
pit, to be built according to letter of Engineering
signed by Professional Engineer Gerry A. Bley;
Owner: J. Norcross; Contractor: Theo Digerness;
Date: 10/25/1979; See also letter from PE Gerry A.
Bley re: tumbling pit; 9/27/1979.

Certificate of Occupancy for Warnoco
Skating Rink at 1407 2nd Street, 4/5/1978.

Contractor: Warnoco; Date: 9/6/1977;
CO issued 4/5/1978.

Permit and Inspection Record for
Permit #770391 (General) & for Permit 770725
(Electrical); Permit to Alter Roof Structure and
modifications to meet code approval; Date range
9/6/1977 – 4/5/1978 (CO Issue date).

Permit #770725; Electrical Permit to
hang lights; Owner: Warnoco Skating Rink;
Contractor: Sturgeon Electric; Date: 9/28/1977.

Permit #770391; Alter roof and install
floor trampoline; Owner: Warnoco Roller Skating;
Contractor: Same; Date: 9/6/1977.

Source: Building Permit File for 1407 2nd Street

CRITERIA FOR DESIGNATION

Pursuant to Section 24-1003(d) of the Municipal Code, a property shall be eligible for historic preservation designation and eligible for economic incentives if it meets at least one (1) criterion in one (1) or more of the following categories:

1. Areas of Significance:

- a. Historical significance
- b. Architectural significance
- c. Geographical significance

To determine if a property can convey significance and therefore be eligible for designation, the Commission also evaluates properties according to the areas of II. Periods of Significance, and III. Integrity, as established by the National Park Service for evaluation of properties for the National Register and pursuant to 24-1003(d)(4) of the Municipal Code.

STAFF EVALUATION

*Italicized criteria are those criteria under which staff determined the property to be eligible for designation.

I. AREAS OF SIGNIFICANCE

Section 24-1003(d) (1)(a) Historical Significance

The site, building or property:

- 1. Has character, interest and integrity and reflects the heritage and cultural development of the City, State or Nation.*
- 2. Is associated with an important historical event.**
- 3. Is associated with an important individual or group who contributed in a significant way to the political, social and/or cultural life of the community.*

History of the Warnoco Building

(Historic Preservation Staff verified the following information through research provided by the property owner from the files at the Greeley History Museum.)

The Warnoco Building and grounds are associated with Greeley's recreational history and with the Norcross family, prominent in the community, primarily for establishing Warnoco Park, a popular recreational park, and for association with the Norcross family. In 1919 Clarence Sall purchased this property and the adjacent house at 1403 7th Street, which is the Greeley Historic Register-designated Norcross House. Clarence Sall was a farmer, but he fulfilled a dream by building Sall's Gardens. On March 24, 1922 the *Greeley Tribune* reported that Clarence Sall had applied for building permits to construct a recreation hall and a pump house building at this site. The total cost of those buildings was \$11,000. The April 13, 1922 *Greeley Tribune* reported that construction had begun on the park. According to the article, this project was the biggest factor in reducing unemployment at that time, with approximately 25 men working on constructing the park and gardens. The swimming pool measured 100'x150' and ranged in depth from 2' to 7' at the deepest part. The two-story bathhouse had lockers for men and women on different floors, boiler rooms for washing machines, a dryer and heating for an indoor 30'x50' pool. He opened an amusement park known as Sall's Gardens on this site. His amusement park included amenities such as a swimming pool, merry-go-round, and 150'x40' indoor dance hall, also to be used as a roller-skating rink, setting the foundation for the Norcross family to expand the park. In April 1922, Sall obtained a permit to have an auto garage on the site, in addition to the filling station and amusement park. After 1½ years of operation, Sall's circumstances changed and he was forced to sell it. In August 1923, Sall sold it to H.D. and V.C. Barrett (Barrett Brothers) for

approximately \$40,000. The original roller rink building was constructed in approximately 1922 and was demolished in 2010. It included a roller rink, snack bar, and lobby. The Barrett Brothers leased it to J. Warrack Norcross, starting in approximately 1923. In the spring of 1933, the Barrett Brothers sold it to Anna Tuttle, who then sold it to H.J. and Florence Beckler of Anaheim, California. Helen and Warrack Norcross purchased the property from the Becklers in late August 1934, including “the swimming pool, Warnoco dance hall, house and considerable land.” (Qtd from Greeley Daily Tribune, Aug 30, 1934, page 6) The house was located to the east at 1403 2nd Street. During the years they leased the property from the Barrett Brothers, they held a naming contest for the park. A winning entry named the site Warnoco – a mix of his middle name of Warrack and last name of Norcross. The building was used for roller skating in the winter and dances in the summer. Lawrence Welk and his five-piece band played at the property during the summers in the 1930s. Many community members spent their summers swimming and dancing at Warnoco and spent their winters skating. The original swimming pool was located between the rink building (the original was connected to the existing on the east side) and the Norcross house to the east.

Norcross expanded the facilities with construction of the existing Warnoco building as an addition in 1948. This larger rink was 160’ x 80’ and had curved hardwood floor. A brief notice in the June 10, 1948 *Windsor Beacon* indicated that Windsor residents attended “the interesting roller skating show” at the new Warnoco Skating Rink the previous weekend.

In May 1950 a drowning accident at the gravel pits by Island Grove Park may have led to an important change at Warnoco. Some young Hispanic boys, including Edward Tellez and his brothers including Larry, and his cousin Arthur, went to the gravel pits to play in the water. Edward’s older brother Larry fell into a water-filled pit and his cousin Arthur went in to save him. Unfortunately, neither came up as Edward and the others tried to save them with sticks or something to reach out to them. The fire department later took his oldest brother Danny to show them where Larry and Arthur went in. The fire department recovered the bodies with a large hook. The following month, Edward went with his friend Scott, who happened to be white, to Warnoco to go swimming. Mrs. Norcross told them that Scott could swim but Edward could not. Scott’s father, owner of the Cozy Café, complained to Mrs. Norcross and “raised hell” at City Hall. Edward believed that Scott’s dad’s pressure on the Norcross’s and at City Hall led to Norcross changing their policy for all Hispanics. Norcross gave Edward and his brothers season passes to Warnoco and taught them how to swim. When asked if he felt discrimination or negative attitudes toward him after they were allowed to swim, Edward said no. He did say it was pressure from Scott Conrey’s father that led to the change, not pressure from the Hispanic community.

Wrestling matches took place in the outdoor arena on the property, likely to the west of the rink building, although the location of that arena on the site is unknown. Professional wrestler Toots Mondt wrestled in Warnoco’s outdoor arena. According to online sources, he was actively involved in the creation and promotion of the World Wide Wrestling Federation (WWWF). He started wrestling in 1912 in Greeley and retired in 1942. He was inducted into the Professional Wrestling Hall of Fame and Museum in 2008 and the World Wrestling Entertainment, Inc. (WWE) Hall of Fame in 2017. While he didn’t wrestle in the existing building, his association with the site adds to the significance of the site.

James Warrack Norcross was born in Greeley in October 1897 to Greeley natives former State Senator Fred Norcross and his wife Laura Atkinson Norcross. J.W. married his wife Helen in Loveland and they lived in Greeley until he passed away in December 1972. According to his obituary, Warnoco Park “*was very much a part of growing up in Greeley*” *for the legion of boys and girls who knew him, confided in him and were remembered by name. The letters he received from lonely servicemen during World War II were legion.*” He sponsored many national champion skaters, to the end that he was inducted into the Roller Skating Hall of Fame. In addition to his career running Warnoco and promoting sports, he was actively involved in the establishment of the first Greeley Independence Stampede in 1922. He and Helen were honored 50 years later as the grand marshals of the Stampede parade in July 1972.

Skating at the 1948 large rink building was very popular, as was the Skating Follies show. A December 31, 1949 article in *Billboard* indicated that the Roller Skating Rink Operators’ Association (RSROA) secretary-treasurer Fred Martin observed that Warnoco, operated by J.W. Norcross, featured “high caliber” teachers and provided a “challenge to the rest of the country with the development of top-notch amateur competitive skaters.” The article indicated that approximately 1,500 people attended each of the three nights of Skating Follies, at a time when Greeley’s population was approximately 16,000. Martin also cited several national/world champions who were associated with Warnoco, including Senior Ladies’ Class World Champion roller skater Pat Carroll, who was studying physical education at Colorado State College of Education, and former National Senior Men’s Champion Arthur Russell, who was teaching at RSROA rinks in the western United States. In April 1958, the *Greeley Tribune* reported that Warrack and his son Jay, along with other “professional caliber” skaters performed the Skating Follies of 1958, which also included 135 young skaters. The *Tribune* further reported that, “The bleachers on three sides of the rink were packed both nights with an attendance of 950 at the opening and 850 Tuesday.” Multiple young roller skaters from Greeley who performed in the follies were national champions.

Warnoco was the site of many seasons of Rocky Mountain Skating Championships. The American Skating Institute, a prestigious roller-skating school, was hosted at Warnoco Park. J.W. Norcross, Jr., was featured in the American Skating Institute event that brought students from all over the country.

Roller skating ended at Warnoco Park in 1996. In late September 1996, the Norcrosses leased the building to Roller Express for indoor roller hockey and indoor soccer. Jay and Marilyn Norcross sold the property to Greeley Urban Renewal Authority in February 2002. GURA worked with Aller Lingle Architects to document the building before razing the 1922 rink building and other additions, leaving the existing 1948 rink building. GURA sold it to James Emmett in November 2011. He used the building for storage. The Boys and Girls Club of Weld County purchased it from Emmett with plans to rehabilitate it for a Teen Center.

Staff Comments: The Warnoco Building has character, interest and integrity and reflects the heritage and cultural development of Greeley. The property has significance for association with the Norcross family and the recreational history of Greeley. The Warnoco building played a significant role in roller skating and recreational history in

Greeley, putting Greeley on the map for roller skating enthusiasts. Warnoco could be deemed significant at a national level for roller skating history.

For these reasons, staff finds the property does meet **criteria (1a) 1 and 3 for historical significance.**

Section 24-1003(d)(1) (b) Architectural Significance

The site, building or property:

- 1. Characterizes an architectural style associated with a particular era and/or ethnic group.*
- 2. Is identified with a particular architect, master builder or craftsman.*
- 3. Is architecturally unique or innovative.*
- 4. Has a strong or unique relationship to other areas potentially eligible for preservation because of architectural significance.*
- 5. Has visual symbolic meaning or appeal for the community.*

Architectural Description

This Twentieth Century Recreational Arena building is significant for its distinctive and unique architecture that is a local landmark known by many Greeley community members. The brick structure is one story that is 162' long by 93' wide with a barrel roof that peaks at 25' high. The north and south elevations have brick facades with arches matching the barrel roof with brick wall extensions to the east and west. The parapet is topped by a rowlock course of bricks on both north and south elevations. The south brick wall has rowlock courses every seven rows and the north brick wall has rowlock courses every eight rows. The south façade also has the backing of the Roller Skating sign that originally topped the windows. The sign band is surrounded by soldier course bricks. The eight large metal framed windows consist of multi-light, steel framed windows with header course brick sills and lintels. The middle portion of the windows were originally operable.

East and west elevation consist of the roof coming to within a few feet of the ground and have concrete thrust blocks supporting the wall and roof structure lining both facades. A dormer mid-way up the roof on the west façade was removed prior to the nomination. The west elevation has a building exit door with horizontal wood siding and a curved roof. The south end of the east elevation features an enclosed vestibule that once connected the 1948 building with the original 1922 rink building.

Staff Comments:

The Warnoco Building is architecturally unique and significant for the large barrel roof and brick parapet wall with the multi-light steel windows. This large 20th century recreational building represents recreational history of Greeley and the rise in popularity of roller skating in Greeley and across the country. This building is a well-known and well-loved landmark in the neighborhood that has significant visual and symbolic appeal for many in Greeley.

For these reasons, staff finds the property does meet **criterion (1b) 1, 3, 4, and 5 for architectural significance.**

Section 24-1003d)(1)(c) Geographical Significance

The site, building or property:

- 1. Has proximity and a strong connection or link to an area, site, structure or object significant in the history or development of the City, State or Nation.***
- 2. Is a visual feature identifying an area or neighborhood or consists of buildings, homes, replicas, structures, objects, properties, parks, land features, trees and sites historically or geographically associated with an area.***

The Warnoco Building is associated with and located adjacent to the Greeley Historic Register-designated 1883 Norcross House at 1403 2nd Street, the home of the Norcross family that opened, owned and operated Warnoco. It is also located in proximity to Island Grove Park, which dates to the original 1871 Union Colony plat.

The building is in the original Union Colony boundaries, originally platted in 1871, and not located in a later subdivision. It is one of Greeley's oldest neighborhoods, with properties dating from the late 1800s.

This building is a visual feature that identifies the area of this north Greeley neighborhood.

Staff Comments:

For these reasons, the Warnoco Building is geographically significant for location in North Greeley as a neighborhood and community iconic landmark. Many residents of Greeley grew up spending summers at Warnoco, swimming, dancing, wrestling, and especially skating.

For these reasons, staff finds the property does meet **criteria (1c) 1 & 2 for geographical significance.**

II. PERIODS OF SIGNIFICANCE

In establishing significance and integrity, it is helpful to consider the dates for which the property is significant. According to the National Register Bulletin, *How to Complete the National Register Registration Form*, "the period of significance is the length of time when a property was associated with important events, activities or persons, or attained the characteristics which qualify it for" designation. The period of significance establishes whether alterations to a property are significant and contributing to a property or if they detract from the integrity and ability to convey significance. Alterations completed during the period of significance may add to the ability to convey significance. Alterations completed outside the period of significance decrease the ability of the property to convey significance. The following are periods of significance for the areas for which this property is significant:

Historical Significance – (1948-1996); the building is significant for representing the recreational history of Greeley and for association with prominent owners the Warrack and Helen Norcross and Jay and Marilyn Norcross.

Architectural Significance – (1948); the building is significant as an example of 20th century recreation architecture.

Geographical Significance – (1948); the building is significant for location in proximity to and connection with the Norcross House and Island Grove Park.

III. INTEGRITY

In addition to the Municipal Code Significance criteria, Section 24-1003(d) establishes Integrity criteria. Staff evaluates a property to determine whether it retains sufficient historical, architectural, and geographical integrity. After determining if a property meets the criteria for significance, it is very important to evaluate changes to the exterior of a property to determine if the property can convey that significance. For example, if a property has been changed so much that it does not appear historic or there is little or no historic materials left, then it does not retain enough integrity to convey the significance and would not be eligible for designation.

According to the National Register, “integrity is the ability of a property to convey its significance.” (National Register Bulletin 15, “How to Apply the National Register Criteria for Evaluation,” p. 44) “Integrity is based on significance: why, where and when a property is important. Only after significance is fully established can you proceed to the issue of integrity.” (sic, p. 45)

Section 24-1003(d)(4) Integrity criteria. All properties and districts shall be evaluated for their physical integrity using the following criteria, as defined by the National Park Service in the current version of the publication “How to Apply the National Register Criteria for Evaluation:”

- (1) Location – The place where the historic property was constructed or the place where the historic event occurred.
- (2) Design – the combination of elements that create the form, plan, space, structure and style of a property.
- (3) Setting – the physical environment of a historic property.
- (4) Materials – the physical elements that were combined or deposited during a particular period and in a particular pattern or configuration to form a historic property.
- (5) Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
- (6) Feeling – a property’s expression of the aesthetic or historic sense of a particular period of time.
- (7) Association – the direct link between an important historic event or person and a historic property.

The Warnoco Building exhibits integrity of location, design, setting, materials, workmanship, feeling and association. The wood doors on the south elevation were replaced at an unknown date and the portions of the building that were constructed before this building were razed in

2010. The building retains sufficient integrity to convey the historical, architectural, and geographical significance.

NOTICE

Pursuant to Section 24-1003(f) of the Municipal Code, notice was published in the *Greeley Tribune* on September 3rd and 10th, 2023, and a letter notifying the property owner of the public hearing was emailed to the owner on August 15, 2023. The owner posted a public hearing notification sign at the property on August 30, 2023.

SUMMARY OF REQUIRED CRITERIA

Municipal Code requires that a property meet at least one criterion in one of the three areas of significance in Section 24-1003(d), including historical, architectural, and geographical significance and must exhibit sufficient integrity to convey the significance.

STAFF RECOMMENDATION

Find that the Warnoco Building meets criteria in three areas of significance and retains sufficient integrity to convey historical, architectural and geographical significance, and therefore designate the Warnoco Building at 1407 2nd Street as an historic property on the Greeley Historic Register.

RECOMMENDED COMMISSION MOTION

A motion, based on the application received and the preceding analysis, that the Commission finds and concludes that the Warnoco Building meets significance criteria of Section 24-1003(d)(1) and integrity criteria of Section 24-1003(d)(4) of the Greeley Municipal Code, as summarized below, and therefore approve the designation and issue a Certificate of Designation to be recorded by the Weld County Clerk and Recorder.

(a) Historical Significance:

- 1. The property has character, interest and integrity and reflects the heritage and cultural development of the City, State or Nation.*
- 3. Is associated with an important individual or group who contributed in a significant way to the political, social and/or cultural life of the community.*

The Warnoco Building has character, interest and integrity and reflects the heritage and cultural development of Greeley. The building is associated with the Norcross family, particularly Warrack and Jay, who brought national recognition to the facility in the area of roller skating.

(b) Architectural Significance:

- 1. Characterizes an architectural style associated with a particular era and/or ethnic group.*
- 3. Is architecturally unique or innovative.*
- 4. Has a strong or unique relationship to other areas potentially eligible for preservation because of architectural significance.*

5. *Has visual symbolic meaning or appeal for the community.*

The building reflects 20th Century recreational architecture. The building is unique in Greeley and the architecture shows the use as a roller-skating rink. This very well-known building is strongly associated with the adjacent designated Norcross house and has visual meaning and appeal for the community.

(c) Geographical Significance:

1. *The property has proximity to a square, park or unique area deserving of preservation.*
2. *Is a visual feature identifying an area or neighborhood or consists of buildings, homes, replicas, structures, objects, properties, parks, land features, trees and sites historically or geographically associated with an area.*

The Warnoco Building is significant for its location near the Norcross House, which is designated on the Greeley Historic Register and is associated with this site. Also, the Warnoco Building is in proximity to Island Grove Park. It is also a visual landmark that identifies the area and is known by Greeley residents from all across the community.

ATTACHMENTS

Attachment A	Application & Historic Building Inventory Form
Attachment B	Photographs
Attachment C	Existing Site Map
Attachment D	Historic Photographs

Greeley Historic Preservation Office (970) 350-9222 – 1100 10th Street, Greeley, Colorado 80631

CITY OF GREELEY**APPLICATION FORM FOR
NOMINATION OF A HISTORIC PROPERTY**

Section 3 of Chapter 10 of Title 24 of the Greeley Municipal Code, the City's Historic Preservation Ordinance provides for a property to be nominated for designation as a Historic Property. The information below must be filled out and submitted to the Commission for consideration. *Historic Preservation Office Staff can assist in completion of this form.*

APPLICANT(S)

Name: Boys & Girls Clubs of Weld County, Inc.
 Address: P.O. Box 812, C
Greeley, CO 80632
 Telephone: 970 573 6729
 Email: hadams@bgcweld.org

HISTORIC PROPERTY

Name: Warnoco Skating Rink
 Address: 1407 2nd Street
Greeley, CO 80631
 Historic Use: roller skating rink
 Current or Proposed Use: recreation center/office
 Legal Description: GR 5711-C PT L7 & 8

City of Greeley, County of Weld, State of Colorado

NAME YOU WISH TO HAVE THE BUILDING DESIGNATED AS:The Club**BRIEF DESCRIPTION OF HISTORICAL QUALITIES RELATING TO THE**

PROPOSED PROPERTY: Please attach additional information you wish considered on a separate sheet.

From the HSA: "The Warnoco Building is an important structure in the recreational history of Greeley. The 1948 brick building derives its historical distinction primarily because it maintains the highest level of physical and architectural integrity and significance. The architectural style and characteristics are also significant in the representation of a typical skating rink structure at the time."

Certification: I certify that the information and exhibits herewith submitted are true and correct to the best of my knowledge.

Applicant (Print): Terry Adams **Telephone:** 970-573-6729

Signature: _____ **Date:** _____

APPLICANT IS THE OWNER? YES ☒ NO ☐

**CITY OF GREELEY
HISTORIC PRESERVATION COMMISSION
HISTORIC BUILDING INVENTORY**

Fill out the form as completely as possible. Please answer all questions. Unknown is an acceptable answer. Historic Preservation Office Staff can provide assistance with completion of this form. Adequate information will allow us to evaluate the building's significance and eligibility for nomination to the Greeley Historic Register.

Historic Property Name: Warnoco Roller Skating Rink
Current Property Name: The Club -
Address: 1407 2nd Street Greeley, CO 80631
Legal Description: GR 5711 - C Lots 7 and 8 City of Greeley
County of Weld, State of Colorado
Owner Name & Address: Boys & Girls Clubs of Weld County, Inc. P.O. Box 812, Greeley, CO 80632
Style: 20th century recreational arena with bow-arched roof and brick masonry
Materials: brick, steel, wood beam
Stories: one 15,000 sq ft
Other historic designation: Yes: No: X Date:
Designating Authority:
Addition/Year of Addition: 1948
Original Site: Yes: X No: Date moved:
Historic Use: recreational roller skating rink
Present Use: (proposed) recreational teen center and offices
Date of Construction: Estimate: Actual: 1948 Original Cost:
Source: Warnoco Building Historic Structure Assessment - Alex Lingle, Massey
2009 Architects, PC
Condition: fair
Architect:
Source:
Builder/Contractor:
Source:
Original Owner: J.W. Norcross
Source: City of Greeley documents; Warnoco HSA
Associated building(s): Sall's Garden (demolished)

Architectural description: (add continuation sheet if necessary) See Staff for assistance
Mid-20th century recreational arena with bow-arched roof, curved
plank flooring, large steel sash windows, and brick masonry
following the curved roof.

Significance: Check all that apply. Buildings, sites or other structures must meet at least one criterion in one category of historical, architectural and geographical significance to qualify for nomination. Staff will evaluate the property for integrity of location, design, setting, materials, workmanship, feeling and association, as defined by the National Park Service, and included in Section 24-1003(d) of the Greeley Municipal Code.

Historical:

- ☒ Has character, interest and integrity and reflects the heritage and cultural development of the city, state or nation
- ☐ Is associated with an important historical event
- ☒ Is associated with an important individual or group who contributed in a significant way to the political, social and/or cultural life of the community

Architectural:

- ☒ Characterizes an architectural style associated with a particular era and/or ethnic group
- ☐ Is identified with a particular architect, master builder or craftsman
- ☒ Is architecturally unique or innovative
- ☒ Has a strong or unique relationship to other areas potentially eligible for preservation because of architectural significance
- ☒ Has visual symbolic meaning or appeal for the community

Geographical:

- ☒ Has proximity and a strong connection or link to an area, site, structure or object significant in the history or development of the city, state or nation
- ☒ Is a visual feature identifying an area or neighborhood or consists of buildings, homes, replicas, structures, objects, properties, parks, land features, trees and sites historically or geographically associated with an area

Integrity Criteria:

All properties and districts shall be evaluated for their physical integrity using the following criteria, as defined by the National Park Service in the current version of the publication, "How to Apply the National Register Criteria for Evaluation":

1. Location – the place where the historic property was constructed or the place where the historic event occurred.
2. Design – the combination of elements that create the form, plan, space, structure and style of a property.
3. Setting – the physical environment of a historic property.
4. Materials – the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.
5. Workmanship – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.
6. Feeling – a property's expression of the aesthetic or historic sense of a particular period of time.
7. Association – the direct link between an important historic event or person and a historic property.

Non-owner nomination additional criteria:

Non-owner individual nominations are to be reviewed under stricter protections and must meet the following criteria of compelling historic importance to the entire community, including at least one of the following criteria:

- ☐ Unusual or uncommon significance that the structure's potential demolition or major alteration would diminish the character and sense of place in the community of Greeley; or
- ☐ Superior or outstanding examples of architectural, historical or geographical significance criteria outline in the criteria for designation in Section 24-1003(d). The term "superior" shall mean excellence of its kind and the term "outstanding" shall mean marked by eminence and distinction.

Statement of Significance: (add continuation sheet if necessary)

The Warnoco building has been deemed eligible for local, state, and national register nomination. It retains the characteristics of typical mid-20th century recreational architecture and exhibits style and materials representative of its era and use.

Photographs: Include color photos of *each* building elevation. High quality digital photos are acceptable.

References: Indicate *specific* information sources (add continuation sheet if necessary)

Warnoco Building Historic Structure Assessment - 2009
Weld County Assessors records

Inventory completed by: Linde Thompson

Signature: Linde Thompson

Date: 7/19/2023 Phone: 970.302.8368

Address: 1616 12th Avenue, Greeley, CO 80631

CITY OF GREELEY

APPLICATION FORM FOR
NOMINATION OF A HISTORIC PROPERTY

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Name: Boys & Girls Clubs of Weld County, Inc.
Address: P.O. Box 812, C
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Email: tadams@bgcweld.org

HISTORIC PROPERTY

Name: Warnoco Skating Rink
Address: 1407 2nd Street
Greeley, CO 80631
Historic Use: roller skating rink
Current or Proposed Use: recreation center/office
Legal Description: GR 5711-C PL 746

City of Greeley, County of Weld, State of Colorado

NAME YOU WISH TO HAVE THE BUILDING DESIGNATED AS:

The Club

BRIEF DESCRIPTION OF HISTORICAL QUALITIES RELATING TO THE
PROPOSED PROPERTY: Please attach additional information you wish considered on a

separate sheet.

From the HSA: "The Warnoco Building is an important structure in the recreation history of Greeley. The 1948 brick building derives its historical distinction primarily because it maintains the highest level of physical and architectural integrity and significance. The architectural style and characteristics are also significant in the representation of a typical skating rink structure at the time."

Certification: I certify that the information and exhibits herewith submitted are true and correct to the best of my knowledge.

Applicant (Print): Jerry Adams Telephone: 970-573-6729

Signature: [Signature] Date: 7-28-23

APPLICANT IS THE OWNER? YES ☒ NO ☐

Warnoco Photos 8/4/23, by Betsy Kellums, GHPO



South façade, looking northwest



West façade, looking east-northeast



West façade looking north-northeast



North façade, looking southeast



East façade, looking west



Interior, looking north



Interior, looking south

1407 2nd Street Vicinity Map



Legend

-  Subject Site
-  Greeley Parcels

Warnoco Historic Photos, Courtesy of City of Greeley Museums



2000.04.0003.2, City of Greeley Museums, Skeets Calvin Collection. Warnoco building, date unknown, photograph by Millard Darwin "Skeets" Calvin.



2000.04.0003.3, City of Greeley Museums, Skeets Calvin Collection. James Norcross, Jr., date unknown, photograph by Millard Darwin "Skeets" Calvin.



2000.04.0003.13, City of Greeley Museums, Skeets Calvin Collection. Warnoco building interior, date unknown, photograph by Millard Darwin "Skeets" Calvin.



2010.120.0002.1, City of Greeley Museums, Permanent Collection. Warnoco building interior, date unknown, photographer unknown.



1992.75.0330, City of Greeley Museums, Lew Dakan Collection. Warnoco Park and Island Grove Apartments aerial, February 22, 1978, photograph by Lew Dakan.



1992.75.0343, City of Greeley Museums, Lew Dakan Collection. Warnoco Park aerial, February 22, 1978, photograph by Lew Dakan.



1992.75.0344, City of Greeley Museums, Lew Dakan Collection. Warnoco Park aerial, February 22, 1978, photograph by Lew Dakan.

Greeley Historic Register Nomination: Warnoco Building

GHR2023-0002

1407 2nd Street

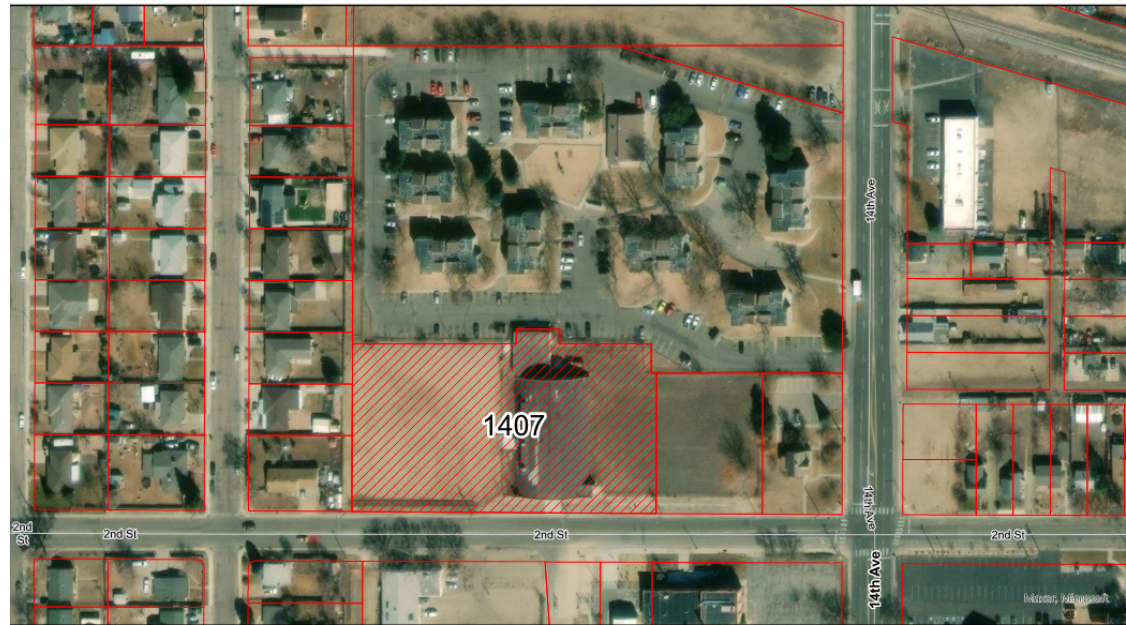
Historic Preservation Commission

September 18, 2023



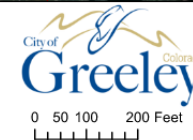
Site Map

1407 2nd Street Vicinity Map



Legend

- Subject Site
- Greeley Parcels





Overview

- Designation Criteria
- Historical Background
- Architectural Description
- Geographical Background
- Period of Significance
- Integrity
- Public Notice
- Recommendation
- Public Hearing Procedure
- Recommended Motion

Designation Criteria

- Historical Significance
- Architectural Significance
- Geographical Significance
- Integrity Criteria



Historical Significance

- Clarence Sall – Sall's Gardens amusement park
 - 1919 purchase
 - 1922 construction began – pool, merry-go-round, dance hall/roller rink
 - 1923 sold to Barrett Brothers
- Barrett Brothers
 - Leased to Warrack and Helen Norcross starting in approx. 1923; Warnoco name b/n 1923 - 1934



1992.75.0343, City of Greeley Museums,
Lew Dakan Collection. Warnoco Park
Aerial, Feb 22, 1978, photograph by Lew
Dakan.



Historical Significance

- Property sales
- Warrack & Helen Norcross purchased Aug 1934
- Lawrence Welk band
- Wrestling & boxing – Toots Mondt
- 1948 construction of large brick rink building



Warnoco history began as entertainment center

ST 3/2/76

Warnoco Park, a recreation area which has provided the residents of Greeley with entertainment for 55 years, has featured some of the biggest names in entertainment ever to perform in Greeley.

Warnoco Park, 14th Avenue and 2nd Street, first opened in 1921 as Sall's Garden's with a roller rink, swimming pool and a merry-go-round was built and owned by Clarence Sall.

Sall operated the recreation area for 1½ years, selling it to the Barrett brothers. The Barretts in turn leased it to Warrick Norcross, who in 1935 purchased it along with 10 acres of land which included a house built in 1883 at the corner of 14th Avenue and 2nd Street.

When Norcross purchased the recreation area, he sponsored a contest to rename the gardens, with a prize of \$25 to go to the winner. At that time \$25 was quite an incentive.

Lois Bauer, using the combination of Norcross' first and last names to come up with Warnoco, was the winner of the contest.

The format of the recreation area changed in the early 1930s. The rink which is now called the little rink was used for skating during the winter and dancing in the summer months.

For entertainment, Norcross would bring in big name bands which were performing at Elitch Gardens in Denver on Elitch's closed nights.

Among the entertainers which performed at Warnoco were Lawrence Welk and his five-piece band, and Andy Kirk's Band, featuring the now famous Mary Lou Williams.

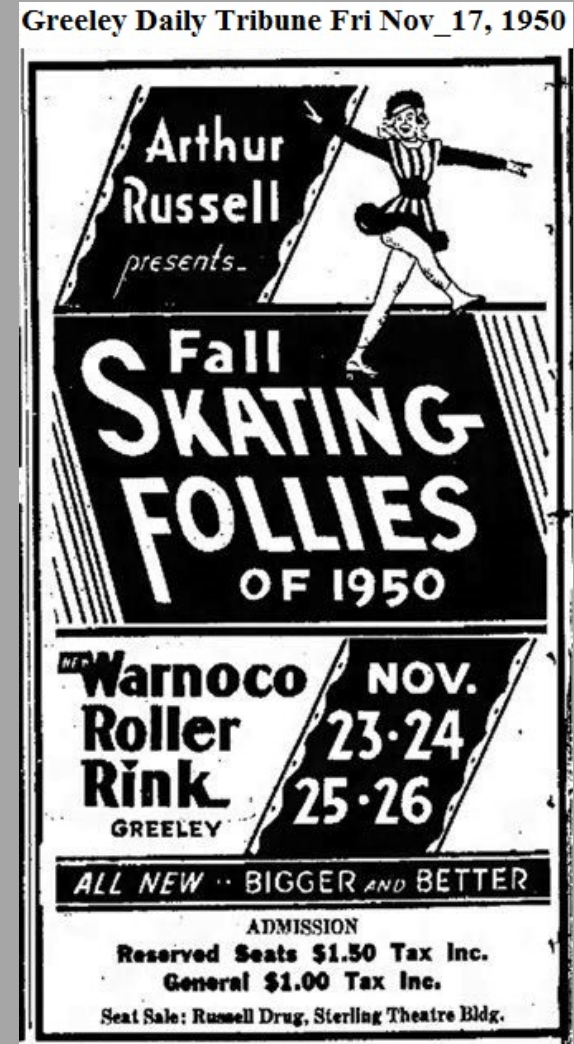
Some might also remember the wrestling matches which were held during the summers in the outdoor arena. Many of the greats wrestled there, including Greeley's own Toots Mondt.

Time has changed things at Warnoco Park. The pool is now gone and a new rink was built just west of the old rink in 1948. The recreation area has undergone extensive remodeling recently.

Warnoco is now owned and operated by Marilyn and J.W. Norcross Jr.

Historical Significance

- Discrimination against Hispanics
 - Larry Tellez 1950 drowning accident @ Island Grove Park
 - Edward Tellez with Scott Conrey at Warnoco
 - Hispanics allowed to swim at Warnoco
- Professional caliber skaters
- Rocky Mountain Skating Championships
- American Skating Institute



Historical Significance

- 1996 Roller skating ended
 - Leased to Roller Express for indoor roller hockey and indoor soccer
- 2002 Sold to GURA
- 2009-10 Historic Structure Assessment of Building
- 2010 Demolition of rest of building additions
- 2011 Sold to Jim Emmett
- 2023 Sold to Boys & Girls Club of Weld County



Greeley Daily Tribune Fri Dec 26, 1930

ROLLER SKATING TONIGHT

Open to All College and Public
School Students

**25c Evening for All
Students**

Greeley Amusement Park

ROLLER SKATING

Every Tuesday, Thursday and
Saturday

Monday, Wednesday and Friday
Reserved for Parties

Call 1759W for party dates

GREELEY AMUSEMENT PARK

Historic Photos



2000.04.0003.2, City of Greeley Museums, Skeets Calvin Collection. Warnoco Building at night, date unknown, photograph by Millard Darwin "Skeets" Calvin.

Historic Photos



2000.04.0003.3, City of Greeley Museums, Skeets Calvin Collection. James Norcross, Jr., date unknown, photograph by Millard Darwin "Skeets" Calvin.

Historic Photos



2000.04.0003.13, City of Greeley Museums, Skeets Calvin Collection. Warnoco Building interior, date unknown, photograph by Millard Darwin "Skeets" Calvin.

Historic Photos

2010.120.0002.1, City of Greeley Museums,
Permanent Collection. Warnoco Building interior,
date unknown, photographer unknown.



Architectural Description

- 20th Century Recreational Arena
- Barrel roof
- Original steel windows
- Original brick facades on south & north
- “Roller Skating” sign backing



South



West



West



North



East



Geographical Significance



1992.75.0343, City of Greeley Museums, Lew Dakan Collection. Warnoco Park Aerial, Feb 22, 1978, photograph by Lew Dakan.

- Adjacent to and associated with the Greeley Historic Register-designated Norcross House, 1403 2nd Street
- In proximity to Island Grove Park, Centennial Village and the Greeley Historic Register-designated Monfort House
- Well-known landmark in the community



Period of Significance

- Historical Significance – 1948-96 (association with Norcross family and Greeley's recreational history)
- Architectural Significance – 1948 (20th Cent Recreational Arena)
- Geographical Significance – 1948



Integrity

- 7 aspects of integrity (location, design, setting, materials, workmanship, feeling and association)
- Constructed in 1948 as roller rink addition to 1922 building with additions
- Other additions demolished in 2010 and 2023
- Existing 1948 building retains integrity of all aspects of integrity



Public Notice

- Published in the Greeley Tribune – September 3, 10, 2023
- Posted at the property – August 30, 2023
- Email notice to owner/applicant – August 15, 2023
- Web notice – September 1, 2023



Recommendation

- The Warnoco Building at 1407 2nd Street meets criteria for historical, architectural and geographical significance and integrity criteria in Section 24-1003(d) of the Greeley Municipal Code.
- The Commission designate the building on the Greeley Historic Register and record the Certificate of Designation at the Weld County Clerk and Recorder.



Public Hearing Procedure

1. Conclude Staff presentation
2. HPC asks questions of Staff
3. HPC asks questions of the Applicant
4. Public Hearing opens
 - *Citizen input received*
5. Public Hearing closes
 - *No additional citizen comments accepted after this time*
6. Historic Preservation Commission confers & asks any additional questions
7. Motion is provided – on Agenda summary



Recommended Motion

- Based on the application received and the preceding analysis, the Commission finds and concludes that the Warnoco Building at 1407 2nd Street meets the significance and integrity criteria of Section 24-1003(d) of the Greeley Municipal Code, as summarized in the staff report, and approves the designation and issues a Certificate of Designation to be recorded by the Weld County Clerk & Recorder.



Historic Preservation Commission

Agenda Summary

September 18, 2023

Key Staff Contact: Betsy Kellums, Planner III – Historic Preservation, 970-350-9222

Title:

Public Hearing to Consider a Request for Certificate of Approval for Exterior Alterations at 1407 2nd Street, the Warnoco Building

Summary:

Property owner Boys and Girls Club of Weld County, Inc Executive Director Terry Adams requests approval for exterior alterations of the Warnoco Building. The alterations include masonry repointing, window replacement, new entrances on the east and west sides and completion of the east vestibule.

Recommended Motion:

A motion that, based on the application received and the preceding analysis, the Commission finds that the proposed masonry repointing, north window replacement, east and west entrances and the rehabilitation of the entry vestibule on the south end of the east elevation meets (1) Criteria and Standards a, b, c, e, f, and h of Section 24-1003(j)(1) of the Greeley Municipal Code, and therefore approves the request for a Certificate of Approval, with the following conditions:

1. the applicant will provide documentation of the current condition of the windows. Staff will review the documentation and make a determination if the south windows can be rehabilitated and paired with storm windows or if they need to be replaced; if the applicant disagrees with the staff determination, they can address the Commission at the following regularly scheduled Commission hearing, and
2. the applicant will complete a mortar analysis to ensure the proper mortar is used for the repointing. The analysis should be shared with Historic Preservation Staff to verify this is completed prior to repointing beginning; and
3. the applicant will obtain all required permits.

Attachments:

Staff Historic Preservation Commission Summary
Attachment A – Application & Narrative for Certificate of Approval
Attachment B – Current Photographs
Attachment C – Historic Photographs
Attachment D – Elevation Drawings
Attachment E – Existing Site Map

Attachment F – Approved Site Plan

Attachment G – Excerpt from Historic Structure Assessment

Attachment H – Preservation Brief #2 Repointing Mortar Joints in Historic Masonry Buildings

Attachment I – Preservation Brief #13 Repair and Thermal Upgrading of Historic Steel Windows

HISTORIC PRESERVATION COMMISSION SUMMARY

ITEM: Certificate of Approval for Major Alteration

CASE NUMBER: HPDR2023-0004

PROJECT: Exterior Alterations

LOCATION: 1407 2nd Street

APPLICANT: Terry Adams, representative of property owner Boys and Girls Club of Weld County

CASE PLANNER: Betsy Kellums, Planner III – Historic Preservation

HISTORIC PRESERVATION COMMISSION HEARING DATE: September 18, 2023

HISTORIC PRESERVATION COMMISSION FUNCTION:

Review the proposal for compliance with Criteria and Standards for altering designated properties or contributing properties in an historic district in Section 24-1003j of the City of Greeley Municipal Code and approve or deny the request.

PROJECT OVERVIEW AND BACKGROUND:

Proposed Project

On July 28, 2023, Terry Adams, Executive Director of Boys and Girls Club of Weld County, submitted an application for a Certificate of Approval to the Historic Preservation Office for exterior alterations at 1407 2nd Street. Staff determined the application to be complete on August 4, 2023. The applicant requests approval for the following:

- Repoint masonry as needed,
- Replace existing steel windows with fiberglass that are similar design,
- Remove existing west entrance and replace with projecting storefront consisting of glass door with glass sidelights and transom with blue metal siding on each side of the storefront up to the storefront cover, a slanted roof between 15' and 17' high,
- Create a projecting east entrance north of the existing east vestibule with a garage door and man door with blue metal siding and a slanted roof matching the west entrance, and
- Finish east vestibule at the south end of the east elevation with vertical siding.

Please see the Application and Narrative for a Certificate of Approval (Attachment A), Current Photographs (Attachment B), Historic Photographs (Attachment C), Elevation Drawings (Attachment D), Existing Site Map (Attachment E), Approved Site Plan (Attachment F), Excerpt from Historic Structure Assessment (Attachment G), Preservation Brief #2 Repointing Mortar

Joints in Historic Masonry Buildings (Attachment H), Preservation Brief #13 The Repair and Thermal Upgrading of Historic Steel Windows (Attachment I), and Milgard Ultra C650 series window product information brochure (Attachment J).

Existing Conditions

This Twentieth Century Recreational Arena building is significant for its distinctive and unique architecture that is a local landmark known by many Greeley community members. The brick structure is one story that is 162' long by 93' wide with a barrel roof that peaks at 25' high. The north and south elevations have brick facades with arches matching the barrel roof with brick wall extensions to the east and west. The parapet is topped by a rowlock course of bricks on both north and south elevations. The south brick wall has rowlock courses every seven rows and the north brick wall has rowlock courses every eight rows. The south façade also has the backing of the Roller Skating sign that originally topped the windows. The sign band is surrounded by soldier course bricks. The eight large metal framed windows consist of multi-light, steel framed windows with header course brick sills and lintels. The middle portion of the windows were originally operable.

East and west elevation consist of the roof coming to within a few feet of the ground and have concrete thrust blocks supporting the wall and roof structure lining both facades. A dormer mid-way up the roof on the west façade was removed prior to the nomination. The west elevation has a building exit door with horizontal wood siding and a curved roof.

A number of lights of the metal frame windows are broken or missing, particularly on the north elevation. The remnants of the north concrete addition that was used for storage most recently are evident on the west end of the north elevation. The addition was demolished in July 2023.

The asphalt shingle roof was also replaced recently with white TPO membrane roofing, completed in August 2023.

Background

The property is being reviewed for designation concurrent to this application. The Historic Preservation Commission will make a decision to approve or deny the designation application on September 18, 2023, prior to consideration of this application for a Certificate of Approval. The historic preservation request for a Certificate of Approval is contingent upon approval of the designation.

PROPERTY DATA

Legal Description:	GR5711-C PT L7 & 8, City of Greeley, County of Weld, State of Colorado
Neighborhood:	North Greeley
Year Property Built:	1948 (Source: Historic Structure Assessment)
Architectural Style/Type:	Type: 20th Century Recreational Arena

Zoning:

Industrial – Low Intensity (I-L)

Dates of Significant Renovations:

Permit #BCX2306-0527 Permit to renovate existing building to new teen center; Owner: Boys and Girls Club; Contractor: Elder Construction; Date: 6/23/2023; Issued: 7/20/2023.

Permit #BCX2306-0471 Permit to demolish 2,289 square foot storage addition; Owner: Boys and Girls Club of Weld County; General Contractor: Robert Rigg; Contractor: Elder Construction; Applicant: Sean Windsor; Date: 6/20/2023; Finaled: 7/31/2023.

Permit #ROOF2303-0350 Permit to replace the roof using TPO; Owner: Boys and Girls Club of Weld County; Contractor: Front Range Roofing Systems; Date: 3/22/2023.

Correspondence b/n Tim Swanson, Chief Building Official and property owner James Emmett; Emmett required to limit storage in the building to less than 12,000 square feet; 11/8/2011.

Permit #10030341; Demolition permit; Owner: City of Greeley; Contractor: Dave Miller, Miller's Backhoe Service; Date: 3/24/2010.

Demolition Approval Notice from Colorado Department of Public Health and Environment; for Warnoco Building at 1407 2nd Street; Issued to Millers Backhoe Services; 1/13/2010.

Memo regarding budget transfer from GURA to Building Inspection for Permit #09110202.

Permit #09110202; New Electric Service; Owner: Greeley Urban Renewal Authority (GURA); Contractor: Haberman Electric; 11/9/2009.

Permit #07100017; Roof replacement – Install modified roofing on dome section and on flat roof on front of building and seal seams on north side; Owner: GURA; Contractor: Independent Roofing.

Permit #03120215; Permit to address code issues for electrical; Owner: GURA; Contractor: D-JE Electric; Date: 12/29/2003.

Certificate of Completion: 1407 2nd Street to J.W. Norcross; Date: 10/8/1996.

Permit #790634; Build 12x12 tumbling pit, to be built according to letter of Engineering signed by Professional Engineer Gerry A. Bley; Owner: J. Norcross; Contractor: Theo Digerness; Date: 10/25/1979; See also letter from PE Gerry A. Bley re: tumbling pit; 9/27/1979.

Certificate of Occupancy for Warnoco Skating Rink at 1407 2nd Street, 4/5/1978.

Contractor: Warnoco; Date: 9/6/1977; CO issued 4/5/1978.

Permit and Inspection Record for Permit #770391 (General) & for Permit 770725 (Electrical); Permit to Alter Roof Structure and modifications to meet code approval; Date range 9/6/1977 – 4/5/1978 (CO Issue date).

Permit #770725; Electrical Permit to hang lights; Owner: Warnoco Skating Rink; Contractor: Sturgeon Electric; Date: 9/28/1977.

Permit #770391; Alter roof and install floor trampoline; Owner: Warnoco Roller Skating; Contractor: Same; Date: 9/6/1977.

Source: Building Permit File for 1407 2nd Street

KEY ISSUES AND ANALYSIS:

The proposed work is evaluated according to the relevant criteria for alteration of designated properties, defined in Section 24-1003j of the Greeley Municipal Code, as follows in the staff analysis.

Greeley Municipal Code, Section 24-1003j Criteria and Standards

1. Alterations. Criteria and standards for alterations to a designated property or a property in a historic district are as follows:

- (a) The effect of the alteration or construction upon the general historical or architectural character of the designated property.*
- (b) The architectural style, arrangement, texture and materials of existing and proposed construction, and their relationship to other buildings.*
- (c) The effects of the proposed work in creating, changing or destroying the exterior architectural features and details of the structure upon which the work shall be done.*
- (d) The compatibility of accessory structures and fences with the main structure on the site and with adjoining structures.*
- (e) The effect of the proposed work upon the protection, enhancement, perpetuation and use of the landmark or landmark district.*
- (f) Compliance with the current Secretary of the Interior's Standards for the Rehabilitation of Historic Properties, as defined in 24-1003.m.*
- (g) If the property is a non-contributing property in a historic district, then alterations will be in accordance with the district designation plan as recommended by the Commission and approved by City Council.*
- (h) Other requirements for alterations of a designated property or contributing property in a district as are required by the procedures and bylaws established by the Commission.*

Secretary of the Interior's Standards for Rehabilitation

- (1) A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.*
- (2) The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize a property will be avoided.*
- (3) Each property will 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 elements from other buildings will not be undertaken.*
- (4) Changes to a property that have acquired historic significance in their own right will be retained and preserved.*
- (5) Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

- (6) *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*
- (7) *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*
- (8) *Archaeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*
- (9) *New additions, exterior alterations or related new construction will not destroy historic materials, features and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*
- (10) *New additions and adjacent or related new construction will 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.*

Applicable Guidelines from the General Design Guidelines

Appropriateness of Use

While the Commission does not review use, selecting a use similar to that for which a building was designed minimizes the need for substantial modification.

1. Seek uses that are compatible with the historic character of the building.

In many cases, the historic use will be allowed by current zoning. Always check for allowable uses under current zoning codes. Additionally, retaining the current use provides greater flexibility in meeting building and safety codes.

2. Select new uses that require minimal change to the existing structure.

- a. When a more radical change in use is necessary to keep the building in active service, then those uses that require the least alteration to significant elements are preferred.
- b. Radical alteration for a new use must be carefully evaluated because the adaptation may prove to be too costly or destroy too many significant features. Experience has shown, however, that in most cases designs can be developed that respect the historic integrity of the building while also accommodating new functions.

Preservation of Original Features

Original materials and features, as well as the distinctive form, scale, and siting of a structure, contribute to its character and should be respected and preserved whenever feasible. The

distinguishing qualities and characteristics of the structure and its site should be preserved using the simplest means possible. It is important that the property retain a high percentage of original features to retain its integrity. This is especially true for individually designated properties.

3. Respect the historic design character of the building.

Do not try to change its style or make it look older or more ornate than it really is. An honest approach enhances the significance of the structure.

4. Protect and maintain significant features and stylistic elements.

Distinctive stylistic features or examples of skilled craftsmanship should be treated with sensitivity. The best preservation procedure is to maintain original features from the outset so that repair or replacement is not required.

5. Preserve any existing original site features or original building materials and features.

- a. Preserve original wall and roof materials.
- b. Preserve original doors, windows, porches, and other architectural features.
- c. Preserve original site features such as set-back, steps, walls, fences, landscaping, and walkways.
- d. Avoid removing or altering original materials and features.

If weatherization is necessary to maintain energy efficiency, do not remove original doors or windows. Select storm windows and doors that do not diminish the integrity of the original doors and windows.

6. Repair deteriorated historic features to the extent possible, and replace only those elements that cannot be repaired.

- a. Patch, piece-in, splice, consolidate, or otherwise upgrade the existing material, using recognized preservation methods whenever possible, rather than remove the element.
- b. If disassembly of an original element is necessary for its repair or restoration, use methods that minimize damage to the original materials and replace the disassembled components in their original configuration.

Exterior General

Original materials should be repaired rather than replaced. Brick is a common material for historic buildings in Greeley; however, stone, wood, concrete, and other materials were also used. Greater flexibility in materials may be considered for additions and new construction.

7. Use the gentlest possible procedures for cleaning, refinishing, and repairing original materials.

- a. Perform a test patch. Many procedures can actually have an unanticipated negative effect upon building materials and result in accelerated deterioration or a loss of character. For example, harsh paint removal methods can damage the protective finish of the material.
- b. Obtain product literature and information on appropriate techniques and new technologies.

Masonry

Masonry is a common material for historic buildings in Greeley. Houses may be constructed of brick with wood detail and trim, while commercial and institutional buildings are constructed of either brick or stone with stone, terra cotta, or other trim. The character of a historic masonry wall is a combination of the material itself, the size and proportion of the modular units, the finish of the material, the pattern with which the material may be laid, and the character of the mortar that binds the units together. All of these features should be preserved when feasible. Ancillary buildings and site features constructed of masonry should be treated in the same way.

11. Preserve the original masonry when feasible.

- a. Avoid painting masonry, unless this is needed to provide a weather-protective coating to soft material. Painting changes the character of the building. If painting is necessary, select a color as close to the original masonry as possible.
- b. Paint may be removed from masonry if the procedure will not damage the original finish. Repainting in the original color of the masonry is an alternative to stripping the paint.
- c. If masonry has a stucco finish, removing the covering may be difficult, since original brick finishes were sometimes chipped to provide a connection for the stucco application. If removing stucco is to be considered, first remove the material from a test patch to determine the condition of the underlying masonry.
- d. Covering masonry with other materials is inappropriate.

12. Preserve original mortar characteristics, including composition, profile, and color.

In most cases, matching the composition of the original mortar mix may be essential to the presentation of the masonry itself. In order to avoid deterioration of the masonry, the mortar must be softer or more permeable than the masonry units. Matching the original mortar will also prevent moisture from being trapped inside the walls.

Roofs

Typical roof shapes for historic buildings in Greeley are gabled, and hipped, as well as flat for commercial buildings and Modernist houses. In some cases, roofs are complex and may include several of these roof types plus dormers. Most historic roofs broadly overhang, creating deep shadows. These broad eaves are also a location for important detailing such as brackets, cornices, and bargeboards.

15. Preserve the original roof form.

- a. Avoid altering the angle of the roof.
- b. Maintain the perceived line and orientation of the roof from the street.
- c. Retain and repair roof detailing such as brackets, cornices, parapets, bargeboards, and gable-end shingles.
- d. New skylights should not be installed on front portions of a roof. Flat skylights mounted flush with the roof may be considered on other, less visible sides. Bubbled or domed skylights are not appropriate.

16. Preserve original roof materials when feasible.

If replacement is necessary, carefully select new materials. Some historic materials are very durable and may not need replacement.

- a. Avoid removing roof material that is in good condition.
- b. Where replacement is necessary, use materials similar to the original. Low profile asphalt shingles, for example, are appropriate replacements for wood shingles.
- c. Maintain a similar color. Gray and brown are typical of many historic roof materials. Some historic houses featured more colorful roofs through the use of clay tiles. Also consider the neighborhood context for color.
- d. Specialty materials such as tile or slate should be replaced with a matching material whenever feasible.

Doors and Entrances

Front doors and primary entrances are among the most important elements of historic buildings. The original size and proportion of a front door, the details of design of the door itself and the detail around it, and the placement of the door and entrance contribute to the character.

17. Preserve the functional, proportional, and decorative features including the door and its frame, sill, head, jamb, moldings, and any flanking windows.

- a. Avoid changing the position and function of original front doors and primary entrances.
- b. If necessary, replace original doors with designs and finishes similar to those found historically.

Windows

Windows, the elements that surround them, and their relationship to one another are among the most important character-defining elements of a historic structure. The basic elements of windows are their operation, proportions, number of divisions, and the dimensions of the frame. Historic windows should be preserved wherever feasible; this is especially important for individually designated properties.

18. Preserve the functional and decorative features of original windows.

- a. Features important to the character of windows include frames, sash, muntins, mullions, glazing, sills, heads, jambs, moldings, operation, and groupings of windows.
- b. Stained and leaded glass are often found in windows and doors of historic buildings and houses, and special care should be taken to preserve and protect these windows.
- c. Typically, houses feature a front window or grouping of windows. The proportions, type, relationship, decorative glass, and surrounding detail should be preserved.
- d. Repair frames and sash by patching, splicing or reinforcing, rather than replacing.
- e. If replacement of any original window is necessary, match it as closely as possible.

19. Retain the position, type, number, and groupings of windows, especially on significant facades.

20. Maintain original window proportions.

- a. Preserve the vertical emphasis typical of historic windows.
- b. Do not reduce an original opening to accommodate a smaller window. Likewise, do not enlarge an opening to accommodate a larger window. If enlargement is necessary for emergency egress, do so on a minor elevation (rear or side).

21. Use materials that appear similar to the original when replacement is necessary.

- a. Replacing a wood window with another wood window is preferred; however, other materials may be considered if the operation, dimension, profile, and finish are similar.
- b. Glass block should be avoided unless it was typical of the style or period. If used, the opening size should not be altered.

22. Consider storm windows as an alternative to window replacement.

- a. Install storm windows on the interior when feasible.
- b. Match the sash of the original windows, if storm windows are installed on the exterior.
- c. Metal storm windows may be appropriate if the frames match the proportions and profile of the original windows and if the frames are anodized or painted so that raw metal is not visible.

Staff Analysis:

The proposed project complies with the applicable criteria and standards for the following reasons:

The proposed project includes the following items:

- Repoint masonry as needed,
- Replace existing steel windows with fiberglass windows,
- Remove existing west entrance and replace with projecting storefront consisting of glass door with glass sidelights and transom with blue metal siding on each side of the storefront up to the storefront cover, a slanted roof between 15' and 17' high,
- Create a projecting east entrance north of the existing east vestibule with a garage door and man door with blue metal siding and a slanted roof matching the west entrance, and
- Finish east vestibule at the south end of the east elevation with vertical siding and a sloped roof.

Masonry Repointing

The repointing of the masonry using the correct mortar mix, including the correct color, would have a positive impact on the general historical and architectural character of the designated property. Use of mortar that closely matches the existing mortar is important for the preservation of the building to prevent damage and to protect the building. Mortar that does not closely match the existing could damage the façade and also have a visual impact if the color does not closely match. Having mortar analysis done will help ensure the proper mortar mix is used. It would have a positive effect on the exterior of the building and on the protection, enhancement, perpetuation and use of the building. Please see Preservation Brief #2 Repointing Mortar Joints in Historic Masonry Buildings, Attachment H, for more information. For these reasons, the proposed masonry repointing meets relevant criteria, including a, b, c, and e of Section 24-1003j.1 of the Greeley Municipal Code (Code).

The masonry repointing would also meet the Secretary of the Interior's Standards for Rehabilitation, including Standards #6 and #7. Some of the mortar joints are deteriorated, and the repointing with the correct mortar would be repairing those mortar joints and allow for the preservation of the masonry facades and would not damage historic materials, thereby meeting these standards.

The masonry repointing would also meet the relevant general design review guidelines, including for preservation of original features, exterior general and masonry because it would be preserving and repairing the original masonry walls. The masonry design guideline #12 specifically indicates that matching the mortar with composition, profile and color protects the masonry from deterioration and "prevents moisture from being trapped inside the walls."

Steel Window Replacement

The removal of the original steel windows would have an adverse impact on the property, as the existing steel windows are original and removal of original materials would have an adverse impact on the property. The south windows appear to be in fair to good condition. The windows on the north are in poor to fair condition, with panes and sections of the windows being broken or missing. The proposed replacement windows would be black fiberglass frames with flat muntins (grids dividing the panes of glass) between the double panes of glass in a pattern similar to the existing windows. Using the vintage grids that are on the outside of the windows may be more historically appropriate for the replacement windows than the flat muntins between the panes of glass, since the original muntins separate individual panes of glass.

The replacement windows would have a somewhat positive effect on the north elevation, as some of the windows are broken or missing, so they will have to be replaced. The replacement windows would have a negative impact on the south because the existing windows are in good to fair condition (no documentation provided to show otherwise) and could potentially be rehabilitated. Custom interior or exterior storm windows would significantly improve energy efficiency. The replacement of the steel windows would be changing the exterior architectural features of the windows, which would change the appearance and profile. The individual panes of glass reflect differently than a window with muntins between the panes that would reflect light as one solid piece of glass. The replacement windows would, however, have a positive impact on the protection, enhancement, perpetuation and use of the building because they would allow for the perpetuation and reuse of the building, but the rehabilitation of the existing windows would also have the same positive impact. For these reasons, the replacement windows for the north facade would meet the criteria and standards in Section 24-1003j.1. because it is clear the north windows need to be replaced. The replacement windows for the south elevation would not meet the criteria of Section 24-1003j.1. of the Code except for criterion e. of the Code because it is not clear the south windows need to be replaced.

The removal of the original windows and installation of fiberglass replacement windows would not meet the Secretary of the Interior's Standards for Rehabilitation, including Standards #2 and #5, as windows are a character-defining feature. The replacement windows would have larger flatter profiles as proposed and the appearance of the glass would be different as one large sheet of glass rather than individual windows. The Standards indicate that the removal of distinctive

materials that characterize a property will be avoided. Standard #6 requires that deteriorated historic features be repaired rather than replaced unless the severity of deterioration requires replacement. Replacement features should match the old in design, color, texture and, where possible, materials. In this case, steel windows similar to the Warnoco windows are not readily available and would not likely be able to be replaced with the same material. The proposed replacement windows would match the old in design and color, but not texture unless the grid is on the outside of the windowpanes, and that would be similar but not a great match due to the flat and narrow character of the existing steel window muntins. If documentation shows the windows are deteriorated beyond repair, they should be replaced with the proposed windows with the vintage grid system if that would more closely match the existing window profiles. If it is determined the windows are not beyond repair, the existing windows on the south should be rehabilitated and installation of a storm window system on the south could help with energy efficiency.

A significant number of the windows on the north are beyond repair or missing, so replacement of the windows on the north would meet Standards #2, 5, and 6. For these same reasons, the window replacement of the windows on the north would meet the window design guidelines, because many of the existing windows are beyond repair or missing and the proposed windows would be similar to the existing windows and because steel replacement windows are not readily available. However, because the existing windows on the south do not appear to be beyond repair, the proposed window replacement of the south windows do not meet the standards and guidelines. The National Park Service Preservation Brief #13 The Repair and Thermal Upgrading of Historic Steel Windows provides guidance on assessment of condition and repair of the windows when possible (See Attachment I). While the brief was published in 1984, it is still generally the standard for preservation best practice for historic steel windows.

Energy efficiency, while a helpful goal, does not constitute need for replacement of windows that are in otherwise reparable condition. As a best practice in historic preservation, rehabilitation of existing windows and installation of storm windows allows for improved energy efficiency, while retaining character-defining windows.

East and West Entrances & Rehabilitation of the Vestibule on South end of East Facade

The proposed installation of the east and west entrances and the rehabilitation of the vestibule on the south end of the east facade would have a positive impact on the building as they would help make the building useable for today and would be differentiated from the historic architecture to not give a false sense of history. They would complement the architecture with the slanted roof features and blue metal siding that would accentuate the entrances while not detracting from the original facades. The vestibule would retain the existing flat roof and would have vertical wood siding that would be painted and would not alter the building. While they would alter the view of the barrel roof, which is a significant feature of the site, they would not detract from the character of the building since they are on the sides of the building and they only change a small amount of the barrel roof on each side. The addition of these two entrances would not detract significantly from the barrel roof as a significant feature since the barrel roof extends the entire length of the building. For these reasons, they would have a neutral effect on the historical and architectural character and exterior features of the building. The proposed entrances and vestibule rehabilitation would have a positive impact on the protection, enhancement,

perpetuation and use of the building, particularly in providing access to the building and site as a whole from the parking lot to the west, and the east entrance would provide access to outdoor activity areas, including an outdoor classroom and an athletic field. These entrances could be removed in the future and the barrel roof restored, so these proposed changes are reversible. If removed in the future, the form and integrity of the building would remain intact. For these reasons, the proposed entrances meet Secretary of the Interior's Standards #9 and 10.

The proposed project does preserve the original roof form and meets the design guidelines for roofs. The roof has been replaced multiple times since the building was constructed, including recently, so meeting the guideline to preserve original roof materials cannot be met with this project. For these reasons, the proposed east and west entrances and vestibule rehabilitation meet the design guidelines and the criteria and standards in the Code, including the Secretary of the Interior's Standards.

In summary, for these reasons, the proposed masonry repointing using the appropriate mortar, replacement of the north windows, installation of the east and west entrances, and rehabilitation of the entry vestibule on the south end of the east elevation meet the criteria and standards in Section 24-1003(j) of the Greeley Municipal Code, including the Secretary of the Interior's Standards and the General Historic Preservation Design Guidelines. Based on the information provided, the proposed replacement of the existing south windows do not meet the Code, Standards or design guidelines unless determined to be beyond repair.

Section 24-1003(j) (1) Criteria and Standards Addressed: a, b, c, e, f, and h (Secretary's Standards #2, 3, 4, 5, 6, 7, 9, and 10) and the General Historic Preservation Design Guidelines.

PUBLIC NOTICE:

Greeley Municipal Code Section 24-1003(f) specifies public notification requirements for Certificate of Approval applications, specifically posting a sign at the property, readily visible by adjacent property owners and from the public right-of-way, no less than 14 days prior to the public hearing. The applicant posted notice at this property on August 30, 2023. On August 25, 2023, Staff emailed a letter of notification to the applicant with the date, time and location of the public hearing.

STAFF RECOMMENDATION:

Staff recommends approval of masonry repointing, replacement of the north windows, installation of the east and west entrances, and rehabilitation of the entry vestibule on the south end of the east elevation, with the condition that a mortar analysis is done to determine the mortar is a close match to the original. Staff recommends the applicant complete an assessment of the condition of all south windows to determine if they can be repaired and paired with storm windows or if they need to be replaced. Staff recommends that the applicant can work with staff to get a final decision on window rehabilitation or window replacement after the assessment is completed and that no return to the Commission is required.

RECOMMENDED MOTION:

A motion that, based on the application received and the preceding analysis, the Commission finds that the proposed masonry repointing, north window replacement, east and west entrances and the rehabilitation of the entry vestibule on the south end of the east elevation meets (1) Criteria and Standards a, b, c, e, f, and h of Section 24-1003(j)(1) of the Greeley Municipal Code, and therefore approves the request for a Certificate of Approval, with the following conditions:

1. the applicant will provide documentation of the current condition of the windows. Staff will review the documentation and make a determination if the south windows can be rehabilitated and paired with storm windows or if they need to be replaced; if the applicant disagrees with the staff determination, they can address the Commission at the following regularly scheduled Commission hearing, and
2. the applicant will complete a mortar analysis to ensure the proper mortar is used for the repointing. The analysis should be shared with Historic Preservation Staff to verify this is completed prior to repointing beginning; and
3. the applicant will obtain all required permits.

ATTACHMENTS:

Attachment A – Application & Narrative for Certificate of Approval

Attachment B – Current Photographs

Attachment C – Historic Photographs

Attachment D – Elevation Drawings

Attachment E – Existing Site Map

Attachment F – Approved Site Plan

Attachment G – Excerpt from Historic Structure Assessment

Attachment H – Preservation Brief #2 Repointing Mortar Joints in Historic Masonry Buildings

Attachment I – Preservation Brief #13 Repair and Thermal Upgrading of Historic Steel Windows

Attachment J – Milgard Ultra C650 series window product information brochure



City of Greeley Community Development Department, Historic Preservation Office, 1100 10th Street, Greeley, CO 80631 970.350.9222
www.greeleygov.com/hp

APPLICATION FORM FOR CERTIFICATE OF APPROVAL
MAJOR ALTERATIONS

The City of Greeley's Historic Preservation Code, Section 24-1003 of the Municipal Code, requires that no exterior major alteration is permitted of any designated historic property or property within a designated historic district without a Certificate of Approval issued by the Historic Preservation Commission. **Please complete pages 5, 7, and 8 and add additional sheets as necessary.**

PROPERTY OWNER(S)

Name: Boys & Girls Clubs of Weld County
 Address: P.O. Box 812
Greeley, CO 80632
 Phone: 970.573.6729
 Cell phone: " "
 Email: tadams@bgcweld.org

**APPLICANT (if different
 From property owner)**

Name: same
 Address: _____
 Phone: _____
 Cell phone: _____
 Email: _____

HISTORIC PROPERTY

Name: Warnoco Skating Rink
 Address: 1407 2nd Street Greeley CO 80631
 Historic District (if applicable): n/a
 Legal Description: GR 5711 C LOTS 7 and 8 City of Greeley
County of Weld State of Colorado

Certification: I certify that the information and exhibits herewith submitted are true and correct to the best of my knowledge.

Applicant (Print): Terry Adams Telephone: 970.573.6729

Signature: _____ Date: _____

Property owner's signature required. If applicant is other than property owner, property owner approves of the applicant's proposed project.

Owner (Print): Terry Adams
Boys & Girls Clubs of Weld County Telephone: 970.573.6729

Signature: _____ Date: _____

Certificate of Approval Major Alterations
Greeley Historic Register

MAJOR ALTERATIONS CERTIFICATE OF APPROVAL SUBMITTAL CHECKLIST

Include all pertinent information identified on the following page(s), as well as special information requested by Historic Preservation Staff. Add additional sheets for narrative/information as necessary. Additional copies may be requested by Staff, if required for use by persons or groups providing advisory assistance. Submit this application and all required attachments through the City of Greeley website project module of eTRAKiT:

<http://greeleygov.com/services/etrakit>

The need for additional documents, as listed below, will be determined in a consultation with Historic Preservation Staff and may include:

ALTERATIONS

- ☐ Pre-application Conference (in person or phone) (not required) n/a
Date
- ☒ Application Form signed by applicant and owner (if different)
- ☒ For projects involving architectural drawings, one set 11"x17" (and larger if requested) scaled project drawing(s), including name, date, project address, north arrow, graphic scale, date of drawings, and name, address & phone of owner and designer (if drawings are needed); or
- ☒ Mock-Up of signs or awnings, as needed
- ☐ Product literature, if applicable, such as for window, roof projects, etc.
- ☐ If the proposal is for replacement of historic material, such as windows or siding, provide estimates from qualified contractors for repair and restoration and for replacement.
- ☒ Digital photos accurately representing existing materials, colors, and textures of each side of the building, site or structure to be affected. Date the photographs. Provide information about the view (such as view looking to the north), name of the photographer and about the subject of the photo.
- ☒ Narrative of the proposed project (please type or print legibly on a separate page) Please include responses to the following:
- a. What is the proposed project? Include detailed information about materials, design, measurements, location on the building or property.

The project is a comprehensive rehabilitation and adaptive re use of the Warnoco Skating Rink - a 1940s recreational building - into a teen center for the Boys & Girls Clubs of Weld County. The project will rehabilitate and replace roofing, all mechanicals, plumbing, and electrical utilities while preserving important historic elements such as windows, flooring, and arched wood ceiling beams in the interior, and original red brick masonry on the exterior.

b. Time constraints on the project/Project urgency?

The project is underway with completion proposed for late 2024.

- c. **Identify which design guidelines relate to the project. Explain how the proposed project meets the guidelines. Provide justification if the proposed project does not meet the guidelines.**

Guidelines are available for download on the City's historic preservation website,

<http://greeleygov.com/services/historic-preservation/documents>

General guidelines are relevant for individually designated properties. District guidelines are also available for properties located with Greeley Historic Register designated districts.

Contact the Historic Preservation Office at 970.350.9222 or elizabeth.kellums@greeleygov.com for more information or for assistance.

The project relates to the General Design Review Guidelines for the City of Greeley's historic structures in several ways, including:

- 1) **Appropriateness of Use** — The project will be returning the historic skating rink to a recreational use, serving as a teen center, with gathering spots, gymnasium, and other spaces and activities recreation related. While the guidelines don't concern interior changes, the Boys & Girls Club will be maintaining the vast, curved, wood-beam ceiling and using glass the top of the wall to partition the gymnasium without obstructing the ceiling.
- 2) **Preservation of original features** — The building's original footprint and distinctive curved beam roof will be maintained and rehabilitated. The brick exterior will be repaired and remain unpainted. Original steel windows will remain and be rehabilitated, and the new entrances on the east and west are designed to complement the historic facades and maintain the original curved roof. In the interior, much of the original wood floor will be rehabilitated, and the original south doors — long out of use — will be indicated on the interior wall, even though the new entrances move to the east and west.



City of Greeley Community Development Department, Historic Preservation Office, 1100 10th Street, Greeley, CO 80631 970.350.9222
www.greeleygov.com/hp

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PROPERTY OWNER(S)

Name: Boys & Girls Clubs of Weld County
Address: P.O. Box 812
Greeley, CO 80632
Phone: 970.573.6729
Cell phone: _____
Email: tadams@bgcweld.org

**APPLICANT (if different
From property owner)**

Name: Same
Address: _____
Phone: _____
Cell phone: _____
Email: _____

HISTORIC PROPERTY

Name: Warnaco Skating Rink
Address: 1407 2nd Street Greeley CO 80631
Historic District (if applicable): n/a
Legal Description: GR 5711 C Lots 7 and 8 City of Greeley
County of Weld State of Colorado

Certification: I certify that the information and exhibits herewith submitted are true and correct to the best of my knowledge.

Applicant (Print): Terry Adams Telephone: 970.573.6729
Signature: _____ Date: 7-28-23

Property owner's signature required. If applicant is other than property owner, property owner approves of the applicant's proposed project.

Owner (Print): Terry Adams Telephone: 970.573.6729
Signature: _____ Date: 7-29-23

Certificate of Approval Major Alterations
Greeley Historic Register

Page 5

Betsy Kellums

From: Terry Adams <tadams@bgcweld.org>
Sent: Friday, September 1, 2023 9:47 AM
To: Betsy Kellums
Subject: RE: scope of project for Historic Preservation Design Review
Attachments: redacted milguard windows.pdf

Hi Besty,

I checked in with our team on the conversation that has taken place since day one on this topic. A few notes on why the decision was made to replace the windows instead of rehabbing them that were shared with me are as follows:

- The r value on the current windows is nothing and would change the energy rating shown on drawings and long term would be a major thermal transfer for the club which would reflect on heating and cooling billing.
- To clean the frames and try to refinish them would take a significant amount of time for 2-3 people (at increased cost) as I can see several layers of paint and caulking on them.
- The windows are made to accept only 1/8" glass as they sit so we would have to modify them somehow to accept 1/4" glass as I do not think we could get building officials to allow 1/8" glass replacement and get a supplier to do the work.
- In the gym area I would be concerned to not have tempered glass with the teens playing basketball/volleyball in the gym and any other activities that would present a possibility of balls hitting glass.

I know they are doing all they can to replicate and protect the look and feel of what is there now. Please see the attached info on what is in the plan.

I hope this info is helpful!

Regards,

Terry

From: Betsy Kellums <Betsy.Kellums@Greeleygov.com>
Sent: Tuesday, August 29, 2023 2:55 PM
To: Terry Adams <tadams@bgcweld.org>
Subject: RE: scope of project for Historic Preservation Design Review

Can you/your contractor please provide some product information on the fiberglass windows? Is there any chance of talking you out of replacing the windows and rehabilitating the existing windows?



Elizabeth Kellums

Planner III – Historic Preservation
Community Development | Planning
1100 10th Street
Greeley, CO 80631
970-350-9222 | elizabeth.kellums@greeleygov.com
<http://greeleygov.com/>

From: Terry Adams <tadams@bgcweld.org>
Sent: Tuesday, August 29, 2023 2:14 PM
To: Betsy Kellums <Betsy.Kellums@Greeleygov.com>
Subject: FW: scope of project for Historic Preservation Design Review

Hey Betsy!

A few more details from our Contractor. I hope this is helpful!

Terry

From: Betsy Kellums <Betsy.Kellums@Greeleygov.com>
Sent: Monday, August 28, 2023 10:45 AM
To: Terry Adams <tadams@bgcweld.org>; Linde Thompson <linde.thompson3@gmail.com>
Subject: scope of project for Historic Preservation Design Review

Hi Terry and Linde,

I am working on my report for the design review project for Warnoco, HPDR2023-0004, and I just need clarification about the scope on the outside:

- Repoint masonry as needed, **Correct mainly on the upper section of walls and some of the corners.**
- Rehabilitate existing steel windows, **These are now going to be fiberglass windows that will have the same style but they will not be metal**
- Remove existing west entrance and replace with projecting storefront consisting of glass door with glass sidelights and transom with blue metal siding on each side of the storefront up to the storefront cover, a slanted roof between 15' and 17' high, **Yes**
- Create a projecting east entrance north of the existing east vestibule with a garage door and man door with blue metal siding and a slanted roof matching the west entrance, and **Yes**
- Finish east vestibule at the south end of the east elevation with vertical siding and a sloped roof. **This is the new riser room it has a flat roof to remain. It will have siding that we will paint. For now it is shown white but I wonder about going with something that matches brick a little better.**

Is the above list all correct and is there anything else on the exterior? From the approved elevation drawings from the Final signed Site Plan Review, it appears to be all. Is the roof replacement completed? From what I can tell in TRAKiT, the roof will be inspected today and if it passes, it should be finalized. The roof does not need to be reviewed as a part of this

project. Main building roof membrane is complete. We have not finished the trim (black metal parapet and edge of roof detail) as we do not want to damage it while doing grade work. South wall Parapet metal is done.

Please let me know as soon as possible!

Cordially,
Betsy



Elizabeth Kellums

Planner III – Historic Preservation
Community Development | Planning
1100 10th Street
Greeley, CO 80631
970-350-9222 | elizabeth.kellums@greeleygov.com
<http://greeleygov.com/>

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Warnoco Photos 8/4/23, by Betsy Kellums, GHPO



South façade, looking northwest



West façade, looking east-northeast



West façade looking north-northeast



North façade, looking southeast



East façade, looking west



Interior, looking north



Interior, looking south

Warnoco Historic Photos, Courtesy of City of Greeley Museums



2000.04.0003.2, City of Greeley Museums, Skeets Calvin Collection. Warnoco building, date unknown, photograph by Millard Darwin "Skeets" Calvin.



2000.04.0003.3, City of Greeley Museums, Skeets Calvin Collection. James Norcross, Jr., date unknown, photograph by Millard Darwin "Skeets" Calvin.



2000.04.0003.13, City of Greeley Museums, Skeets Calvin Collection. Warnoco building interior, date unknown, photograph by Millard Darwin "Skeets" Calvin.



2010.120.0002.1, City of Greeley Museums, Permanent Collection. Warnoco building interior, date unknown, photographer unknown.



1992.75.0330, City of Greeley Museums, Lew Dakan Collection. Warnoco Park and Island Grove Apartments aerial, February 22, 1978, photograph by Lew Dakan.



1992.75.0343, City of Greeley Museums, Lew Dakan Collection. Warnoco Park aerial, February 22, 1978, photograph by Lew Dakan.



1992.75.0344, City of Greeley Museums, Lew Dakan Collection. Warnoco Park aerial, February 22, 1978, photograph by Lew Dakan.

TEEN CENTER OF WELD COUNTY SITE PLAN
LOTS 7 AND PT8, GREELEY CITY SUBDIVISION,
CITY OF GREELEY, COUNTY OF WELD, STATE OF COLORADO
2.683 ACRES
PROJECT NUMBER: SPR2023-0011

TEEN CENTER OF
WELD COUNTY

SITE PLAN

TRANSPARENCY CALCULATIONS

BUILDING FACE	TOTAL TRANS. SF	TOTAL SF BUILDING FACE	PERCENTAGE
WEST	187 SF	4,200 SF	4.5%
SOUTH	426 SF	2,061 SF	20.7%
EAST	100 SF	4,200 SF	2.4%
NORTH	276 SF	1876 SF	14.7%

GREELEY, CO

PREPARED BY:

PLANNER / LANDSCAPE ARCHITECT

RIPLEY DESIGN INC.
Joel Weikert
419 Canyon Ave. Suite 200
Fort Collins, CO 80521
p. 970.224.5828

OWNER

Boys & Girls CLub of Weld County
Terry Adams
PO Box 812
Greeley, CO 80632
p. 970.573.6729

ARCHITECT

VAUGHT FRYE LARSON ARCHITECTS +
Interiors
Chris Aronson
419 Canyon Ave. Suite 200
Fort Collins, CO 80521
p. 970.224.1191

ENGINEER

Eric Wernsman P.E.
Eric Wernsman
16493 Essex Rd S.
Platteville, CO 80651
p. 970.539.2656

ORIGINAL SIZE 24X36

No.	DESCRIPTION	DATE
01	SITE PLAN	03/07/2023
02	RESUBMITTAL	04/25/2023
03	RESUBMITTAL	06/20/2023
04	FINAL PLANS	07/26/2023

REVISIONS

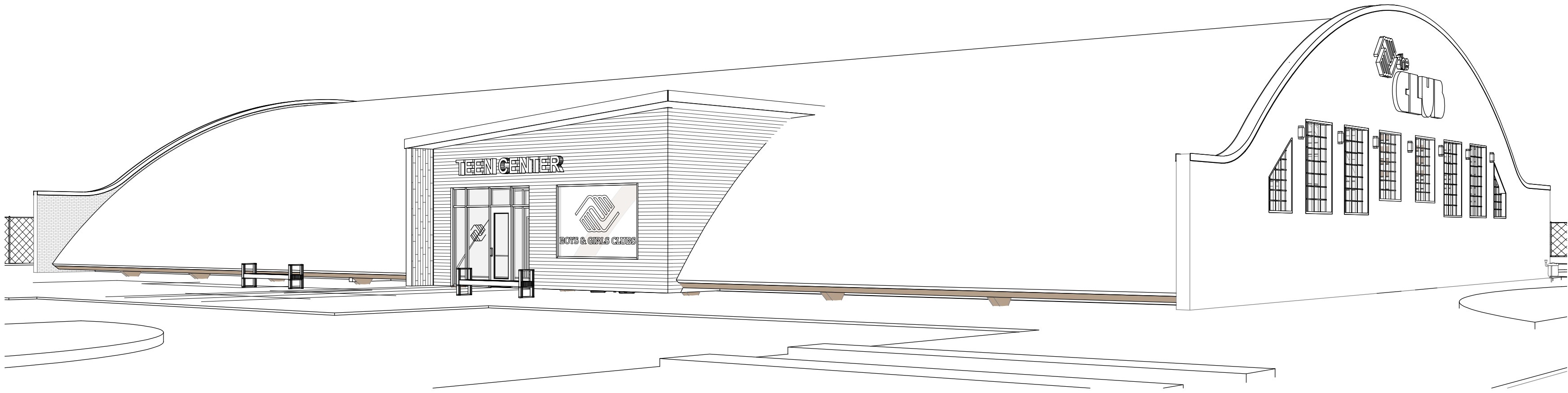
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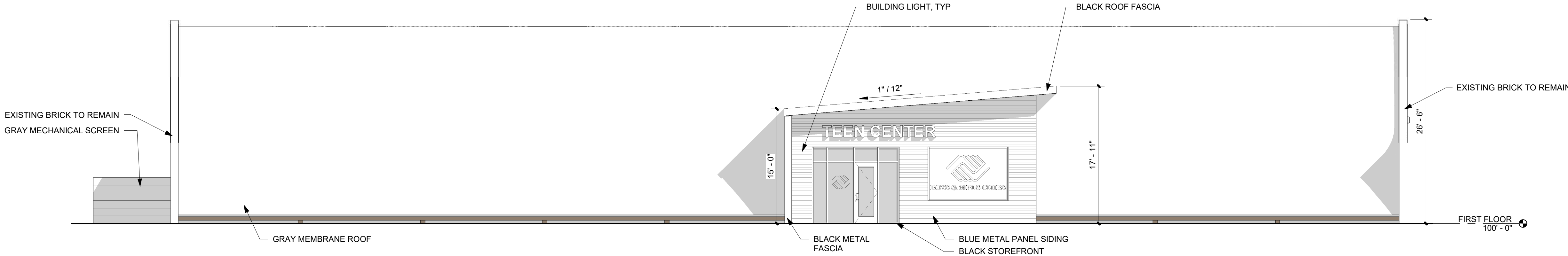
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DRAWINGS
NOT FOR
CONSTRUCTION

PROJECT No.:	R21-046
DRAWN BY:	EC
REVIEWED BY:	JW
DRAWING NUMBER:	

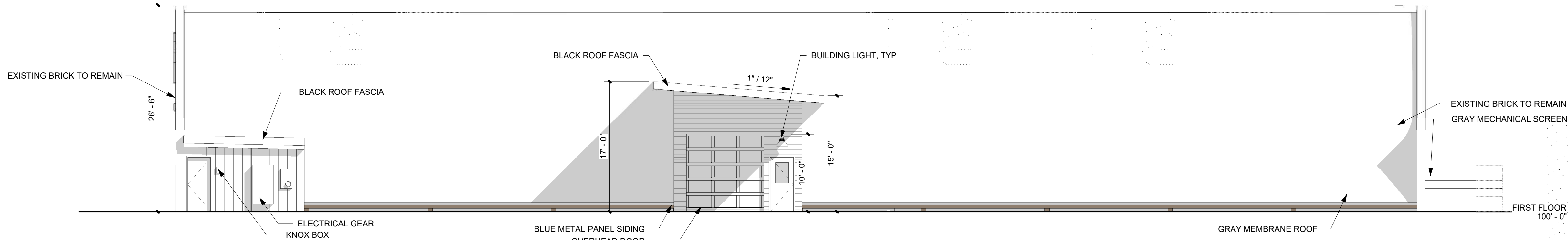
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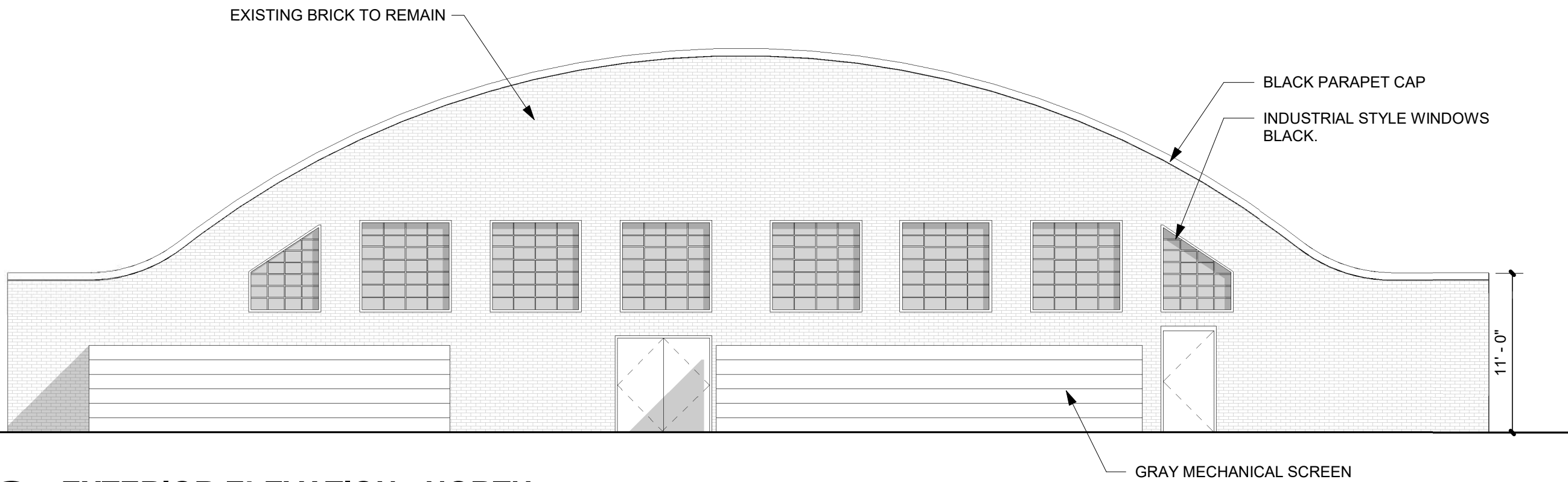
5 SOUTHWEST PERSPECTIVE FACING BUILDING ENTRANCE
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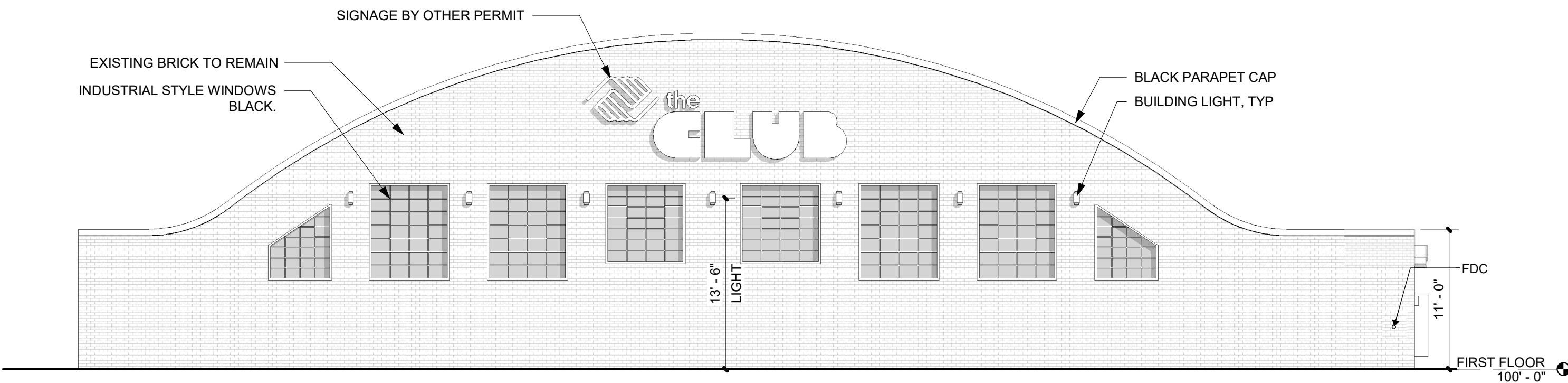
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SCALE: 1/8" = 1'-0"



4 EXTERIOR ELEVATION - EAST
SCALE: 1/8" = 1'-0"



1 EXTERIOR ELEVATION - NORTH
SCALE: 1/8" = 1'-0"



3 EXTERIOR ELEVATION - SOUTH
SCALE: 1/8" = 1'-0"

1407 2nd Street Vicinity Map

Attachment E



Legend

-  Subject Site
-  Greeley Parcels

TEEN CENTER OF WELD COUNTY SITE PLAN
LOTS 7 AND PT8, GREELEY CITY SUBDIVISION,
CITY OF GREELEY, COUNTY OF WELD, STATE OF COLORADO
2.683 ACRES
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TEEN CENTER OF
WELD COUNTY

SITE PLAN

GREELEY, CO
PREPARED BY:



PLANNER / LANDSCAPE ARCHITECT

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OWNER

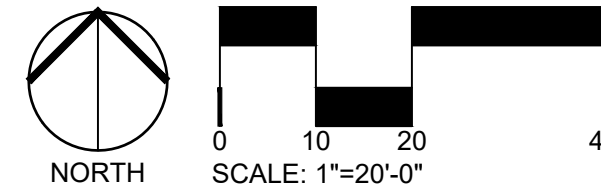
Boys & Girls Club of Weld County
Terry Adams
PO Box 812
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ARCHITECT

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ORIGINAL SIZE 24X36

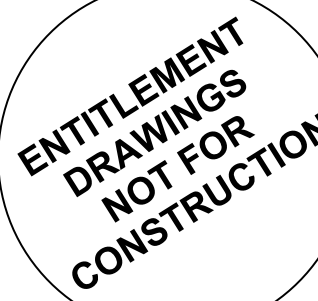
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No.	DESCRIPTION	DATE
01	SITE PLAN	03/07/2023
02	RESUBMITTAL	04/25/2023
03	RESUBMITTAL	06/20/2023
04	FINAL PLANS	07/26/2023

REVISIONS

No.	DESCRIPTION	DATE

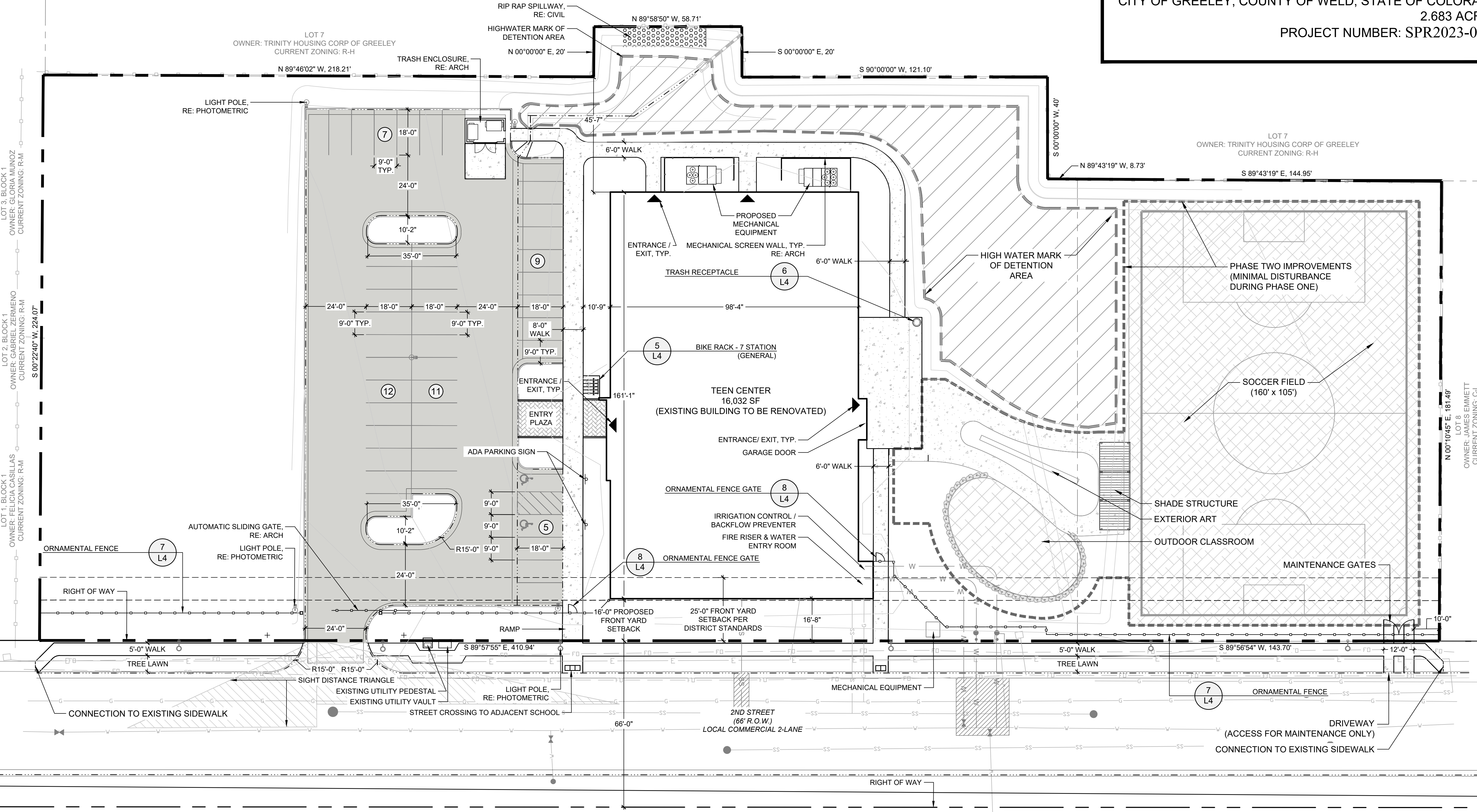
SITE PLAN

SEAL:



PROJECT No.:	R21-046
DRAWN BY:	EC
REVIEWED BY:	JW
DRAWING NUMBER:	

L1



LEGEND

--- = PROPERTY BOUNDARY

--- = LOT LINE

--- = EASEMENT LINE

--- = SETBACK

--- = RIGHT OF WAY

--- = UNDER DRAIN

--- = STORMWATER UTILITY

--- = WATER UTILITY

--- = GAS UTILITY

--- = SANITARY SEWER UTILITY

--- = ELECTRIC UTILITY

--- = PROPOSED FENCE

--- = PROPOSED SITE LIGHT

--- = EXISTING SANITARY SEWER

--- = EXISTING GAS LINE

--- = EXISTING ELECTRIC LINE

--- = EXISTING WATER LINE

--- = EXISTING FIBER OPTIC LINE

--- = EXISTING FENCE

CONCRETE

PAVERS

SYNTHETIC TURF

DRIVES AND PARKING

DRAFT



Warnoco Building

**Historic Structure Assessment
1948 Skating Rink Building**

Greeley, Colorado
September 2009

ALLER • LINGLE • MASSEY

ARCHITECTS

P.C.



**WARNOCO BUILDING
HISTORIC STRUCTURE ASSESSMENT**

**1407 2nd Street
Greeley, Colorado**

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Executive Summary

The Warnoco Building is part of a large multi-building recreational complex, which includes the 1948 brick rink with cinder block addition, attached to the original 1921 building and associated additions. The 1948 building is in good structural condition and fair architectural condition, maintaining much of its contributing exterior and interior historic integrity. Many of the original materials, details, finishes and other historic fabric remain intact. The building was in continuous use as a roller skating rink or other recreational use from its construction in 1948 until it was closed around 1999-2000. Due to its direct association with the Norcross family and the general recreational history of its uses in Greeley, the 1948 Warnoco Building is an excellent candidate worthy of historic preservation and appropriate adaptive reuse in its current location.

This report is based upon field observations and field measurements made on August 13, 2009, but without the benefit of selective demolition to verify some of the structural assumptions that will follow. The findings contained in this Historic Structure Assessment report will cover the 1948 building and post 1948 addition to the north. An attached 1921 building represents the initial construction of the site, to which the rink was added in 1948. The 1921 building and associated additions have been condemned by the City of Greeley Building Department and will be demolished after appropriate historical documentation is completed.

The following is a summary of results based upon our research, field observations and assessment of the structure:

Landmark Status: The 1948 Warnoco Building is currently not listed on the National, State or Local Register, but has been determined officially eligible for the National Register and is eligible for the Greeley Historic Register. The concrete block masonry addition constructed in post 1948 is not yet eligible for designation, and may not be contributing to the historic eligibility of the 1948 rink building.

History: The Warnoco Building is an important structure in the recreational history of Greeley. Built in 1948, the Warnoco Building was at one time part of Sall's Amusement Gardens, Warnoco Park, and the Warnoco Sports Center. Owned by the Norcross family for most of its history, the facility has been used as a skating rink, summer dance hall with live music, outdoor summer wrestling arena, indoor soccer arena, hockey, in-line roller-skating, boxing and indoor volleyball. The facility enjoyed a long history as a recreation and entertainment center in Greeley until it closed in 1999-2000.

Architectural Significance: The 1948 brick portion of the Warnoco Building discussed in this HSA derives its historical distinction primarily because it maintains the highest level of original physical and architectural integrity and significance for the site, and the importance of the Norcross family ownership of the 10-acre site until 2002. The architectural style and characteristics are also significant in the representation of a typical skating rink structure of the time, seen all over the United States. These defining characteristics include the bow-arched roof that creates the open interior space, the curved wood plank flooring and built-in benches, the large steel sash windows, and the brick masonry that follows the curved shape of the roof behind.

Use: The Warnoco facility is presently vacant and has been since the doors were closed in 1999-2000. The entire facility was used as a recreational and entertainment facility since its initial construction in 1921. However, the 1948 portion of the Warnoco facility that is part of this HSA was used originally as a roller-skating rink until 1980, when it was then used for an indoor hockey and in-line skating rink. The addition to the north was used as a boxing arena and had an area for a dressing room used during the roller-derby competitions.

Assessment: The property was purchased by the Greeley Urban Renewal Authority (GURA) in 2002 with the intent of facilitating an adaptive reuse of the property that would compliment the neighborhood and community. The HSA was undertaken to help provide structural and architectural information to potential purchasers / developers of the site. Hopefully, a future user would be able to preserve and restore the exterior

of the 1948 building as closely as possible to its original condition and appearance, as well as to address other items throughout the building that are in need of attention. It is felt that the 1948 portion of the Warnoco facility represents most of the significance of the site and the additional structures on the site could be removed as long as it does not adversely affect the remaining skating rink structure. These efforts will be undertaken with sensitivity to the building's historic materials, design and appearance. Redevelopment elements of the project would ideally, gravitate toward completing the rehabilitation or adaptive reuse of the 1948 Warnoco Building with the intent of protecting its historic integrity.

Condition Assessment: The 1948 portion of the Warnoco Building is in good structural and fair architectural condition. Much of the original, character-defining exterior and interior materials, details, and finishes are evident, but are in fair and deteriorating condition.

- **Site:** The site is underdeveloped and retains only some of its original historic context. The 1948 skating rink building and its attached storage addition is part of a large facility that includes the original 1921 skating rink and several smaller additions. There is considerable trash and debris around the site and the existing sidewalks are badly cracked and in poor condition. Any redevelopment or adaptive reuse will require full redevelopment of site improvements and landscaping.
- **Foundations:** The reinforced concrete foundations and thrust block buttress foundations are structurally sound, but exhibit some deterioration from moisture penetration that require repairs.
- **Building Structural System:** The 1948 structure is load-bearing multi-wythe brick with arched glue-laminated wood girders and wood purlins. The building's structural frame is sound, although some repairs are required.
- **Building Envelope - Exterior Walls:** The exterior walls are primarily exposed brick and cinderblock and are in fair condition; however, they exhibit ongoing deterioration from weather exposure requiring repairs and repointing of joints, particularly at the parapets and the north storage addition walls.
- **Building Envelope - Roofing and Waterproofing:** The roofing is a combination of fiberglass shingles and rolled asphaltic roofing that are both in poor condition. The roofing systems should be replaced. The wood fascias and trim boards are in poor condition and need repair or replacement. New roof insulation should be added to the roof assembly as part of the reroofing.
- **Windows and Doors:** The original steel sash style windows are in good condition and should be retained, with only some minor repairs needed. The exterior doors are in poor condition due to vandalism and severe weathering, and will probably require full replacement in kind. The interior doors are mostly in good condition with the exception of the missing dressing room door.
- **Interior Finishes:** Most of the interior finishes are intact and in fair condition; however, the ceiling tiles are in poor condition with large areas of deterioration from earlier moisture damage that will require repairs and replacement. Also a few areas of wall and floor repairs are needed.
- **Mechanical Systems:** The existing unit heaters are all functional and intact and there seems to be adequate ventilation for the building's current use. The evaporative coolers are functioning, but will need a new water line to feed them if they are retained.

There are no existing restrooms in the 1948 skating rink building. New restrooms will have to be constructed and associated plumbing installed if the building is to stand alone in any adaptive reuse development.

- **Electrical Systems:** The existing electrical system is in compliance with current codes, with a few

significant exceptions. After the demolition of the original attached building to the east, some electrical systems will need to be relocated in order to maintain functionality and the emergency systems modified to meet current codes.

- **Hazardous Materials:** Hazardous materials are possibly present in the ceiling tiles and lead-based paint, as it is not uncommon in buildings of this age. Further testing and abatement is recommended.
- **Accessibility Compliance:** The 1948 Warnoco Building is accessible through the south entry, but does not meet code on the west and north of the building. The north entry ramp will need to be reconstructed with a code-compliant slope and handrails.

Introduction

1.1 Research Background/Participants

The purpose of this project is to provide an Historic Structure Assessment (HSA) of the 1948 portion of the Warnoco Building and its immediate site. All future adaptive reuse, rehabilitation and preservation work should consider the recommendations of this HSA report. This assessment has been completed using the procedures and methods as established by the Colorado Historical Society (CHS), State Historical Fund (SHF), consistent with the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.

This document provides an examination of the 1948 structure and includes a status or rating of each of its physical features and elements. An itemized course of action needed to correct any deficiencies has been created. From this work, the initial preservation strategies and priorities for stabilization and rehabilitation of the structure have been developed.

Ultimately, this HSA report is intended to assist the Greeley Urban Renewal Authority and any potential developers of the property in the development of a comprehensive Master Plan for preservation of the site and building.

Research on the history of the Warnoco Building was conducted by members of the City of Greeley historic preservation staff, using information including local newspapers, City building permit records and various oral interviews with local residents. A list of resources is included in the Technical Literature References section at the end of this report.

This Historic Structure Assessment was completed by Aller•Lingle•Massey Architects P.C. after an initial on-site consultation with Betsy Kellums, historic preservation specialist, and J.R. Salas and Rick George of the Greeley Urban Renewal Authority, to review the intent of the project. The initial consultation was followed by the collection of information regarding existing site and building conditions, and available documented information regarding the property.

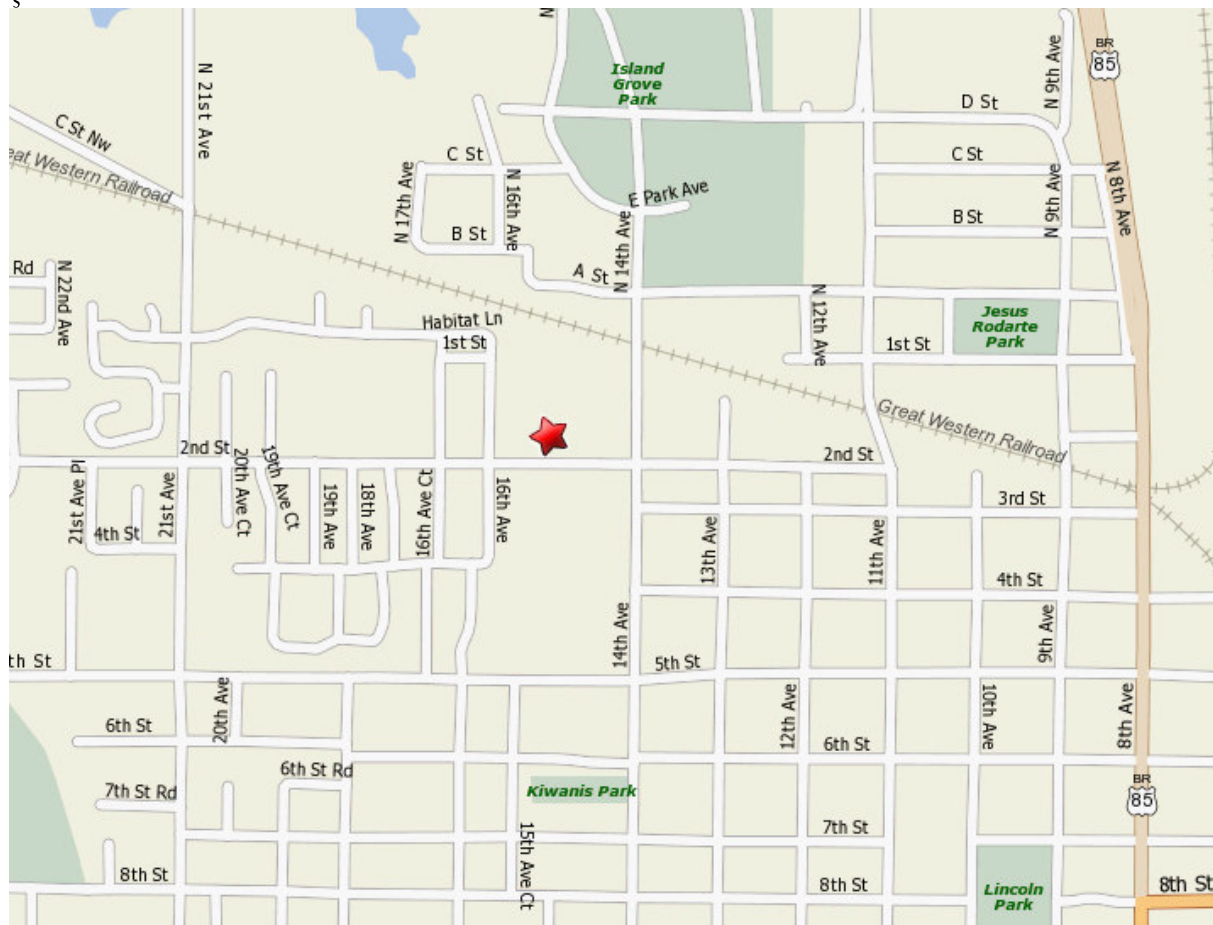
Support in assessing the existing conditions and writing the report was provided by Eric Moe, P.E., structural engineer; William Faryna, mechanical engineer; and Electrical Systems Consultants, electrical engineers. The Aller•Lingle•Massey Architects P.C. team visited the site and completed thorough inspections of all building systems on August 13, 2009, completed field measurements of the building and took digital photographs of historic elements and relevant character-defining materials and features. Weather was overcast throughout the day and windy in the afternoon, with temperatures ranging from 70° to 80°.

The analysis and recommended treatments for each element and/or feature have been defined within the context of the selected treatment approaches defined in Section 1.3, including:

- Preservation
- Rehabilitation
- Restoration
- Reconstruction

The HSA findings are provided to direct any future adaptive reuse design and preparation of construction documents, and to consider the future welfare of the building as an integral part of the redevelopment of the Warnoco property.

1.2 Vicinity Map



Legal Description

The legal description for the Warnoco Building is GR 5711-C Lots 7 and 8, City of Greeley, County of Weld, State of Colorado. The building is located on the north side of 2nd Street between 14th Ave. and 16th Ave. The street address is 1407 2nd Street.

1.3 *Assessment Criteria*

After evaluation in the field, each feature and element has been assessed to determine the appropriate course of action based upon its significance or importance to the property and its existing condition. Recommendations included in this report are based upon the Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*, as follows:

Preservation

Preservation places a high premium on the retention of all historic fabric through conservation, maintenance and repair. It reflects a building's continuum over time, through successive occupancies and the respectful changes and alterations that are made.

Rehabilitation

Rehabilitation emphasizes the retention and repair of historic materials, but more latitude is provided for replacement because it assumes that the property has suffered more deterioration prior to work. Rehabilitation allows for an efficient contemporary use through alterations and additions.

Both Preservation and Rehabilitation standards focus attention on the preservation of those materials, features, finishes, spaces and spatial relationships that, together, give a property its historic character.

Restoration

Restoration focuses on the retention of materials from the most significant time in a property's history, while permitting the removal of materials from other periods.

Reconstruction

Reconstruction establishes limited opportunities to "recreate" a non-surviving site landscape, building, or missing feature or element in new materials.

The Secretary of the Interior's *Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* notes in its introduction that in Rehabilitation, "historic building materials and character-defining features are protected and maintained as they are in the treatment Preservation; however, an assumption is made prior to work that existing historical fabric has become damaged or deteriorated over time and, as a result, more repair and replacement may be required." In giving this latitude, the *Guidelines for Rehabilitation* includes the following hierarchal methodology:

1. ***Identify, Retain and Preserve Historic Materials and Features***

Similar to Preservation, it is essential that during any rehabilitation that recommendations "identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained in order to preserve the character."

2. ***Protect and Maintain Historic Materials and Features***

After identifying those materials and features that "are important and must be retained in the process of Rehabilitation work," their protection (i.e., "generally involves the least degree of intervention") and maintenance is addressed.

3. ***Repair Historic Materials and Features***

When the physical condition of "character-defining materials and features warrant

additional work," repair is the next recommendation.

4. ***Replace Deteriorated Historic Materials and Features***

Rehabilitation guidance is provided for replacing features because the level of deterioration or damage precludes repair. While replacement of extensively deteriorated character-defining features may be considered, removal should not be recommended if the material or feature "could reasonably be repaired and thus preserved."

5. ***Design for the Replacement of Missing Historic Features***

If an entire feature is missing, one that has important architectural significance, then the Rehabilitation guidelines allow for its replacement when adequate historical documentation allows the replaced or new design to take into account the "size, scale and materials of the historic building, and most importantly differentiated so that a false historical appearance is not created."

6. ***Alterations/Additions for the New Use***

Continued use of a structure often requires alterations, additions and/or adaptive reuse. In these cases, the Rehabilitation guidelines provide that new additions should be avoided and considered "only after it is determined that those needs cannot be met by altering secondary" features or spaces. If required, then additions and alterations should be "clearly differentiated from the historic building and so that the character-defining features are not radically changed, obscured, damaged or destroyed."

2.0 History and Use

2.1 Construction History and Architectural Significance

Historical Background

The 1883 Norcross House and the adjoining property known as Warnoco Park, located at 1403 - 1407 2nd Street, are prominently associated with Greeley's recreational history. Houghton & McElroy built the house with nine rooms for J.L. Barrett, a fruit farmer, for approximately \$9,000. In 1902, Barrett's widow sold the property to the Erlon C. Billings family, who owned the house and adjoining property from 1902 until they sold it to Clarence Sall in 1918. According to Marvin Billings, "Buffalo Bill" Cody, a friend of the family, visited them in the house when he was in town with his Wild West Show. Clarence Sall purchased the house and surrounding property and created Sall's Amusement Gardens on the adjacent property to the west. An indoor roller skating rink, swimming pool and merry-go-round were included in the park. Sall sold the property to the Barrett Brothers, who leased the property to J. Warrick (J.W.) Norcross.

J.W. Norcross purchased the property in 1935 from the Barretts. He was the son of Fred Norcross, who was a State Representative and Colorado Senator, worked for the C & S Railroad, managed the Camfield Hotel, and was associated with the Home Gas and Electric Company for many years. Fred Norcross and his sister Grace Norcross Allen, a well-known Greeley writer, were two of the five children of William Robert (W.R.) Norcross, who with his wife Mary Emma, moved the Norcross family to settle in Greeley in 1870 with the Union Colony. W.R. had served in the Union Army during the Civil War. He worked as a carpenter building houses in early Greeley.

After purchasing the property at 1403 - 1407 2nd Street from Clarence Sall, J.W. Norcross held a contest to re-name the facility to the west and the winning entry was "Warnoco" - a combination of his middle and last names. By 1937, the property was known as Warnoco Park.

During the late 1920s and 1930s, the skating rink was used for dancing during the summers; bands of the era, including Lawrence Welk's 5-piece band, played there during the summer, after first playing at Elitch Gardens in Denver. An ad in the evening edition of the *Greeley Tribune* on October 22, 1928 noted the "grand opening of the roller-skating season would be held on Tuesday, October 23, 1928." Wrestling matches were also held in the outdoor arena during the summer. J.W. Norcross owned and operated the recreational area and amusement park for over 55 years. The amusement park once also contained a dance hall and outdoor arena.

In 1948, J.W. Norcross added a larger rink attached to the west, measuring 160' x 80,' with a curved, hardwood skating surface. The swimming pool was filled-in prior to 1962 and the original dressing rooms and repair shop/garage were demolished after 1982. The rink continued operation, although it declined after 1980, when the Norcross family opened the new Warnoco West skating rink. In 1996, skating was discontinued at Warnoco (North) and the facility was operated for several years as Warnoco Sports Center, offering indoor soccer, hockey, in-line roller-skating, boxing and indoor volleyball. The facility had enjoyed a long history as a recreation and entertainment center in Greeley until it closed in 1999-2000.

The Rocky Mountain Skating Championships were hosted at Warnoco and J.W. was inducted into the Roller-Skating Hall of Fame, who, along with wife Marilyn, taught many local skaters. The Norcross family members were also significant civic leaders. J. W. Norcross helped initiate the Greeley Independence Stampede in 1922 and served as Parade Marshall in 1972.

The Greeley Historic Preservation Commission designated the Norcross house on the Greeley Historic Register in May 1997 for historical, architectural and geographical significance. The Warnoco Building is currently not listed on the National, State or Local Register, but was determined officially eligible for the National Register and is eligible for the Greeley Historic Register.

Architectural Significance

Warnoco was a recreation and entertainment venue from 1921, when it first opened, until 1996, when its use as a roller skating rink ended. However, it continued to be used as a sports center, offering indoor soccer, hockey, in-line roller-skating, boxing, and indoor volleyball until approximately 1999-2000 when it was officially closed. The site has been primarily associated with roller skating from its beginning, although there were other recreation-related activities such as swimming and dancing at the site.

This 20th Century commercial recreational building consists of seven sections, built between 1921 and sometime after 1962. The original 143'-0" long by 41'-0" wide stucco over concrete block building with clipped gable roof and exposed rafter ends and asphalt shingle roofing, was constructed in 1921 and include the original, smaller roller-skating rink/dance hall, a lobby area and a snack bar several feet north of the lobby area, known for these purposes as Additions 1, 3 and 4 (based on the 1927 Sanborn Map). Additions 1 and 3 make up the original, earliest portions of the structure. The north wall of the original building was condemned by the City of Greeley's Chief Building Official in July 2009. A flat, wooden sign painted with "Warnoco" existed over the door, but has since been removed (retrieved by the Norcross family in 2008-2009.)

The 1927 Sanborn map shows another structure east of the swimming pool on the east side of the property, near the Norcross house at 1403 2nd Street, which included a repair shop, dressing rooms and a smaller swimming pool that were demolished at some time after 1982. The 1946 Sanborn map shows the same structure with a bottling works, dressing rooms and an unknown use, and the smaller rectangular structure near the southeast corner of the swimming pool is gone. The original swimming pool and a small wading pool on the site were filled in prior to 1962 and an outdoor shower area was also removed prior to 1962. A wood framed pump house approximately 10'-0" by 10'-0" with front-gabled roof, was located to the northeast of the original 1921 building, and used to fill the swimming pool from a well that originally existed on the site. The pump house has since been demolished, but the existing well still remains.

Between 1927 and December of 1962, Addition 2, a 17'-0" long by 27'-0" wide stucco over cinder block building with flat roof, was constructed attached to the original 1921 building to the east, which housed restrooms. Addition 4 is a 10'-0" wide by 33'-0" long wood framed structure with wood siding finish and a front-gabled roof that is attached to the north portion of addition 2 and was built for use as a snack bar.

On the 1946 map, the original portion on the west side of the lot, west of the swimming pool, remains with the snack bar attached to the main building. In 1948, the single story, 162'-0" long by 93'-0" wide, brick and cinder block roller skating rink with a 25'-0" height at its peak, was constructed (Addition 6). Locally, the 1948 brick portion of this structure is the recognized "landmark" of this site, and it is this addition that maintains the greatest amount of integrity and significance for the site, with Norcross family ownership of the 10-acre site until 2002. The addition of the new, larger rink with a curved hardwood floor, came to "overshadow" the original, smaller rink and is the portion of the complex that retains the highest level of original

physical and architectural integrity. On the south facade, the original flat metal lettered sign spelling “Roller Skating” still exists on the sign band with remnants of several neon lights illuminating it.

Addition 7 constructed after 1948 is a 47’-0” wide by 63’-0” long cinder block structure with a flat roof that is attached to the north facade of the 1948 rink building and was used as a dressing room and storage area. Addition 5 constructed after 1962 is a 31’-0” long by 13’-0” wide wood framed structure with wood siding and a shed roof constructed between Additions 4 and 1 and used as a repair and storage shop.

2.2 *Proposed Program*

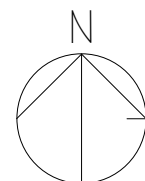
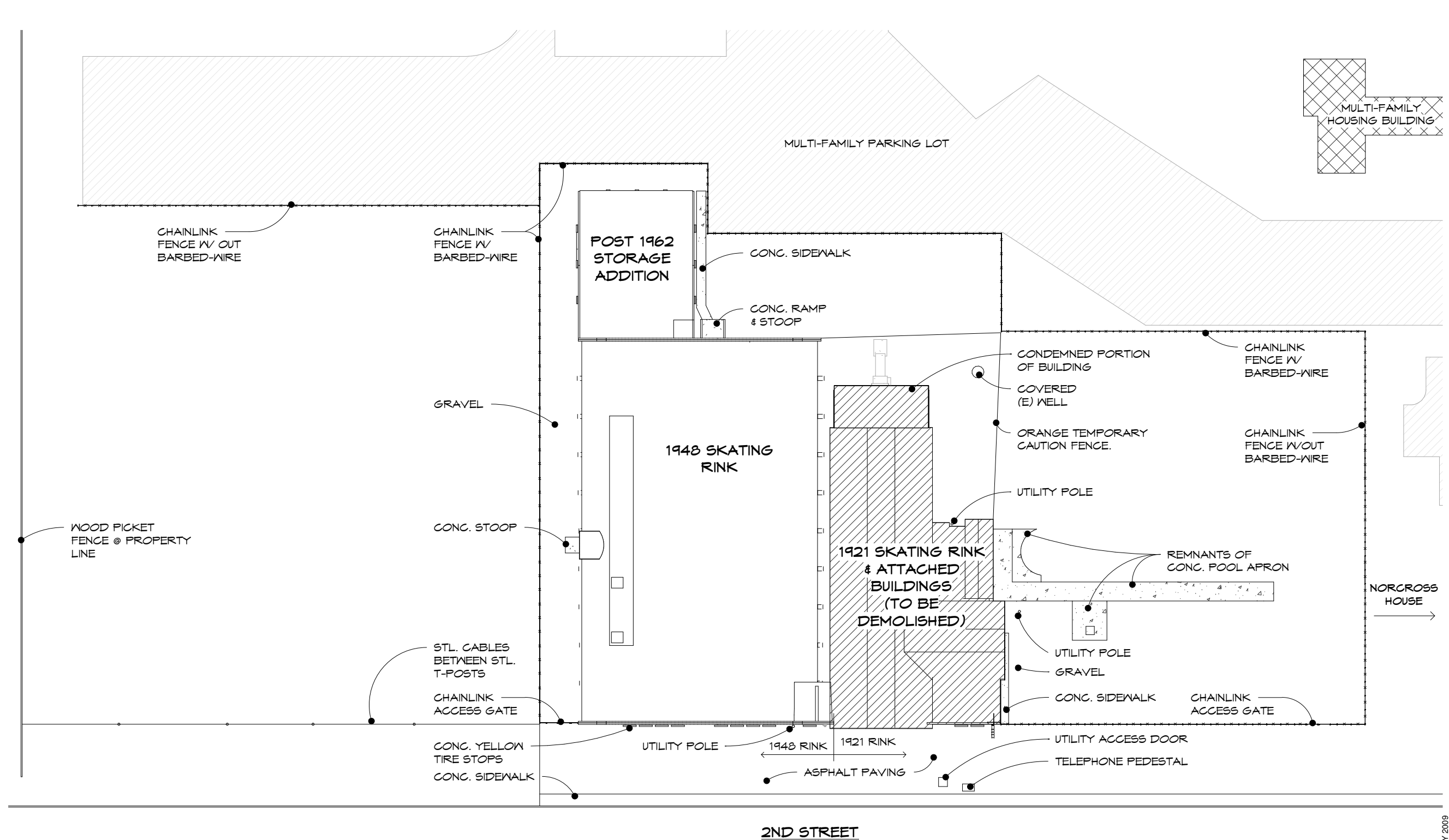
In general, the 1948 Warnoco Building remains in good condition, due both to the quality of its original design and construction, and to the attention paid to its ongoing use and maintenance.

However, after over 60 years of use and exposure to the elements, the facility is suffering from a variety of ailments that require attention at this time. Restoration and rehabilitation efforts need to be undertaken in the near future to address these issues and to prevent additional damage from occurring, preserving this important community landmark for another century of use. The use of the building could continue to function as a recreational facility, although it has been restricted from being used as a public skating rink.

This report provides a detailed picture of the current condition of the building, addressing particular areas and elements of concern. While some of these items are related to age and use, others are the result of weathering. In addition to describing these conditions, the Historic Structure Assessment provides recommendations for rehabilitation or restoration along with associated priorities and costs. This is done with the goal of providing in-depth analysis geared toward the eventual adaptive reuse and rehabilitation of the building using appropriate historic preservation methods.

The intent of any rehabilitation project should be to preserve and restore the exterior of the 1948 building as closely as possible to its original condition and appearance, while adaptively redesigning the interior space to support an appropriate redevelopment of the entire property.

While some introduction of interior walls may be inevitable, any adaptive reuse is encouraged to retain as much of the soaring interior space and character of the original glue-laminated arch roof as possible. Rehabilitation efforts should demonstrate sensitivity to the building’s historic materials, design and appearance. All elements of the project should gravitate toward completing the rehabilitation of the 1948 Warnoco Building with the intent of protecting its historic integrity.



SITE PLAN

SCALE: 1" = 40'-0"

WARNOCO BUILDING HISTORIC STRUCTURE ASSESSMENT GREELEY, COLORADO

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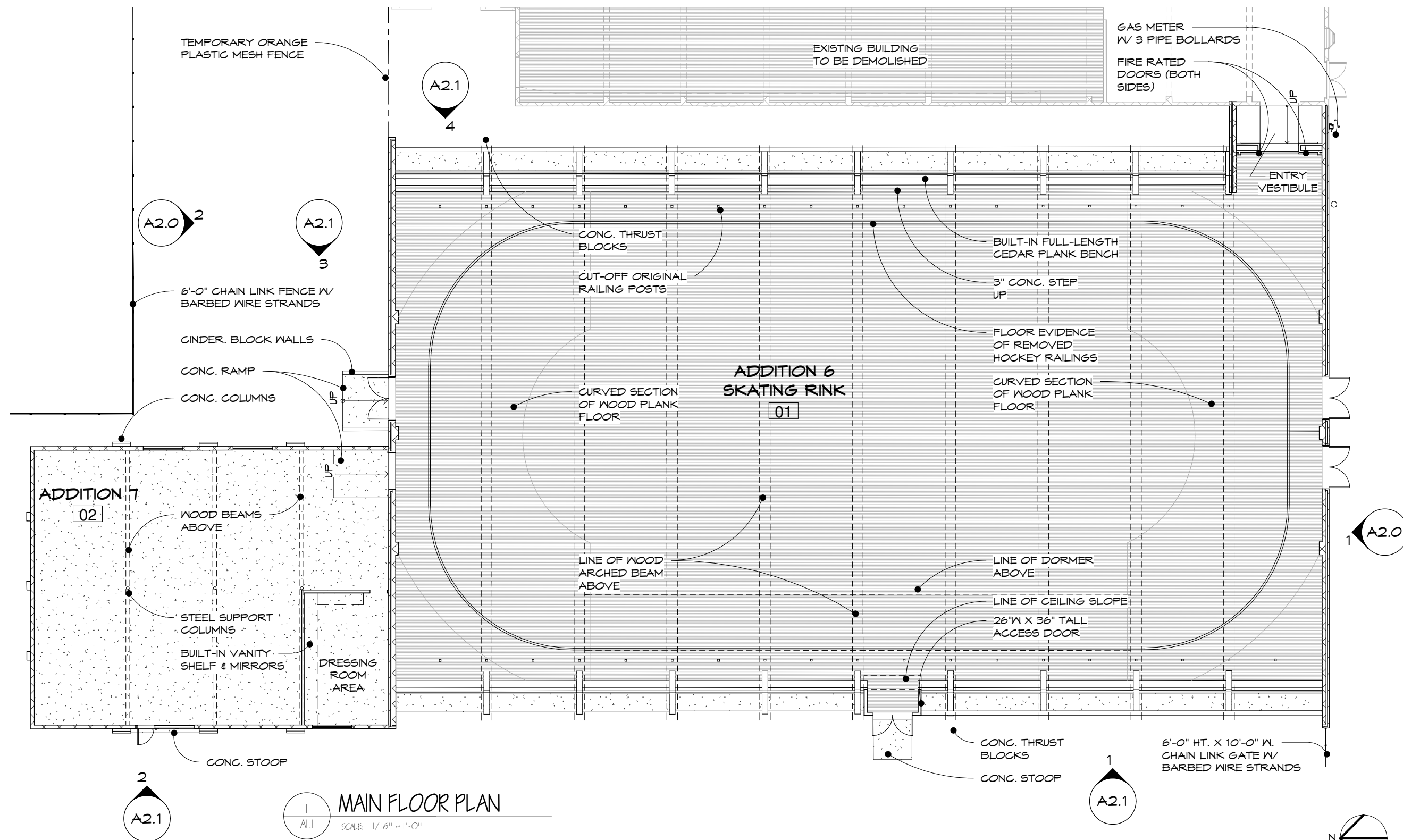
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FIRST FLOOR PLAN

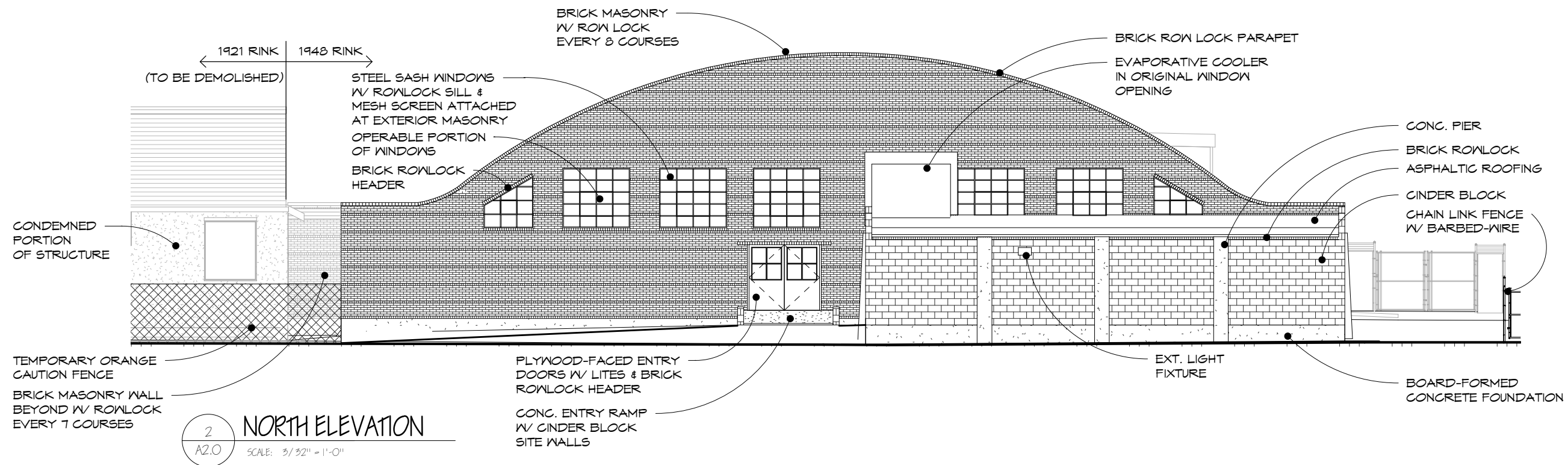
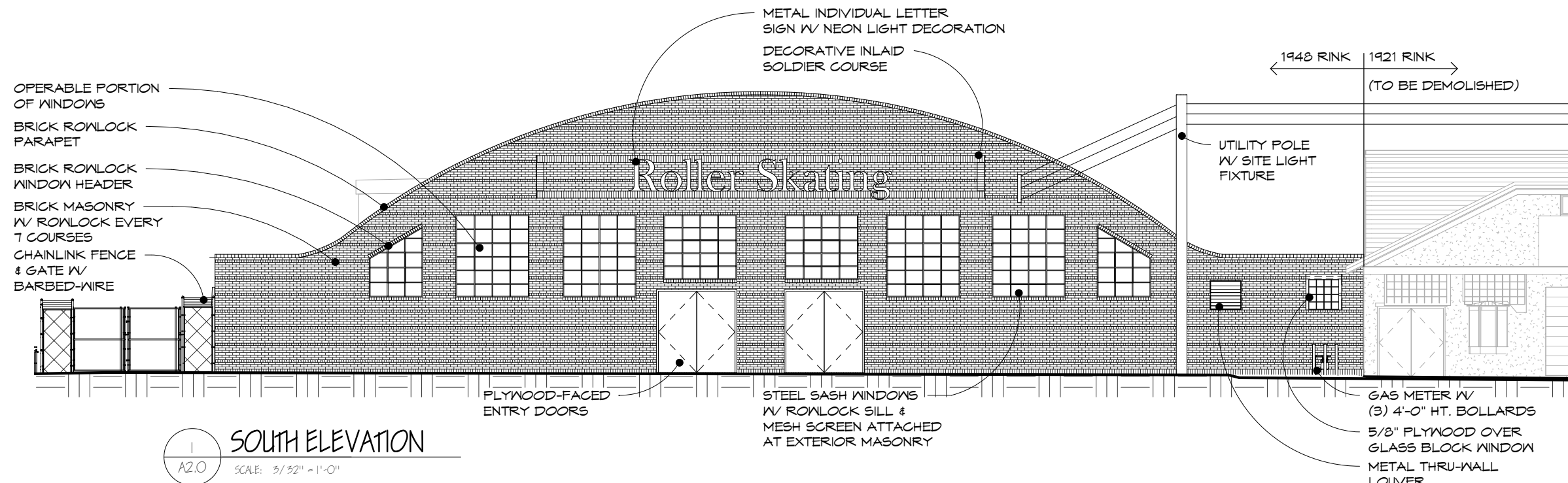
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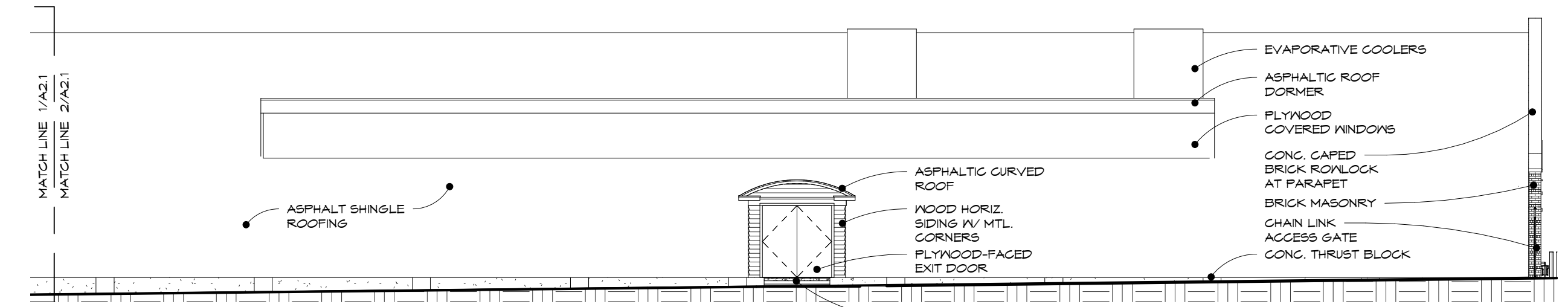
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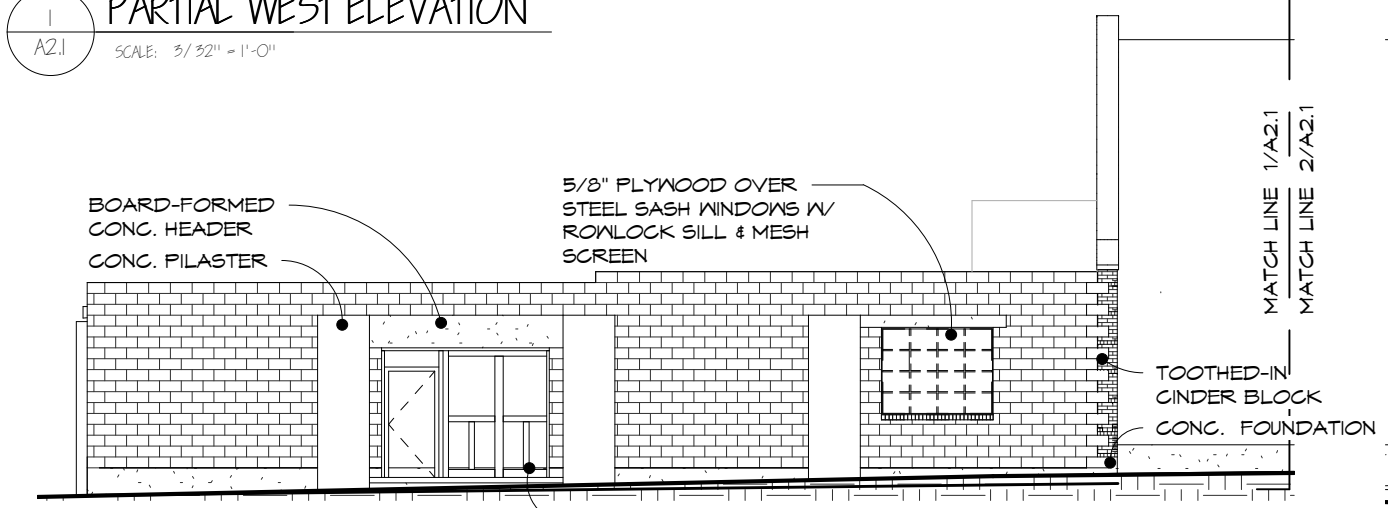
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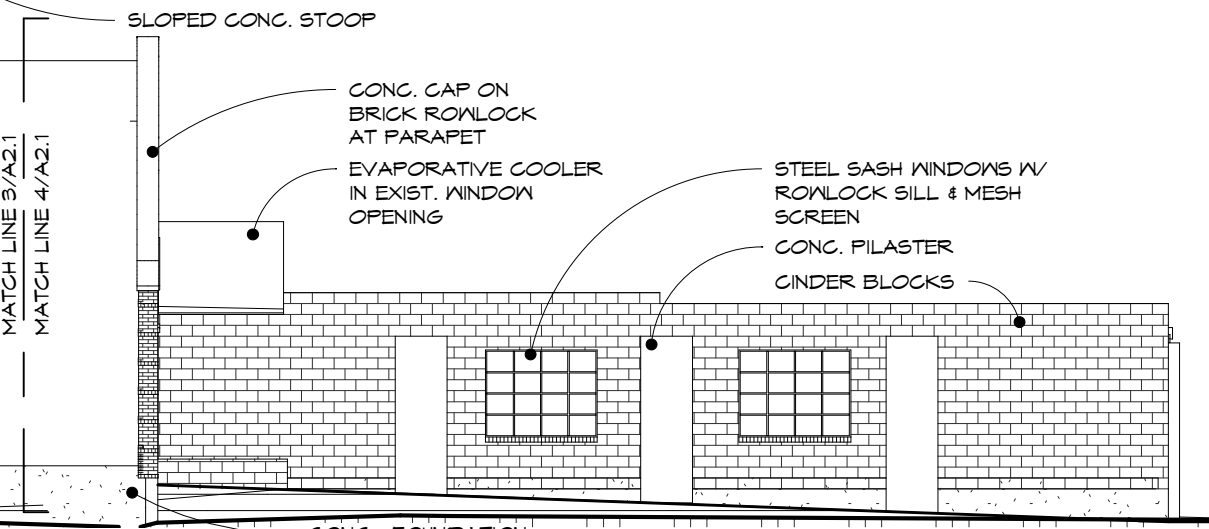
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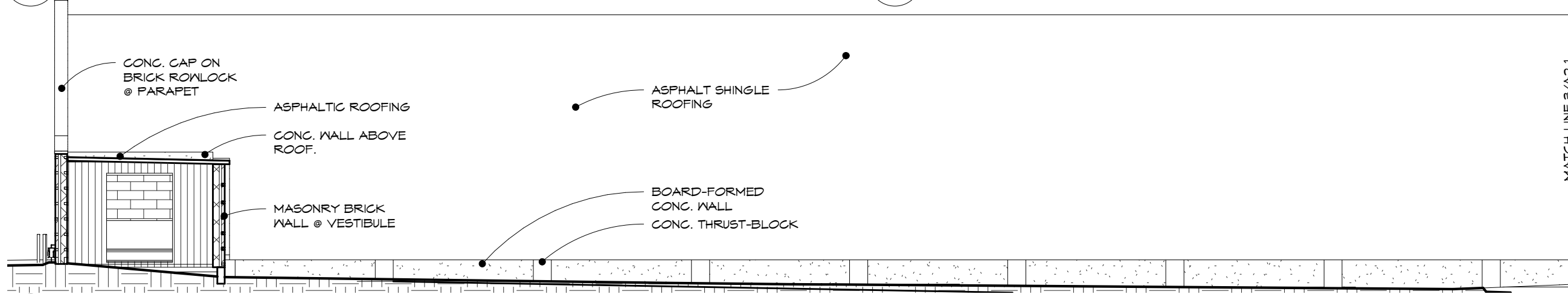
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PARTIAL WEST ELEVATION
SCALE: 3/32" = 1'-0"



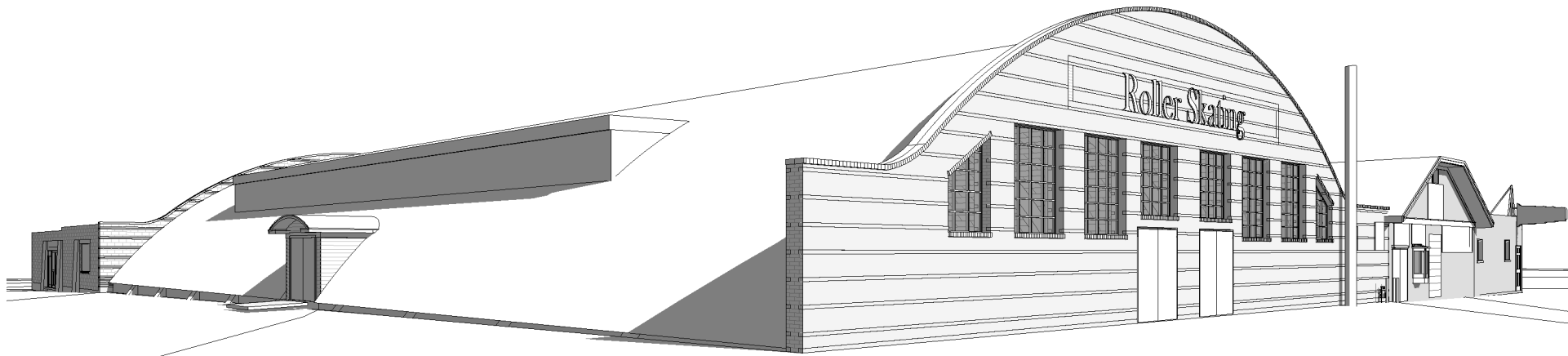
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PARTIAL WEST ELEVATION
SCALE: 3/32" = 1'-0"



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PARTIAL EAST ELEVATION
SCALE: 3/32" = 1'-0"



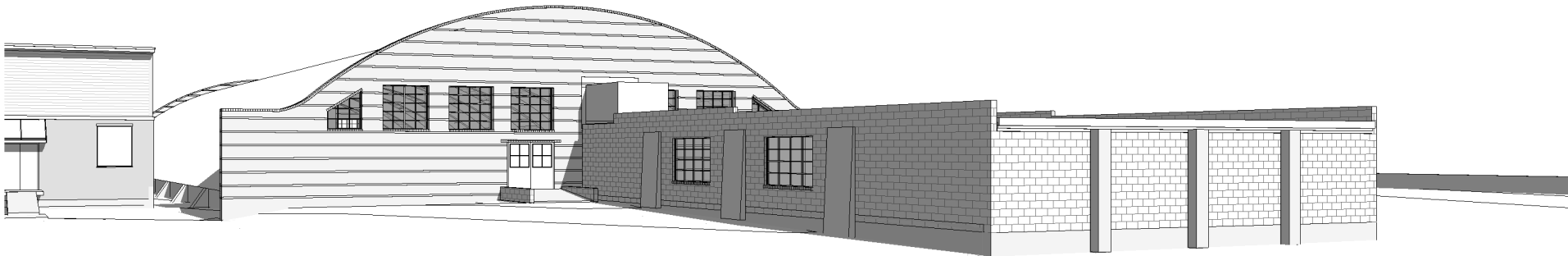
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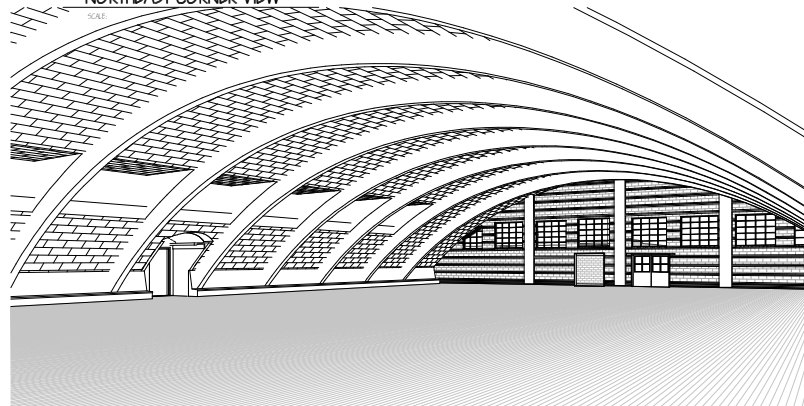
SOUTHWEST CORNER VIEW
SCALE



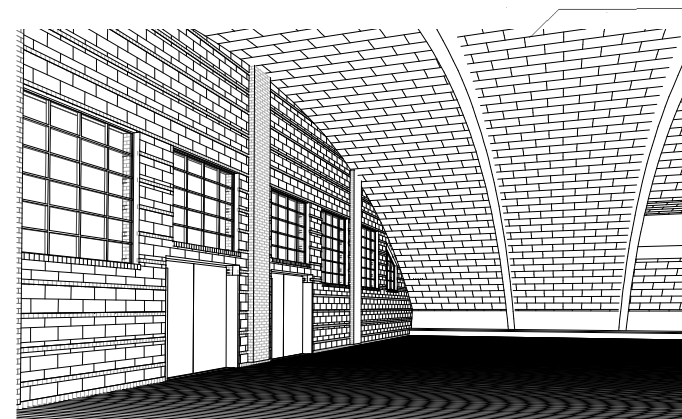
NORTHWEST CORNER VIEW
SCALE



NORTHEAST CORNER VIEW
SCALE



INTERIOR - NORTHWEST VIEW
SCALE



INTERIOR - SOUTHWEST VIEW
SCALE

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Robert C. Mack, FAIA, and John P. Speweik

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[Identifying the Problem Before Repointing](#)

[Finding an Appropriate Mortar Match](#)

[Properties of Mortar](#)

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Soft mortar for repointing. Photo: John P. Speweik.

Masonry—brick, stone, terra-cotta, and concrete block—is found on nearly every historic building. Structures with all-masonry exteriors come to mind immediately, but most other buildings at least have masonry foundations or chimneys. Although generally considered "permanent," masonry is subject to deterioration, especially at the mortar joints. Repointing, also known simply as "pointing" or—somewhat inaccurately—"tuck pointing", is the process of removing deteriorated mortar from the joints of a masonry wall and replacing it with new mortar. Properly done, repointing restores the visual and physical integrity of the masonry. Improperly done, repointing not only detracts from the appearance of the building, but may also cause physical damage to the masonry units themselves.

The purpose of this Brief is to provide general guidance on appropriate materials and methods for repointing historic masonry buildings and it is intended to benefit building owners, architects, and contractors. The Brief should serve as a guide to prepare specifications for repointing historic masonry buildings. It should also help develop sensitivity to the particular needs of historic masonry, and to assist historic building owners in working cooperatively with architects, architectural conservators and historic preservation consultants, and contractors. Although specifically intended for historic buildings, the guidance is appropriate for other masonry buildings as well. This publication updates *Preservation Briefs 2: Repointing Mortar Joints in Historic Brick Buildings* to include all types of historic unit masonry. The scope of the earlier Brief has also been expanded to acknowledge that the many buildings constructed in the first half of the 20th century are

now historic and eligible for listing in the National Register of Historic Places, and that they may have been originally constructed with portland cement mortar.

**Tuckpointing technically describes a primarily decorative application of a raised mortar joint or lime putty joint on top of flush mortar joints.*

Historical Background

Mortar consisting primarily of lime and sand has been used as an integral part of masonry structures for thousands of years. Up until about the mid-19th century, lime or quicklime (sometimes called lump lime) was delivered to construction sites, where it had to be slaked, or combined with water. Mixing with water caused it to boil and resulted in a wet lime putty that was left to mature in a pit or wooden box for several weeks, up to a year. Traditional mortar was made from lime putty, or slaked lime, combined with local sand, generally in a ratio of 1 part lime putty to 3 parts sand by volume. Often other ingredients, such as crushed marine shells (another source of lime), brick dust, clay, natural cements, pigments, and even animal hair were also added to mortar, but the basic formulation for lime putty and sand mortar remained unchanged for centuries until the advent of portland cement or its forerunner, Roman cement, a natural, hydraulic cement.

Portland cement was patented in Great Britain in 1824. It was named after the stone from Portland in Dorset which it resembled when hard. This is a fast-curing, hydraulic cement which hardens under water. Portland cement was first manufactured in the United States in 1872, although it was imported before this date. But it was not in common use throughout the country until the early 20th century. Up until the turn of the century portland cement was considered primarily an additive, or "minor ingredient" to help accelerate mortar set time. By the 1930s, however, most masons used a mix of equal parts portland cement and lime putty. Thus, the mortar found in masonry structures built between 1873 and 1930 can range from pure lime and sand mixes to a wide variety of lime, portland cement, and sand combinations.

In the 1930s more new mortar products intended to hasten and simplify masons' work were introduced in the U.S. These included **masonry cement**, a premixed, bagged mortar which is a combination of portland cement and ground limestone, and **hydrated lime**, machine-slaked lime that eliminated the necessity of slaking quicklime into putty at the site.

Identifying the Problem Before Repointing

The decision to repoint is most often related to some obvious sign of deterioration, such as disintegrating mortar, cracks in mortar joints, loose bricks or stones, damp walls, or damaged plasterwork. It is, however, erroneous to assume that repointing alone will solve deficiencies that result from other problems. The root cause of the deterioration—leaking roofs or gutters, differential settlement of the building, capillary action causing rising damp, or extreme weather exposure—should always be dealt with prior to beginning work.

Without appropriate repairs to eliminate the source of the problem, mortar deterioration will continue and any repointing will have been a waste of time and money.

Use of Consultants

Because there are so many possible causes for deterioration in historic buildings, it may be desirable to retain a consultant, such as a historic architect or architectural conservator, to analyze the building. In addition to determining the most appropriate solutions to the problems, a consultant can prepare specifications which reflect the particular requirements of each job and can provide oversight of the work in progress. Referrals to preservation consultants frequently can be obtained from State Historic Preservation Offices, the American Institute for Conservation of Historic and Artistic Works (AIC), the Association for Preservation Technology (APT), and local chapters of the American Institute of Architects (AIA).



Masons practice using lime putty mortar to repair historic marble. Photo: NPS files.

Finding an Appropriate Mortar Match

Preliminary research is necessary to ensure that the proposed repointing work is both physically and visually appropriate to the building. Analysis of unweathered portions of the historic mortar to which the new mortar will be matched can suggest appropriate mixes for the repointing mortar so that it will not damage the building because it is excessively strong or vapor impermeable.

Examination and analysis of the masonry units—brick, stone or terra cotta—and the techniques used in the original construction will assist in maintaining the building's historic appearance. A simple, non-technical, evaluation of the masonry units and

mortar can provide information concerning the relative strength and permeability of each—critical factors in selecting the repointing mortar—while a visual analysis of the historic mortar can provide the information necessary for developing the new mortar mix and application techniques.

Although not crucial to a successful repointing project, for projects involving properties of special historic significance, a mortar analysis by a qualified laboratory can be useful by providing information on the original ingredients. However, there are limitations with such an analysis, and replacement mortar specifications should not be based solely on laboratory analysis. Analysis requires interpretation, and there are important factors which affect the condition and performance of the mortar that cannot be established through laboratory analysis. These may include: the original water content, rate of curing, weather conditions during original construction, the method of mixing and placing the mortar, and the cleanliness and condition of the sand. *The most useful information that can come out of laboratory analysis is the identification of sand by gradation and color.* This allows the color and the texture of the mortar to be matched with some accuracy because sand is the largest ingredient by volume.

In creating a repointing mortar that is compatible with the masonry units, the objective is to achieve one that matches the historic mortar as closely as possible, so that the new material can coexist with the old in a sympathetic, supportive and, if necessary, sacrificial capacity. The exact physical and chemical properties of the historic mortar are not of major significance as long as the new mortar conforms to the following criteria:

- The new mortar must match the historic mortar in **color, texture and tooling**. (If a laboratory analysis is undertaken, it may be possible to match the binder components and their proportions with the historic mortar, if those materials are available.)
- The **sand must match the sand** in the historic mortar. (The color and texture of the new mortar will usually fall into place if the sand is matched successfully.)
- The new mortar must have **greater vapor permeability** and be **softer** (measured in compressive strength) than the masonry units.
- The new mortar must be **as vapor permeable** and **as soft or softer** (measured in compressive strength) than the historic mortar. (Softness or hardness is not necessarily an indication of permeability; old, hard lime mortars can still retain high permeability.)

Mortar Analysis

Methods for analyzing mortars can be divided into two broad categories: **wet chemical** and **instrumental**. Many laboratories that analyze historic mortars use a simple **wet-chemical** method called acid digestion, whereby a sample of the mortar is crushed and then mixed with a dilute acid. The acid dissolves all the carbonate-containing minerals not only in the binder, but also in the aggregate (such as oyster shells, coral sands, or other carbonate-based materials), as well as any other acid-soluble materials. The sand and fine-grained acid-insoluble material is left behind. There are several variations on the simple acid digestion test. One involves collecting the carbon dioxide gas given off as the carbonate is digested by the acid; based on the gas volume the carbonate content of the mortar can be accurately determined (Jedrzejewska, 1960). Simple acid digestion methods are rapid, inexpensive, and easy to perform, but the information they provide about the original composition of a mortar is limited to the color and texture of the sand. The gas collection method provides more information about the binder than a simple acid digestion test.

Instrumental analysis methods that have been used to evaluate mortars include polarized light or thin-section microscopy, scanning electron microscopy, atomic absorption spectroscopy, X-ray diffraction, and differential thermal analysis. All instrumental methods require not only expensive, specialized equipment, but also highly-trained experienced analysts. However, instrumental methods can provide much more information about a mortar. Thin-section microscopy is probably the most commonly used instrumental method. Examination of thin slices of a mortar in transmitted light is often used to supplement acid digestion methods, particularly to look for carbonate-based aggregate. For example, the new ASTM test method, ASTM C 1324-96 "Test Method for Examination and Analysis of Hardened Mortars" which was designed specifically for the analysis of modern lime-cement and masonry cement mortars, combines a complex series of wet chemical analyses with thin-section microscopy.

The drawback of most mortar analysis methods is that mortar samples of known composition have not been analyzed in order to evaluate the method. Historic mortars were not prepared to narrowly defined specifications from materials of



This late 19th century granite has recently been repointed with the joint profile and mortar color carefully matched to the original. Photo: NPS files.



This mortar is the proper consistency for repointing historic brick. Photo: John P. Speweik.

uniform quality; they contain a wide array of locally derived materials combined at the discretion of the mason. While a particular method might be able to accurately determine the original proportions of a lime-cement-sand mortar prepared from modern materials, the usefulness of that method for evaluating historic mortars is questionable unless it has been tested against mortars prepared from materials more commonly used in the past.

Properties of Mortar

Mortars for repointing should be softer or more permeable than the masonry units and no harder or more impermeable than the historic mortar to prevent damage to the masonry units. It is a common error to assume that hardness or high strength is a measure of appropriateness, particularly for lime-based historic mortars. Stresses within a wall caused by expansion, contraction, moisture migration, or settlement must be accommodated in some manner; in a masonry wall, these stresses should be relieved by the mortar rather than by the masonry units. A mortar that is stronger in compressive strength than the masonry units will not "give," thus causing stresses to be relieved through the masonry units—resulting in permanent damage to the masonry, such as cracking and spalling, that cannot be repaired easily.

While stresses can also break the bond between the mortar and the masonry units, permitting water to penetrate the resulting hairline cracks, this is easier to correct in the joint through repointing than if the break occurs in the masonry units.

Permeability, or rate of vapor transmission, is also critical. High lime mortars are more permeable than denser cement mortars. Historically, mortar acted as a bedding material—not unlike an expansion joint—rather than a "glue" for the masonry units, and moisture was able to migrate through the mortar joints rather than the masonry units. When moisture evaporates from the masonry it deposits any soluble salts either on the surface as *efflorescence* or below the surface as *subflorescence*. While salts deposited on the surface of masonry units are usually relatively harmless, salt crystallization within a masonry unit creates pressure that can cause parts of the outer surface to spall off or delaminate. If the mortar does not permit moisture or moisture vapor to migrate out of the wall and evaporate, the result will be damage to the masonry units.



This early 19th century building is being repointed with lime mortar. Photo: Travis McDonald.

Components of Mortar

Sand

Sand is the largest component of mortar and the material that gives mortar its distinctive color, texture and cohesiveness. Sand must be free of impurities, such as salts or clay. The three key characteristics of sand are: particle shape, gradation and void ratios.

When viewed under a magnifying glass or low-power microscope, particles of sand generally have either rounded edges, such as found in beach and river sand, or sharp, angular edges, found in crushed or manufactured sand. For repointing mortar, rounded or natural sand is preferred for two reasons. It is usually similar to the sand in the historic mortar and provides a better visual match. It also has better working qualities or plasticity and can thus be forced into the joint more easily, forming a good contact with the remaining historic mortar and the surface of the adjacent masonry units. Although manufactured sand is frequently more readily available, it is usually possible to locate a supply of rounded sand.

The gradation of the sand (particle size distribution) plays a very important role in the durability and cohesive properties of a mortar. Mortar must have a certain percentage of large to small particle sizes in order to deliver the optimum performance. Acceptable guidelines on particle size distribution may be found in ASTM C 144 (American Society for Testing and Materials). However, in actuality, since neither historic nor modern sands are always in compliance with ASTM C 144, matching the same particle appearance and gradation usually requires sieving the sand.

A scoop of sand contains many small voids between the individual grains. A mortar that performs well fills all these small voids with binder (cement/lime combination or mix) in a balanced manner. Well-graded sand generally has a 30 per cent void ratio by volume. Thus, 30 per cent binder by volume generally should be used, unless the historic mortar had a different binder: aggregate ratio. This represents the 1:3 binder to sand ratios often seen in mortar specifications.

For repointing, sand generally should conform to ASTM C 144 to assure proper gradation and freedom from impurities; some variation may be necessary to match the original size and gradation. Sand color and texture also should match the original as closely as possible to provide the proper color match without other additives.

Lime

Mortar formulations prior to the late-19th century used lime as the primary binding material. Lime is derived from heating limestone at high temperatures which burns off the carbon dioxide, and turns the limestone into quicklime. There are three

types of limestone—calcium, magnesium, and dolomitic—differentiated by the different levels of magnesium carbonate they contain which impart specific qualities to mortar. Historically, calcium lime was used for mortar rather than the dolomitic lime (calcium magnesium carbonate) most often used today. But it is also important to keep in mind the fact that the historic limes, and other components of mortar, varied a great deal because they were natural, as opposed to modern lime which is manufactured and, therefore, standardized. Because some of the kinds of lime, as well as other components of mortar, that were used historically are no longer readily available, even when a conscious effort is made to replicate a "historic" mix, this may not be achievable due to the differences between modern and historic materials.

Lime, itself, when mixed with water into a paste is very plastic and creamy. It will remain workable and soft indefinitely, if stored in a sealed container. Lime (calcium hydroxide) hardens by carbonation absorbing carbon dioxide primarily from the air, converting itself to calcium carbonate. Once a lime and sand mortar is mixed and placed in a wall, it begins the process of carbonation. If lime mortar is left to dry too rapidly, carbonation of the mortar will be reduced, resulting in poor adhesion and poor durability. In addition, lime mortar is slightly water soluble and thus is able to re-seal any hairline cracks that may develop during the life of the mortar. Lime mortar is soft, porous, and changes little in volume during temperature fluctuations thus making it a good choice for historic buildings. *Because of these qualities, high calcium lime mortar may be considered for many repointing projects, not just those involving historic buildings.*



Caulking was inappropriately used here in place of mortar on the top of the wall. As a result, it has not been durable. Photo: NPS files.

For repointing, lime should conform to ASTM C 207, Type S, or Type SA, Hydrated Lime for Masonry Purposes. This machine-slaked lime is designed to assure high plasticity and water retention. The use of quicklime which must be slaked and soaked by hand may have advantages over hydrated lime in some restoration projects if time and money allow.

Lime Putty

Lime putty is slaked lime that has a putty or paste-like consistency. It should conform to ASTM C 5. Mortar can be mixed using lime putty according to ASTM C 270 property or proportion specification.

Portland Cement

More recent, 20th-century mortar has used portland cement as a primary binding material. A straight portland cement and sand mortar is extremely hard, resists the movement of water, shrinks upon setting, and undergoes relatively large thermal movements. When mixed with water, portland cement forms a harsh, stiff paste that is quite unworkable, becoming hard very quickly. (Unlike lime, portland cement will harden regardless of weather conditions and does not require wetting and drying cycles.) Some portland cement assists the workability and plasticity of the mortar without adversely affecting the finished project; it also provides early strength to the mortar and speeds setting. Thus, it may be appropriate to add some portland cement to an essentially lime-based mortar even when repointing relatively soft 18th or 19th century brick under some circumstances when a slightly harder mortar is required. The more portland cement that is added to a mortar formulation the harder it becomes—and the faster the initial set.

For repointing, portland cement should conform to ASTM C 150. White, non-staining portland cement may provide a better color match for some historic mortars than the more commonly available grey portland cement. But, it should not be assumed, however, that white portland cement is always appropriate for all historic buildings, since the original mortar may have been mixed with grey cement. The cement should not have more than 0.60 per cent alkali to help avoid efflorescence.

Masonry Cement

Masonry cement is a preblended mortar mix commonly found at hardware and home repair stores. It is designed to produce mortars with a compressive strength of 750 psi or higher when mixed with sand and water at the job site. It may contain hydrated lime, but it always contains a large amount of portland cement, as well as ground limestone and other workability agents, including air-entraining agents. Because masonry cements are not required to contain hydrated lime, and generally do not contain lime, they produce high strength mortars that can damage historic masonry. *For this reason, they generally are not recommended for use on historic masonry buildings.*

Lime Mortar (pre-blended)

Hydrated lime mortars, and pre-blended lime putty mortars with or without a matched sand are commercially available. Custom mortars are also available with color. In most instances, pre-blended lime mortars containing sand may not provide an exact match; however, if the project calls for total repointing, a pre-blended lime mortar may be worth considering as long as the mortar is compatible in strength with the masonry. If the project involves only selected, "spot" repointing, then it may be better to carry out a mortar analysis which can provide a custom pre-blended lime mortar with a matching sand.

In either case, if a preblended lime mortar is to be used, it should contain Type S or SA hydrated lime conforming to ASTM C 207.

Water

Water should be potable—clean and free from acids, alkalis, or other dissolved organic materials.

Other Components

Historic components

In addition to the color of the sand, the texture of the mortar is of critical importance in duplicating historic mortar. Most mortars dating from the mid-19th century on—with some exceptions—have a fairly homogeneous texture and color. Some earlier mortars are not as uniformly textured and may contain lumps of partially burned lime or "dirty lime", shell (which often provided a source of lime, particularly in coastal areas), natural cements, pieces of clay, lampblack or other pigments, or even animal hair. The visual characteristics of these mortars can be duplicated through the use of similar materials in the repointing mortar.

Replicating such unique or individual mortars will require writing new specifications for each project. If possible, suggested sources for special materials should be included. For example, crushed oyster shells can be obtained in a variety of sizes from poultry supply dealers.

Pigments

Some historic mortars, particularly in the late 19th century, were tinted to match or contrast with the brick or stone. Red pigments, sometimes in the form of brick dust, as well as brown, and black pigments were commonly used. Modern pigments are available which can be added to the mortar at the job site, but they should not exceed 10 per cent by weight of the portland cement in the mix, and carbon black should be limited to 2 per cent. Only synthetic mineral oxides, which are alkali-proof and sun-fast, should be used to prevent bleaching and fading.

Modern Components

Admixtures are used to create specific characteristics in mortar, and whether they should be used will depend upon the individual project. *Air entraining agents*, for example, help the mortar to resist freeze-thaw damage in northern climates. *Accelerators* are used to reduce mortar freezing prior to setting while *retarders* help to extend the mortar life in hot climates. Selection of admixtures should be made by the architect or architectural conservator as part of the specifications, not something routinely added by the masons.

Generally, modern chemical additives are unnecessary and may, in fact, have detrimental effects in historic masonry projects. The use of antifreeze compounds is not recommended. They are not very effective with high lime mortars and may introduce salts, which may cause efflorescence later. A better practice is to warm the sand and water, and to protect the completed work from freezing. No definitive study has determined whether air-entraining additives should be used to resist frost action and enhance plasticity, but in areas of extreme exposure requiring high-strength mortars with lower permeability, air-entrainment of 10-16 percent may be desirable (see formula for "severe weather exposure" in Mortar Type and Mix). Bonding agents are not a substitute for proper joint preparation, and they should generally be avoided. If the joint is properly prepared, there will be a good bond between the new mortar and the adjacent surfaces. In addition, a bonding agent is difficult to remove if smeared on a masonry surface.

Mortar Type and Mix

Mortars for repointing projects, especially those involving historic buildings, typically are custom mixed in order to ensure the proper physical and visual qualities. These materials can be combined in varying proportions to create a mortar with the desired performance and durability. The actual specification of a particular mortar type should take into consideration all of the factors affecting the life of the building including: current site conditions, present condition of the masonry, function of the new mortar, degree of weather exposure, and skill of the mason.



Thus, no two repointing projects are exactly the same. Modern materials specified for use in repointing mortar should conform to specifications of the American Society for Testing and Materials (ASTM) or comparable federal specifications, and the resulting mortar should conform to ASTM C 270, Mortar for Unit Masonry.

Specifying the proportions for the repointing mortar for a specific job is not as difficult as it might seem. Five mortar types, each with a corresponding recommended mix, have been established by ASTM to distinguish high strength mortar from soft flexible mortars. The ASTM designated them in decreasing order of approximate general strength as Type M (2,500 psi), Type S (1,800 psi), Type N (750 psi), Type O (350 psi) and Type K (75 psi). (The letters identifying the types are from the words MASON WORK using every other letter.) Type K has the highest lime content of the mixes that

Here, a hammer and chisel are being correctly used to prepare a joint for repointing. Photo: John P. Speweik.

contain portland cement, although it is seldom used today, except for some historic preservation projects. The designation "L" in the accompanying chart identifies a straight lime and sand mix. Specifying the appropriate ASTM mortar by proportion of ingredients, will ensure the desired physical properties. Unless specified otherwise, measurements or proportions for mortar mixes are always given in the following order: cement-lime-sand. Thus, a Type K mix, for example, would be referred

to as 1-3-10, or 1 part cement to 3 parts lime to 10 parts sand. Other requirements to create the desired visual qualities should be included in the specifications.

The strength of a mortar can vary. If mixed with higher amounts of portland cement, a harder mortar is obtained. The more lime that is added, the softer and more plastic the mortar becomes, increasing its workability. A mortar strong in compressive strength might be desirable for a hard stone (such as granite) pier holding up a bridge deck, whereas a softer, more permeable lime mortar would be preferable for a historic wall of soft brick. Masonry deterioration caused by salt deposition results when the mortar is less permeable than the masonry unit. A strong mortar is still more permeable than hard, dense stone. However, in a wall constructed of soft bricks where the masonry unit itself has a relatively high permeability or vapor transmission rate, a soft, high lime mortar is necessary to retain sufficient permeability.

Budgeting and Scheduling

Repointing is both expensive and time consuming due to the extent of handwork and special materials required. It is preferable to repoint only those areas that require work rather than an entire wall, as is often specified. But, if 25 to 50 per cent or more of a wall needs to be repointed, repointing the entire wall may be more cost effective than spot repointing.

Total repointing may also be more sensible when access is difficult, requiring the erection of expensive scaffolding (unless the majority of the mortar is sound and unlikely to require replacement in the foreseeable future). Each project requires judgement based on a variety of factors. Recognizing this at the outset will help to prevent many jobs from becoming prohibitively expensive.

In scheduling, seasonal aspects need to be considered first. Generally speaking, wall temperatures between 40 and 95 degrees F (8 and 38 degrees C) will prevent freezing or excessive evaporation of the water in the mortar. Ideally, repointing should be done in shade, away from strong sunlight in order to slow the drying process, especially during hot weather. If necessary, shade can be provided for large-scale projects with appropriate modifications to scaffolding.

The relationship of repointing to other work proposed on the building must also be recognized. For example, if paint removal or cleaning is anticipated, and if the mortar joints are basically sound and need only selective repointing, it is generally better to postpone repointing until after completion of these activities. However, if the mortar has eroded badly, allowing moisture to penetrate deeply into the wall, repointing should be accomplished before cleaning. Related work, such as structural or roof repairs, should be scheduled so that they do not interfere with repointing and so that all work can take maximum advantage of erected scaffolding.



When repairing this stone wall, the mason matched the raised profile of the original tuckpointing. Photo: NPS files.



A mechanical grinder improperly used to cut out the horizontal joint and incompatible repointing have seriously damaged the 19th century brick. Photo: NPS files.

Building managers also must recognize the difficulties that a repointing project can create. The process is time consuming, and scaffolding may need to remain in place for an extended period of time. The joint preparation process can be quite noisy and can generate large quantities of dust which must be controlled, especially at air intakes to protect human health, and also where it might damage operating machinery. Entrances may be blocked from time to time making access difficult for both building tenants and visitors. Clearly, building managers will need to coordinate the repointing work with other events at the site.

Contractor Selection

Contractor Selection The ideal way to select a contractor is to ask knowledgeable owners of recently repointed historic buildings for recommendations. Qualified contractors then can provide lists of other repointing projects for inspection. More commonly, however, the contractor for a repointing project is selected through a competitive bidding process over which the client or consultant has only limited control. In this situation it is important to ensure that the specifications stipulate that masons must have a minimum of five years' experience with repointing historic masonry buildings to be eligible to bid on the project. Contracts are awarded to the lowest responsible bidder, and bidders

who have performed poorly on other projects usually can be eliminated from consideration on this basis, even if they have the lowest prices.

The contract documents should call for unit prices as well as a base bid. Unit pricing forces the contractor to determine in advance what the cost addition or reduction will be for work which varies from the scope of the base bid. If, for example, the contractor has fifty linear feet less of stone repointing than indicated on the contract documents but thirty linear feet more of brick repointing, it will be easy to determine the final price for the work. Note that each type of work—brick repointing, stone repointing, or similar items—will have its own unit price. The unit price also should reflect quantities; one linear foot of pointing in five different spots will be more expensive than five contiguous linear feet.

Execution of the Work

Test Panels

These panels are prepared by the contractor using the same techniques that will be used on the remainder of the project. Several panel locations—preferably not on the front or other highly visible location of the building—may be necessary to include all types of masonry, joint styles, mortar colors, and other problems likely to be encountered on the job.



Unskilled repointing has negatively impacted the character of this late-19th century building. Photo: NPS files.

If cleaning tests, for example, are also to be undertaken, they should be carried out in the same location. Usually a 3 foot by 3 foot area is sufficient for brickwork, while a somewhat larger area may be required for stonework. These panels establish an acceptable standard of work and serve as a benchmark for evaluating and accepting subsequent work on the building.

Joint Preparation

Old mortar should be removed to a minimum depth of 2 to 2-1/2 times the width of the joint to ensure an adequate bond and to prevent mortar "popouts." For most brick joints, this will require removal of the mortar to a depth of approximately Ω to 1 inch; for stone masonry with wide joints, mortar may need to be removed to a depth of several inches. Any loose or disintegrated mortar beyond this minimum depth also should be removed.

Although some damage may be inevitable, careful joint preparation can help limit damage to masonry units. The traditional manner of removing old mortar is through the use of hand chisels and mash hammers. Though labor-intensive, in most instances this method poses the least threat for damage to historic masonry units and produces the best final product.

The most common method of removing mortar, however, is through the use of power saws or grinders. The use of power tools by unskilled masons can be disastrous for historic masonry, particularly soft brick. Using power saws on walls with thin joints, such as most brick walls, almost always will result in damage to the masonry units by breaking the edges and by overcutting on the head, or vertical joints.

However, small pneumatically-powered chisels generally can be used safely and effectively to remove mortar on historic buildings as long as the masons maintain appropriate control over the equipment. Under certain circumstances, thin diamond-bladed grinders may be used to cut out *horizontal* joints only on hard portland cement mortar common to most early-20th century masonry buildings. Usually, automatic tools most successfully remove old mortar without damaging the masonry units when they are used in combination with hand tools in preparation for repointing. Where horizontal joints are uniform and fairly wide, it may be possible to use a power masonry saw to assist the removal of mortar, such as by cutting along the middle of the joint; final mortar removal from the sides of the joints still should be done with a hand chisel and hammer. Caulking cutters with diamond blades can sometimes be used successfully to cut out joints without damaging the masonry. Caulking cutters are slow; they do not rotate, but vibrate at very high speeds, thus minimizing the possibility of damage to masonry units. Although mechanical tools may be safely used in limited circumstances to cut out horizontal joints in preparation for repointing, they should never be used on vertical joints because of the danger of slipping and cutting into the brick above or below the vertical joint. Using power tools to remove mortar without damaging the surrounding masonry units also necessitates highly skilled masons experienced in working on historic masonry buildings. Contractors should demonstrate proficiency with power tools before their use is approved.

Using any of these power tools may also be more acceptable on hard stone, such as quartzite or granite, than on terra cotta with its glass-like glaze, or on soft brick or stone. The test panel should determine the acceptability of power tools. If power tools are to be permitted, the contractor should establish a quality control program to account for worker fatigue and similar variables.

Mortar should be removed cleanly from the masonry units, leaving square corners at the back of the cut. Before filling, the joints should be rinsed with a jet of water to remove all loose particles and dust. At the time of filling, the joints should be damp, but with no standing water present. For masonry walls—limestone, sandstone and common brick—that are extremely absorbent, it is recommended that a continual mist of water be applied for a few hours before repointing begins.

Mortar Preparation

Mortar components should be measured and mixed carefully to assure the uniformity of visual and physical characteristics. Dry ingredients are measured by volume and thoroughly mixed before the addition of any water. Sand must be added in a damp, loose condition to avoid over sanding. Repointing mortar is typically pre-hydrated by adding water so it will just hold together, thus allowing it to stand for a period of time before the final water is added. Half the water should be added, followed by mixing for approximately 5 minutes. The remaining water should then be added in small portions until a mortar of the desired consistency is reached. The total volume of water necessary may vary from batch to batch, depending on weather conditions. It is important to keep the water to a minimum for two reasons: first, a drier mortar is cleaner to work with, and it can be compacted tightly into the joints; second, with no excess water to evaporate, the mortar cures without shrinkage cracks. Mortar should be used within approximately 30 minutes of final mixing, and "retempering," or adding more water, should not be permitted.

Using Lime Putty to Make Mortar

Mortar made with lime putty and sand, sometimes referred to as roughage or course stuff, should be measured by volume, and may require slightly different proportions from those used with hydrated lime. No additional water is usually needed to achieve a workable consistency because enough water is already contained in the putty. Sand is proportioned first, followed by the lime putty, then mixed for five minutes or until all the sand is thoroughly coated with the lime putty. But mixing, in the familiar sense of turning over with a hoe, sometimes may not be sufficient if the best possible performance is to be obtained from a lime putty mortar. Although the old practice of chopping, beating and ramming the mortar has largely been forgotten, recent field work has confirmed that lime putty and sand rammed and beaten with a wooden mallet or ax handle, interspersed by chopping with a hoe, can significantly improve workability and performance. The intensity of this action increases the overall lime/sand contact and removes any surplus water by compacting the other ingredients. It may also be advantageous for larger projects to use a mortar pan mill for mixing. Mortar pan mills which have a long tradition in Europe produce a superior lime putty mortar not attainable with today's modern paddle and drum type mixers.

For larger repointing projects the lime putty and sand can be mixed together ahead of time and stored indefinitely, on or off site, which eliminates the need for piles of sand on the job site. This mixture, which resembles damp brown sugar, must be protected from the air in sealed containers with a wet piece of burlap over the top or sealed in a large plastic bag to prevent evaporation and premature carbonation. The lime putty and sand mixture can be recombined into a workable plastic state months later with no additional water.

If portland cement is specified in a lime putty and sand mortar—Type O (1:2:9) or Type K (1:3:11)—the portland cement should first be mixed into a slurry paste before adding it to the lime putty and sand. Not only will this ensure that the portland cement is evenly distributed throughout the mixture, but if dry portland cement is added to wet ingredients it tends to "ball up," jeopardizing dispersion. (Usually water must be added to the lime putty and sand anyway once the portland cement is introduced.) Any color pigments should be added at this stage and mixed for a full five minutes. The mortar should be used within 30 minutes to 1½ hours and it should not be retempered. Once portland cement has been added the mortar can no longer be stored.

Filling the Joint

Where existing mortar has been removed to a depth of greater than 1 inch, these deeper areas should be filled first, compacting the new mortar in several layers. The back of the entire joint should be filled successively by applying approximately 1/4 inch of mortar, packing it well into the back corners. This application may extend along the wall for several feet. As soon as the mortar has reached thumb-print hardness, another 1/4 inch layer of mortar—approximately the same thickness—may be applied. Several layers will be needed to fill the joint flush with the outer surface of the masonry. It is important to allow each layer time to harden before the next layer is applied; most of the mortar shrinkage occurs during the hardening process and layering thus minimizes overall shrinkage.

When the final layer of mortar is thumb-print hard, the joint should be tooled to match the historic joint. Proper timing of the tooling is important for uniform color and appearance. If tooled when too soft, the color will be lighter than expected, and hairline cracks may occur; if tooled when too hard, there may be dark streaks called "tool burning," and good closure of the mortar against the masonry units will not be achieved.

If the old bricks or stones have worn, rounded edges, it is best to recess the final mortar slightly from the face of the masonry. This treatment will help avoid a joint which is visually wider than the actual joint; it also will avoid creation of a large, thin featheredge which is easily damaged, thus admitting water. After tooling, excess mortar can be removed from the edge of the joint by brushing with a natural bristle or nylon brush. Metal bristle brushes should never be used on historic masonry.

Curing Conditions

The preliminary hardening of high-lime content mortars—those mortars that contain more lime by volume than portland cement, i.e., Type O (1:2:9), Type K (1:3:11), and straight lime/sand, Type "L" (0:1:3)—takes place fairly rapidly as water

in the mix is lost to the porous surface of the masonry and through evaporation. A high lime mortar (especially Type "L") left to dry out too rapidly can result in chalking, poor adhesion, and poor durability. Periodic wetting of the repointed area after the mortar joints are thumb-print hard and have been finish tooled may significantly accelerate the carbonation process. When feasible, misting using a hand sprayer with a fine nozzle can be simple to do for a day or two after repointing. Local conditions will dictate the frequency of wetting, but initially it may be as often as every hour and gradually reduced to every three or four hours. Walls should be covered with burlap for the first three days after repointing. (Plastic may be used, but it should be tented out and not placed directly against the wall.) This helps keep the walls damp and protects them from direct sunlight. Once carbonation of the lime has begun, it will continue for many years and the lime will gain strength as it reverts back to calcium carbonate within the wall.

Aging the Mortar

Even with the best efforts at matching the existing mortar color, texture, and materials, there will usually be a visible difference between the old and new work, partly because the new mortar has been matched to the unweathered portions of the historic mortar. Another reason for a slight mismatch may be that the sand is more exposed in old mortar due to the slight erosion of the lime or cement. Although spot repointing is generally preferable and some color difference should be acceptable, if the difference between old and new mortar is too extreme, it may be advisable in some instances to repoint an entire area of a wall, or an entire feature such as a bay, to minimize the difference between the old and the new mortar. If the mortars have been properly matched, usually the best way to deal with surface color differences is to let the mortars age naturally. Other treatments to overcome these differences, including cleaning the non-repointed areas or staining the new mortar, should be carefully tested prior to implementation.



This 18th century pediment and surrounding wall exhibit distinctively different mortar joints. Photo: NPS files.

Staining the new mortar to achieve a better color match is generally not recommended, but it may be appropriate in some instances. Although staining may provide an initial match, the old and new mortars may weather at different rates, leading to visual differences after a few seasons. In addition, the mixtures used to stain the mortar may be harmful to the masonry; for example, they may introduce salts into the masonry which can lead to efflorescence.

Cleaning the Repointed Masonry

If repointing work is carefully executed, there will be little need for cleaning other than to remove the small amount of mortar from the edge of the joint following tooling. This can be done with a stiff natural bristle or nylon brush after the mortar has dried, but before it is initially set (1-2 hours). Mortar that has hardened can usually be removed with a wooden paddle or, if necessary, a chisel.

Further cleaning is best accomplished with plain water and natural bristle or nylon brushes. If chemicals must be used, they should be selected with extreme caution. Improper cleaning can lead to deterioration of the masonry units, deterioration of the mortar, mortar smear, and efflorescence. New mortar joints are especially susceptible to damage because they do not become fully cured for several months. Chemical cleaners, particularly acids, should never be used on dry masonry. The masonry should always be completely soaked once with water before chemicals are applied. After cleaning, the walls should be flushed again with plain water to remove all traces of the chemicals.

Several precautions should be taken if a freshly repointed masonry wall is to be cleaned. First, the mortar should be fully hardened before cleaning. Thirty days is usually sufficient, depending on weather and exposure; as mentioned previously, the mortar will continue to cure even after it has hardened. Test panels should be prepared to evaluate the effects of different cleaning methods. Generally, on newly repointed masonry walls, only very low pressure (100 psi) water washing supplemented by stiff natural bristle or nylon brushes should be used, except on glazed or polished surfaces, where only soft cloths should be used.**

New construction "bloom" or efflorescence occasionally appears within the first few months of repointing and usually disappears through the normal process of weathering. If the efflorescence is not removed by natural processes, the safest way to remove it is by dry brushing with stiff natural or nylon bristle brushes followed by wet brushing. Hydrochloric (muriatic) acid, is generally ineffective, and it should not be used to remove efflorescence. It may liberate additional salts, which, in turn, can lead to more efflorescence.

Surface grouting is sometimes suggested as an alternative to repointing brick buildings, in particular. This process involves the application of a thin coat of cement-based grout to the mortar joints and the mortar/brick interface. To be effective, the grout must extend slightly onto the face of the masonry units, thus widening the joint visually. The change in the joint appearance can alter the historic character of the structure to an unacceptable degree. In addition, although masking of the bricks is intended to keep the grout off the remainder of the face of the bricks, some level of residue, called

"veiling," will inevitably remain. Surface grouting cannot substitute for the more extensive work of repointing, and it is not a recommended treatment for historic masonry.

***Additional information on masonry cleaning is presented in Preservation Briefs 1: Assessing Cleaning and Water-Repellent Treatments for Historic Masonry Buildings, Robert C. Mack, FAIA, and Anne E. Grimmer, Washington, D.C.: Technical Preservation Services, National Park Service, U.S. Department of the Interior, 2000; and Keeping it Clean: Removing Exterior Dirt, Paint, Stains & Graffiti from Historic Masonry Buildings, Anne E. Grimmer, Washington, D.C.: Technical Preservation Services, National Park Service, U.S. Department of the Interior, 1988.*

Visually Examining the Mortar and the Masonry Units

A simple *in situ* comparison will help determine the hardness and condition of the mortar and the masonry units. Begin by scraping the mortar with a screwdriver, and gradually tapping harder with a cold chisel and mason's hammer. Masonry units can be tested in the same way beginning, even more gently, by scraping with a fingernail. This relative analysis which is derived from the 10-point hardness scale used to describe minerals, provides a good starting point for selection of an appropriate mortar. It is described more fully in "The Russack System for Brick & Mortar Description" referenced in [Reading List](#) at the end of this Brief.

Mortar samples should be chosen carefully, and picked from a variety of locations on the building to find unweathered mortar, if possible. Portions of the building may have been repointed in the past while other areas may be subject to conditions causing unusual deterioration. There may be several colors of mortar dating from different construction periods or sand used from different sources during the initial construction. Any of these situations can give false readings to the visual or physical characteristics required for the new mortar. Variations should be noted which may require developing more than one mix.

1. Remove with a chisel and hammer three or four unweathered samples of the mortar to be matched from several locations on the building. (Set the largest sample aside--this will be used later for comparison with the repointing mortar). Removing a full representation of samples will allow selection of a "mean" or average mortar sample.
2. Mash the remaining samples with a wooden mallet, or hammer if necessary, until they are separated into their constituent parts. There should be a good handful of the material.
3. Examine the powdered portion—the lime and/or cement matrix of the mortar. Most particularly, note the color. There is a tendency to think of historic mortars as having white binders, but grey portland cement was available by the last quarter of the 19th century, and traditional limes were also sometimes grey. Thus, in some instances, the natural color of the historic binder may be grey, rather than white. The mortar may also have been tinted to create a colored mortar, and this color should be identified at this point.
4. Carefully blow away the powdery material (the lime and/or cement matrix which bound the mortar together).
5. With a low power (10 power) magnifying glass, examine the remaining sand and other materials such as lumps of lime or shell.
6. Note and record the wide range of color as well as the varying sizes of the individual grains of sand, impurities, or other materials.

Other Factors to Consider

Color

Regardless of the color of the binder or colored additives, the sand is the primary material that gives mortar its color. A surprising variety of colors of sand may be found in a single sample of historic mortar, and the different sizes of the grains of sand or other materials, such as incompletely ground lime or cement, play an important role in the texture of the repointing mortar. Therefore, when specifying sand for repointing mortar, it may be necessary to obtain sand from several sources and to combine or screen them in order to approximate the range of sand colors and grain sizes in the historic mortar sample.

Pointing Style

Close examination of the historic masonry wall and the techniques used in the original construction will assist in maintaining the visual qualities of the building. Pointing styles and the methods of producing them should be examined. It is important to look at both the horizontal and the vertical joints to determine the order in which they were tooled and whether they were the same style. Some late-19th and early-20th century buildings, for example, have horizontal joints that were raked back while the vertical joints were finished flush and stained to match the bricks, thus creating the illusion of horizontal bands. Pointing styles may also differ from one facade to another; front walls often received greater attention to mortar

detailing than side and rear walls. **Tuckpointing** is not true repointing but the application of a raised joint or lime putty joint on top of flush mortar joints. **Penciling** is a purely decorative, painted surface treatment over a mortar joint, often in a contrasting color.

Masonry Units

The masonry units should also be examined so that any replacement units will match the historic masonry. Within a wall there may be a wide range of colors, textures, and sizes, particularly with hand-made brick or rough-cut, locally-quarried stone. Replacement units should blend in with the full range of masonry units rather than a single brick or stone.

Matching Color and Texture of the Repointing Mortar

New mortar should match the unweathered interior portions of the historic mortar. The simplest way to check the match is to make a small sample of the proposed mix and allow it to cure at a temperature of approximately 70 degrees F for about a week, or it can be baked in an oven to speed up the curing; this sample is then broken open and the surface is compared with the surface of the largest "saved" sample of historic mortar.

If a proper color match cannot be achieved through the use of natural sand or colored aggregates like crushed marble or brick dust, it may be necessary to use a modern mortar pigment.

During the early stages of the project, it should be determined how closely the new mortar should match the historic mortar. Will "quite close" be sufficient, or is "exactly" expected? The specifications should state this clearly so that the contractor has a reasonable idea how much time and expense will be required to develop an acceptable match.

The same judgment will be necessary in matching replacement terra cotta, stone or brick. If there is a known source for replacements, this should be included in the specifications. If a source cannot be determined prior to the bidding process, the specifications should include an estimated price for the replacement materials with the final price based on the actual cost to the contractor.

Mortar Types (Measured by volume)			
Designation	Cement	Hydrated Lime or Lime Putty	Sand
M	1	1/4	3 - 3 3/4
S	1	1/2	4-4 1/2
N	1	1	5-6
O	1	2	8-9
K	1	3	10-12
"L"	0	1	2 1/4-3

Suggested Mortar Types for Different Exposures			
Masonry Material	Exposure		
	Sheltered	Moderate	Severe
Very durable: granite, hard-cored brick, etc.	O	N	S
Moderately durable: limestone, durable stone, molded brick	K	O	N
Minimally durable: soft hand-made brick	"L"	K	O

Summary and References

For the Owner/Administrator

The owner or administrator of a historic building should remember that repointing is likely to be a lengthy and expensive process. First, there must be adequate time for evaluation of the building and investigation into the cause of problems. Then, there will be time needed for preparation of the contract documents. The work itself is precise, time-consuming and noisy, and scaffolding may cover the face of the building for some time. Therefore, the owner must carefully plan the work to avoid problems. Schedules for both repointing and other activities will thus require careful coordination to avoid

unanticipated conflicts. The owner must avoid the tendency to rush the work or cut corners if the historic building is to retain its visual integrity and the job is to be durable.

For the Architect/Consultant

Because the primary role of the consultant is to ensure the life of the building, a knowledge of historic construction techniques and the special problems found in older buildings is essential. The consultant must assist the owner in planning for logistical problems relating to research and construction. It is the consultant's responsibility to determine the cause of the mortar deterioration and ensure that it is corrected before the masonry is repointed. The consultant must also be prepared to spend more time in project inspections than is customary in modern construction.

For the Masons

Successful repointing depends on the masons themselves. Experienced masons understand the special requirements for work on historic buildings and the added time and expense they require. The entire masonry crew must be willing and able to perform the work in conformance with the specifications, even when the specifications may not be in conformance with standard practice. At the same time, the masons should not hesitate to question the specifications if it appears that the work specified would damage the building.

Conclusion

A good repointing job is meant to last, at least 30 years, and preferably 50- 100 years. Shortcuts and poor craftsmanship result not only in diminishing the historic character of a building, but also in a job that looks bad, and will require future repointing sooner than if the work had been done correctly. The mortar joint in a historic masonry building has often been called a wall's "first line of defense." Good repointing practices guarantee the long life of the mortar joint, the wall, and the historic structure. Although careful maintenance will help preserve the freshly repointed mortar joints, it is important to remember that mortar joints are intended to be sacrificial and will probably require repointing some time in the future. Nevertheless, if the historic mortar joints proved durable for many years, then careful repointing should have an equally long life, ultimately contributing to the preservation of the entire building.

Useful Addresses

Brick Institute of America

11490 Commerce Park Drive
Reston, VA 22091

National Lime Association

200 N. Glebe Road, Suite 800
Arlington, VA 22203

Portland Cement Association

5420 Old Orchard Road
Skokie, IL 60077

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Preservation Services (TPS), National Park Service prepares standards, guidelines, and other educational materials on responsible historic preservation treatments for a broad public.

October 1998

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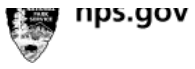
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EXPERIENCE YOUR AMERICA™

13 PRESERVATION BRIEFS

The Repair and Thermal Upgrading of Historic Steel Windows

Sharon C. Park, AIA



U.S. Department of the Interior
National Park Service
Cultural Resources
Heritage Preservation Services



The Secretary of the Interior's "Standards for Rehabilitation" require that where historic windows are individually significant features, or where they contribute to the character of significant facades, their distinguishing visual qualities must not be destroyed. Further, the rehabilitation guidelines recommend against changing the historic appearance of windows through the use of inappropriate designs, materials, finishes, or colors which radically change the sash, depth of reveal, and muntin configuration; the reflectivity and color of the glazing; or the appearance of the frame.

Windows are among the most vulnerable features of historic buildings undergoing rehabilitation. This is especially the case with rolled steel windows, which are often mistakenly not deemed worthy of preservation in the conversion of old buildings to new uses. The ease with which they can be replaced and the mistaken assumption that they cannot be made energy efficient except at great expense are factors that typically lead to the decision to remove them. In many cases, however, repair and retrofit of the historic windows are more economical than wholesale replacement, and all too often, replacement units are unlike the originals in design and appearance. If the windows are important in establishing the historic character of the building (see fig. 1), insensitively designed replacement windows may diminish—or destroy—the building's historic character.

This *Brief* identifies various types of historic steel windows that dominated the metal window market from 1890-1950. It then gives criteria for evaluating deterioration and for determining appropriate treatment, ranging from routine maintenance and weatherization to extensive repairs, so that replacement may be avoided where possible.¹ This information applies to do-it-yourself jobs and to large rehabilitations where the volume of work warrants the removal of all window units for complete overhaul by professional contractors.

This *Brief* is not intended to promote the repair of ferrous metal windows in every case, but rather to insure that preservation is always the first consideration in a rehabilitation project. Some windows are not important elements in defining a building's historic character; others are highly significant, but so deteriorated that repair is infeasible. In such cases, the *Brief* offers guidance in evaluating appropriate replacement windows.



Fig. 1 Often highly distinctive in design and craftsmanship, rolled steel windows play an important role in defining the architectural character of many later nineteenth and early twentieth century buildings. Art Deco, Art Moderne, the International Style, and Post World War II Modernism depended on the slim profiles and streamlined appearance of metal windows for much of their impact. Photo: William G. Johnson.

¹The technical information given in this brief is intended for most ferrous (or magnetic) metals, particularly rolled steel. While stainless steel is a ferrous metal, the cleaning and repair techniques outlined here must not be used on it as the finish will be damaged. For information on cleaning stainless steel and non-ferrous metals, such as bronze, Monel, or aluminum, refer to *Metals in America's Historic Buildings* (see bibliography).

HISTORICAL DEVELOPMENT

Although metal windows were available as early as 1860 from catalogues published by architectural supply firms, they did not become popular until after 1890. Two factors combined to account for the shift from wooden to metal windows about that time. Technology borrowed from the rolling industry permitted the mass production of rolled steel windows. This technology made metal windows cost competitive with conventional wooden windows. In addition, a series of devastating urban fires in Boston, Baltimore, Philadelphia, and San Francisco led to the enactment of strict fire codes for industrial and multi-story commercial and office buildings.

As in the process of making rails for railroads, rolled steel windows were made by passing hot bars of steel through progressively smaller, shaped rollers until the appropriate angled configuration was achieved (see fig. 2). The rolled steel sections, generally 1/8" thick and 1" - 1 1/2" wide, were used for all the components of the windows: sash, frame, and subframe (see fig. 3). With the addition of wire glass, a fire-resistant window resulted. These rolled steel windows are almost exclusively found in masonry or concrete buildings.

A byproduct of the fire-resistant window was the strong metal frame that permitted the installation of larger windows and windows in series. The ability to have expansive amounts of glass and increased ventilation dramatically changed the designs of late 19th and early 20th century industrial and commercial buildings.

The newly available, reasonably priced steel windows soon became popular for more than just their fire-resistant qualities. They were standardized, extremely durable, and easily transported. These qualities led to the use of steel windows in every type of construction, from simple industrial and institutional buildings to luxury commercial and apartment buildings. Casement, double-hung, pivot, projecting, austral, and continuous windows differed in operating and ventilating capacities. Figure 4 outlines the kinds and properties of metal windows available then and now. In addition, the thin profiles of metal windows contributed to the streamlined appearance of the Art Deco, Art Moderne, and International Styles, among others.

The extensive use of rolled steel metal windows continued until after World War II when cheaper, non-corroding aluminum windows became increasingly popular. While aluminum windows dominate the market today, steel windows are still fabricated. Should replacement of original windows become necessary, replacement windows may be available from the manufacturers of some of the earliest steel windows. Before an informed decision can be made whether to repair or replace metal windows, however, the significance of the windows must be determined and their physical condition assessed.

ROLLING SECTION FROM BAR

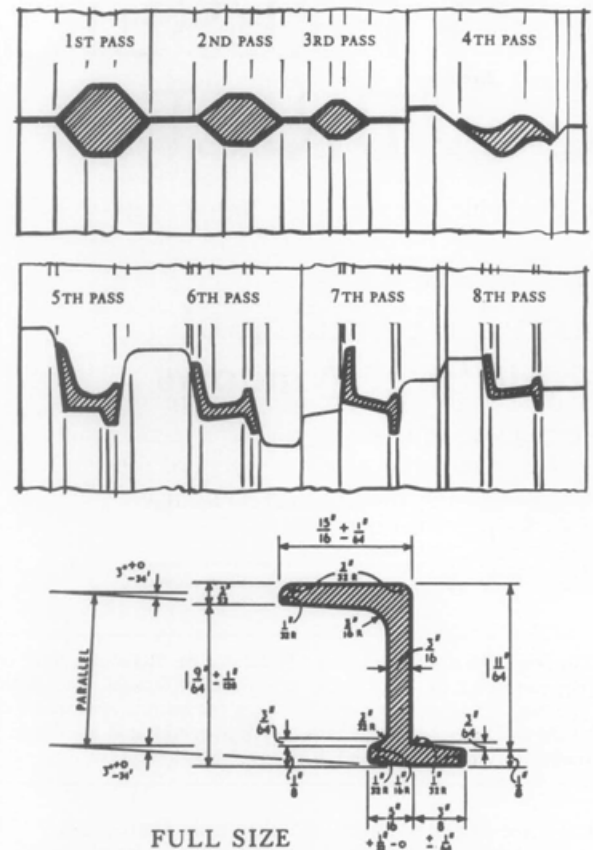


Fig. 2. The process of rolling a steel bar into an angled section is illustrated above. The shape and size of the rolled section will vary slightly depending on the overall strength needed for the window opening and the location of the section in the assembly: subframe, frame, or sash. The 1/8" thickness of the metal section is generally standard. Drawing: *A Metal Window Dictionary*. Used with permission.

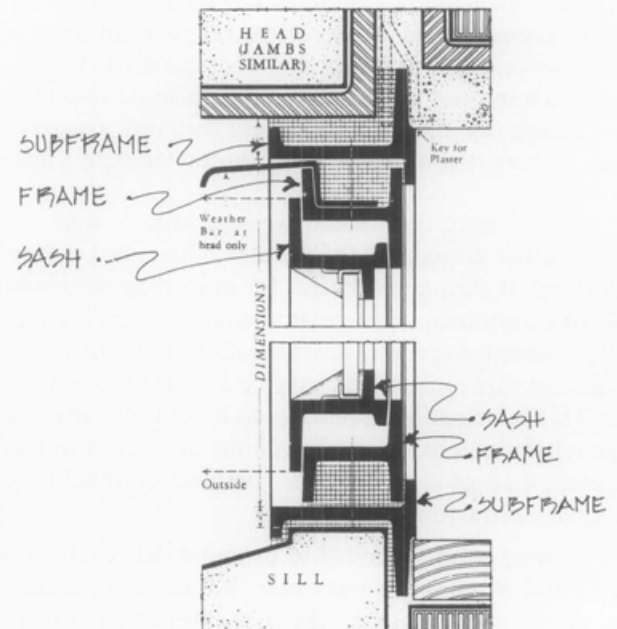


Fig. 3 A typical section through the top and bottom of a metal window shows the three component parts of the window assembly: subframe, frame, and sash. Drawings: Catalogue No. 15, January 1931; International Casement Co., Inc., presently Hope's Architectural Products, Inc., Jamestown, NY. Used with permission.

EVALUATION

Historic and Architectural Considerations

An assessment of the significance of the windows should begin with a consideration of their function in relation to the building's historic use and its historic character. Windows that help define the building's historic character should be preserved even if the building is being converted to a new use. For example, projecting steel windows used to introduce light and an effect of spaciousness to a warehouse or industrial plant can be retained in the conversion of such a building to offices or residences.

Other elements in assessing the relative importance of the historic windows include the design of the windows and their relationship to the scale, proportion, detailing and architectural style of the building. While it may be easy to determine the aesthetic value of highly ornamented windows, or to recognize the importance of streamlined windows as an element of a style, less elaborate windows can also provide strong visual interest by their small panes or projecting planes when open, particularly in simple, unadorned industrial buildings (see fig. 5).

One test of the importance of windows to a building is to ask if the overall appearance of the building would be changed noticeably if the windows were to be removed or radically altered. If so, the windows are important in defining the building's historic character, and should be repaired if their physical condition permits.

Physical Evaluation

Steel window repair should begin with a careful evaluation of the physical condition of each unit. Either drawings or photographs, liberally annotated, may be used to record the location of each window, the type of operability, the condition of all three parts—sash, frame and sub-frame—and the repairs essential to its continued use.

Specifically, the evaluation should include: presence and degree of corrosion; condition of paint; deterioration of the metal sections, including bowing, misalignment of the sash, or bent sections; condition of the glass and glazing compound; presence and condition of all hardware, screws, bolts, and hinges; and condition of the masonry or concrete surrounds, including need for caulking or resetting of improperly sloped sills.

Corrosion, principally rusting in the case of steel windows, is the controlling factor in window repair; therefore, the evaluator should first test for its presence. Corrosion can be light, medium, or heavy, depending on how much the rust has penetrated the metal sections. If the rusting is merely a surface accumulation or flaking, then the corrosion is light. If the rusting has penetrated the metal (indicated by a bubbling texture), but has not caused any structural damage, then the corrosion is medium. If the rust has penetrated deep into the metal, the corrosion is heavy. Heavy corrosion generally results in some form of structural damage, through delamination,

to the metal section, which must then be patched or spliced. A sharp probe or tool, such as an ice pick, can be used to determine the extent of corrosion in the metal. If the probe can penetrate the surface of the metal and brittle strands can be dug out, then a high degree of corrosive deterioration is present.

In addition to corrosion, the condition of the paint, the presence of bowing or misalignment of metal sections, the amount of glass needing replacement, and the condition of the masonry or concrete surrounds must be assessed in the evaluation process. These are key factors in determining whether or not the windows can be repaired in place. The more complete the inventory of existing conditions, the easier it will be to determine whether repair is feasible or whether replacement is warranted.

Rehabilitation Work Plan

Following inspection and analysis, a plan for the rehabilitation can be formulated. The actions necessary to return windows to an efficient and effective working condition will fall into one or more of the following categories: routine maintenance, repair, and weatherization. The routine maintenance and weatherization measures described here are generally within the range of do-it-yourselfers. Other repairs, both moderate and major, require a professional contractor. Major repairs normally require the removal of the window units to a workshop, but even in the case of moderate repairs, the number of windows involved might warrant the removal of all the deteriorated units to a workshop in order to realize a more economical repair price. Replacement of windows should be considered only as a last resort.

Since moisture is the primary cause of corrosion in steel windows, it is essential that excess moisture be eliminated and that the building be made as weathertight as possible before any other work is undertaken. Moisture can accumulate from cracks in the masonry, from spalling mortar, from leaking gutters, from air conditioning condensation runoff, and from poorly ventilated interior spaces.

Finally, before beginning any work, it is important to be aware of health and safety risks involved. Steel windows have historically been coated with lead paint. The removal of such paint by abrasive methods will produce toxic dust. Therefore, safety goggles, a toxic dust respirator, and protective clothing should be worn. Similar protective measures should be taken when acid compounds are used. Local codes may govern the methods of removing lead paints and proper disposal of toxic residue.

ROUTINE MAINTENANCE

A preliminary step in the routine maintenance of steel windows is to remove surface dirt and grease in order to ascertain the degree of deterioration, if any. Such minor cleaning can be accomplished using a brush or vacuum followed by wiping with a cloth dampened with mineral spirits or denatured alcohol.

<i>Double-hung industrial windows</i> duplicated the look of traditional wooden windows. Metal double-hung windows were early examples of a building product adapted to meet stringent new fire code requirements for manufacturing and high-rise buildings in urban areas. Soon supplanted in industrial buildings by less expensive pivot windows, double-hung metal windows regained popularity in the 1940s for use in speculative suburban housing.	<i>Austral windows</i> were also a product of the 1920s. They combined the appearance of the double-hung window with the increased ventilation and ease of operation of the projected window. (When fully opened, they provided 70% ventilation as compared to 50% ventilation for double-hung windows.) Austral windows were often used in schools, libraries and other public buildings.
<i>Pivot windows</i> were an early type of industrial window that combined inexpensive first cost and low maintenance. Pivot windows became standard for warehouses and power plants where the lack of screens was not a problem. The window shown here is a horizontal pivot. Windows that turned about a vertical axis were also manufactured (often of iron). Such vertical pivots are rare today.	<i>Casement windows</i> adapted the English tradition of using wrought iron casements with leaded cames for residential use. Rolled steel casements (either single, as shown, or paired) were popular in the 1920s for cottage style residences and Gothic style campus architecture. More streamlined casements were popular in the 1930s for institutional and small industrial buildings.
<i>Projecting windows</i>, sometimes called awning or hopper windows, were perfected in the 1920s for industrial and institutional buildings. They were often used in "combination" windows, in which upper panels opened out and lower panels opened in. Since each movable panel projected to one side of the frame only, unlike pivot windows, for example, screens could be introduced.	<i>Continuous windows</i> were almost exclusively used for industrial buildings requiring high overhead lighting. Long runs of clerestory windows operated by mechanical tension rod gears were typical. Long banks of continuous windows were possible because the frames for such windows were often structural elements of the building.

Fig. 4 Typical rolled steel windows available from 1890 to the present. The various operating and ventilating capacities in combination with the aesthetics of the window style were important considerations in the selection of one window type over another. Drawings: Sharon C. Park, AIA.

If it is determined that the windows are in basically sound condition, the following steps can be taken: 1) removal of light rust, flaking and excessive paint; 2) priming of exposed metal with a rust-inhibiting primer; 3) replacement of cracked or broken glass and glazing compound; 4) replacement of missing screws or fasteners; 5) cleaning and lubrication of hinges; 6) repainting of all steel sections with two coats of finish paint compatible with the primer; and 7) caulking the masonry surrounds with a high quality elastomeric caulk.

Recommended methods for removing light rust include manual and mechanical abrasion or the application of chemicals. Burning off rust with an oxy-acetylene or propane torch, or an inert gas welding gun, should never be attempted because the heat can distort the metal. In addition, such intense heat (often as high as 3800° F) vaporizes the lead in old paint, resulting in highly toxic fumes. Furthermore, such heat will likely result in broken glass. Rust can best be removed using a wire brush, an aluminum oxide sandpaper, or a variety of power tools



Fig. 5 Windows often provide a strong visual element to relatively simple or unadorned industrial or commercial buildings. This design element should be taken into consideration when evaluating the significance of the windows. Photo: Michael

adapted for abrasive cleaning such as an electric drill with a wire brush or a rotary whip attachment. Adjacent sills and window jambs may need protective shielding.

Rust can also be removed from ferrous metals by using a number of commercially prepared anti-corrosive acid compounds. Effective on light and medium corrosion, these compounds can be purchased either as liquids or gels. Several bases are available, including phosphoric acid, ammonium citrate, oxalic acid and hydrochloric acid. Hydrochloric acid is generally not recommended; it can leave chloride deposits, which cause future corrosion. Phosphoric acid-based compounds do not leave such deposits, and are therefore safer for steel windows. However, any chemical residue should be wiped off with damp cloths, then dried immediately. Industrial blow-dryers work well for thorough drying. The use of running water to remove chemical residue is never recommended because the water may spread the chemicals to adjacent surfaces, and drying of these surfaces may be more difficult. Acid cleaning compounds will stain masonry; therefore plastic sheets should be taped to the edge of the metal sections to protect the masonry surrounds. The same measure should be followed to protect the glazing from etching because of acid contact.

Measures that remove rust will ordinarily remove flaking paint as well. Remaining loose or flaking paint can be removed with a chemical paint remover or with a pneumatic needle scaler or gun, which comes with a series of chisel blades and has proven effective in removing flaking paint from metal windows. Well-bonded paint may serve to protect the metal further from corrosion, and need not be removed unless paint build-up prevents the window from closing tightly. The edges should be feathered by sanding to give a good surface for repainting.

Next, any *bare* metal should be wiped with a cleaning solvent such as denatured alcohol, and dried immediately in preparation for the application of an anti-corrosive primer. Since corrosion can recur very soon after metal has been exposed to the air, the metal should be primed immediately after cleaning. Spot priming may be required periodically as other repairs are undertaken. Anti-corrosive primers generally consist of oil-alkyd based paints rich in zinc or zinc chromate.² Red lead is no longer available because of its toxicity. All metal primers, however, are toxic to some degree and should be handled carefully. Two coats of primer are recommended. Manufacturer's recommendations should be followed concerning application of primers.

REPAIR

Repair in Place

The maintenance procedures described above will be insufficient when corrosion is extensive, or when metal window sections are misaligned. Medium to heavy corrosion that has not done any structural damage to the metal sections can be removed either by using the chemical cleaning

process described under "Routine Maintenance" or by sandblasting. Since sandblasting can damage the masonry surrounds and crack or cloud the glass, metal or plywood shields should be used to protect these materials. The sandblasting pressure should be low, 80-100 pounds per square inch, and the grit size should be in the range of #10-#45. Glass peening beads (glass pellets) have also been successfully used in cleaning steel sections. While sandblasting equipment comes with various nozzle sizes, pencil-point blasters are most useful because they give the operator more effective control over the direction of the spray. The small aperture of the pencil-point blaster is also useful in removing dried putty from the metal sections that hold the glass. As with any cleaning technique, once the bare metal is exposed to air, it should be primed as soon as possible. This includes the inside rabbeted section of sash where glazing putty has been removed. To reduce the dust, some local codes allow only wet blasting. In this case, the metal must be dried immediately, generally with a blow-drier (a step that the owner should consider when calculating the time and expense involved). Either form of sandblasting metal covered with lead paints produces toxic dust. Proper precautionary measures should be taken against toxic dust and silica particles.

Bent or bowed metal sections may be the result of damage to the window through an impact or corrosive expansion. If the distortion is not too great, it is possible to realign the metal sections without removing the window to a metal fabricator's shop. The glazing is generally removed and pressure is applied to the bent or bowed section. In the case of a muntin, a protective 2 x 4 wooden bracing can be placed behind the bent portion and a wire cable with a winch can apply progressively more pressure over several days until the section is realigned. The 2 x 4 bracing is necessary to distribute the pressure evenly over the damaged section. Sometimes a section, such as the bottom of the frame, will bow out as a result of pressure exerted by corrosion and it is often necessary to cut the metal section to relieve this pressure prior to pressing the section back into shape and making a welded repair.

Once the metal sections have been cleaned of all corrosion and straightened, small holes and uneven areas resulting from rusting should be filled with a patching material and sanded smooth to eliminate pockets where water can accumulate. A patching material of steel fibers and an epoxy binder may be the easiest to apply. This steel-based epoxy is available for industrial steel repair; it can also be found in auto body patching compounds or in plumber's epoxy. As with any product, it is important to follow the manufacturer's instructions for proper use and best results. The traditional patching technique—melting steel welding rods to fill holes in the metal sections—may be difficult to apply in some situations; moreover, the window glass must be removed during the repair process, or it will crack from the expansion of the heated metal sections. After these repairs, glass replacement, hinge lubrication, painting, and other cosmetic repairs can be undertaken as necessary.

²Refer to Table IV. Types of Paint Used for Painting Metal in *Metals in American Historic Buildings*, p. 139. (See bibliography).

To complete the checklist for routine maintenance, cracked glass, deteriorated glazing compound, missing screws, and broken fasteners will have to be replaced; hinges cleaned and lubricated; the metal windows painted, and the masonry surrounds caulked. If the glazing must be replaced, all clips, glazing beads, and other fasteners that hold the glass to the sash should be retained, if possible, although replacements for these parts are still being fabricated. When bedding glass, use only glazing compound formulated for metal windows. To clean the hinges (generally brass or bronze), a cleaning solvent and fine bronze wool should be used. The hinges should then be lubricated with a non-greasy lubricant specially formulated for metals and with an anti-corrosive agent. These lubricants are available in a spray form and should be used periodically on frequently opened windows.

Final painting of the windows with a paint compatible with the anti-corrosive primer should proceed on a dry day. (Paint and primer from the same manufacturer should be used.) Two coats of finish paint are recommended if the sections have been cleaned to bare metal. The paint should overlap the glass slightly to insure weathertightness at that connection. Once the paint dries thoroughly, a flexible exterior caulk can be applied to eliminate air and moisture infiltration where the window and the surrounding masonry meet.

Caulking is generally undertaken after the windows have received at least one coat of finish paint. The perimeter of the masonry surround should be caulked with a flexible elastomeric compound that will adhere well to both metal and masonry. The caulking used should be a type intended for exterior application, have a high tolerance for material movement, be resistant to ultraviolet light, and have a minimum durability of 10 years. Three effective compounds (taking price and other factors into consideration) are polyurethane, vinyl acrylic, and butyl rubber. In selecting a caulking material for a window retrofit, it is important to remember that the caulking compound may be covering other materials in a substrate. In this case, some compounds, such as silicone, may not adhere well. Almost all modern caulking compounds can be painted after curing completely. Many come in a range of colors, which eliminates the need to paint. If colored caulking is used, the windows should have been given two coats of finish paint prior to caulking.

Repair in Workshop

Damage to windows may be so severe that the window sash and sometimes the frame must be removed for cleaning and extensive rust removal, straightening of bent sections, welding or splicing in of new sections, and reglazing. These major and expensive repairs are reserved for highly significant windows that cannot be replaced; the procedures involved should be carried out only by skilled workmen. (see fig. 6a—6f.)

As part of the orderly removal of windows, each window should be numbered and the parts labelled. The operable metal sash should be dismantled by removing the hinges; the fixed sash and, if necessary, the frame can then be unbolted or unscrewed. (The subframe is usually left in place. Built into the masonry surrounds, it can only be cut out with a torch.) Hardware and hinges should be labelled and stored together.

The two major choices for removing flaking paint and corrosion from severely deteriorated windows are dipping in a chemical bath or sandblasting. Both treatments require removal of the glass. If the windows are to be dipped, a phosphoric acid solution is preferred, as mentioned earlier. While the dip tank method is good for fairly evenly distributed rust, deep set rust may remain after dipping. For that reason, sandblasting is more effective for heavy and uneven corrosion. Both methods leave the metal sections clean of residual paint. As already noted, after cleaning has exposed the metal to the air, it should be primed immediately after drying with an anti-corrosive primer to prevent rust from recurring.

Sections that are seriously bent or bowed must be straightened with heat and applied pressure in a workshop. Structurally weakened sections must be cut out, generally with an oxy-acetylene torch, and replaced with sections welded in place and the welds ground smooth. Finding replacement metal sections, however, may be difficult. While most rolling mills are producing modern sections suitable for total replacement, it may be difficult to find an exact profile match for a splicing repair. The best source of rolled metal sections is from salvaged windows, preferably from the same building. If no salvaged windows are available, two options remain. Either an ornamental metal fabricator can weld flat plates into a built-up section, or a steel plant can mill bar steel into the desired profile.

While the sash and frame are removed for repair, the subframe and masonry surrounds should be inspected. This is also the time to reset sills or to remove corrosion from the subframe, taking care to protect the masonry surrounds from damage.

Missing or broken hardware and hinges should be replaced on all windows that will be operable. Salvaged windows, again, are the best source of replacement parts. If matching parts cannot be found, it may be possible to adapt ready-made items. Such a substitution may require filling existing holes with steel epoxy or with plug welds and tapping in new screw holes. However, if the hardware is a highly significant element of the historic window, it may be worth having reproductions made.

Following are illustrations of the repair and thermal upgrading of the rolled steel windows in a National Historic Landmark (fig. 6). Many of the techniques described above were used during this extensive rehabilitation. The complete range of repair techniques is then summarized in the chart titled *Steps for Cleaning and Repairing Historic Steel Windows* (see fig. 7).

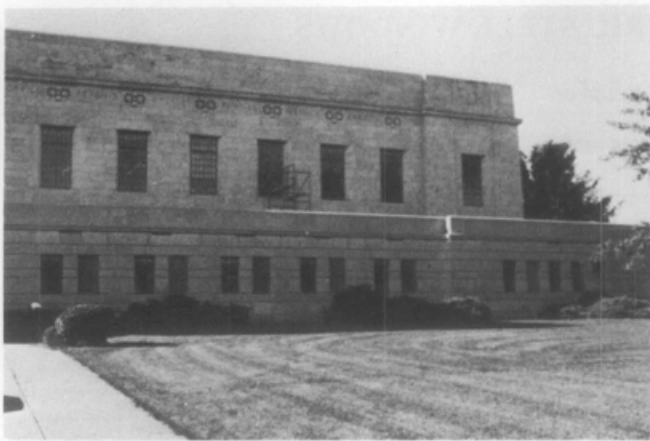


Fig. 6 a. View of the flanking wing of the State Capitol where the rolled steel casement windows are being removed for repair.

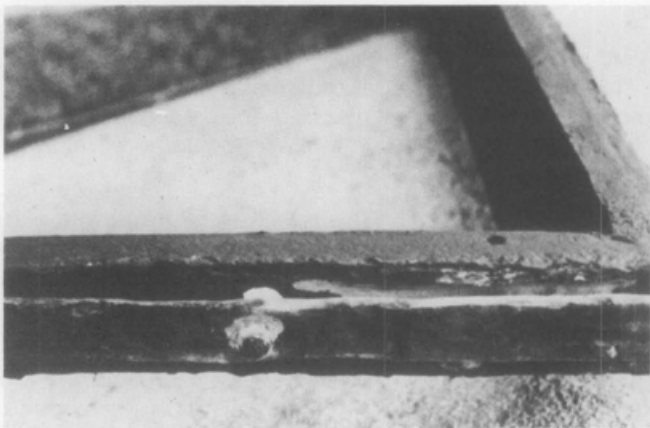


Fig. 6 c. View of the rusted frame which was unscrewed from the subframe and removed from the window opening and taken to a workshop for sandblasting. In some cases, severely deteriorated sections of the frame were replaced with new sections of milled bar steel.

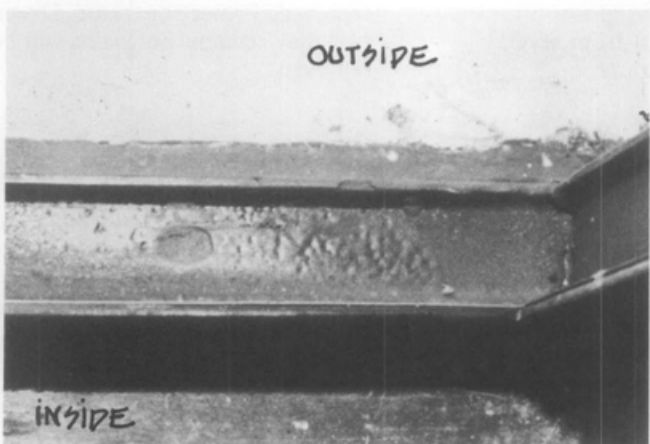


Fig. 6 e. View looking down towards the sill. The cleaned frame was reset in the window opening. The frame was screwed to the refurbished subframe at the jamb and the head only. The screw holes at the sill, which had been the cause of much of the earlier rusting, were infilled. Vinyl weatherstripping was added to the frame.

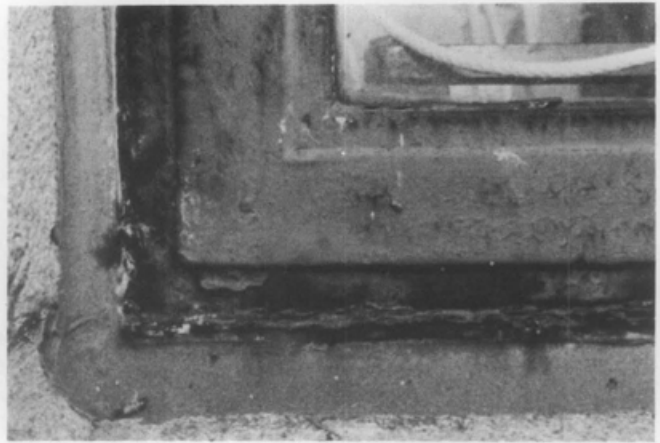


Fig. 6 b. View from the exterior showing the deteriorated condition of the lower corner of a window prior to repair. While the sash was in relatively good condition, the frame behind was rusted to the point of inhibiting operation.



Fig. 6 d. View looking down towards the sill. The subframes appeared very rusted, but were in good condition once debris was vacuumed and surface rust was removed, in place, with chemical compounds. Where necessary, epoxy and steel filler was used to patch depressions in order to make the subframe serviceable again.



Fig. 6 f. View from the outside of the completely refurbished window. In addition to the steel repair and the installation of vinyl weatherstripping, the exterior was caulked with polyurethane and the single glass was replaced with individual lights of thermal glass. The repaired and upgraded windows have comparable energy efficiency ratings to new replacement units while retaining the historic steel sash, frames and subframes.

Fig. 6. The repair and thermal upgrading of the historic steel windows at the State Capitol, Lincoln, Nebraska. This early twentieth century building, designed by Bertram Goodhue, is a National Historic Landmark. Photos: All photos in this series were provided by the State Building Division.

STEPS FOR CLEANING AND REPAIRING HISTORIC STEEL WINDOWS

Work Item	Recommended Techniques	Tools, Products and Procedures	Notes
	*(Must be done in a workshop)		
1. Removing dirt and grease from metal	General maintenance and chemical cleaning	Vacuum and bristle brushes to remove dust and dirt; solvents (denatured alcohol, mineral spirits), and clean cloths to remove grease.	Solvents can cause eye and skin irritation. Operator should wear protective gear and work in ventilated area. Solvents should not contact masonry. Do not flush with water.
2. Removing Rust/Corrosion			
Light	Manual and mechanical abrasion	Wire brushes, steel wool, rotary attachments to electric drill, sanding blocks and disks.	Handsanding will probably be necessary for corners. Safety goggles and masks should be worn.
	Chemical cleaning	Anti-corrosive jellies and liquids (phosphoric acid preferred); clean damp cloths.	Protect glass and metal with plastic sheets attached with tape. Do not flush with water. Work in ventilated area.
Medium	Sandblasting/abrasive cleaning	Low pressure (80-100 psi) and small grit (#10-#45); glass peening beads. Pencil blaster gives good control.	Removes both paint and rust. Codes should be checked for environmental compliance. Prime exposed metal promptly. Shield glass and masonry. Operator should wear safety gear.
Heavy	*Chemical dip tank	Metal sections dipped into chemical tank (phosphoric acid preferred) from several hours to 24 hours.	Glass and hardware should be removed. Protect operator. Deepset rust may remain, but paint will be removed.
	*Sandblasting/abrasive cleaning	Low pressure (80-100 psi) and small grit (#10-#45).	Excellent for heavy rust. Remove or protect glass. Prime exposed metal promptly. Check codes for environmental compliance. Operator should wear safety gear.
3. Removing flaking paint.	Chemical method	Chemical paint strippers suitable for ferrous metals. Clean cloths.	Protect glass and masonry. Do not flush with water. Have good ventilation and protection for operator.
	Mechanical abrasion	Pneumatic needle gun chisels, sanding disks.	Protect operator; have good ventilation. Well-bonded paint need not be removed if window closes properly.
4. Aligning bent, bowed metal sections	Applied pressure	Wooden frame as a brace for cables and winch mechanism.	Remove glass in affected area. Realignment may take several days.
	*Heat and pressure	Remove to a workshop. Apply heat and pressure to bend back.	Care should be taken that heat does not deform slender sections.

Work Item	Recommended Techniques	Tools, Products and Procedures	Notes
	*(Must be done in a workshop)		
5. Patching depressions	Epoxy and steel filler	Epoxy fillers with high content of steel fibers; plumber's epoxy or autobody patching compound.	Epoxy patches generally are easy to apply, and can be sanded smooth. Patches should be primed.
	Welded patches	Weld in patches using steel rods and oxy-acetylene torch or arc welder.	Prime welded sections after grinding connections smooth.
6. Splicing in new metal sections	*Cut out decayed sections and weld in new or salvaged sections	Torch to cut out bad sections back to 45° joint. Weld in new pieces and grind smooth.	Prime welded sections after grinding connection smooth.
7. Priming metal sections	Brush or spray application	At least one coat of anti-corrosive primer on bare metal. Zinc-rich primers are generally recommended.	Metal should be primed as soon as it is exposed. If cleaned metal will be repaired another day, spot prime to protect exposed metal.
8. Replacing missing screws and bolts	Routine maintenance	Pliers to pull out or shear off rusted heads. Replace screws and bolts with similar ones, readily available.	If new holes have to be tapped into the metal sections, the rusted holes should be cleaned, filled and primed prior to redrilling.
9. Cleaning, lubricating or replacing hinges and other hardware	Routine maintenance, solvent cleaning	Most hinges and closure hardware are bronze. Use solvents (mineral spirits), bronze wool and clean cloths. Spray with non-greasy lubricant containing anti-corrosive agent.	Replacement hinges and fasteners may not match the original exactly. If new holes are necessary, old ones should be filled.
10. Replacing glass and glazing compound	Standard method for application	Pliers and chisels to remove old glass, scrape putty out of glazing rabbet, save all clips and beads for reuse. Use only glazing compound formulated for metal windows.	Heavy gloves and other protective gear needed for the operator. All parts saved should be cleaned prior to reinstallation.
11. Caulking masonry surrounds	Standard method for application	Good quality (10 year or better) elastomeric caulking compound suitable for metal.	The gap between the metal frame and the masonry opening should be caulked; keep weepholes in metal for condensation run-off clear of caulk.
12. Repainting metal windows	Spray or brush	At least 2 coats of paint compatible with the anti-corrosive primer. Paint should lap the glass about 1/8" to form a seal over the glazing compound.	The final coats of paint and the primer should be from the same manufacturer to ensure compatibility. If spraying is used, the glass and masonry should be protected.

Fig. 7. STEPS FOR CLEANING AND REPAIRING HISTORIC STEEL WINDOWS. Compiled by Sharon C. Park, AIA.

WEATHERIZATION

Historic metal windows are generally not energy efficient; this has often led to their wholesale replacement. Metal windows can, however, be made more energy efficient in several ways, varying in complexity and cost. Caulking around the masonry openings and adding weatherstripping, for example, can be do-it-yourself projects and are important first steps in reducing air infiltration around the windows. They usually have a rapid payback period. Other treatments include applying fixed layers of glazing over the historic windows, adding operable storm windows, or installing thermal glass in place of the existing glass. In combination with caulking and weatherstripping, these treatments can produce energy ratings rivaling those achieved by new units.³

Weatherstripping

The first step in any weatherization program, caulking, has been discussed above under "Routine Maintenance." The second step is the installation of weatherstripping where the operable portion of the sash, often called the ventilator, and the fixed frame come together to reduce perimeter air infiltration (see fig. 8). Four types of weatherstripping appropriate for metal windows are spring-metal, vinyl strips, compressible foam tapes, and sealant beads. The spring-metal, with an integral friction fit mounting clip, is recommended for steel windows in good condition. The clip eliminates the need for an applied glue; the thinness of the material insures a tight closure. The weatherstripping is clipped to the inside channel of the rolled metal section of the fixed frame. To insure against galvanic corrosion between the weatherstripping (often bronze or brass), and the steel window, the window must be painted prior to the installation of the weatherstripping. This weatherstripping is usually applied to the entire perimeter of the window opening, but in some cases, such as casement windows, it may be best to avoid weatherstripping the hinge side. The natural wedging action of the weatherstripping on the three sides of the window often creates an adequate seal.

Vinyl weatherstripping can also be applied to metal windows. Folded into a "V" configuration, the material forms a barrier against the wind. Vinyl weatherstripping is usually glued to the frame, although some brands have an adhesive backing. As the vinyl material and the applied glue are relatively thick, this form of weatherstripping may not be appropriate for all situations.

Compressible foam tape weatherstripping is often best for large windows where there is a slight bending or distortion of the sash. In some very tall windows having closure hardware at the sash mid-point, the thin sections

of the metal window will bow away from the frame near the top. If the gap is not more than 1/4", foam weatherstripping can normally fill the space. If the gap exceeds this, the window may need to be realigned to close more tightly. The foam weatherstripping comes either with an adhesive or plain back; the latter variety requires application with glue. Compressible foam requires more frequent replacement than either spring-metal or vinyl weatherstripping.

A fourth type of successful weatherstripping involves the use of a caulking or sealant bead and a polyethylene bond breaker tape. After the window frame has been thoroughly cleaned with solvent, permitted to dry, and primed, a neat bead of low modulus (firm setting) caulk, such as silicone, is applied. A bond breaker tape is then applied to the operable sash covering the metal section where contact will occur. The window is then closed until the sealant has set (2-7 days, depending on temperature and humidity). When the window is opened, the bead will have taken the shape of the air infiltration gap and the bond breaker tape can be removed. This weatherstripping method appears to be successful for all types of metal windows with varying degrees of air infiltration.

Since the several types of weatherstripping are appropriate for different circumstances, it may be necessary to use more than one type on any given building. Successful weatherstripping depends upon using the thinnest material adequate to fill the space through which air enters. Weatherstripping that is too thick can spring the hinges, thereby resulting in more gaps.

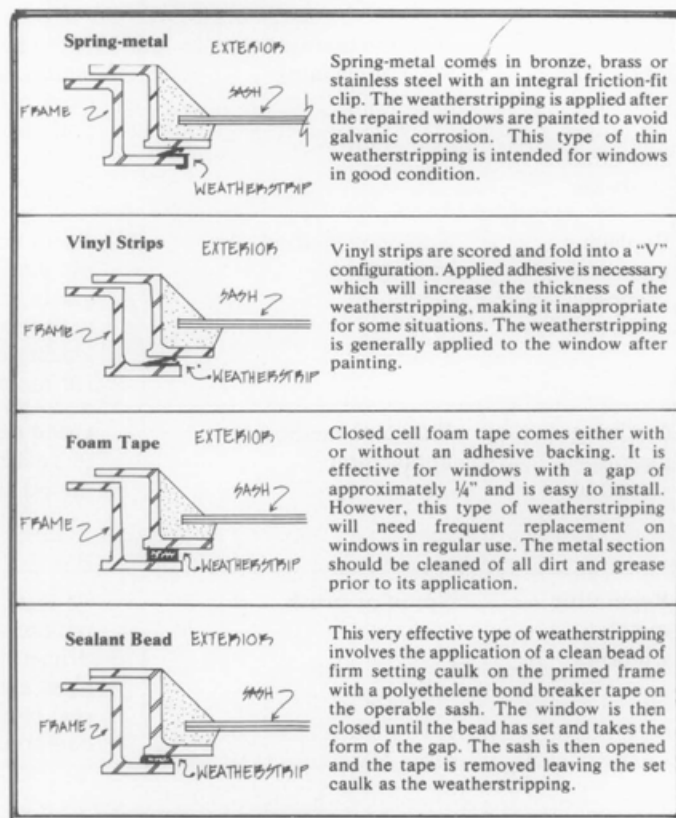


Fig. 8 APPROPRIATE TYPES OF WEATHERSTRIPPING FOR METAL WINDOWS. Weatherstripping is an important part of upgrading the thermal efficiency of historic steel windows. The chart above shows the jamb section of the window weatherstripping in place. Drawings: Sharon C. Park, AIA.

³One measure of energy efficiency is the U-value (the number of BTUs per hour transferred through a square foot of material). The lower the U-value, the better the performance. According to *ASHRAE HANDBOOK-1977 Fundamentals*, the U-value of historic rolled steel sash with single glazing is 1.3. Adding storm windows to the existing units or reglazing with 5/8" insulating glass produces a U-value of .69. These methods of weatherizing historic steel windows compare favorably with rolled steel replacement alternatives: with factory installed 1" insulating glass (.67 U-value); with added thermal-break construction and factory finish coatings (.62 U-value).

Thermal Glazing

The third weatherization treatment is to install an additional layer of glazing to improve the thermal efficiency of the existing window. The decision to pursue this treatment should proceed from careful analysis. Each of the most common techniques for adding a layer of glazing will effect approximately the same energy savings (approximately double the original insulating value of the windows); therefore, cost and aesthetic considerations usually determine the choice of method. Methods of adding a layer of glazing to improve thermal efficiency include adding a new layer of transparent material to the window; adding a separate storm window; and replacing the single layer of glass in the window with thermal glass.

The least expensive of these options is to install a clear material (usually rigid sheets of acrylic or glass) over the original window. The choice between acrylic and glass is generally based on cost, ability of the window to support the material, and long-term maintenance outlook. If the material is placed over the entire window and secured to the frame, the sash will be inoperable. If the continued use of the window is important (for ventilation or for fire exits), separate panels should be affixed to the sash without obstructing operability (see fig. 9). Glass or acrylic panels set in frames can be attached using magnetized gaskets, interlocking material strips, screws or adhesives. Acrylic panels can be screwed directly to the metal windows, but the holes in the acrylic panels should allow for the expansion and contraction of this material. A compressible gasket between the prime sash and the storm panel can be very effective in establishing a thermal cavity between glazing layers. To avoid condensation, 1/8" cuts in a top corner and diagonally opposite bottom corner of the gasket will provide a vapor bleed, through which moisture can evaporate. (Such cuts, however, reduce thermal performance slightly.) If condensation does occur, however, the panels should be easily removable in order to wipe away moisture before it causes corrosion.

The second method of adding a layer of glazing is to have independent storm windows fabricated. (Pivot and astral windows, however, which project on either side of the window frame when open, cannot easily be fitted with storm windows and remain operational.) The storm window should be compatible with the original sash configuration. For example, in paired casement windows, either specially fabricated storm casement windows or sliding units in which the vertical meeting rail of the slider reflects the configuration of the original window should be installed. The decision to place storm windows on the inside or outside of the window depends on whether the historic window opens in or out, and on the visual impact the addition of storm windows will have on the building. Exterior storm windows, however, can serve another purpose besides saving energy: they add a layer of protection against air pollutants and vandals, although they will partially obscure the prime window. For highly ornamental windows this protection can determine the choice of exterior rather than interior storm windows.

The third method of installing an added layer of glazing is to replace the original single glazing with thermal glass. Except in rare instances in which the original glass is of special interest (as with stained or figured glass), the glass can be replaced if the hinges can tolerate the weight of the additional glass. The rolled metal sections for steel windows are generally from 1" - 1 1/2" thick. Sash of this thickness can normally tolerate thermal glass, which ranges from 3/8" - 5/8". (Metal glazing beads, readily available, are used to reinforce the muntins, which hold the glass.) This treatment leaves the window fully operational while preserving the historic appearance. It is, however, the most expensive of the treatments discussed here. (See fig. 6f).

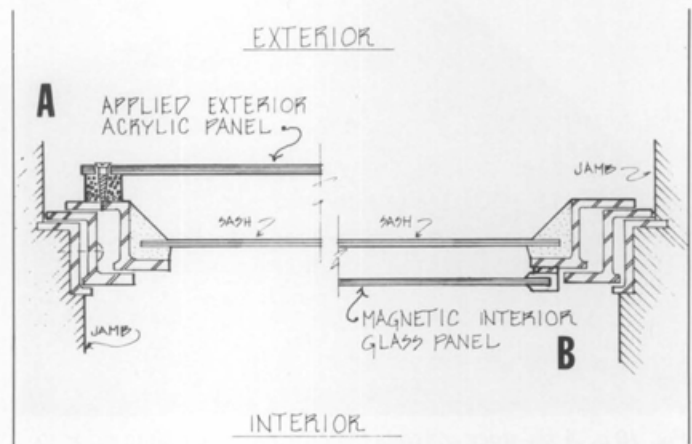


Fig. 9 Two examples of adding a second layer of glazing in order to improve the thermal performance of historic steel windows. Scheme A (showing jamb detail) is of a 1/4" acrylic panel with a closed cell foam gasket attached with self-tapping stainless steel screws directly to the exterior of the outwardly opening sash. Scheme B (showing jamb detail) is of a glass panel in a magnetized frame affixed directly to the interior of the historic steel sash. The choice of using glass or acrylic mounted on the inside or outside will depend on the ability of the window to tolerate additional weight, the location and size of the window, the cost, and the long-term maintenance outlook. Drawing: Sharon C. Park, AIA.

WINDOW REPLACEMENT

Repair of historic windows is always preferred within a rehabilitation project. Replacement should be considered only as a last resort. However, when the extent of deterioration or the unavailability of replacement sections renders repair impossible, replacement of the entire window may be justified. In the case of significant windows, replacement in kind is essential in order to maintain the historic character of the building. However, for less significant windows, replacement with compatible new windows may be acceptable. In selecting compatible replacement windows, the material, configuration, color, operability, number and size of panes, profile and proportion of metal sections, and reflective quality of the original glass should be duplicated as closely as possible.

A number of metal window manufacturing companies produce rolled steel windows. While stock modern window designs do not share the multi-pane configuration of

historic windows, most of these manufacturers can reproduce the historic configuration if requested, and the cost is not excessive for large orders (see figs. 10a and 10b). Some manufacturers still carry the standard pre-World War II multi-light windows using the traditional 12" x 18" or 14" x 20" glass sizes in industrial, commercial, security, and residential configurations. In addition, many of the modern steel windows have integral weatherstripping, thermal break construction, durable vinyl coatings, insulating glass, and other desirable features.



Fig. 10 a. A six-story concrete manufacturing building prior to the replacement of the steel pivot windows. Photo: Charles Parrott.



Fig. 10 b. Close-up view of the new replacement steel windows which matched the multi-lighted originals exactly. Photo: Charles Parrott.

Windows manufactured from other materials generally cannot match the thin profiles of the rolled steel sections. Aluminum, for example, is three times weaker than steel and must be extruded into a box-like configuration that does not reflect the thin historic profiles of most steel windows. Wooden and vinyl replacement windows generally are not fabricated in the industrial style, nor can they reproduce the thin profiles of the rolled steel sections, and consequently are generally not acceptable replacements.

For product information on replacement windows, the owner, architect, or contractor should consult manufacturers' catalogues, building trade journals, or the Steel Window Institute, 1230 Keith Building, Cleveland, Ohio 44115.

SUMMARY

The National Park Service recommends the retention of significant historic metal windows whenever possible. Such windows, which can be a character-defining feature of a historic building, are too often replaced with inappropriate units that impair rather than complement the overall historic appearance. The repair and thermal upgrading of historic steel windows is more practicable than most people realize. Repaired and properly maintained metal windows have greatly extended service lives. They can be made energy efficient while maintaining their contribution to the historic character of the building.

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The author gratefully acknowledges the invaluable assistance of co-worker Michael Auer in preparing this brief for publication. This publication is an extension of research initiated by Frederec E. Kleye. Special thanks are given to Hope's Architectural Products, Inc., Jamestown, NY, for their generous contribution of historic metal window catalogues which were an invaluable source of information. The following individuals are also to be thanked for reviewing the manuscript and making suggestions: Hugh Miller, Chief, Park Historic Architecture Division, National Park Service; Barclay L. Rogers, Museum Services, National Park Service; Susan M. Young, Steel Window Institute, and Danny Schlichenmaier, State Building Division, Lincoln, Nebraska. Finally, thanks go to Technical Preservation Services Branch staff and to cultural resources staff of the National Park Service Regional Offices, whose valuable comments were incorporated into the final text and who contributed to the publication of this brief.

This publication has been prepared pursuant to the Economic Recovery Tax Act of 1981, which directs the Secretary of the Interior to certify rehabilitations of historic buildings that are consistent with their historic character; the guidance provided in this brief will assist property owners in complying with the requirements of this law.

Preservation Briefs: 13 has been developed under the technical editorship of Lee H. Nelson, AIA, Chief, Preservation Assistance Division, National Park Service, U.S. Department of the Interior, Washington, D.C. 20240. Comments on the usefulness of this information are welcomed and can be sent to Mr. Nelson at the above address.

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C650 Ultra™ Series

FIBERGLASS WINDOWS AND PATIO DOORS

MODERN LOOK
EXCEPTIONALLY STRONG
PREMIUM QUALITY

By MITER Brands™

C650



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MILGARD offers beautiful, worry-free windows and patio doors to frame each of life's little moments. Our exacting manufacturing processes and the innovations we develop mean you get reliable windows and doors that perform year after year. With MILGARD, you'll receive a level of service and quality others simply can't match, backed with an industry-leading warranty.

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Framing home in a new light

The path to perfect windows and doors has never been more clear. From tranquil mornings to family dinners, MILGARD seamlessly connects you to what matters most: windows and patio doors that frame life's most meaningful moments.

As a trusted brand for more than half a century, MILGARD offers products that promise long-lasting comfort, protection, and exceptional quality day after day, year after year.

EXPERIENCE IS EVERYTHING

Our experts match you with attractive, reliable windows and patio doors that best fit your home, your needs, and your price point.

CONFIDENCE TO CREATE

We deliver the highest-quality windows and patio doors through our passion for craftsmanship and a relentless pursuit of 100%.

EVERY DETAIL, EVERY DAY

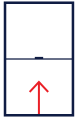
From robust testing and precision manufacturing processes to the innovations we develop for your comfort, every detail matters.

Bring your home to life

Elevate your home and unveil a stunning look with our C650 Ultra™ Series. Made from fiberglass, one of the strongest materials on the market today, the C650 is long lasting and low maintenance. Complement any architectural style or interior design with the ultimate, upscale window or patio door that's exceptionally beautiful and built to last.

SERIES OPTIONS

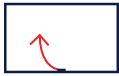
WINDOWS



Single-Hung



Casement



Awning



Horizontal Slider



Double Vent



Bay



Bow



Picture

PATIO DOORS



Sliding French



Swing French



Finish options
Choose Bark or Black Bean finishes to create the popular dark window look with matching interior and exterior frames.

See our entire Ultra Series offering online!



Even sightlines
Enjoy even sightlines from top to bottom and across operating styles for a streamlined and aesthetically pleasing look throughout your home.

Timeless and traditional

MILGARD offers the best in traditional styling for your home. The C650 Ultra™ Series windows and patio doors will give your home a classic look without sacrificing contemporary color options. With the Ultra™ Series, you can create the popular dark window look with matching interior and exterior frames in Black Bean or Bark. If you are designing a home that combines a timeless charm with modern features, the C650 Ultra™ Series is for you.

HARDWARE



Positive Action™ Lock

- Single-Hung
- Horizontal Slider



Cam Lock

- Single-Hung
- Horizontal Slider



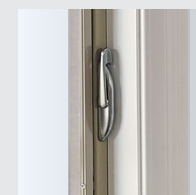
Sash Pull

- Single-Hung
- Horizontal Slider



Folding Nesting Operator

- Casement
- Awning



Sash Lock

- Casement
- Awning

Window hardware is available in a range of finishes, including white, dark bronze, black, and brushed chrome. See page 10 for all available window and hardware finishes.

See our entire
Ultra Series
window offering
online!



“SOLID CRAFTSMANSHIP
AND THEY BRING A HIGHER
LEVEL OF SOPHISTICATION
TO THE HOME.”

— Santa Barbara, CA

INSTALLATION CONFIGURATIONS

Buying windows doesn't have to be complicated. MILGARD makes it simple, from the planning stages through project completion. We'll help you understand which frame type suits your project and home style.

Nail Fin



The nail fin is attached directly to the house's frame in new construction and replacement projects where studs are exposed.

Z-Bar



This configuration comes with a flange on the exterior of the window to cover and seal the frame on homes with stucco.

Block

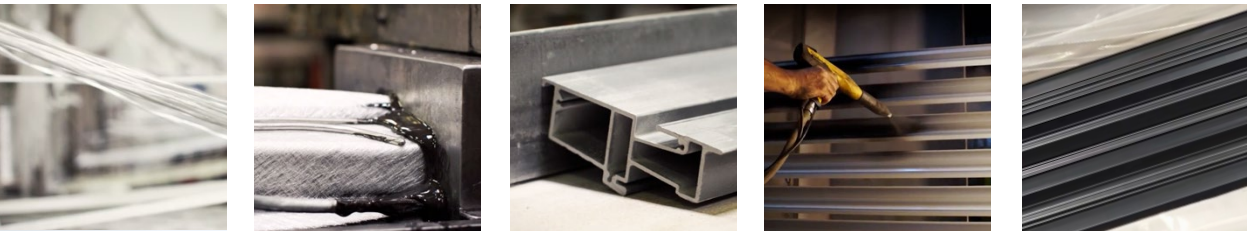


Commonly used for replacement projects, this window inserts into your existing frame, leaving interior and exterior trim undisturbed.

EXCEPTIONALLY STRONG

The strength of fiberglass protects your investment from the elements in all seasons. Because of its inherent properties, fiberglass won't swell like wood and it expands and contracts at the same minimal rate as the glass, resulting in improved performance and energy efficiency.

Fiberglass won't peel, warp, split, pit, or corrode, and is virtually impervious to water. MILGARD regularly tests its fiberglass lineals for color uniformity, gloss, film thickness, and chemical resistance for quality and long-lasting performance you can count on.



OUR APPROACH

Our windows insulate as well as elevate, tirelessly working to seal out the elements and create homes that are protected, comfortable, and quiet. The path to perfect windows and doors has never been more clear.

Window features

- 1 **FIBERGLASS FRAME**

The frame expands and contracts at approximately the same rate as the insulated glass it holds, putting less stress on the seals for improved performance and clear views.
- 2 **EASY TO OPERATE**

Enjoy smooth operation with either a full counterbalance system (in hung windows) or stainless-steel rollers (for slider windows) that make the window easy to open and close.
- 3 **SAFETY AND SECURITY**

The Positive Action™ and Cam locking systems exceed forced entry codes, giving you peace of mind inside your home.
- 4 **ENERGY EFFICIENT**

Tested and built for your climate, our windows and doors adhere to ENERGY STAR® v6 requirements for energy performance.
- 5 **INDUSTRY-LEADING WARRANTY**

You're covered for up to 20 years with our Lifetime Limited Warranty.



“WE ABSOLUTELY LOVE THIS DOOR!
IT LOOKS PERFECT, LIKE IT ALWAYS
BELONGED THERE.”
— Happy Valley, OR

Create seamless transitions

PATIO DOORS

Bring the outside in with the C650 Ultra™ Series patio door. Available in French sliding, in-swing, and out-swing configurations, this patio door beautifully merges your interior space with the exterior world. Sliding doors are engineered with top-quality rollers for impressively smooth and quiet operation. Swing doors offer two-way adjustable hinges for easy door panel alignment. With stainless steel, multi-point locking hardware for security and performance, these French doors are a simple addition that can add intricate detail to your space.

HARDWARE

SLIDING DOOR

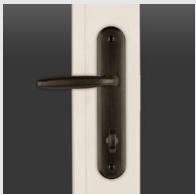


Standard Sliding Door Interior Handle



Standard Sliding Door Exterior Handle

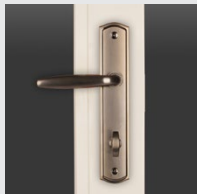
SWING DOOR



Meridian Swing Door Interior Handle

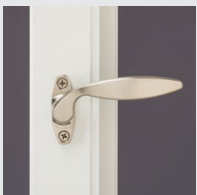


Madrona Swing Door Interior Handle



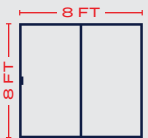
Mastri Swing Door Interior Handle

SIDELITE

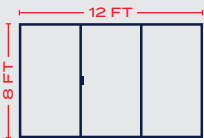


Sidelite Handle

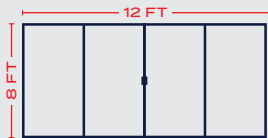
MAXIMUM SLIDING DOOR SIZING



2-Panel

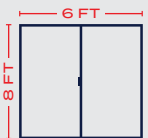


3-Panel

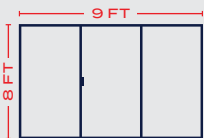


4-Panel

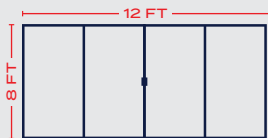
MAXIMUM SWING DOOR SIZING



2-Panel



3-Panel



4-Panel

Door sizes and configurations of moving and fixed panels vary by location; please consult your MILGARD dealer for doors available in your area.



See our entire Ultra Series patio door offering online!



WINDOWS AND PATIO DOORS

Finish options

The C650 Ultra™ Series windows and patio doors have fiberglass frames inside and out with four exterior colors available. Each exterior color can be paired with a white or color-matched interior.



See even more Ultra Series customization options online.

INTERIOR AND EXTERIOR FINISHES

Frost

Harmony

Bark

Black Bean

All finishes are available with white or color-matched interior

WINDOW HARDWARE FINISHES

White

Brushed Chrome

Dark Bronze

Satin Nickel
Casement or awning windows only

Clay

Black

DOOR HARDWARE FINISHES

White

Oil Rubbed Bronze

Black

Satin Nickel
Swing door option only

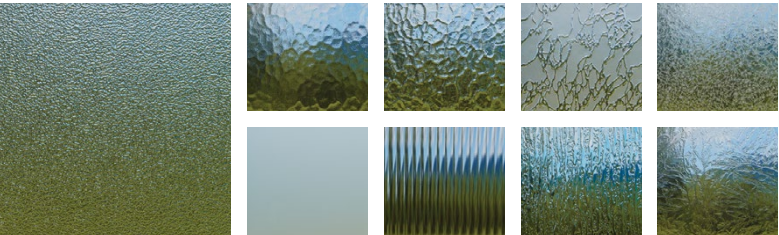
Brushed Chrome
Swing door option only

Sidelite handle finish will match interior door handle finish.

On-screen and printed color representations may vary from actual finish colors.

GLASS

Select clear glass or choose from an assortment of obscure options for privacy in a bathroom or bedroom. We also have tinted glass for additional shading from direct sunlight.



ENERGY EFFICIENCY

Our products can meet ENERGY STAR® standards in the climate zones we serve. Our warm-edge spacers help to lower conductivity, improve argon gas retention, and increase condensation resistance. Low-E coatings help reflect the sunlight away from your home, maintaining interior temperatures.

What is Low-E?
Low-E glass blocks the bad stuff and lets in only the light you want.

Reflects UV rays and radiant heat

Sunlight allowed to pass through

GRIDS

Grids between the glass allow for easy cleaning, while simulated divided lites (SDL) create a more historical look.

Flat Grids
Between the Glass

Sculptured Grids
Between the Glass

3/4" Vintage SDL

1-1/8" Vintage SDL

SCREENS

Choose from standard screens or PureView® mesh for a clearer view outside.

Standard Mesh
Lets fresh air in and keeps most everything else out

PureView® Mesh
Finer mesh allows for clearer views and better particle protection

OUR COMMITMENT TO YOU

We have a dedication to quality and build our windows and patio doors to last. With the C650 Ultra™ Series, you're covered for up to 20 years with our industry-leading Lifetime Limited Warranty.

See complete details at
milgard.com/warranty

OUR GOAL IS 100% TROUBLE-FREE

With a goal of 100% trouble-free, our teams work tirelessly to help ensure your project stays on track.

From regular inspections and quality audits throughout the manufacturing process, we strive to ensure that the final product you receive meets our high standards.

In addition, most MILGARD windows and patio doors carry the American Architectural Manufacturers Association (AAMA) Gold Label to show they have met their strict requirements, which are tested and certified by a third party. This rigorous testing includes water penetration, air leakage, structural integrity, and forced entry resistance.





C650 ULTRA™ SERIES

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WINDOWS and DOORS

Success means getting it right
in every detail, every time.
Build boldly with MILGARD.

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By MITER Brands™

A family of leading window and door
brands, united by our passion for
quality and relentless pursuit of 100%.

miterbrands.com

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C650-0323

Historic Preservation Design Review: Warnoco Building Exterior Alterations

HPDR2023-0004

1407 2nd Street

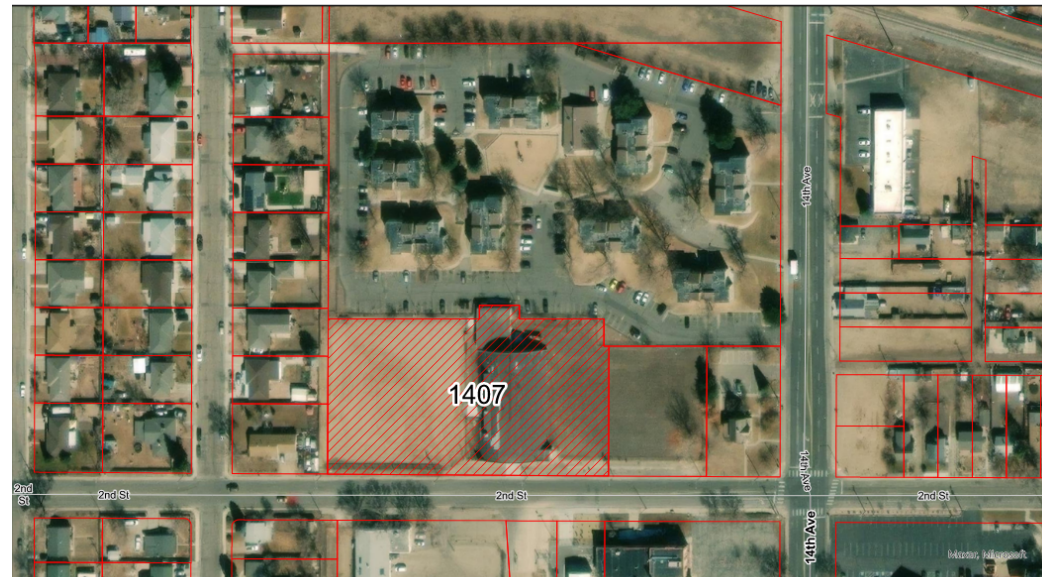
Historic Preservation Commission

September 18, 2023



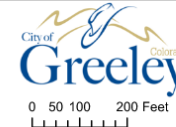
Site Map

1407 2nd Street Vicinity Map



Legend

- Subject Site
- Greeley Parcels





Overview

- Proposed Project
- Photos
- Architectural Drawings
- Criteria & Standards, Section 24-1003(j)(1)
- Public Notice
- Recommendation
- Public Hearing Procedure
- Recommended Motion

Proposed Project

- Repoint masonry as needed
- Replace existing steel windows with fiberglass
- Remove existing west entrance and replace with projecting storefront w/ blue metal siding & slanted roof on west
- Create projecting entrance/access with blue metal siding & slanted roof on east
- Finish east vestibule with vertical siding



South



West



West

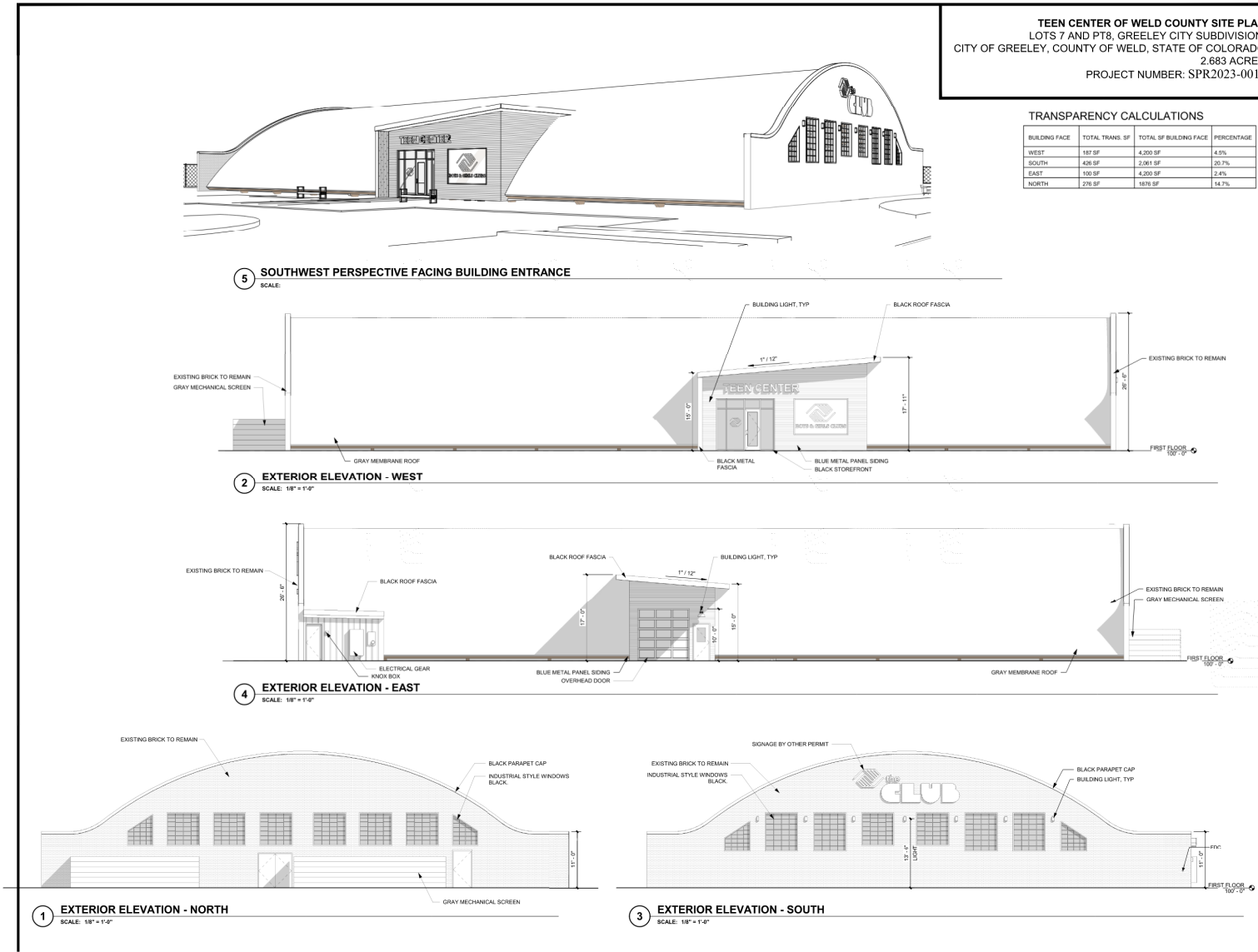


North



East





TEEN CENTER OF WELD COUNTY

SITE PLAN

GREELEY, CO
PREPARED BY:

PLANNER / LANDSCAPE ARCHITECT
RIPLEY DESIGN INC.
Joel Winkert
419 Canyon Ave. Suite 200
Fort Collins, CO 80521
p. 970.226.8628

OWNER
Boys & Girls Club of Weld County
Tony Adams
1011 Ave A17
Greeley, CO 80632
p. 970.573.6729

ARCHITECT
VAUGHN FRYE LARSON ARCHITECTS +
Interior
Chris Anderson
419 Canyon Ave. Suite 200
Fort Collins, CO 80521
p. 970.224.1191

ENGINEER
Eric Westerman P.E.
Eric Westerman P.E.
1602 Evans Rd S.
Pueblo, CO 81001
p. 970.850.2400

ORIGINAL SITE ZONING

ISSUED	DATE
01 SITE PLAN	03/07/2023
02 PRELIMINARY	04/02/2023
03 PRELIMINARY	06/02/2023
04 FINAL PLANS	07/26/2023

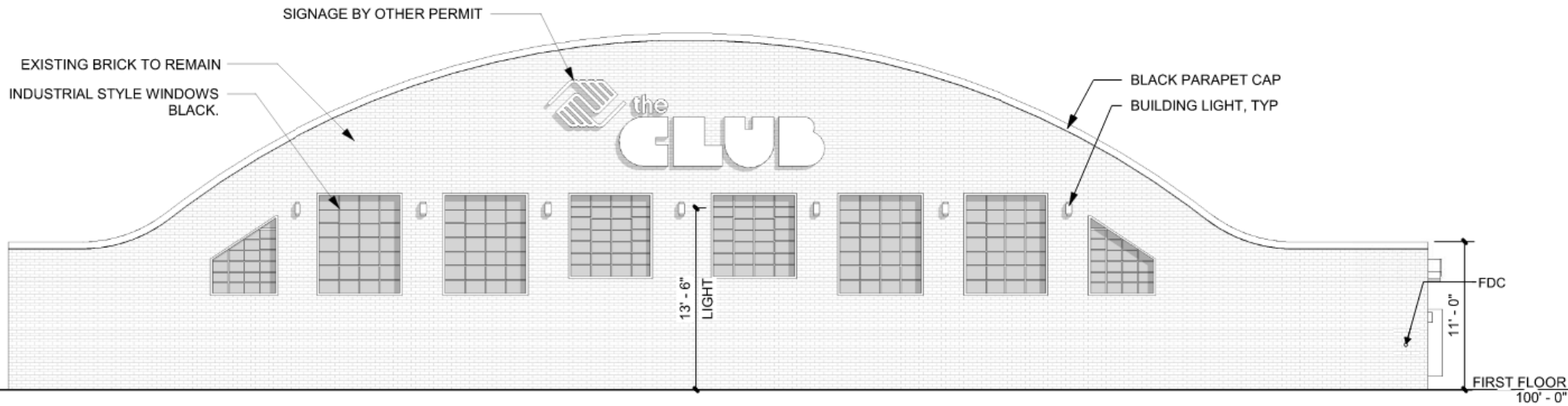
REVISIONS

Nr.	DESCRIPTION	DATE

SEAL:

ENTITLEMENT
DRAWINGS
NOT FOR
CONSTRUCTION

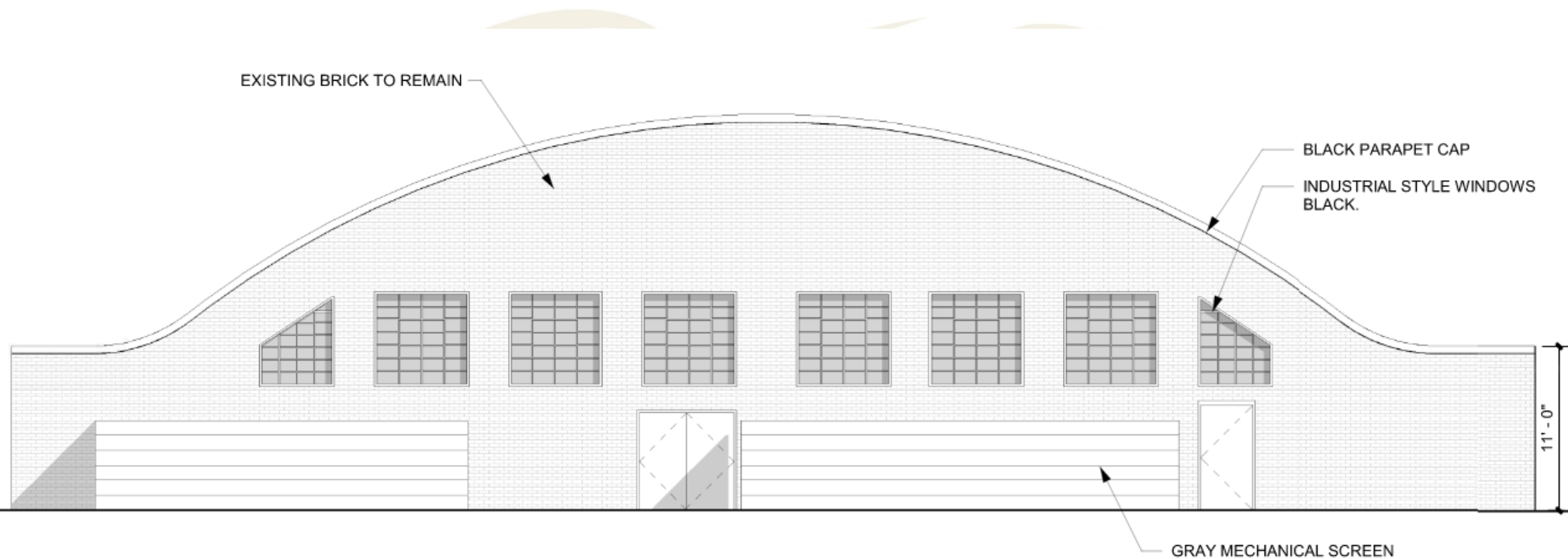
PROJECT NO.: R21-048
DRAWN BY: LC
REVIEWED BY: AW
DRAWING NUMBER:
A1



3 EXTERIOR ELEVATION - SOUTH



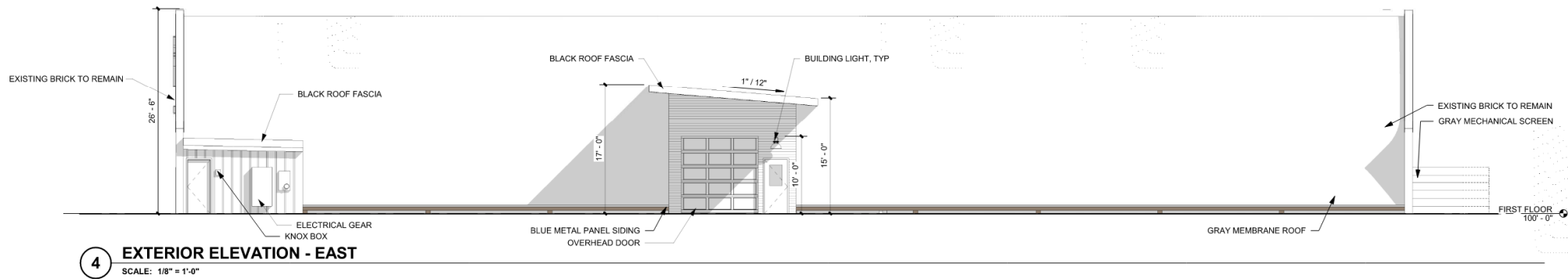
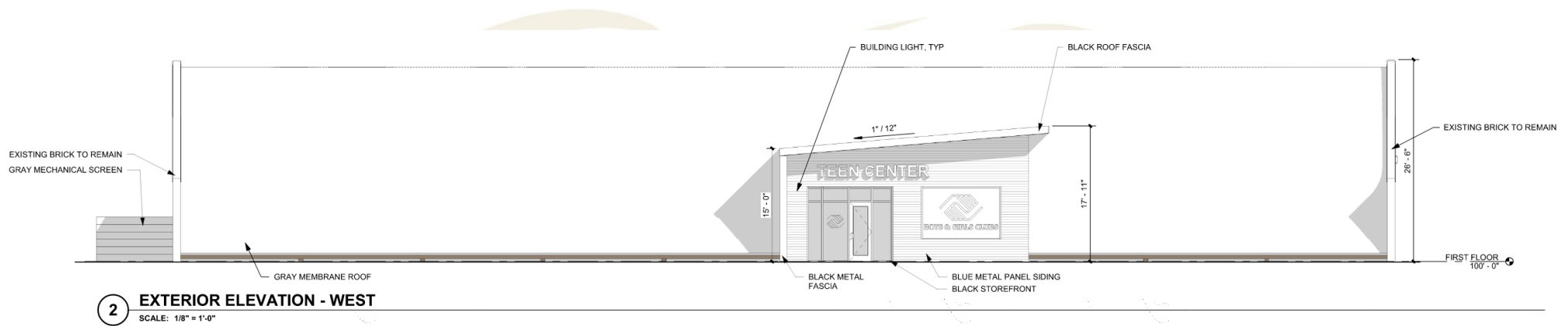
Elevation Drawings - South



1 EXTERIOR ELEVATION - NORTH
 SCALE: 1/8" = 1'-0"

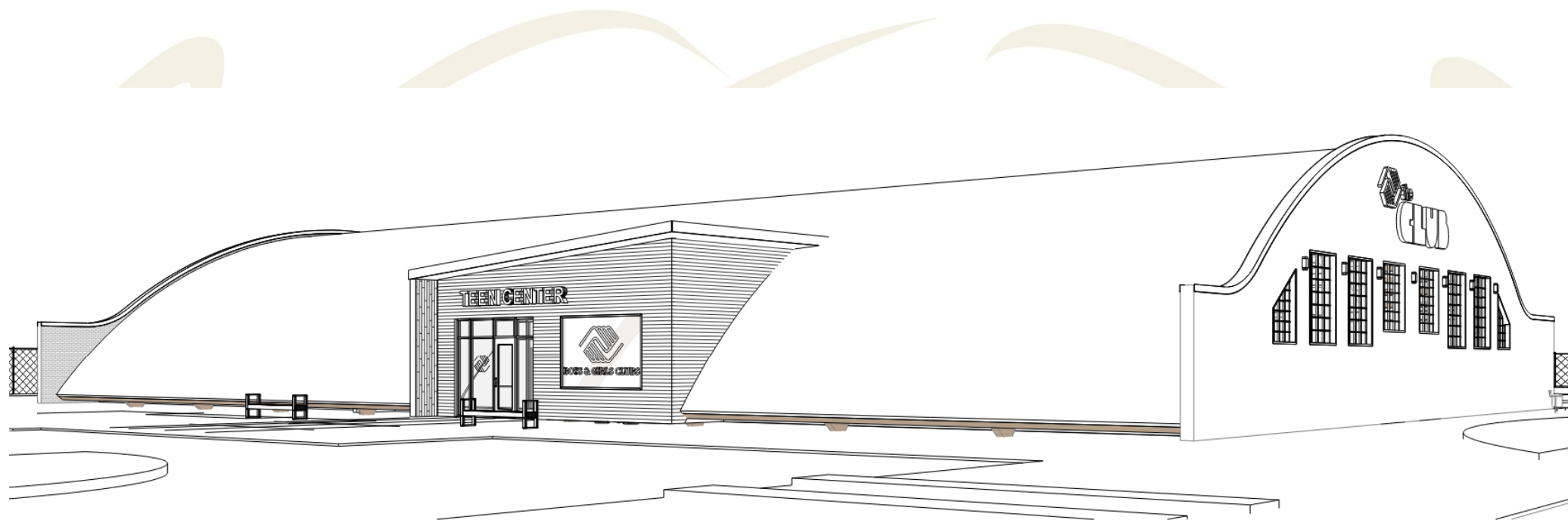


Elevation Drawing - North



City of
Greeley Colorado

Elevation Drawings – E&W



5 SOUTHWEST PERSPECTIVE FACING BUILDING ENTRANCE
SCALE:

Section 24-1003(j)(1)

Criteria and Standards

- a – Effect of alteration on character
- b – Architectural relation of proposed to other buildings
- c – Effect on architectural features and details
- e – Effect on protection, enhancement, perpetuation and use
- f – Compliance with Secretary's Standards (#2,3,4,5,6,7,9,10)
- h – General Design Review Guidelines



Public Notice

- Posted at the property – August 30, 2023
- Email notice to owner/applicant – August 25, 2023
- Web notice – September 1, 2023



Recommendation

- Approval of the following project components:
 - Masonry repointing
 - Replacement of north windows
 - Installation of east and west entrances
 - Rehabilitation of the entry vestibule on south end of east elevation
- Applicant complete an assessment of the condition of all south windows to determine if can be repaired & paired w/ storm windows or need to be replaced. Applicant to work w/ Staff on final determination.



Public Hearing Procedure

1. Conclude Staff presentation
2. HPC asks questions of Staff
3. HPC asks questions of the Applicant
4. Public Hearing opens
 - *Citizen input received*
5. Public Hearing closes
 - *No additional citizen comments accepted after this time*
6. Historic Preservation Commission confers & asks any additional questions
7. Motion is provided – on Agenda summary



Recommended Motion

- A motion that, based on the application received and the preceding analysis, the Commission finds that the proposed masonry repointing, north window replacement, east and west entrances and the rehabilitation of the entry vestibule on the south end of the east elevation meets (1) Criteria and Standards a, b, c, e, f, and h of Section 24-1003(j)(1) of the Greeley Municipal Code, and therefore approves the request for a Certificate of Approval, with the following conditions:
 - 1. the applicant will provide documentation of the current condition of the windows. Staff will review the documentation and make a determination if the south windows can be rehabilitated and paired with storm windows or if they need to be replaced; if the applicant disagrees with the staff determination, they can address the Commission at the following regularly scheduled Commission hearing, and
 - 2. the applicant will complete a mortar analysis to ensure the proper mortar is used for the repointing. The analysis should be shared with Historic Preservation Staff to verify this is completed prior to repointing beginning; and
 - 3. the applicant will obtain all required permits.



Historic Preservation Commission Agenda Summary

September 18, 2023

Key Staff Contact: Betsy Kellums, Planner III – Historic Preservation, 970-350-9222

Title:

Review of Historic Preservation Commission Operating Rules and Procedures

Summary:

In 2016, the Historic Preservation Commission revised the bylaws and rules of procedure and adopted the Operating Rules and Procedures. The Commission has not reviewed them since their adoption and Staff recommends the Commission review them on an annual basis.

Section IV. H. of the Rules and Procedures requires that a Commission Member resign effective immediately if they run for any elective office, including School Board, County office, State office, etc. The overall City policy only requires Commissioners who run for the City Council to resign from their Council-appointed boards. Staff recommends review of that clause and the entire document to determine if the policies are still appropriate. Staff recommends that the only elective board that is likely to present a significant conflict of interest is City Council, and that running for other elective offices and/or serving in other elected positions would not require resignation from the Commission. If removed, the Historic Preservation Commission would follow the overall City policy.

Staff recommends removing Section IV. H.:

H. VACANCY CONCERNING ELECTIVE OFFICE:

A vacancy shall exist when a Commission member accepts a nomination, designation, appointment, or otherwise announces that he/she is seeking any governmental elective office.

Recommended Action:

Remove Section IV. H. and make other revisions as deemed appropriate by the Commission.

Attachments:

HPC Operating Rules and Procedures

OPERATING RULES AND PROCEDURES

GREELEY HISTORIC PRESERVATION COMMISSION

Adopted March 14, 2016

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I. POWERS

The Historic Preservation Commission (“Commission”) shall have all the powers and perform each and all of the duties specified by Chapter 16.60 of the Greeley Municipal Code, as amended, together with any other duties or authorities which may hereafter be conferred upon the Commission by the Greeley City Council. The performance of such duties and the exercises of such authority shall be subject to each and all of the limitations expressed in the Greeley Municipal Code.

The Operating Rules and Procedures are enacted consistent with the authority set forth in Chapter 16.60 of the Greeley Municipal Code. These Operating Rules and Procedures are not intended to restate the provisions therein. These Operating Rules and Procedures neither expand nor restrict the powers of the Commission as set forth in the Greeley Municipal Code.

II. PLACE OF BUSINESS

Administrative business of the Commission, including the filing of applications, payment of any fees and maintenance of official records regarding Commission actions, shall be conducted by the Historic Preservation Specialist through the Community Development Department.

III. MEETINGS

Commission meetings will be posted consistent with public meeting laws.

The agenda for all meetings shall be prepared by designated City staff and provided to the Commission prior to any meetings.

SPECIAL MEETINGS:

The Chair of the Commission may, when necessary, upon public notice call a Special Meeting of the Commission for the purpose of transacting any business designated in the notice thereof. A “Special Meeting” is a meeting held at other than the designated dates and times of a Regular Meeting. The notice of the Special Meeting, which has been authorized by the Chair, shall be delivered to at least 4 Commission members at least 24

hours in advance of the Special Meeting. At such Special Meeting, no business shall be considered other than as designated in the notice.

PUBLIC HEARINGS:

All public hearings shall be conducted in accordance with the protocol and procedures as set forth in the Greeley Municipal Code.

IV. MEMBERS: TENURE, OFFICERS, CONFLICTS

A. TERMS:

Appointment of the Commission members shall be by the Greeley City Council for three-year terms, with a two term limit.

B. VACANCIES:

The Greeley City Council shall fill vacancies on the Commission in accordance with adopted Council procedures.

C. OFFICERS:

The officers of the Commission shall be a Chair and Vice Chair.

D. CHAIR:

The Chair shall preside at all meetings of the Commission. Except as otherwise authorized by resolution of the Commission, the Chair shall sign all agreements, resolutions and other items as duly authorized by the Commission.

E. VICE CHAIR:

The Vice Chair shall perform the duties of the Chair in the absence of the Chair.

F. ELECTION OF OFFICERS:

The officers of the Commission shall be elected by the Commission at the regular meeting in November of each year and shall assume his/her duties upon election. The officers shall hold the offices for one year or until successors are selected. The Commission can retain officers for multiple terms with a majority vote.

G. OFFICER VACANCIES:

Should the office of Chair or Vice Chair become vacant, the Commission shall select a successor from its membership at the next regular meeting to serve for the unexpired term of said office.

H. VACANCY CONCERNING ELECTIVE OFFICE:

A vacancy shall exist when a Commission member accepts a nomination, designation, appointment, or otherwise announces that he/she is seeking any governmental elective office.

I. EX-OFFICIO MEMBERS:

A City Attorney will be the legal advisor and the Community Development Director or his/her designee will be the staff liaison to the Commission. The Recording Officer will be the Historic Preservation Specialist or his/her designee.

J. CONFLICTS:

It shall be the responsibility of all Commission members to review material received prior to Commission meetings and to notify appropriate staff of possible conflicts of interest.

K. PARLIAMENTARIAN:

Advice on parliamentary procedure will be addressed by the City Attorney.

L. PUBLICITY:

Publicity on the Commission will be handled through the Historic Preservation Office.

V. ATTENDANCE POLICY

Commission members shall make every reasonable effort to attend regularly scheduled business meetings and public hearings of the Commission and will notify the Historic Preservation Staff as early as possible of any anticipated absences. Accumulating more than three (3) absences from a regular meeting without providing an excuse acceptable to the Commission within any six (6) month period shall be considered a basis for the Commission to request City Council to replace the Commissioner due to excessive absenteeism. Members are encouraged to attend special meetings; these meetings are not subject to normal attendance policies.

VI. CONDUCT OF BUSINESS

A. The business of the Commission shall be conducted in accordance with Robert's Rules of Order.

B. A quorum shall consist of four (4) members of the Commission being present and able to participate in Commission business. All administrative actions of the Commission shall be transacted by this established quorum, with the exception of

public hearings for designation, which require a quorum of five (5) Commission members. Accordingly, public hearings for design review shall require a quorum of four (4) members.

- C. Once a quorum is established at any regular business meeting or public hearing of the Commission, any action taken by a simple majority of Commission members present and voting shall be deemed and taken as the official action of the entire Commission. In the case of a tie, any motion shall fail.
- D. No member of the Commission shall abstain from voting on any matter unless that member has a direct or indirect conflict of interest in the matter before the Commission.
- E. No Commission member may tender his or her vote proxy to any other Commission member on any item.

VII. AMENDMENT OF RULES

These adopted Operating Rules and Procedures may be amended in accordance with general Commission procedure, except that any such amendment shall require the approval of at least five (5) Commission members.