Belmont Skating Rink

Schematic Design

September 14th, 2022

Design Focused Charge

- Renovate and Expand Skating Rink
- Remove White Field House
- Make new rink as sustainable as possible
- Fields remain functional after building is complete
- Consider implication of Fields
- Consider implication of Parking

AERIAL VIEW

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Current Day Belmont Skating Rink

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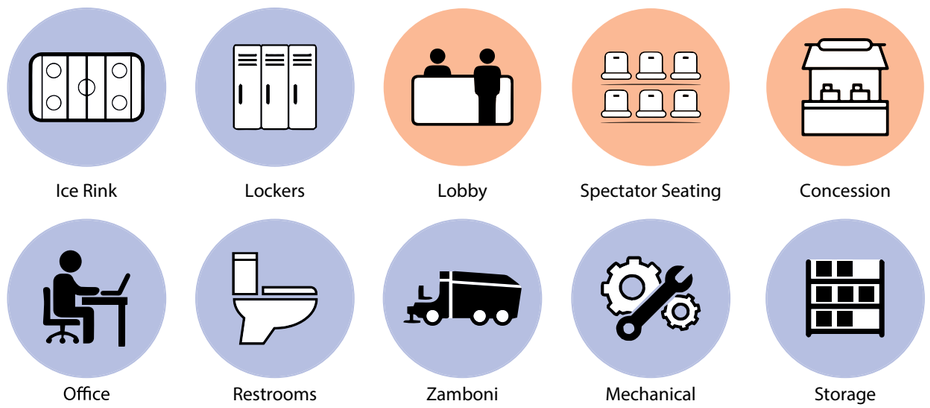
Skip Viglirolo Skating Rink

Built in 1969
Completed in 1971

Thousands of young people participate in Youth Hockey programs
High School Varsity and JV Hockey programs
Middlesex League titles
Appearances at MIAA Division I state tournaments
Champions 2020



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Overview

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Chained Entry/Egress - Attractive Nuisance

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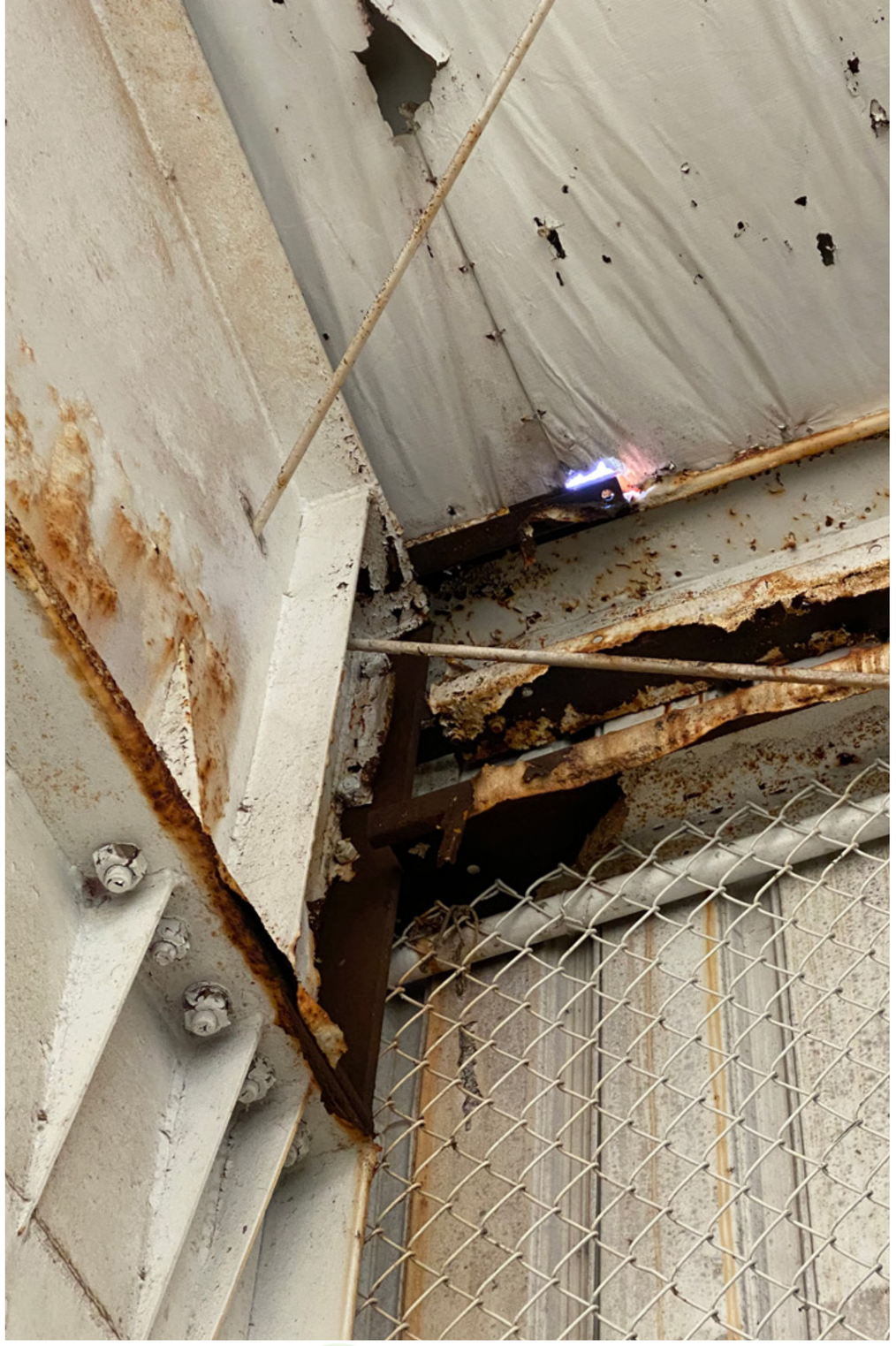
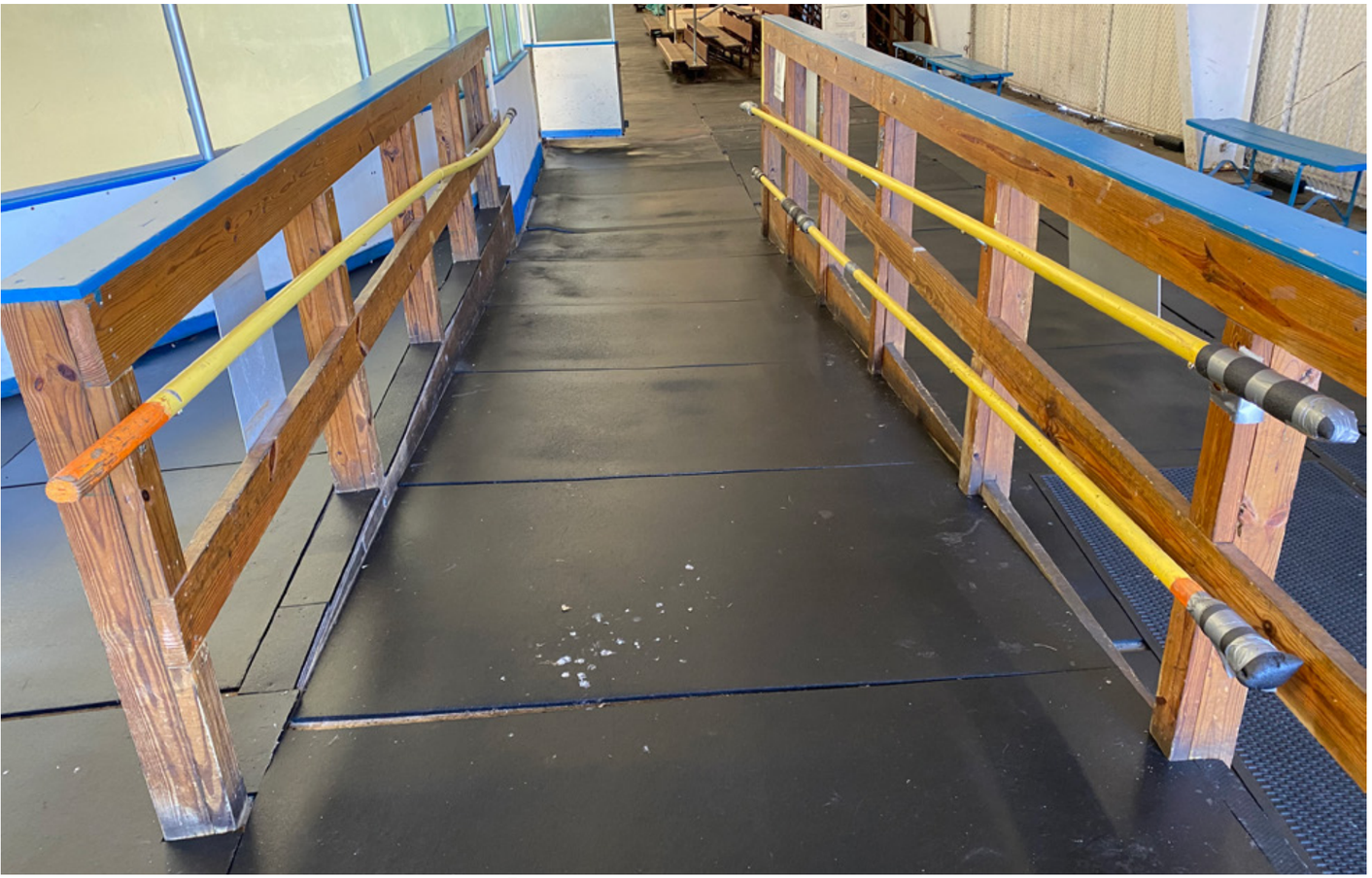


Deficiencies

- Building not insulated
- Roof leaks
- Rusted structure

Failing Building



Deficiencies

- Envelope compromised
- Energy inefficiency
- Non-ADA compliant
- Non-MAAB compliant
- Walls crumbling

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Significant Code Violations

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James White Memorial Field House

Built in 1932

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Overview

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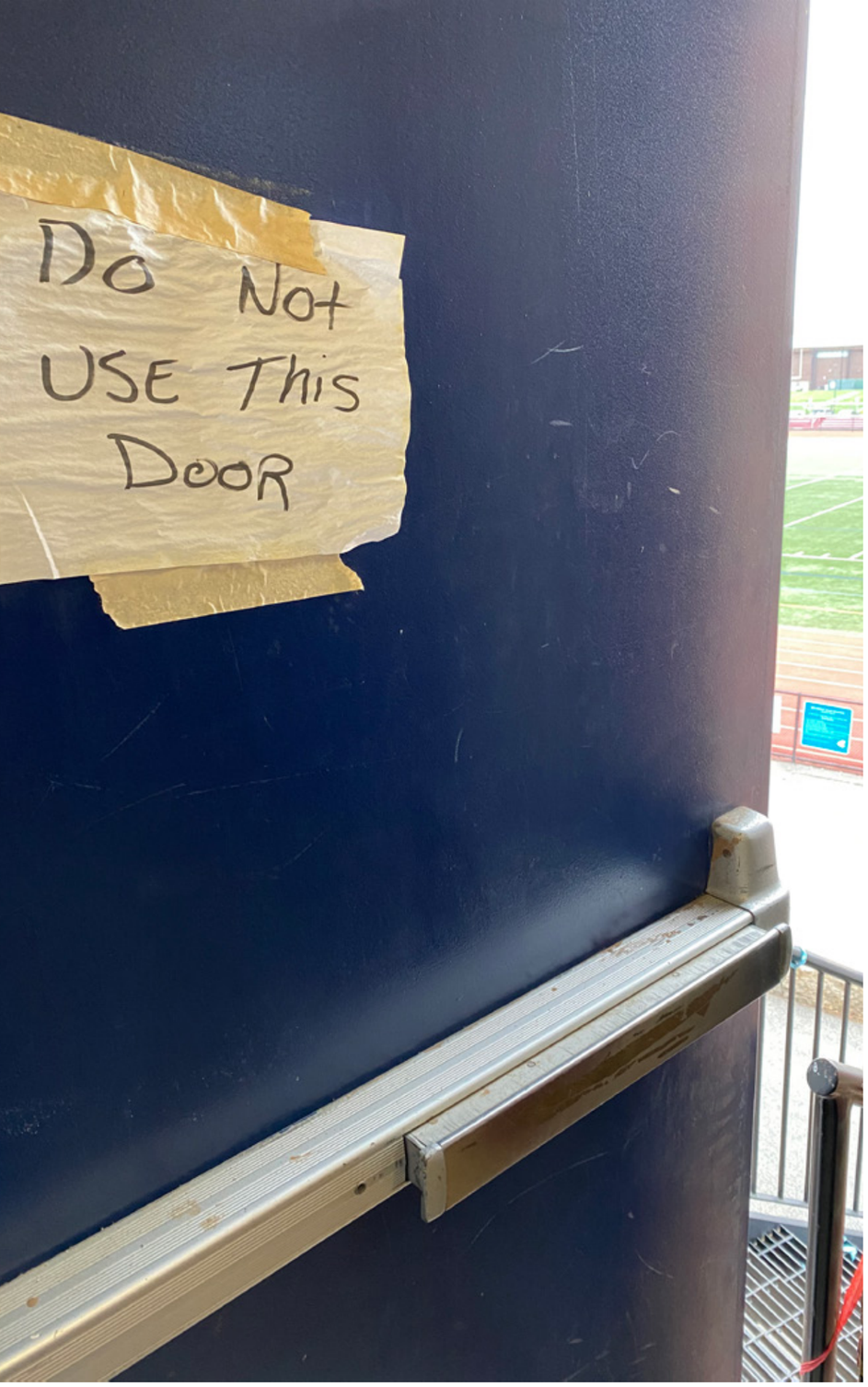
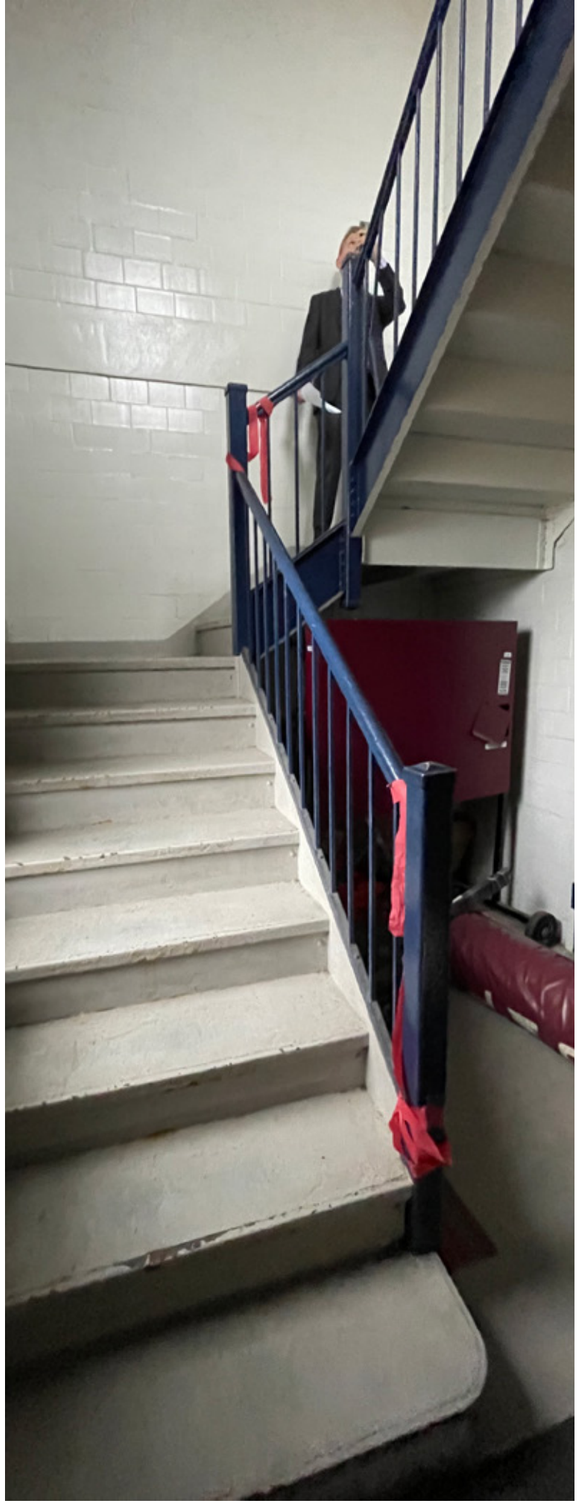
Deficiencies

- Extensive cracked masonry
- Roof failure
- Broken glass windows
- Non-ADA compliant
- Hazardous entry





Deficiencies

- Compromised egress
- Non-ADA compliant
- Equipment obsolete

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Major Code Violations

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URGENT ACTION

The Cost of Doing NOTHING

1999

SKIP VIGLIROLO ICE RINK

Chan Krieger and Associates, Architects were tasked with investigating the condition of the Skip Viglirolo Ice Rink. The following section is reproduced from the written analysis of their findings dated July 7, 1999.

Two major components make up the existing Skip Viglirolo Ice Rink: the ice enclosure itself and the refrigeration equipment. A visual inspection and a tour through the facility led to the following observations.

THE ICE ENCLOSURE

- The roofing panels keep most of the outside water out, so signs of corrosion are probably due to the high humidity generated inside by the activities and crowds, the flooding of the ice surface, and the fog thrown off by the ice on damp, warm days at the beginning and end of the season, as well as on the occasional warm day mid-season. The clips that hold the roof panels on and the superstructure itself are particularly vulnerable to this kind of corrosion since they are often colder that the ambient air, and thus perfect places for condensation to from. If not protected by a continuous coat of paint, this type of structure will inevitably corrode in a rink atmosphere. The superstructure has been painted at least once since it was erected and is in generally fair to good condition - with the exception of one bay over the header trench where a geyser-like leak of the refrigeration brine saturated the secondary framing. The brine contains various salts, and these appear to have worsened the corrosion of the roof structure in this area.

- The insulation in the roof is suffering from an infestation of birds, who tear vinyl covering off the insulation to get at the fiberglass batting - presumably a cozy material for their nests. Designed to contain the insulation fibers, this vinyl covering also keeps the condensation away from the roofing panels. Like the fasteners and clips, the roofing panels are made of light gauge steel, so they are particularly vulnerable to corrosion.

- The gutter and roof leader system is breaking away from the building and is corroded. Controlling the rainwater flowing off this large expansion of roof is vital, especially on the west side, as the regraded soccer field is at a higher elevation than the rink and appears to drain into its side wall, compounding an existing problem with the surface drainage. In New England, maintaining gutters on a roof this size is difficult because of the weight of the sliding snow. For this reason, gutter systems are sometimes designed to be "breakaway", and this may be the case with the Belmont rink. At this point however, the system may simply be worn out.

1999 Report

Topic: Rink Condition

Chan Krieger and Associates, Architects
July 7,1999

June 28, 2013

Department of Public Works
Homer Municipal Building
19 Moore Street
Belmont, Massachusetts 02478
Attn: Mr. Peter J. Castanino, Director

Subject: Belmont, Massachusetts
Skip Viglirolo Ice Skating Rink
Roof Purlin Structural Assessment

Dear Mr. Castanino:

This letter report summarizes the results of a visual inspection conducted by Fay, Spofford & Thorndike, LLC (FST) on March 17, 2013 to assess the general physical conditions of the roof purlins. The objective of the assessment was to investigate deterioration of the roof purlins and recommend applicable repairs.

Town of Belmont personnel directed FST to the area of concern, where small bits of debris from the roof had fallen onto the ice surface. Observations and a photographic inventory of noted deterioration was collected for the area of concern, as well as other representative areas of the roof. Visual observations were conducted using an aerial lift bucket truck provided and operated by the Belmont Municipal Light Department.

Verification of structural framing system conformity to the Massachusetts Building Code requirements is not included in the scope of this report.

Existing Conditions

According to drawings provided by the Town, the skating rink was originally constructed in 1968. The rink is a prefabricated steel building with welded steel plate columns and girders and light gage steel roof purlins. The corrugated roof panels are insulated and there is a translucent roofing system installed in some areas (photo No.1).

Visual Observations

In general, the building components are beyond their anticipated 30 to 35 year life span and require major renovation. The majority of roof purlins exhibit minor rusting and some of the translucent panels appear to be allowing water penetration. The purlin above the fallen debris shows visible loss of section (photos Nos. 2 & 3). In some areas, previously attached equipment

2013 Report

Topic: Roof Purlin Structural Assessment

Fay, Spofford and Thorndike,LLC
March 17,2013

2014

JAMES P. "SKIP" VIGLIROLO SKATING RINK

ARCHITECTURE

SMMA visited the site on the afternoon of April 25, 2014. The building is located behind the White Memorial Field house. Although there is signage on Concord Avenue, access to the rink is unclear and primarily through a service yard. The facility consists of a single story metal building with smaller masonry structures at each end housing restrooms, locker rooms, mechanical rooms and a concession area.

Enclosure

The metal framed building is clad with ribbed metal panel walls and a metal roof. Panels and roofing are heavily rusted and fasteners are corroded. Sections of the roof and gable ends are translucent fiberglass panels. The sloped metal roof has metal gutters and metal downspouts. Most downspouts are dented and damaged. Walls are not weather tight or insulated. Vinyl faced insulated panels are attached to the underside of the metal roof panels. Some of these panels are completely or partially missing. Vinyl facings are sagging, rippled, and punctured. Birds were observed in void spaces throughout the roof substructure materials. Brick masonry encloses functional spaces at the north end of the rink and CMU encloses locker rooms at the south end. At the south end there is a membrane roof on wood framing. This roof has no visible drains or gutters. The roof above locker rooms at the north end could not be observed.

The main entry has three glass and aluminum doors in a glass and aluminum storefront frame system. A pair of painted metal egress doors is located at the north end. Daylight is visible at the bottom of this door. All egress and entry doors have panic hardware. There are three motorized metal roll up service doors, two on the west side and one on the east. There is also a metal panel clad chain link fence gate on the east side. In addition to daylight from the translucent panels, there are seven small high horizontal windows and a teller type transaction window in the brick enclosed spaces.

Interior

Standard hockey rink construction consists of metal framed "boards" with plywood and vinyl cladding. Dasher is vinyl and "glass" is herculite material in aluminum stanchions. Protective mesh netting encircles the rink above the glass. Gates and equipment doors have steel hardware. Rink construction includes players, penalty and timekeepers benches. Interior surfaces surrounding the rink and in the adjoining functional spaces are basically the back sides of previously noted enclosure materials with painted finish. Rubber walking mats cover most of the floor area. Mats are stained, moldy and edges are curled presenting tripping hazards. Wood and steel fixed bleachers seating approximately 300 persons are located to the east of the rink. Steel frame and connections are heavily rusted. Roughly half those seats have sightlines suitable for game viewing. Lower rows of seating are severely splintered. A 10' high chain link fence runs just inside the metal panel walls on the east and west sides of the building.

2014 Report

Topic: Facilities Assessment

SMMA
April 25,2014

RISKS

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The Cost of Doing Nothing

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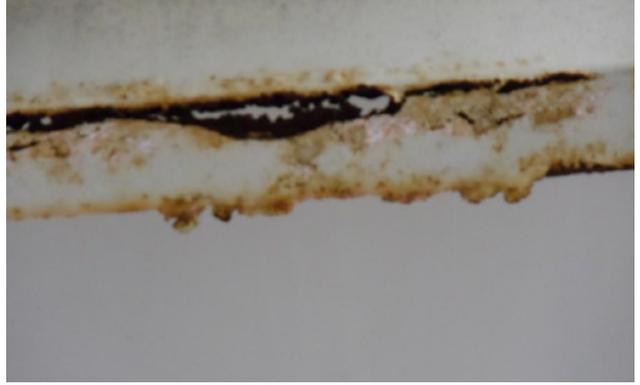
Potential roof failure

Rusted purlin with visible loss of section



Rusted purlin with visible loss of section

Rusted purlin

Rusted Purlin

Deteriorated roof panel insulation

Attractive nuisance

Massive code violations

Rusted bents

Cracked floor

Outdated refrigeration systems

Energy Waste

RISKS

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The Cost of Doing Nothing

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Excerpts from the three reports show

- The building has been failing for at least 23 years – since 1999.
- None of the required repair work has been done.
- The building has one year at best, possibly much less than that. Should it continue to be used for occupants?
- The roof structure could collapse. Thus a need for bussing and scheduling and a massive emergency to demolish and safely remove the building. The **cost** would be more than a managed dismantling as part of a planned facility.
- If facility is removed, the **cost** is no Belmont Skating Rink and loss of most programs that use that rink.
- Chains and padlocks lock the main egress doors. The **cost** is a beyond unsafe and dangerous condition, one not befitting for a town such as Belmont, or any town.
- Code violations appear in many areas, and the "accessible ramp" is a significant issue. The **cost** is risk of injury or lawsuit.
- There are large gaping holes, no wall insulation, and minimal ceiling insulation.
- The ceiling insulation has been infested with birds since before 1999.
- Insulation should be considered non-existent. An uninsulated building wastes more energy than might be imagined.
- All Mechanical, Electrical, and Plumbing systems are outdated. The **cost** is to continue wasting energy and money.
- The **cost** is to host a building in Belmont that contributes to global warming not aligning with being a green community.

RISKS

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The possible outcome

- Injury or worse
- Failure mid season
- Emergency removal
- Expensive repair
- Waste of energy

URGENT ACTION

The Cost of Doing

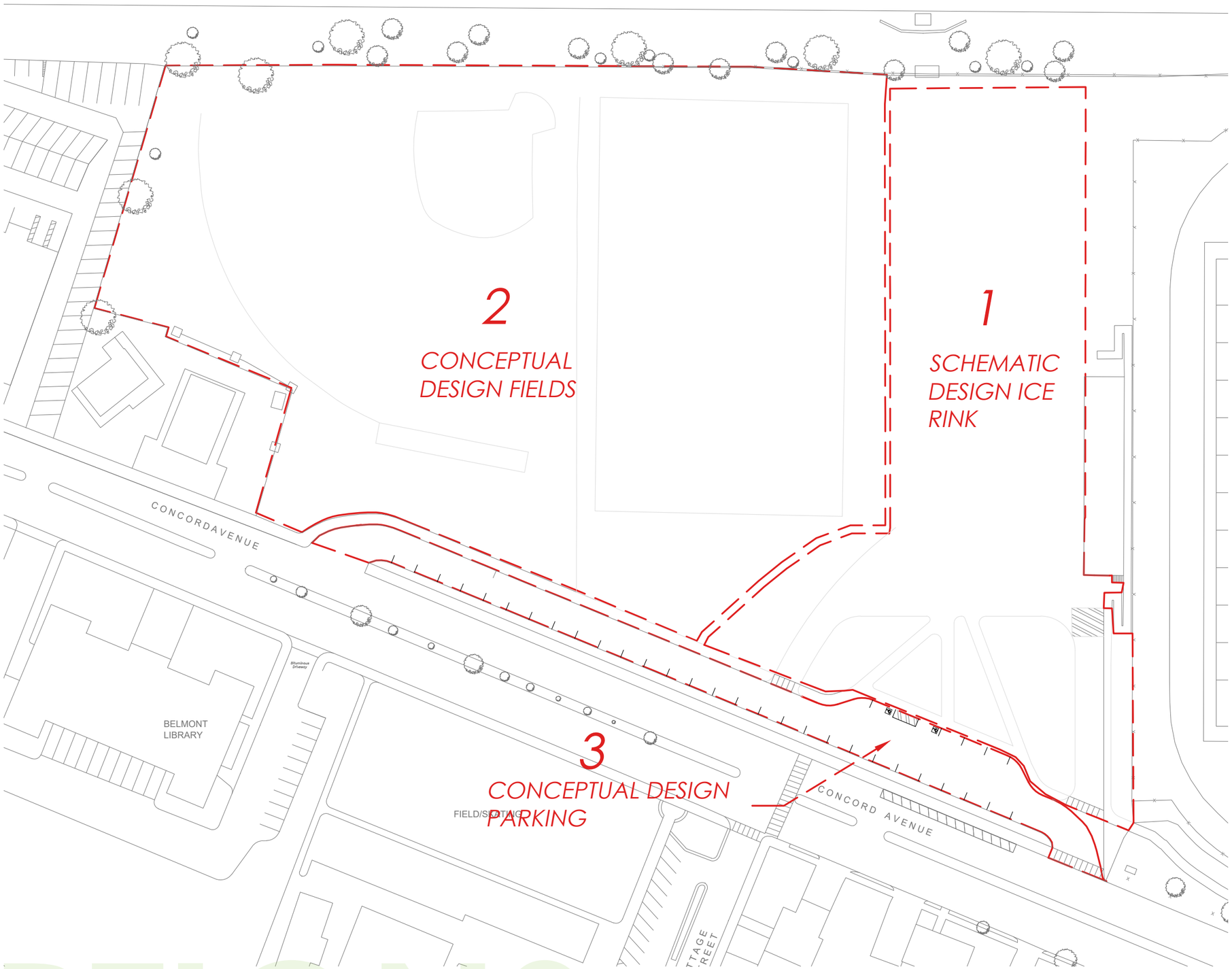
NOTHING

is risking

EVERYTHING

SCOPE

Areas to Consider



OPTIONS

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Areas to Consider

PHYSICAL MODEL

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Existing Conditions

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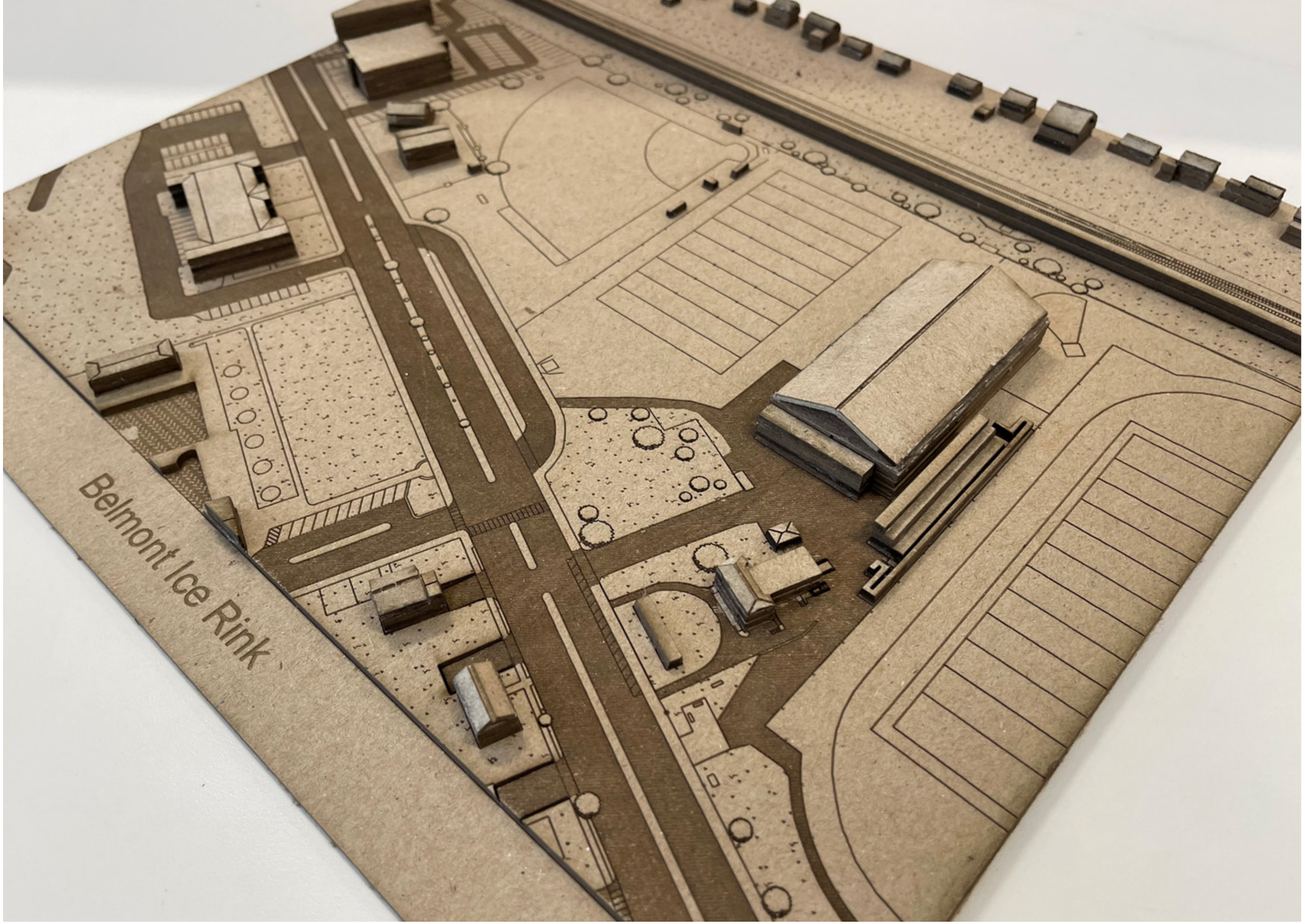

PHYSICAL MODEL

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Existing Conditions

Program Overview

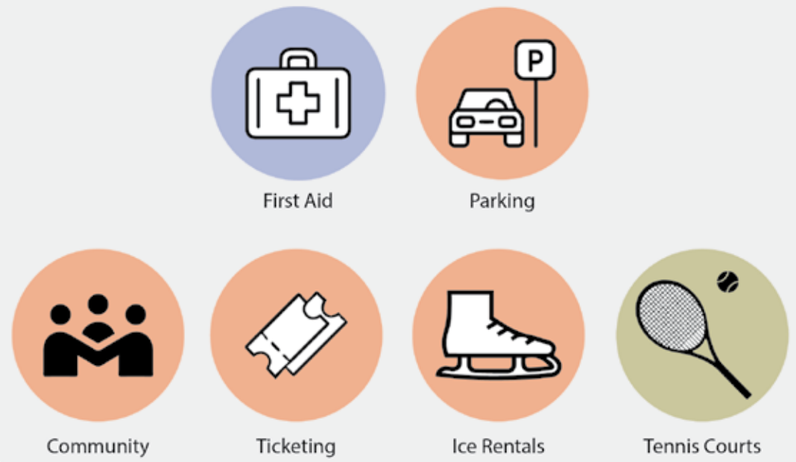
EXISTING PROGRAM

SKIP VIGLIROLO ICE RINK

WHITE FIELD HOUSE

NEW PROGRAM

OPTIONAL



SUMMARY

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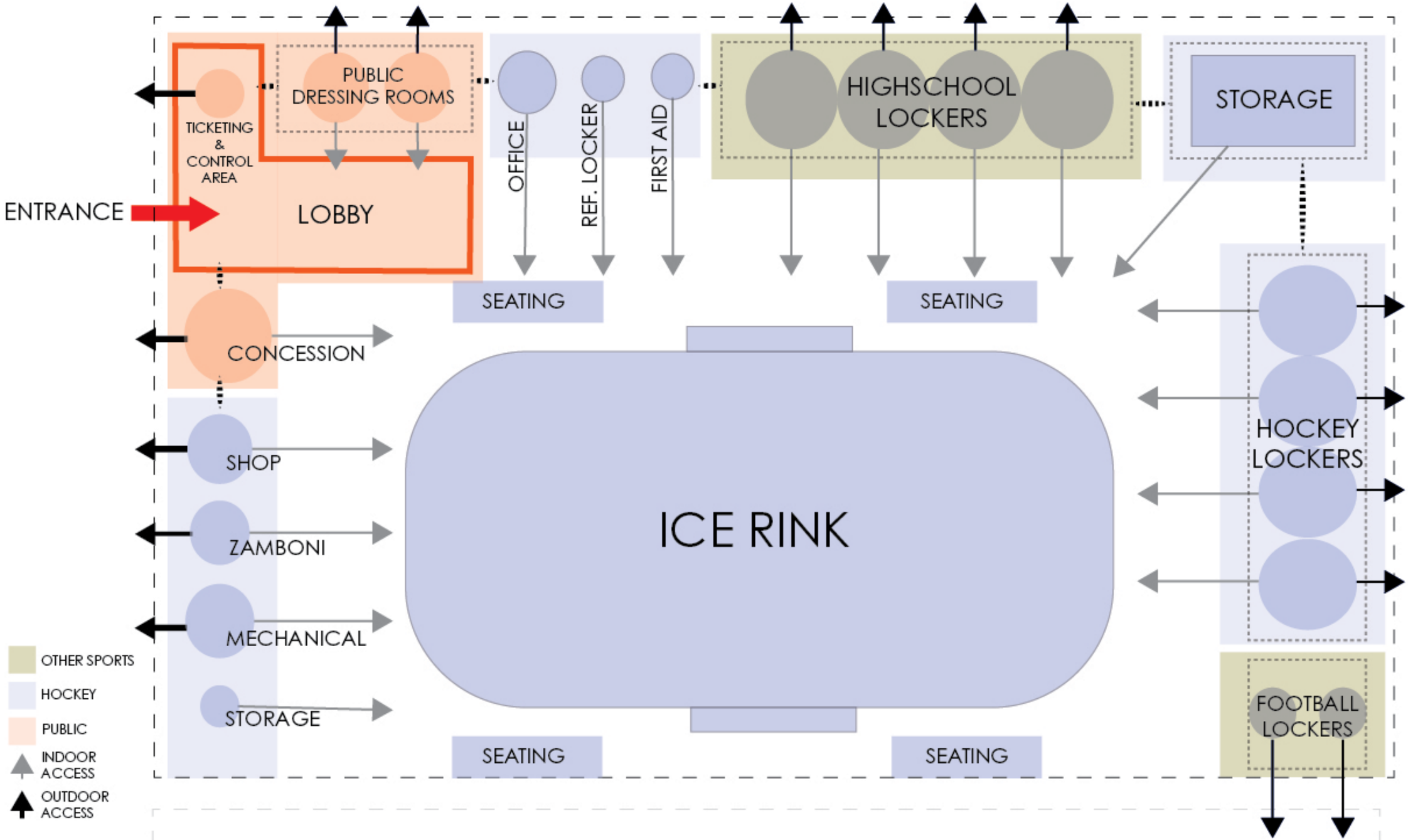
Program



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Required Program

Net-Zero Energy Goal

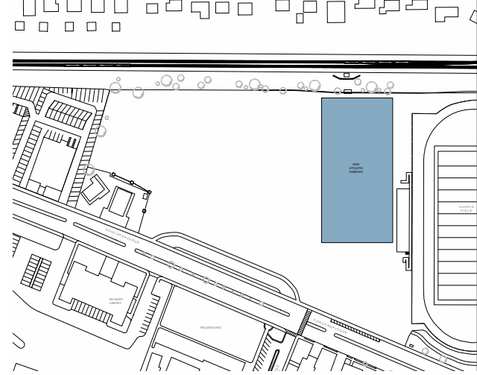
Potential for Town Wide Net Zero Approach

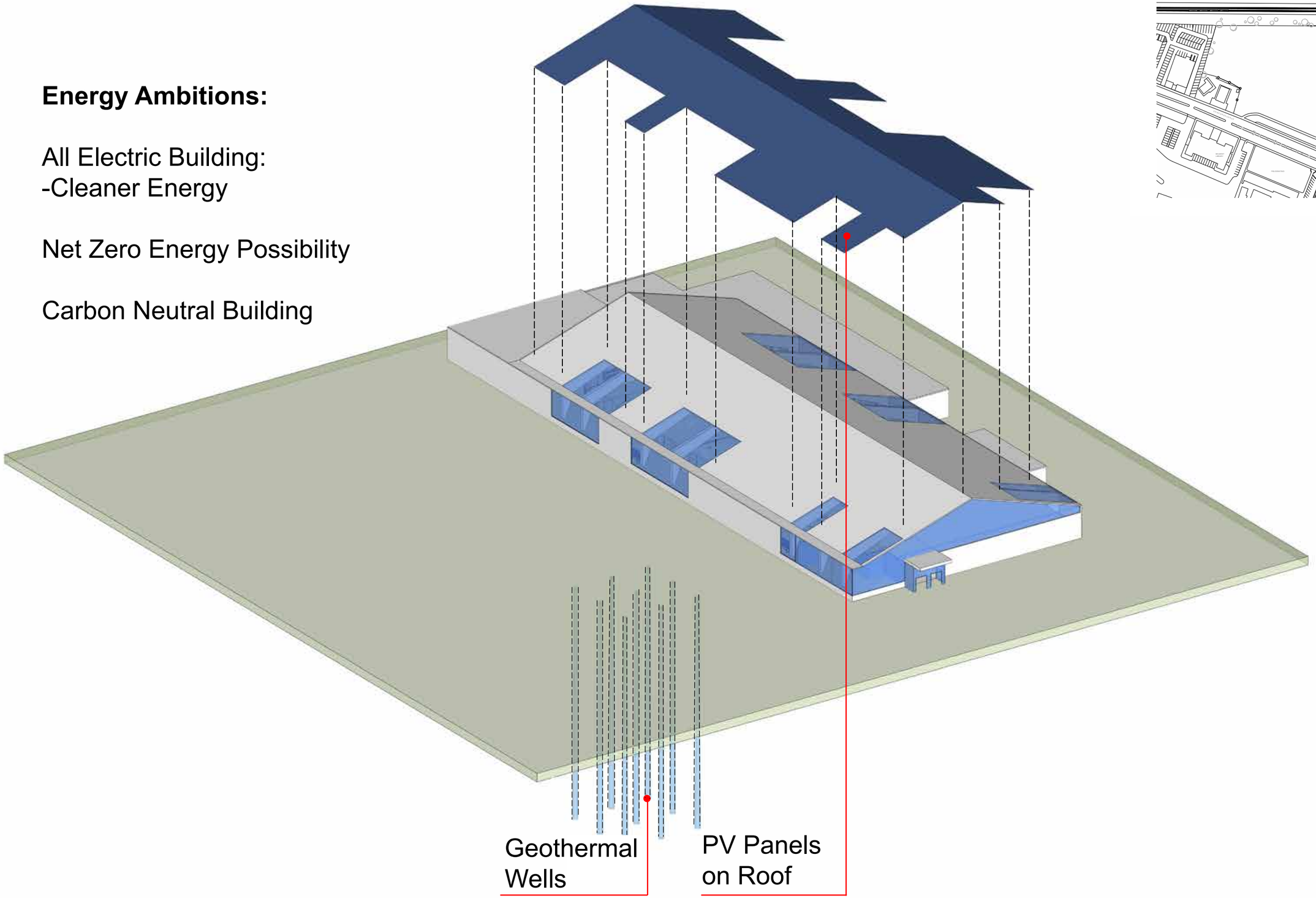
Energy Ambitions:

All Electric Building:
-Cleaner Energy

Net Zero Energy Possibility

Carbon Neutral Building





Net-Zero Energy Goal

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Site Fields and Parking

CURRENT STATE

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Existing Site Plan

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PROPOSED

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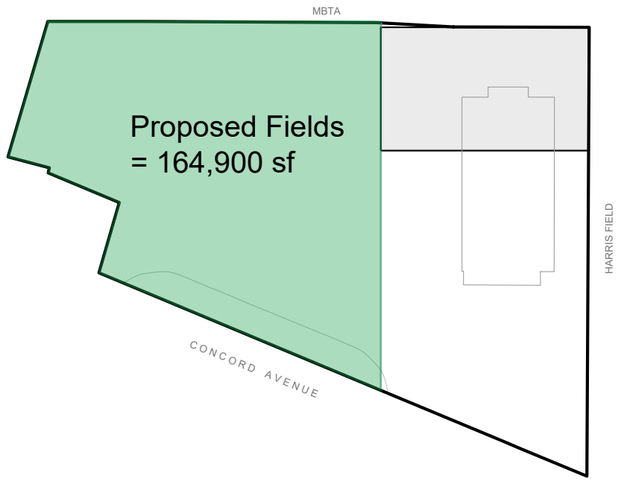
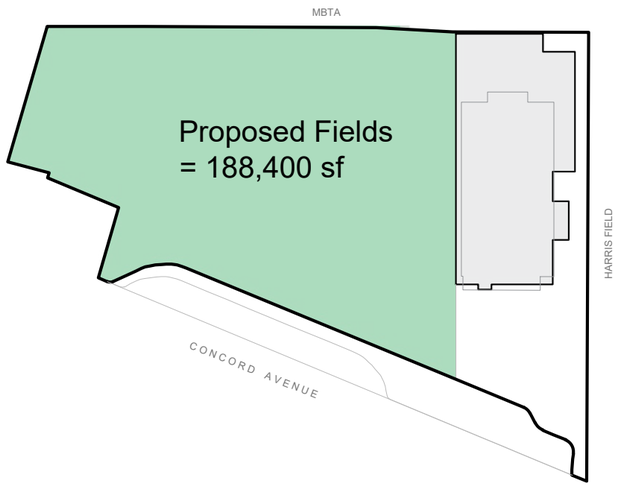
Proposed Site Plan

Existing Fields

Perkins and Will
(Previous Vote)



TGAS
(Current Proposal)



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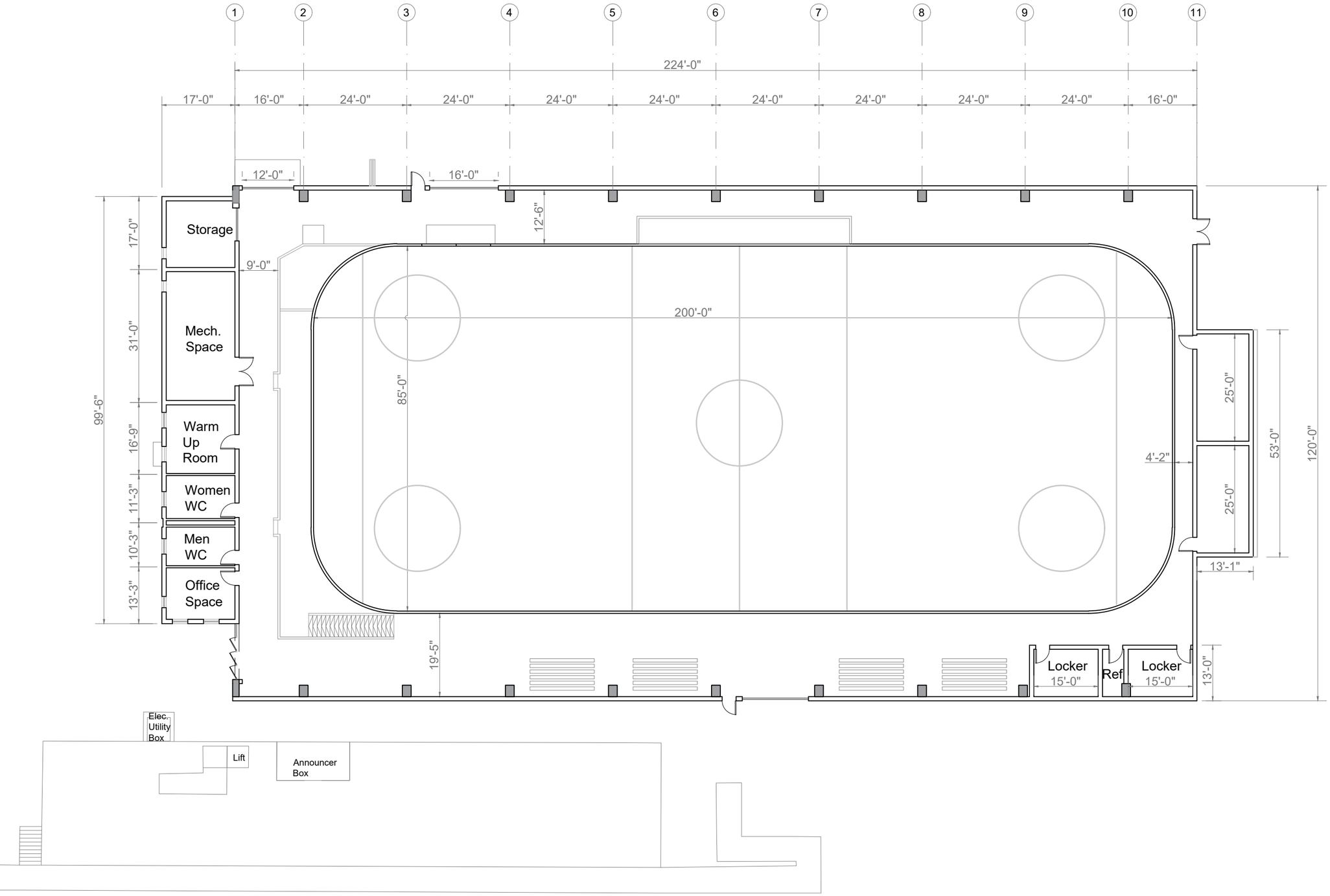
Field Square Footage Comparison

COMPARISON STUDY

Building Plans



CURRENT STATE

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Existing Floor Plan ± 29,600 sf

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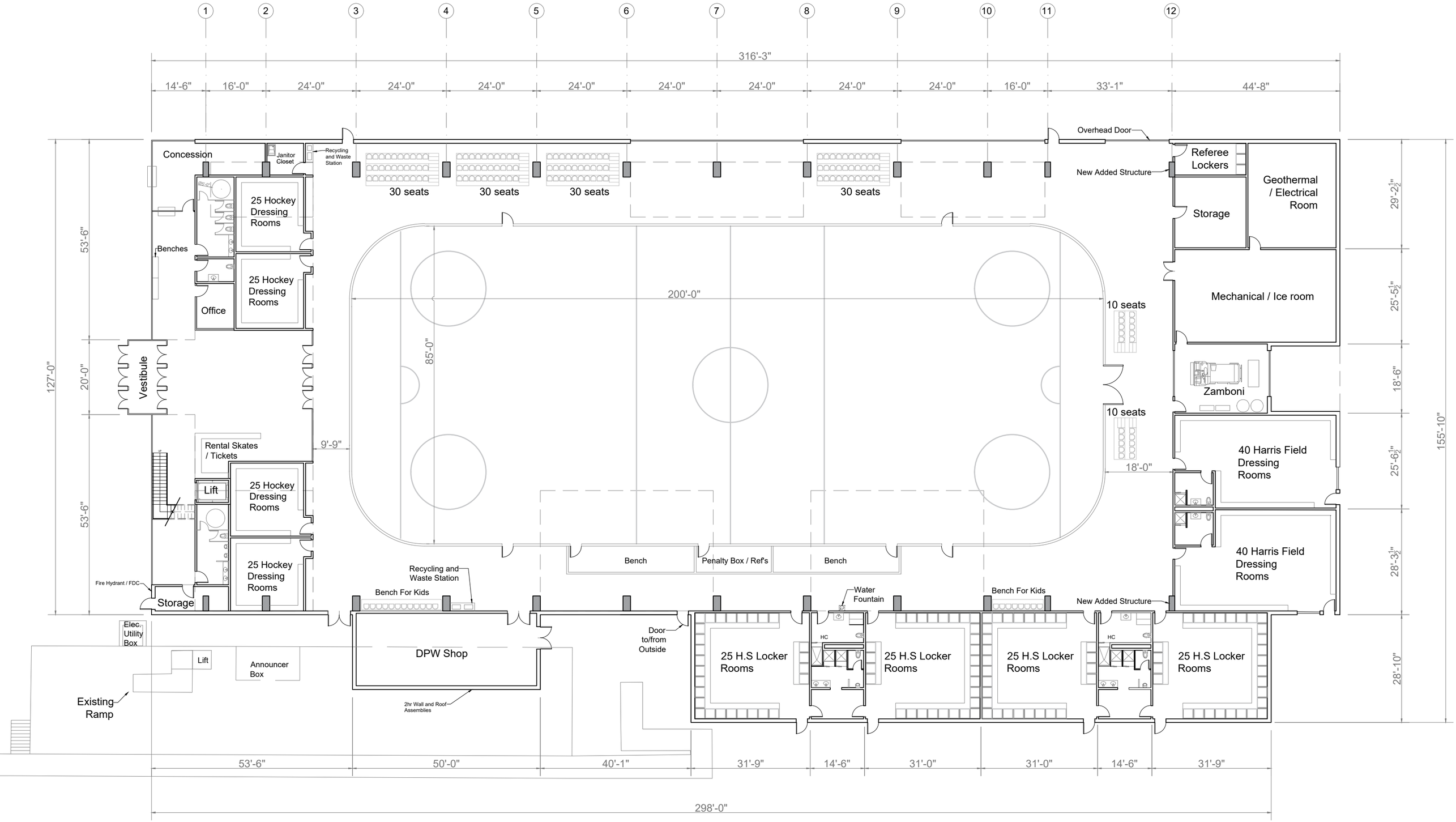

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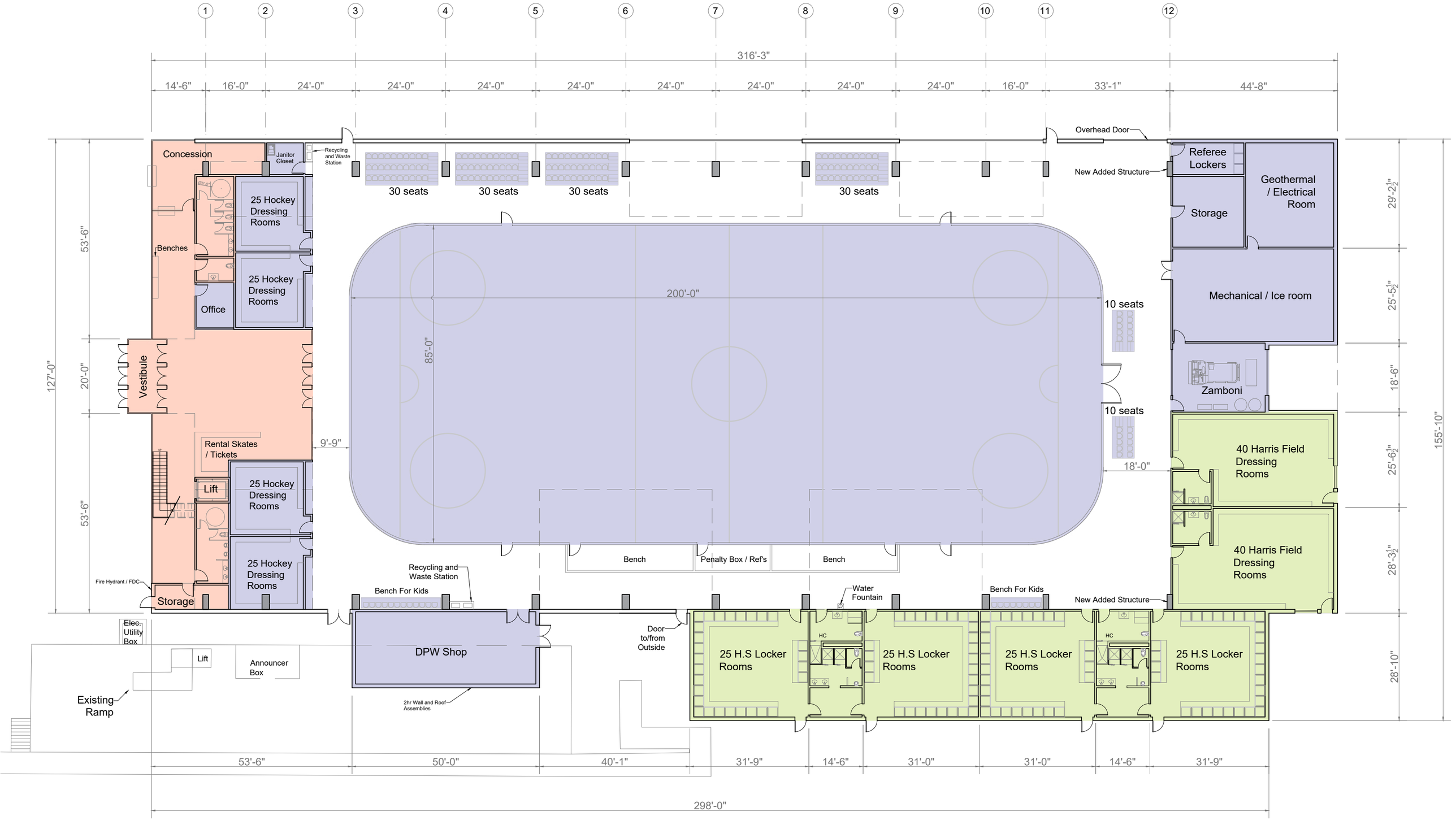
Ground Floor Plan ± 45,740



PROPOSED

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Program Plan

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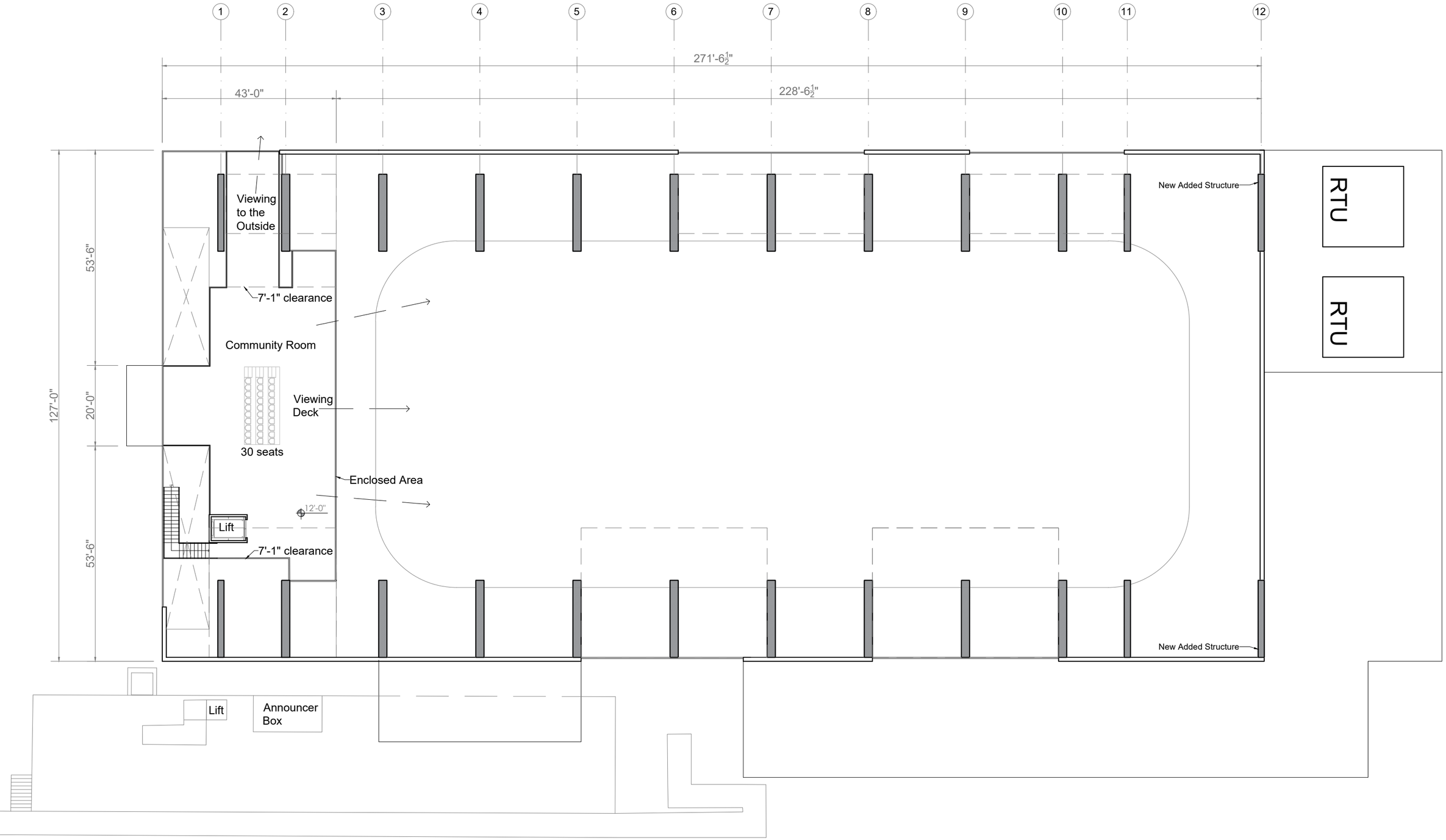

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Mezzanine Floor Plan ± 3,596 sf

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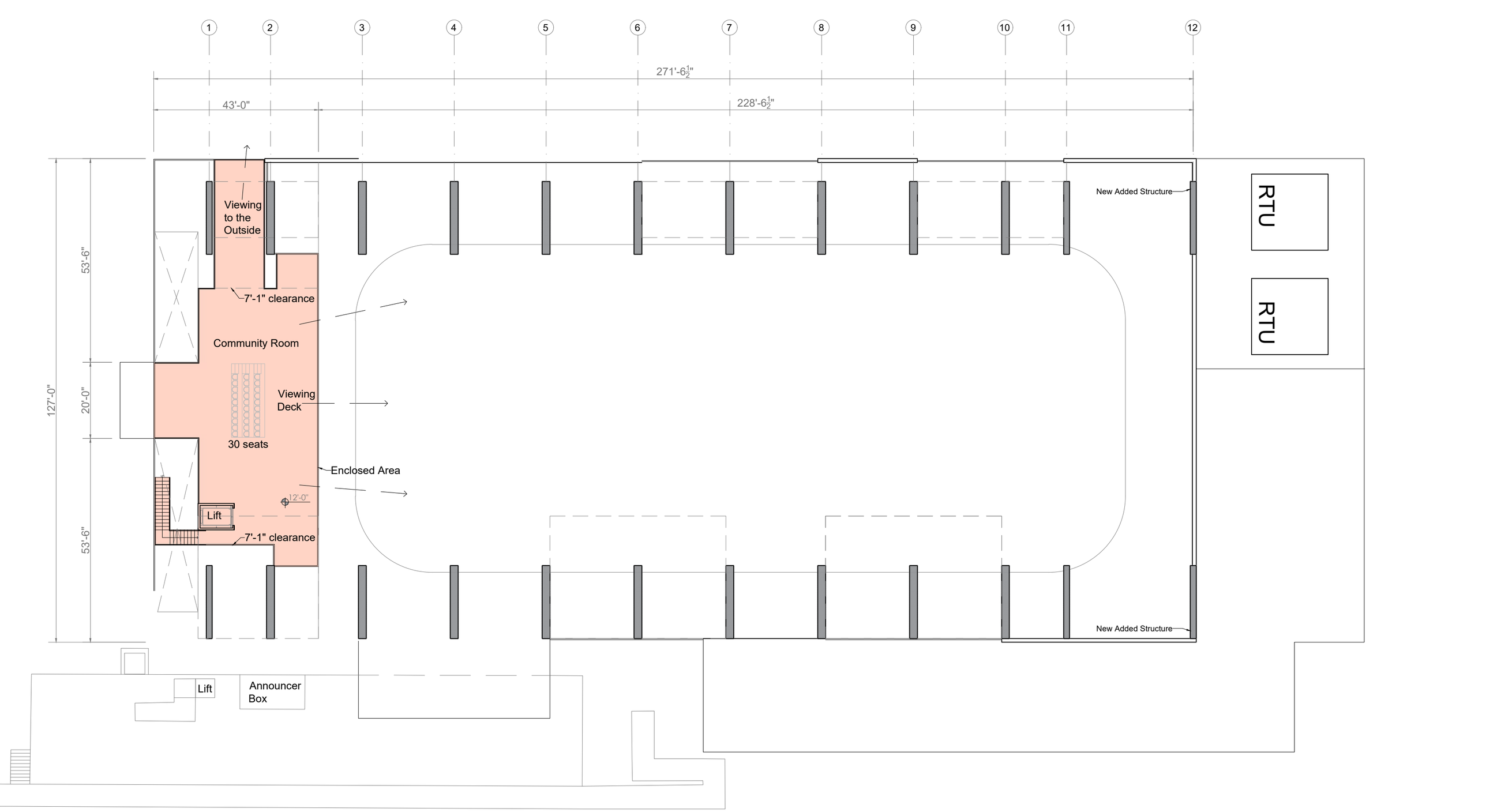

PROPOSED

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Program Plan

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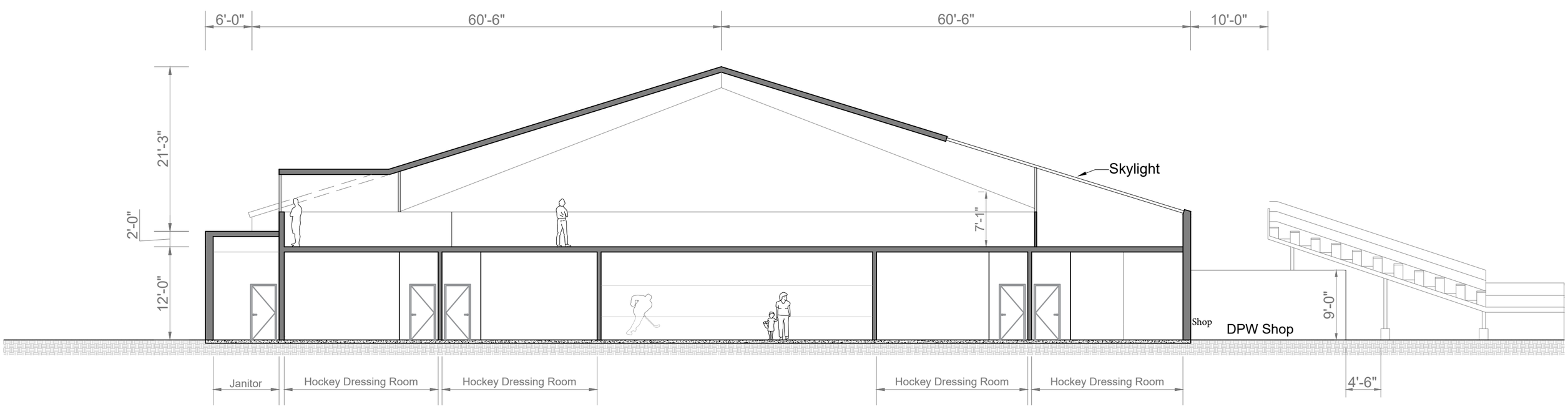

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Conceptual Section

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PROPOSED

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Proposed Site Plan

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Proposed Green Space and Parking

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Proposed Site Plan

PROPOSED

Proposed Green Space and Parking

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