



Penn AC Boathouse

Conceptual Design for Facility Improvements

12 Boathouse Row | Philadelphia, PA 19130
March 2018 | Project Number 2017-11

COMMUNITY DESIGN
COLLABORATIVE

Strengthening neighborhoods through design

Penn AC Boathouse

Conceptual Design for Facility Improvements

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Prepared for

Penn Athletic Club Rowing Association

12 Boathouse Row
Philadelphia, Pennsylvania 19130
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For over twenty-five years, the Community Design Collaborative has demonstrated the importance of design in community revitalization. The Collaborative provides pro bono preliminary design services to nonprofit organizations in greater Philadelphia and offers meaningful volunteer opportunities to design professionals.

The Collaborative's early design assistance helps nonprofits succeed in the challenging arena of community and economic development. Our teams of volunteer design professionals work side by side with communities to put their visions down on paper and advance to the next stage: gaining support, raising funds, and building projects.

Founded in 1991 as a program of AIA Philadelphia, the Collaborative is an independent 501(c) (3) nonprofit organization. We have over 1,300 volunteers who have contributed more than 100,000 hours of community service and a portfolio of over 600 preliminary design projects for nonprofits.

The Collaborative relies on a variety of resources to carry out its mission. This year, we are receiving support from the Philadelphia Division of Housing and Community Development, Philadelphia Department of Commerce, William Penn Foundation, and AIA Philadelphia.

The Collaborative also relies on individual and corporate donations through annual sponsorships, Community Champions memberships, our annual giving campaign, and two annual fundraisers - the Bowling Ball, a night of bowling fun for firms, friends, and fans, and Leverage, a celebration of design and community. Finally, the Collaborative's volunteers donate thousands of hours of in-kind professional services each year.

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To learn more about the Collaborative, visit cdesignc.org or connect with us at [facebook.com/cdesignc](https://www.facebook.com/cdesignc) and [@cdesignc_tweets](https://twitter.com/cdesignc).

Making progress? Please remember to share any news about your project with us and recognize our contribution to the project.

- Keep us informed about project milestones like approvals, funding, hiring design consultants, and construction.
- Invite us to groundbreakings and ribbon cuttings. Acknowledge our contribution in program remarks and collateral.
- Recognize our contribution to the project in press materials with a written acknowledgement.
- Notify us when using plans, renderings, or other illustrations from this report in press or marketing materials. Credit them, "Courtesy of the Community Design Collaborative."

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Introduction

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Overview

Summary

This Community Design Collaborative (Collaborative) design grant for the Penn Athletic Club Rowing Association (Penn AC) focused on investigating the feasibility of renovating the second floor of the boathouse to make it more functional for members and for party/event rentals. A third-floor expansion was also considered, to accommodate increased programmatic needs and the necessity for equal locker room facilities for men and women rowers. The Collaborative design team was also charged with prioritizing improvements in anticipation that a phased construction plan may be needed in response to funding availability and the desire to remain in operation throughout. Preliminary conceptual design drawings were developed based on steering committee and stakeholder direction regarding project goals and priorities.

Penn AC expressed interest in increasing operating income by renovating the second floor to be a more functional and desirable event space. While their position on Boathouse Row provides a great location for events, there was a desire to further distinguish the boathouse as the premier Boathouse Row rentable event space by addressing the need for a better public entrance sequence, accessibility, a more centrally located kitchen, better restrooms, and a larger multi-purpose event room adjacent to the river, the bar room, and the Trophy Room.

Penn AC was founded in 1871 and is located at Number 12 Boathouse Row on Kelly Drive in Philadelphia's Fairmount Park. The site is individually listed in the Philadelphia Register of Historic Places. Boathouse Row, including Penn AC, is also listed in the National Register as part of the Fairmount Park National Register District, and is also part of the Boathouse Row National Historic Landmark District.

Penn AC's building is comprised of an original two-story stone structure constructed in 1878 and a two-story addition of which the ground level boat bay was built in 1963 and the second floor was added in 1980. See the Historic Preservation narrative for more details on the historic structure and preservation considerations.

The 1878 stone building includes a boat bay and boat repair shop on the first level, and men's locker rooms, a trophy room with fireplace, a bar room and bathrooms on the second level. In semi-recent history a kitchen was installed in a small area of the covered deck facing the river (which had been enclosed by 1944).

The two-story addition, built in two phases in 1963 and 1980, doubled the size of the building footprint. It provided more much-needed boat bay storage for the rowing shells and oars at the ground level, plus on the second floor, a small locker room for women rowers, a weight room, an "erg" room, and men's bathrooms and showers. The men's locker, shower, and bathroom facilities are considerably larger than the women's facilities. The only interior stair is the original stairway adjacent to the original Kelly Drive-side entrance; it leads directly into the Men's Locker Room which severely limits its general use. Entrance to the second floor, including the women's locker room, public club spaces (Trophy Room and Bar) and the large waterfront deck, is by way of two exterior metal stairs on the west wall of the 1963/1980 addition. (An original stairway on the east elevation is not used on a regular basis.)

Distinguishing features of the current boathouse are its large waterside deck with a great view of the Schuylkill River and Center City Philadelphia beyond, the historic Trophy Room with its grand fireplace, the historic Bar area adjacent to the Trophy Room and with direct access to the deck, and the functional kitchen which allows the members to prepare food in-house for large events at the club.

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Summary Client Organization and Mission

The mission of the Penn AC 501(c)(3) non-profit organization is to educate and enable youth and elite rowing athletes, men and women, to achieve sustained competitive excellence and high performance in local, regional, national and international competitions. Penn AC prides itself in being a center of elite rowing. The current Penn AC head coach, Sean Hall, also leads the coaching of the Schuylkill Navy High Performance Collaborative which pulls the best elite rowers together from the different Philadelphia boat clubs to row under one banner. Recent international rowing achievements include wins at the Henley Royal Regatta and the Canadian Henley, plus competitive showing at the US Olympic Trials. Besides the elite rowing program for both men and women, Penn AC supports an active master's rowing program and hosts three tenant high school rowing teams. Members are involved in education about, and the promotion of, the sport of rowing. Members participate in community service projects and the Schuylkill Navy community outreach programs and regattas.

The existing boathouse facilities are currently not large enough to effectively support the mission of Penn AC to serve the rowing community. The club leadership has concluded that a major expansion of the boathouse is urgently needed to meet the spatial and functional needs for the variety and size of programs currently provided by Penn AC.

Design Services and Recommendations

The conceptual design services provided by Collaborative volunteers included an initial meeting/site visit with representatives from Penn AC and two Stakeholder Meetings. The following resulting documentation includes existing condition and conceptual design drawings; a programming study; historic preservation, structural, and mechanical/electrical/plumbing reports; and a preliminary opinion of probable cost.

During the design process, the Collaborative design team explored two schemes – the three-story one, which is presented as the final proposed scheme, and a two-story one which includes only renovation of the existing facility with no addition, which is presented as a preliminary option.

In considering both options, the Penn AC Steering Committee concluded that it was crucial for their long-term sustainability to have the benefits that the third story offers; having the improved third floor locker facilities – larger, equal facilities for men and women - plus the greater flexibility in the use of their premium second floor riverside space for both club member workouts and event rentals.

Space Program

The current distribution of spaces in the Penn AC Boathouse is reflective of its illustrious history as an all-male rowing club that has enthusiastically welcomed women rowers in the last thirty-five years, but without adequate facilities to accommodate them. Consistent with most traditional boathouses, the ground level of the building is devoted to boat storage and boat maintenance. The second level includes the club social spaces, locker rooms, workout space, and a large riverside roof deck.

The primary programmatic goals for the expansion of the Penn AC Boathouse are:

- To provide a better public entrance;
- To reconfigure the locker rooms to provide equal facilities for the men and women rowers;

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- To make the facility accessible;
- To organize the social spaces and kitchen to optimize the event rental potential of the club without compromising the functionality of the rowing training spaces;
- To maintain a large riverside deck with transparency through rooms to maximize views of the river activity, allowing spaces to open up to the deck, thereby blurring the line between inside and outside.

The existing, original, ground level entrance facing Kelly Drive brings visitors into the original stone building boat bay. Inside the entrance are the only interior stairs. The stairs lead directly into the second floor men's locker room, and consequently are not appropriate for general use. For visitors, the way to the social spaces of the boat club is not immediately apparent. It is necessary to walk through the boat bay to the riverside of the boathouse, and then to proceed up the exterior stairs which lead to the riverside deck, from which visitors can enter the Trophy Room and Bar. Clearly identifying a new public entrance and signaling the entry sequence into the boathouse is an important programmatic goal of this project.

There are three existing exterior sets of stairs leading to the second floor. The set of stairs on the east side of the boathouse, adjacent to the University of Pennsylvania Boathouse, leads directly into the riverside kitchen. The first set of stairs on the west side of the boathouse (adjacent to Undine Boat Club) leads directly to the Erg/Workout Room. The third exterior stair is the one that leads to the riverside deck.

The Women's Locker Room can only be entered from the riverside deck. It is less than 25% of the size of the Men's Locker Room. Addressing this inequality is a high priority.

Making the facility accessible by providing a lift is also a priority. This improvement would distinguish Penn AC as the only boat club on Boathouse Row that would provide accessibility to those with limited mobility.

The Trophy Room and Bar which are part of the original historic structure are well proportioned social spaces and are ideally located adjacent to the deck. The adjacency of the rentable social spaces to the large riverside deck is important to maintain in the proposed plans – it is an existing unique feature that attracts event organizers.

During the programming discussions, concern was expressed that, while the goal of increasing operating income through renting the social spaces for events is crucial to the long-term sustainability of the club, it should not compromise the club's ability to meet its mission of enabling men and women rowing athletes to achieve sustained excellence and high performance in competitions. To concurrently allow the rowing members to train and workout while the social spaces are rented for an event, the locker facilities and workout space will need to be solely dedicated to the rowers. As shown on the program analysis matrix, this results in approximately 2,000 more square feet than the boathouse currently has. This implies that a partial third floor addition will be needed to meet the stated program priorities because it will not be possible to provide equally sized locker facilities for men and women, dedicated workout space, and maintain a large deck and rentable social spaces without increasing the total building square feet. Since the footprint of the boathouse cannot be enlarged because the building is bounded on both sides by the proximity of the adjacent boathouses, the only way to reconcile the program goals would be to add a third floor. Otherwise, Penn AC would have to accept that, without a third-floor addition, club members would not be able to train during event set-up and rentals.

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Design Approach and Conclusions

The starting point for approaching the design of a renovation and addition to Penn AC Boathouse was to develop an understanding of its place within the historic Boathouse Row context. The view of Boathouse Row is an iconic landmark in Philadelphia – this string of historic club houses hugging the edge of the Schuylkill River in the Fairmount Park setting has evolved and changed over time with most of the boathouses significantly adding to their original footprints and some of them augmenting their size with third stories. The style of the individual boathouses is quite eclectic, but the composition of the group together creates a unique scale and level of articulation that is important to respect with any new alterations.

Based on the programming study which showed that a two-story design would require the workout/erg space to double as the rentable event space, the design team developed preliminary floor plans and building elevations showing how a two-story renovation could provide a new second floor entrance facing the Undine Boathouse, equal sized locker/changing rooms for both men and women, a more centrally located kitchen to improve the logistics for serving events, and a workout room facing the riverside deck that would double as a rentable event space. The size of the riverside deck is reduced to accommodate additional program space. Careful consideration was given to maintain the roof lines of the original two-story stone structure, and to reestablish the prominence of the Trophy Room on the riverside by removing the kitchen that currently obscures the view from the Trophy Room to the water. In this scheme, the 1980 second story addition would be removed and replaced with the newly configured second story.

The preliminary two-story scheme verified that the desired programmatic requirements, particularly the need for equally sized locker/changing facilities for men and women, and a dedicated full-time workout room shared by men and women, could not be accomplished within the physical constraints of a renovated two-story building.

Based on this, as well as direction from the Penn AC leadership and stakeholders, the Collaborative design team developed a three-story design – keeping the third floor contained above the footprint of the 1963/1980 addition, and respectfully maintaining the scale of the roof lines of the original 1878 stone building. Adding a third story allows the men’s and women’s locker rooms to be moved up to the third floor, thereby freeing up precious square feet on the second floor for a dedicated workout room that will be able to function while the club is rented out for an event.

Phasing

Phasing construction of the renovation and addition will need to be carefully planned and implemented to minimize the impact on the ongoing activities of the club. Racing and school seasons should be anticipated in setting the coordinated schedule start dates and deadlines. The design team suggests that the project could be phased in the following way:

- The existing historic boathouse should be temporarily adapted to accommodate men’s and women’s lockers and showers. The existing men’s locker room should be split in half with an 8’ high temporary demising partition. The men will access the locker room from the boat bay stair/front door, while the women will use the Bar access into that half of the locker room and use the existing bathroom and two showers accessible from that end of the locker room.
- There will be no dedicated work out room for the duration of the 3-story reconstruction of the boathouse.
- The Bar and Trophy Room and Kitchen will remain in full use until the 3-story construction is complete. Access will be through the existing front door and the original exterior stone stair on the UPenn boathouse (east) side.

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- When the addition and renovation of the west half of the building is complete, functions may then move over allowing the existing historic portion of the boathouse to be fully rehabilitated.
- Electrical and mechanical systems will be phased accordingly.
- It is expected that the Trophy Room and Bar will be minimally disrupted through their own restorations.
- It is suggested that temporary facilities should be provided before the end of the fall racing season in October, and then boats would be relocated from the two western bays as demolition and work begins on the three-story addition.
- The goal would be to provide a new foundation, first floor structure, second floor joists and decking during the winter months so that safe and functioning bays will be available for use at the start of the school season, with the balance of the second and third floor and roof work ongoing above.
- The project will need to be staged using the side yard on the Undine boathouse side (west), and after the bays are complete, the second floor event space will need to be used as a staging area.

Next Steps

The conceptual design process has identified the priorities and goals for this renovation and expansion project and has given form to the proposed improvements. It has also raised questions about: the best approach for designing changes in this important historic context; accessibility; and code constraints, all of which will need to be further explored in future phases of design.

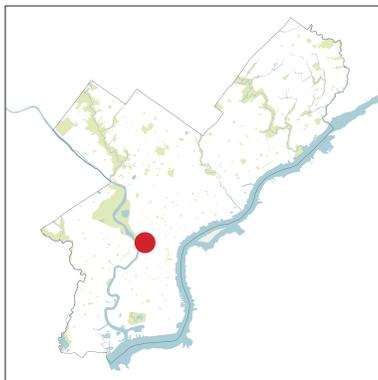
The conceptual design documents included in this report will be used by Penn AC to raise support, both community and funding, to move the project forward toward implementation. They will also be used as a basis for defining the proposed scope of work as they consider hiring design services which will take the proposed conceptual design through design development, construction documentation, and construction.

The implementation of the proposed renovation and expansion project will enable Penn AC to fulfill their mission - to educate and enable youth and elite athletes to achieve competitive excellence, to stimulate and foster interest in the sport of rowing, and to offer equal opportunity to compete - in the most effective way possible.

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Project Location

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Penn Athletic Club Rowing Association Boathouse

12 Boathouse Row | Philadelphia, PA 19130

Lower North Philadelphia

Client Category: Education

Project Category: Education

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Context

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View of the Penn AC Boathouse with the Undine Boathouse to the left and the UPenn Boathouse to the right



View across the Schuylkill River to Fairmount Park from the Penn AC deck



View of the city skyline from the Penn AC dock



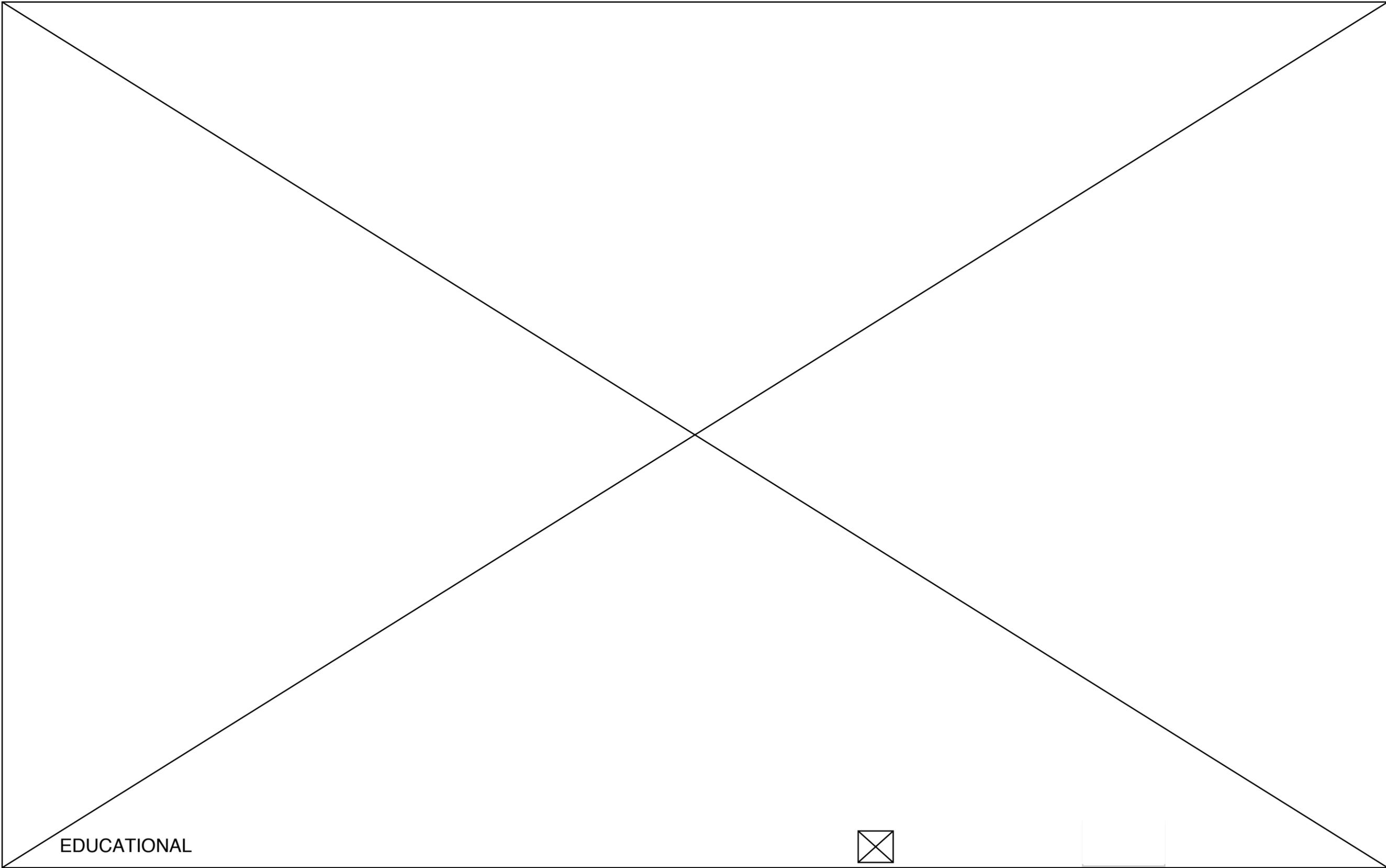
View looking west from the Penn AC deck to the adjacent Undine Boathouse



View looking toward the Undine Boathouse from the front (Kelly Drive side) of Penn AC's Boathouse



View looking toward the UPenn Boathouse from the front (Kelly Drive side) of Penn AC's Boathouse



EDUCATIONAL



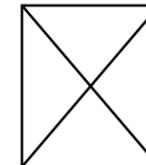
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Existing Conditions

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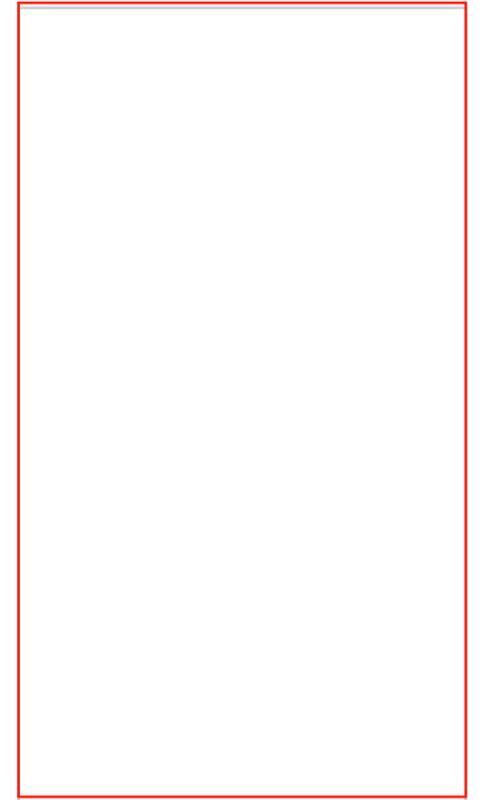
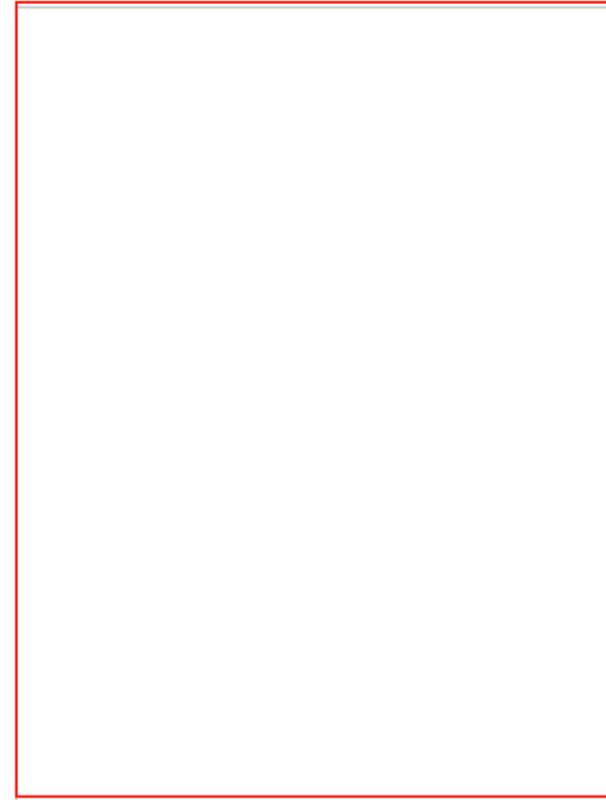
Photos

Plans and Elevations

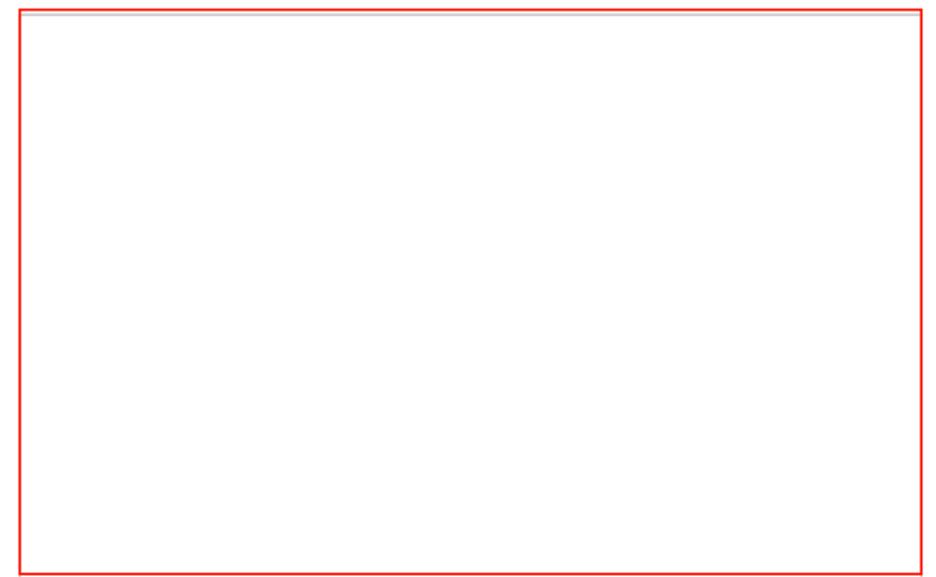
Historic Preservation Narrative

Structural Assessment

Building Systems Assessment



EAST SIDE VIEW FACING KELLY DR



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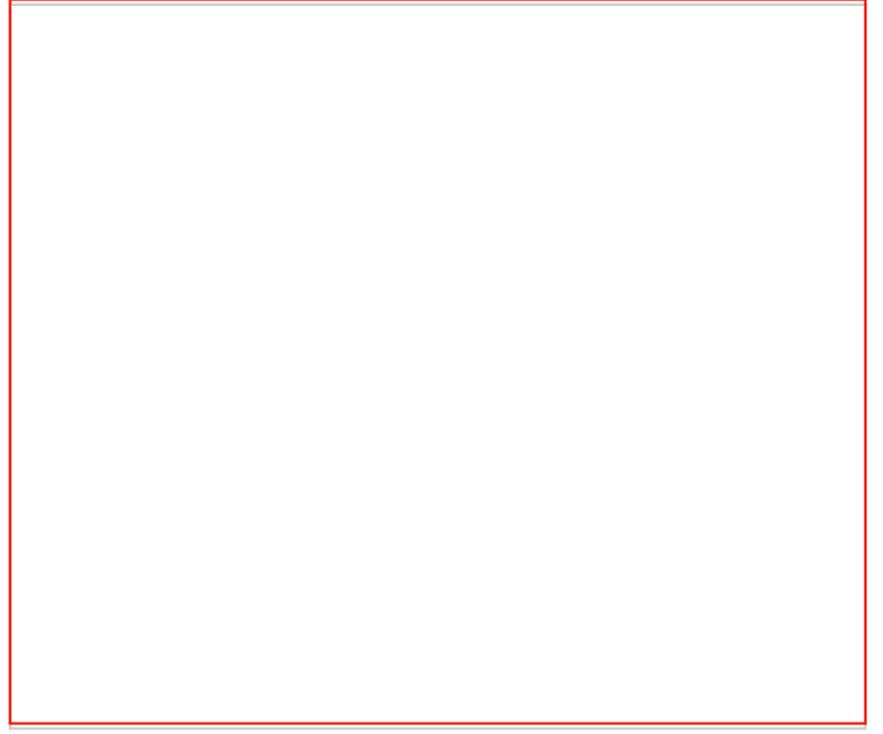
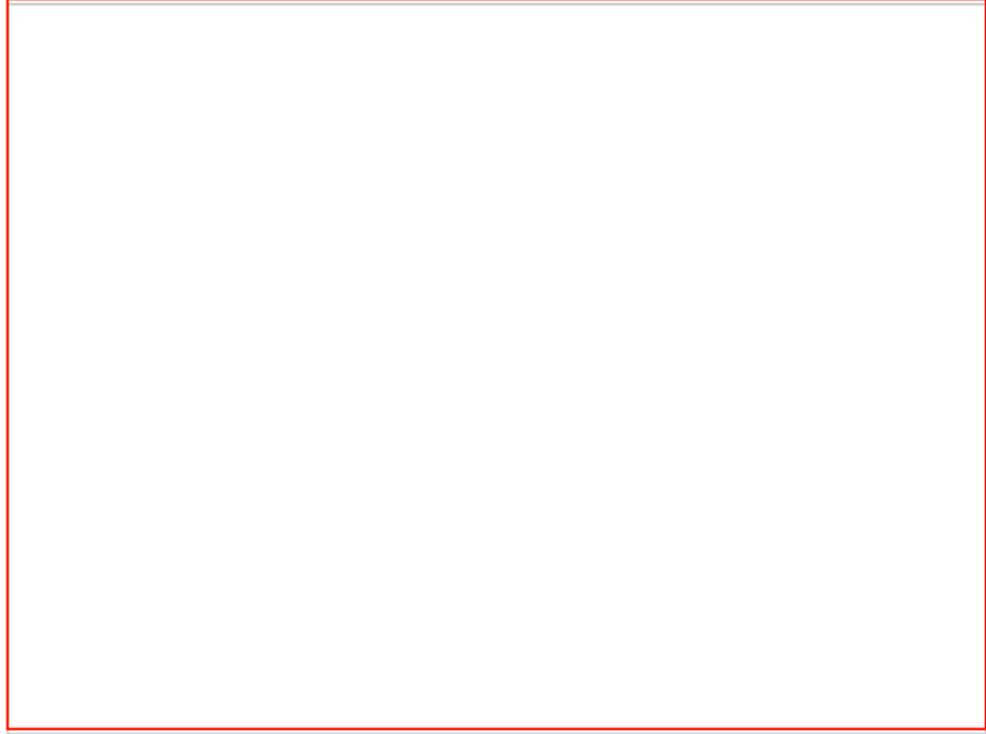
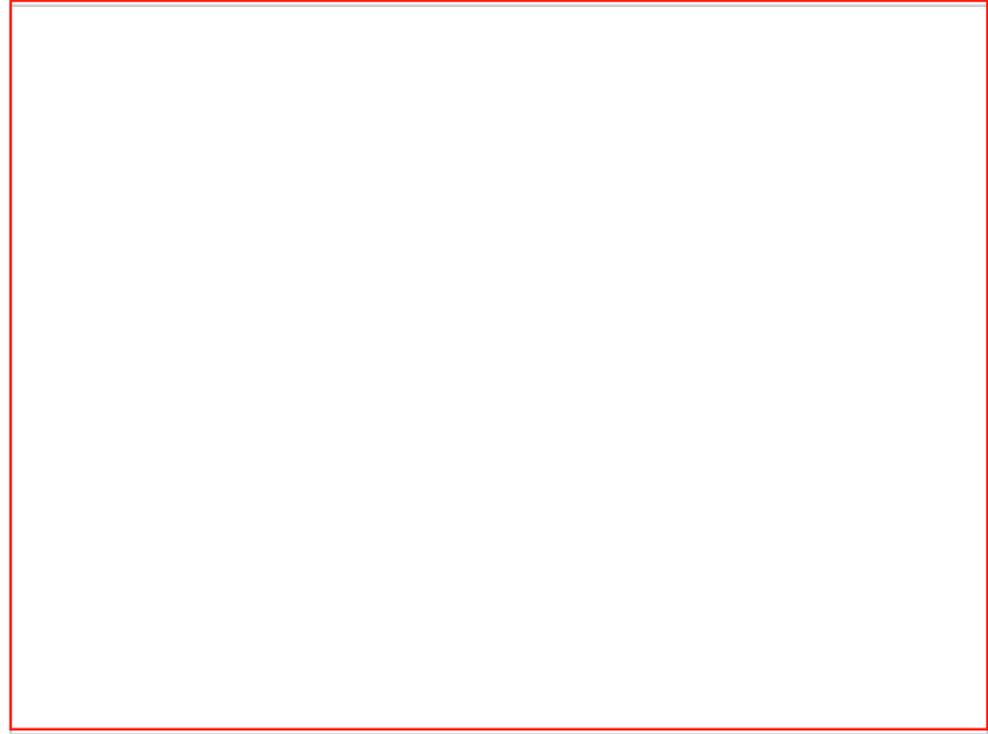
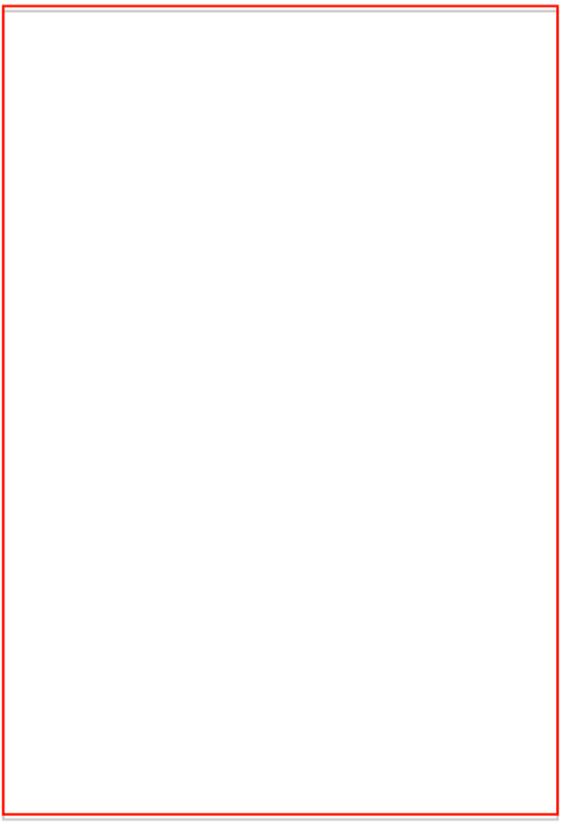
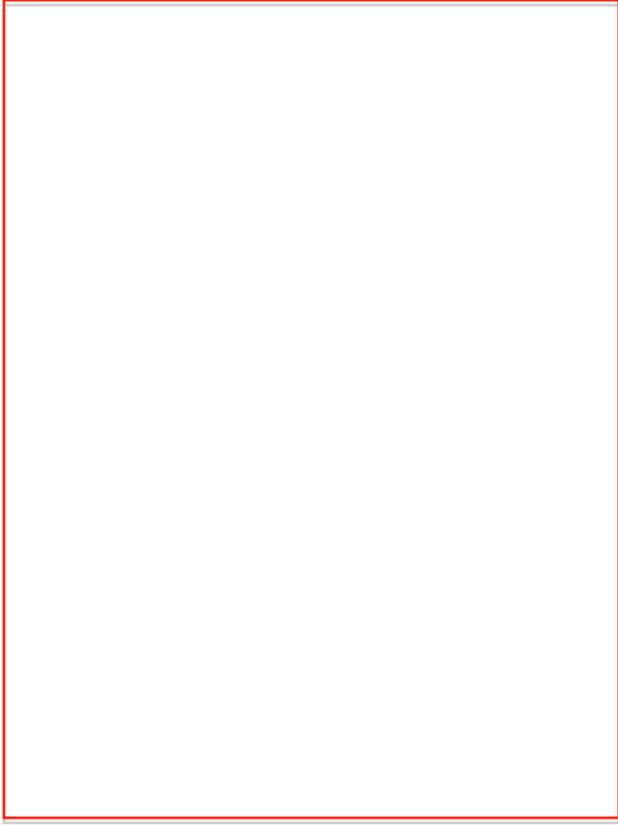
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MENS LOCKER ROOM VIEW

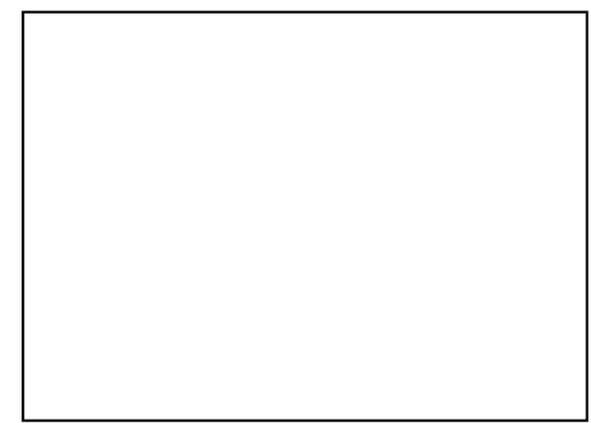
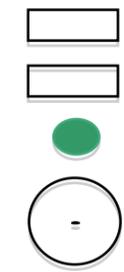
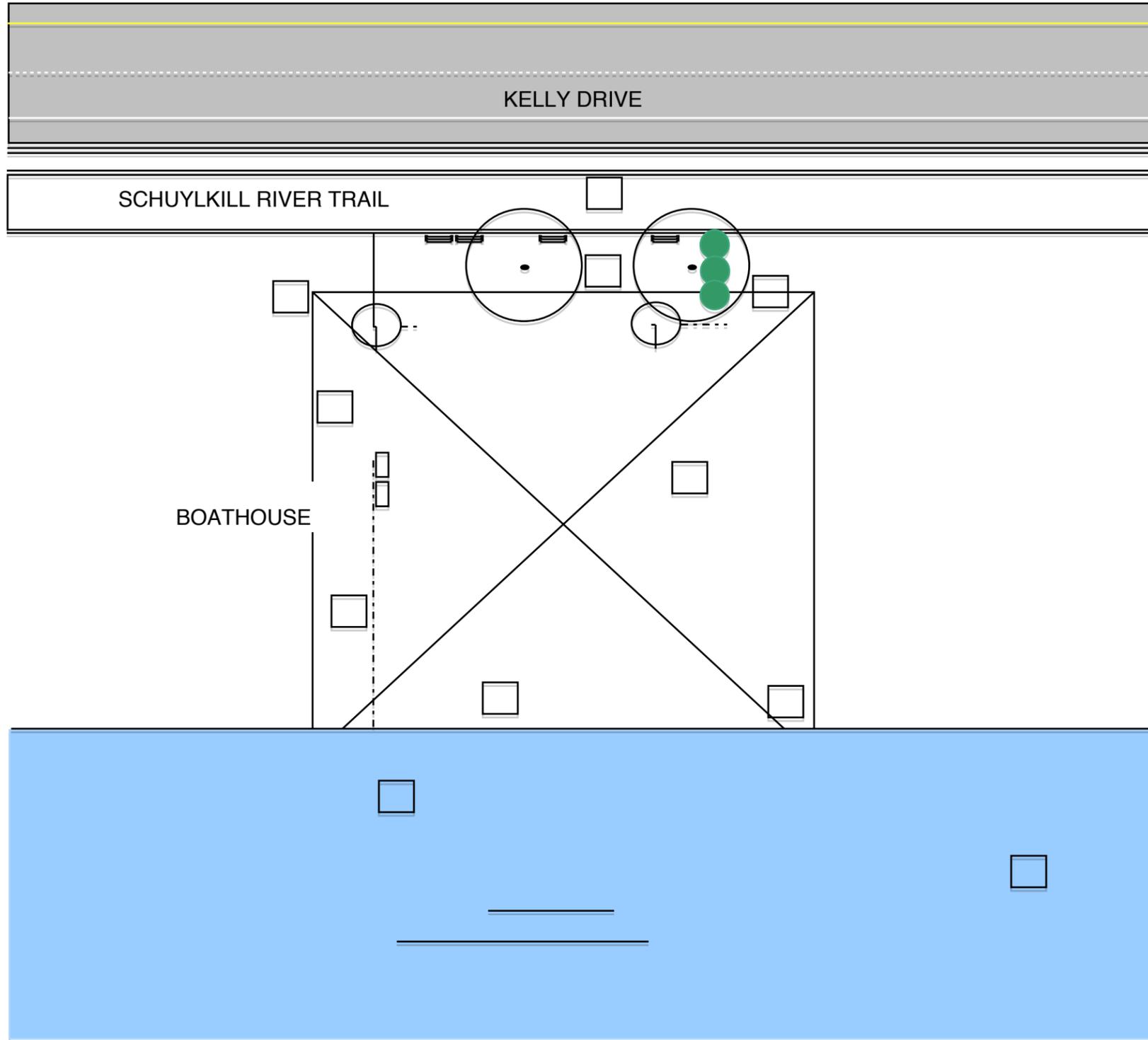


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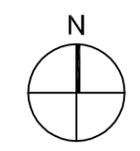
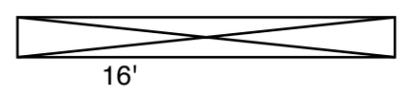
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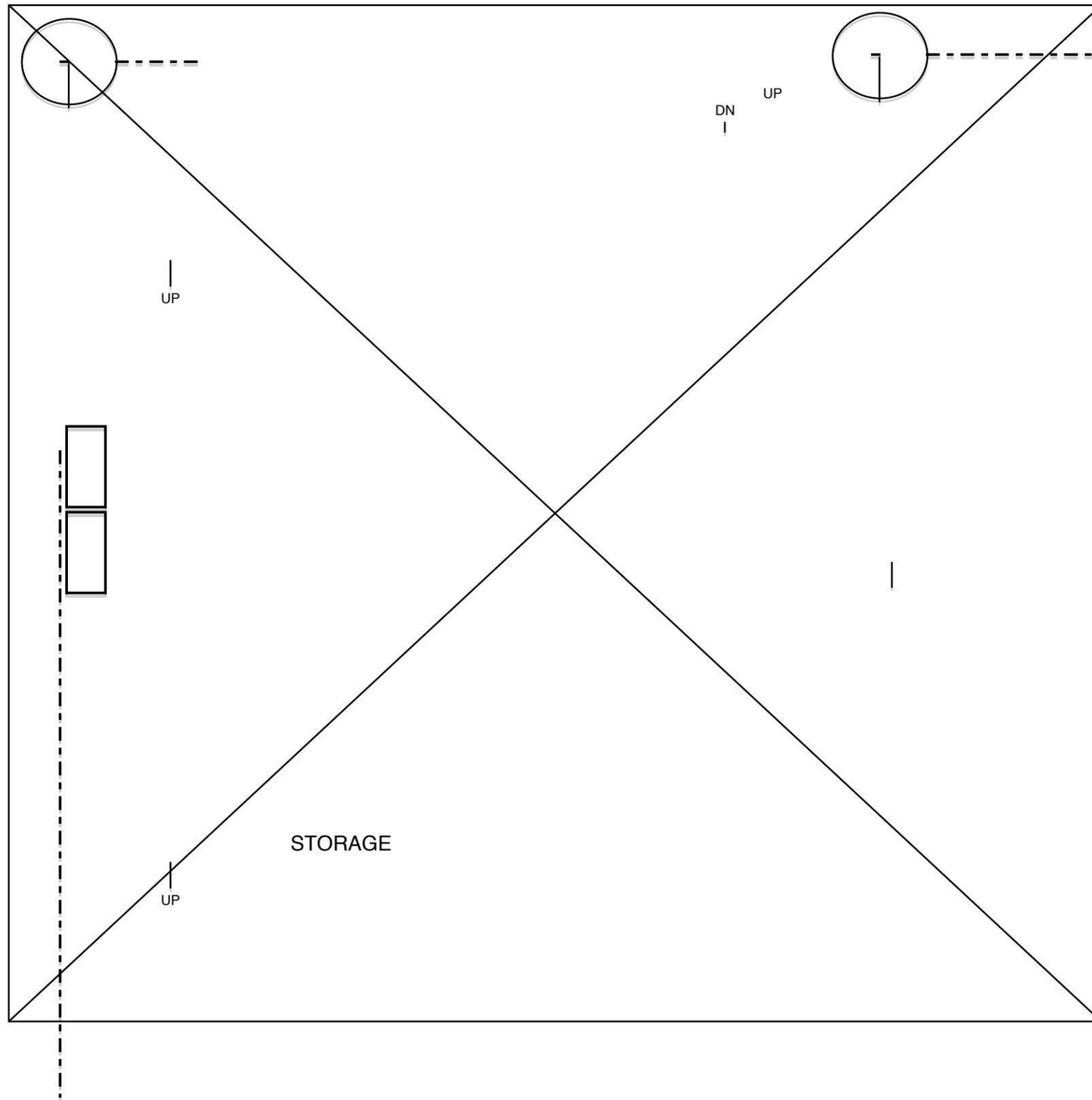


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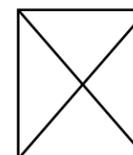
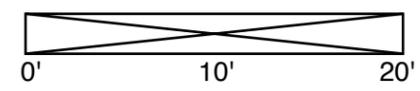
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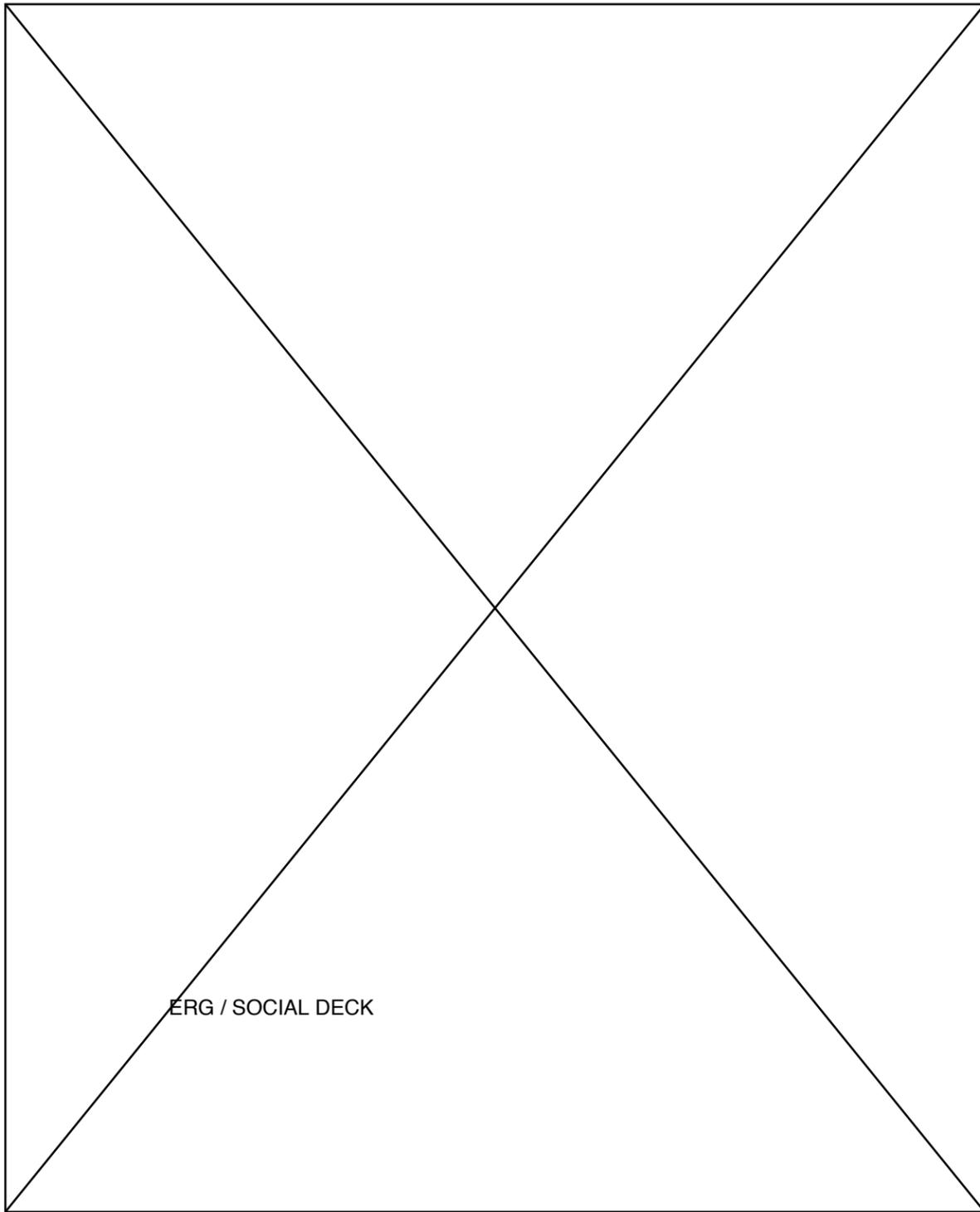


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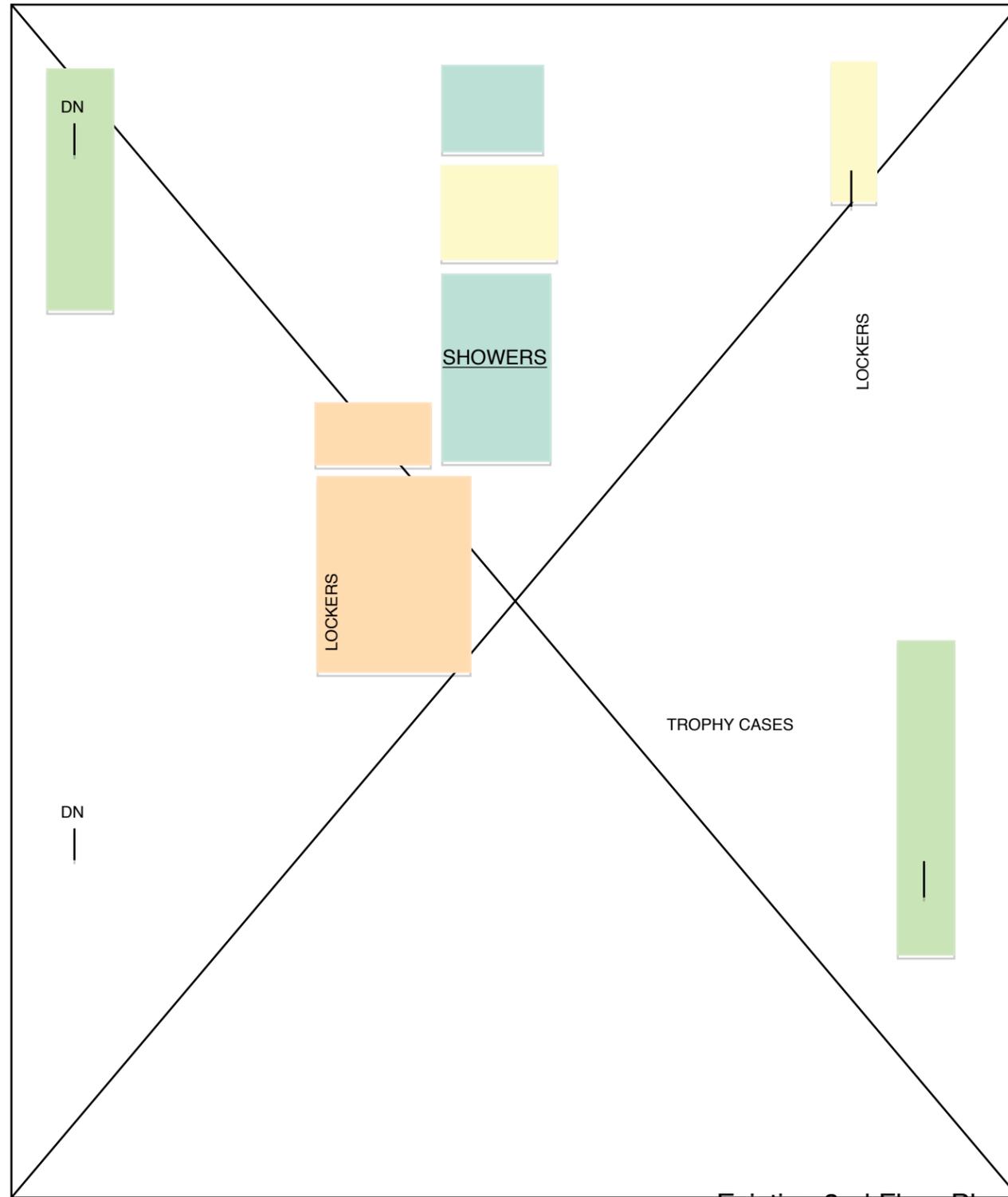
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Existing Roof Plan



Existing 2nd Floor Plan



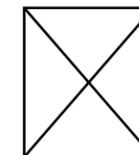
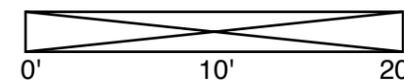
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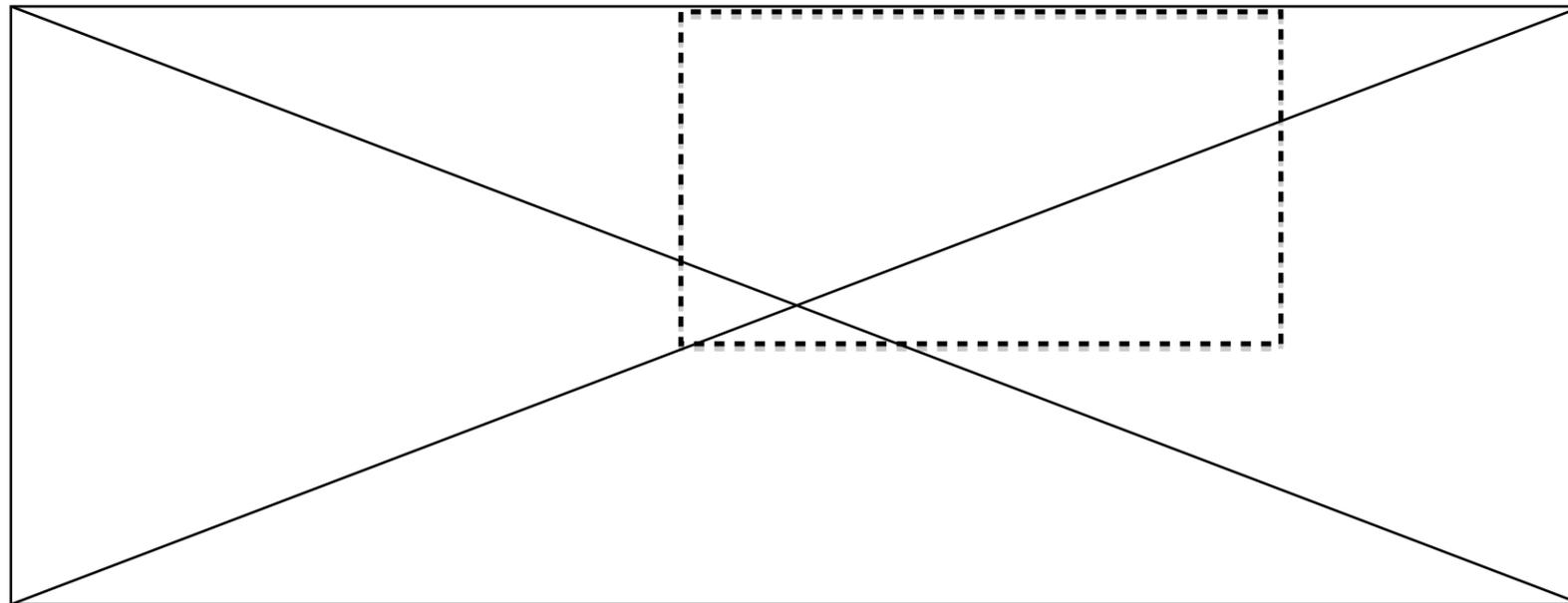
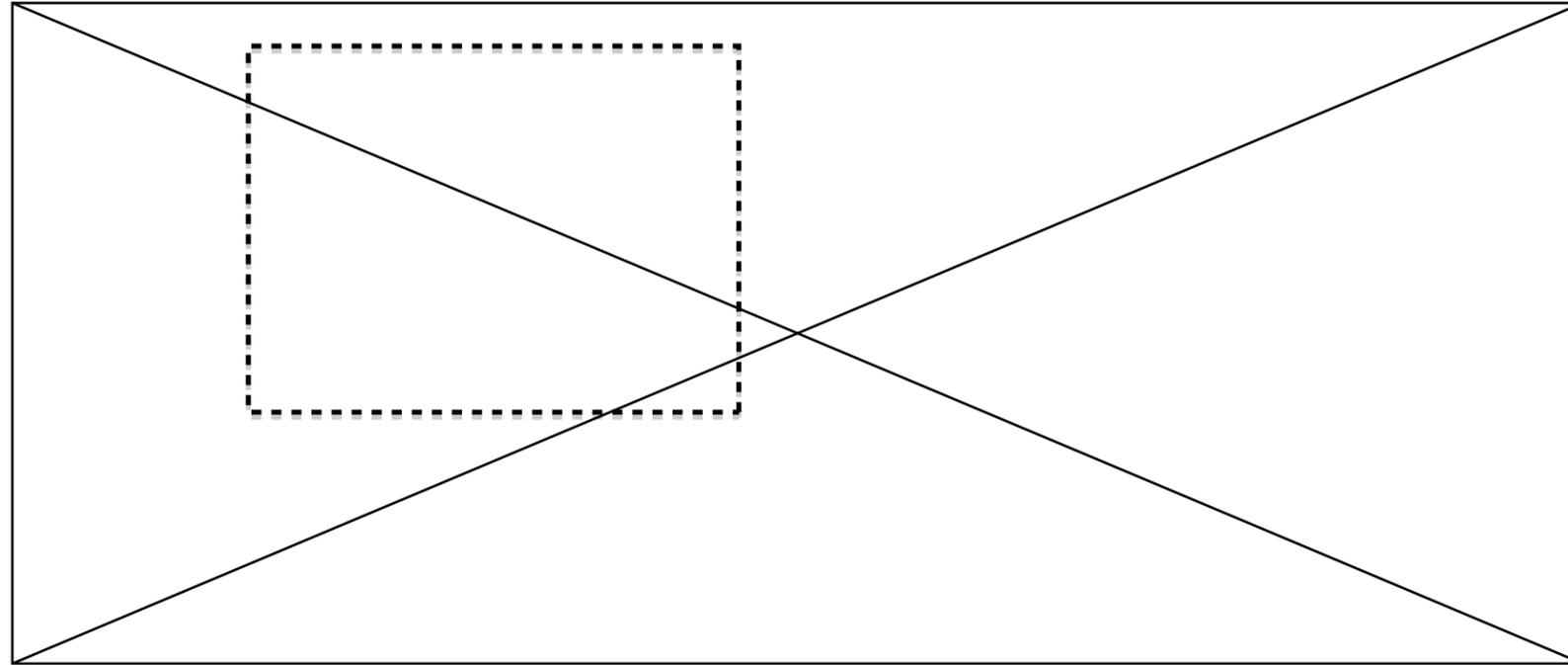
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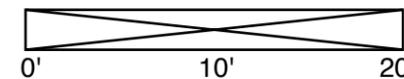
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Existing Conditions

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Historic Preservation Narrative

Current State of Historic Designation

The Penn Athletic Club Rowing Association (Penn AC) is recognized for its historical significance at the local and national levels. The site is individually listed in the Philadelphia Register. Boathouse Row, including Penn AC, is also listed in the National Register as part of the Fairmount Park National Register District. Penn AC also contributes to the significance of Philadelphia's Boathouse Row as part of a National Historic Landmark district, the highest designation of historic sites of national significance in the US. National Register listing and National Historic Landmark status are honorary. Listing in the Philadelphia Register puts the site under the jurisdiction of the Philadelphia Historical Commission, which would review any proposed changes to the exterior of the existing building, including the addition proposed as part of this Community Design Collaborative design grant.

Historical Evolution of the Site

The first Penn AC boat house was a stone building, built in 1878 in the Queen Ann style. (Photo 1) Documents in Penn AC's files indicate that the building was altered shortly after original construction, and possibly as early as circa 1880. The single boat bay on the south (river front) was moved to the west, and the existing two, two-over-two wood windows inserted at the east end of the wall. An open covered porch was also added at this time, at the second story, supported on large curved brackets. (Photos 2 and 3) This expanded space on the second floor would have provided a much larger platform for viewing activities on the river, an essential part of rowing culture then as now. The main roof was also modified at this time with the addition of a cross-gable at the south end, and an inset gable at the west end of the south elevation. A large dormer was also added on the west (side) elevation. (Photos 4 and 5)

These modifications were made within the footprint of the original building. The large brackets, supported on stone blocks and battered brick coursing set into the stone walls, allowed for the extension of the second story porch beyond the footprint of the building on both the south and west. Although the brackets have been replaced, their original supports survive. (Photo 6)

Through these circa 1880 changes, the fenestration, deep over-hanging eaves and decorative pierced gable millwork were retained. Evidence of the decorative gable millwork survives in the rake boards on the north (land front) and east (side) gables. As noted in the Philadelphia Register nomination, these two elevations survive largely intact from the period of original construction in 1878. Physical evidence also suggests that the large dormer (at the current bar area), may survive from the circa 1880 period.

Other original/early building materials, that could be overlooked, also survive at Penn AC.

- Original two-over-two wood windows survive on the original exterior west wall, now the east interior wall of the 1963/1980 boat bay. (This would be the most likely location for analysis of original exterior finishes to determine historic paint colors.)
- At the front (drive side) door, early trim and paneled jambs survive, possibly dating to as early as 1878, but at least dating to 1880. (Note the curved cut at the corner, the chamfers, and the four "knuckles" on the trim.) This same detail is found on the jambs of the boat bay door, evidence that the trim at these doorways is contemporary. (Photos 7, 8 and 9)

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- Wood paneling and most trim in the Trophy Room and the Bar are also believed to date to the circa 1880 alterations (trim at the east window in the Trophy Room has been replaced). This is based on the details of construction and the metal-lined ice box behind the bar, which is clearly early (based on the galvanized metal liner and nails) and is fronted with the same paneling. (Photo 10)

- By opening the leaded glass windows in the Bar, it could be seen that there was asbestos shingle siding on what may be the circa 1880 exterior wall surfaces. If so, the west wall of the bar area may be the extent of the circa 1880 dormer, still in place. This might be confirmed by exploration of the framing in the attic.

There were modest changes to the Penn AC boathouse through the 20th century, such as the addition of a one-story wood framed shed on the west elevation, probably for covered boat storage. (Photo 11) In the 1960s (1964 or 1968?) the first floor of the current west addition was constructed. The second floor was added in 1981 or 1982. The simplicity of the design and the phased construction may be attributed to the addition having been built by members of Penn AC.

...the total effort of the Club was directed to building the new addition from 1964 until 1982. This project required the club to incur a \$24,000 debt at the same time they lost the financial support of the downtown Penn AC which supported the rowing club since 1924.¹

While construction of the west addition enclosed the first floor of the original building, and resulted in the loss of original building elements on the west elevation, the placement of the original building on the east side of the lot (rather than at the center) has resulted, by default, in its preservation. This is especially evident when Penn AC is compared to its neighbor to the east, the College Boat Club, which was nearly identical in form to Penn AC when originally constructed (see Photo 2). Whereas the original College Boat Club is now enclosed on two sides (and the front) by later additions, the proposed addition to the west elevation of the Penn AC clubhouse will continue to preserve the surviving original building.

Impact of the Proposed Addition

Understanding the historical evolution of the Penn AC boathouse has served to inform the Collaborative design team's efforts to develop plans for alterations to the existing building that preserve its character-defining features (e.g. roof configuration, fenestration on the north and east elevations, configuration of original interior spaces, paneling, trim and fireplace on the second floor of the original boat house) and a design for the new addition that is compatible with, and sympathetic to, the original building and Boathouse Row, and that meets the Secretary of the Interior's Standards for the Treatment of Historic Properties.

The 20th century west addition was built to provide needed additional space in the Penn AC boathouse. If it's true that it was built by members of the club, it's hard not to be impressed by the dedication, commitment and investment of those who contributed to its construction. Unfortunately, construction of this addition resulted in the removal of nearly

¹ Joe Sweeney, The History of the Penn Athletic Club Rowing Association: A saga of a Philadelphia rowing club, typewritten manuscript, p. 38. In the collection of the Penn Athletic Club Rowing Association. Dates for the west addition(s) vary. The Philadelphia Historic Register nomination dates the first addition to 1968, and the second to 1981. According to Dotty Brown, in Boathouse Row, "To accommodate its growing membership, in the 1960s Penn AC expanded with an unimaginative addition, adding women's lockers and boat bays." (Dotty Brown, Boathouse Row: Waves of Change in the Birthplace of American Rowing, (Philadelphia, PA: Temple University Press, 2017), p. 235.)

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all character-defining elements of the west elevation, and elements on the south elevation (e.g. the c. 1880 brackets), which had survived up until this time (compare Photo 5 with Photo 11). The design of the addition—the stucco exterior cladding, small windows, etc.—is utilitarian in nature, and takes no cues from the existing historic building, or the whole of Boathouse Row. The current Penn AC membership is again taking on the challenge of providing new and better facilities for their growing membership. Because of the constrained site, demolition and replacement of the west addition presents the only opportunity for the expansion and improvement of Penn AC. This also provides an opportunity to improve upon the design and character of the west addition, and to highlight the original boathouse

The proposed three-story addition responds to the Secretary of the Interior's Standards in several aspects. The addition is separated from the original building, physically and visually, by a one-bay set-back on the north elevation. The roof of the addition steps up from the height of the original building roof, providing another visual cue. The cross gable form, visible on the north elevation, gives the new addition a compatibility with the existing original, while modern windows and simplified detailing at the gable end clearly differentiate the two. Restoration of the original brackets and pierced panel in the gable end, and the windows and door on this elevation, will also help to differentiate the original building and new addition. These same character elements are used on the south (river-side) elevation to differentiate the existing boathouse and the proposed addition.

Funding Sources

The primary public source of funds for the restoration and rehabilitation of historic buildings in Pennsylvania is the Keystone Historic Preservation Grant Program, managed by the Pennsylvania Historical and Museum Commission, State Historic Preservation Office. The Keystone Historic Preservation Grant Program is a competitive grant program with applications accepted annually in March (2018 applications were due March 1st). Grants can go toward project planning or construction and require a 50% cash match to funds received from the state. Additional information can be found here: <http://www.phmc.pa.gov/Preservation/Grants-Funding/Pages/default.aspx>

Private foundations may be another source of funds for restoration of the existing building and/or construction of a new addition. The Free Library of Philadelphia (main branch) has resources such as The Foundation Grants Index and Corporate Foundation Profiles that may be useful. Penn AC could consider grant opportunities from foundations that support athletics, education (such as the summer rowing program), and children and youth, in addition to those that support the stewardship of historic buildings. Many of their resources come from the Foundation Center, a non-profit with a mission to advance knowledge of philanthropy. Additional information can be found here: https://know.freelibrary.org/Search/Results?submit=Search&lookfor=foundation+grants&searchme=catalog&searchType=simple&site=default_collection&client=flpxslt&proxystylesheet=flpxslt&output=xml_no_dtd&setting_key=English&servers=1home&index=default and here: <https://know.freelibrary.org/Author/Home?author=Foundation+Center>.

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Photos



Photo 1 The Penn AC boathouse soon after original construction in 1878.

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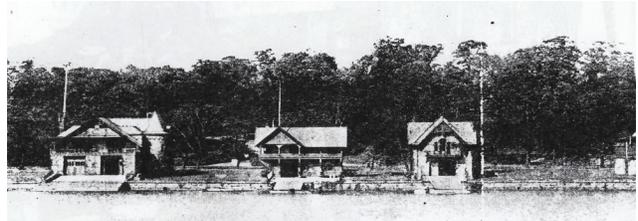


Photo 2 View of boathouse row from the south, across the Schuylkill River, circa 1880, showing Undine Barge Club, Penn AC and the College Boat Club (left to right).



Photo 3 Detail view from the southeast showing the circa 1880 alterations, particularly the large brackets supporting the second story porch.



Photo 4 View from the northwest showing original building elements (deep overhanging eaves, pierced decorative panels in the gables, front entry and bay windows) and the circa 1880 dormer and open porch (right photo).



Photo 5 Undated bird's eye view from the southwest showing the circa 1880 modifications, and later alterations; notably, the first story to the east of the boat bay was enclosed, as was the east bay of the second story porch.



Photo 6 2017 view showing modern brackets bearing on the circa 1880 stone and brick supports.

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Photo 7 2017 view looking up to the interior front (drive side) door trim. Note the lambs tongue and chamfer.



Photo 8 2017 view looking up to the interior front (drive side) door trim showing the chamfering and "knuckle" trim detail at the center of the doorway opening.



Photo 9 2017 view of the circa 1880 boat bay jamb. Note the lambs tongue and chamfering at the flat panels, as seen at the front door (Photo 8). The knuckle detail is also found at this opening.



Photo 10 2017 view of the early (circa 1880?) ice box in the current Bar area.

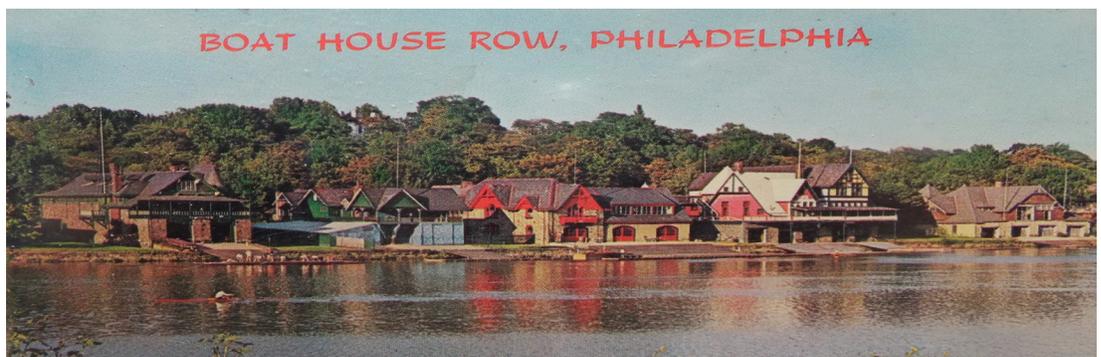


Photo 11 Undated (20th century) post card view of Boathouse Row showing a one-story wood framed shed on the west elevation.

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Structural Assessment

- I. Existing Conditions Survey:
 - 1) Original Boathouse – Late 1800s
 - a. 2-story stone bearing wall structure
 - b. Wood floor and roof framing with steel shoring retrofit in boat bays
 - c. Structure appears to be in good shape with minimal signs of settlement
 - d. One-bay brick masonry addition on river side
 - i. Signs of excessive settlement below southeast corner of building
 - ii. Potential causes are insufficient soil bearing capacity and inadequate drainage.
 - 2) 1980s Addition
 - a. 2-story Hybrid System with steel frame and masonry bearings walls
 - i. Steel Frame consists of W8 columns and wide flange beams
 - ii. Typical bays of 15' to 20'
 - iii. 8" CMU walls
 - b. Structure appears to be in good shape and, in general, framing is sufficient to carry an additional floor.
 - c. Foundation design is unknown and its capacity will need to be analyzed after it is determined.
 - d. Dimensional lumber floor and roof joints
 - e. Two open grate steel egress stairs on west side of building

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Building Systems Assessment

- I. Existing Systems:
 - 1) HVAC
 - a. Natural gas service: 2" pipe and meter on ground floor
 - b. Gas-fired unit Sterling brand heater in women's locker room
 - c. Gas-fired Carrier brand furnace in weight room –serves 2nd floor, ducted to wall registers. Trophy room floor registers disconnected from removed unit on ground floor.
 - d. No cooling or dehumidification systems
 - 2) Plumbing
 - a. Domestic Cold Water Service: 1" pipe and meter on ground floor
 - b. Hose bibb on loading dock
 - c. Gas-fired domestic water heater located in Erg room – 80 gallon, 199,999 BTU/hr input, 193.9 gallon/hour recovery Bradford White Model: D80T1993N; S/N: YF1591422 (installed 2002? ~15 years old; approaching end of service life)
 - d. 4" cast iron sanitary line leaving building; sanitary lines throughout boat bay ceiling.
 - e. Plumbing fixtures:
 - i. Women's Locker Room – 1 shower, 1 sink, 1 toilet
 - ii. Trophy Room Bathroom – 2 toilets, 1 sink
 - iii. Men's Shower Room - 7 showers, 1 sink, 1 toilet, 1 urinal
 - iv. Bar Room – 1 sink, 1 floor drain
 - f. Uninsulated piping throughout building
 - g. No thermostatic mixing valves present
 - h. Hot water must be run for several minutes before it reaches fixture
 - 3) Electrical
 - a. Fire alarm panel in front boat bay stairs
 - b. Boathouse Row exterior lighting panel in boat bay stair closet – unmetered
 - c. 240V/1Ph/100A panel and electric meter in boat bay in poor condition

Conceptual Design

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Space Program

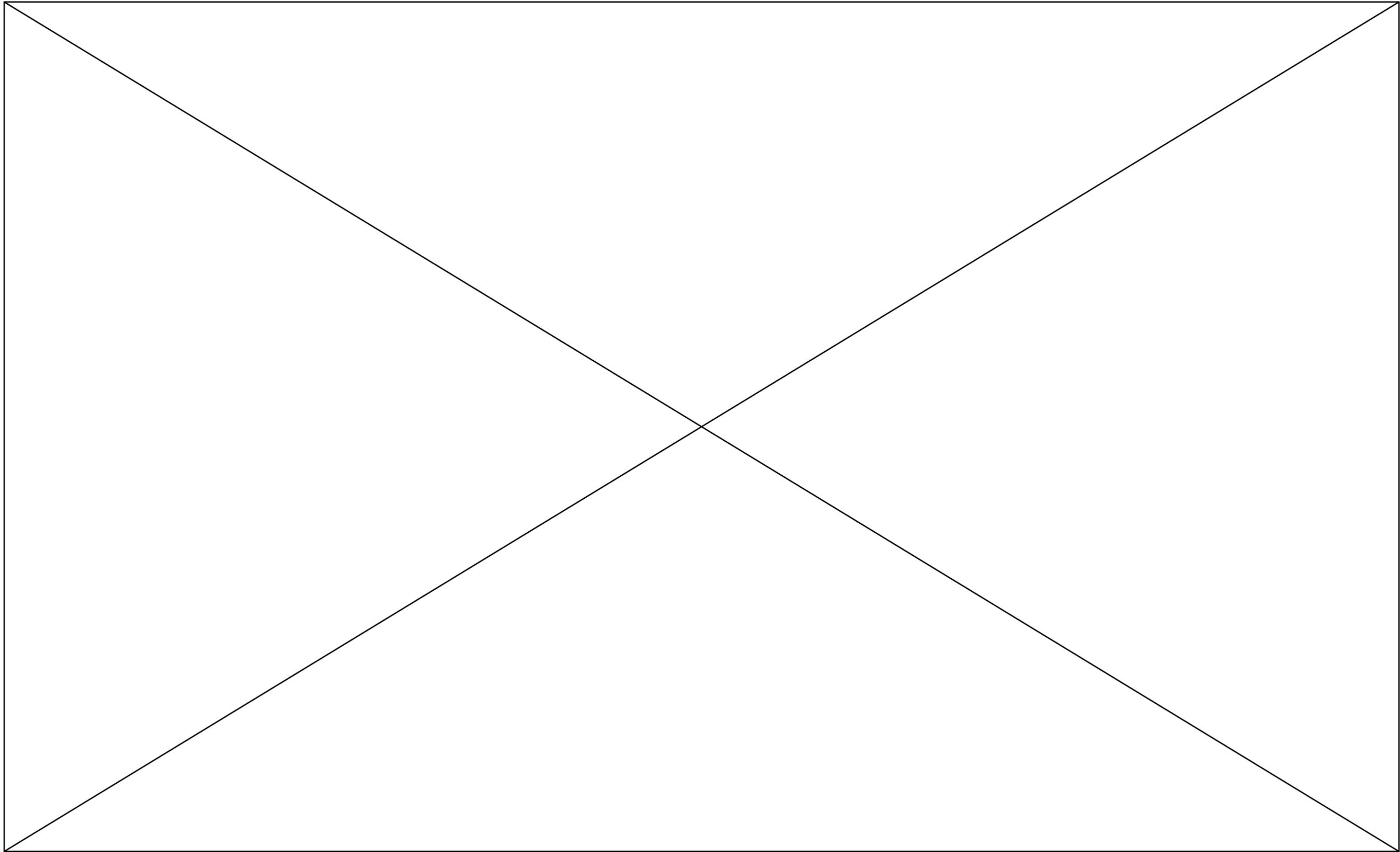
Proposed Drawings and
Precedents

Structural Recommendations

Building Systems
Recommendations

Opinion of Probable Cost

Preliminary Studies

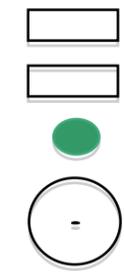
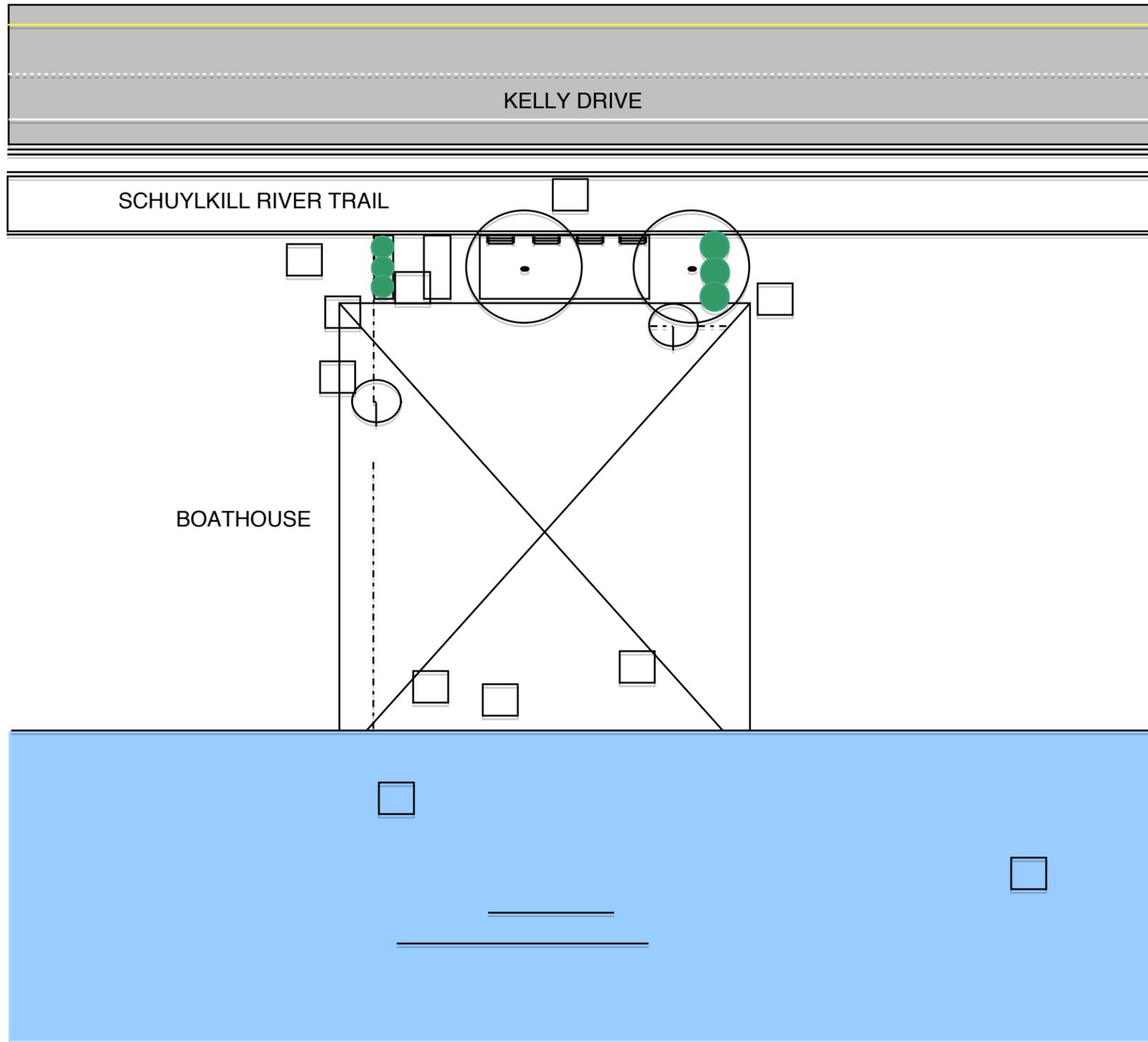


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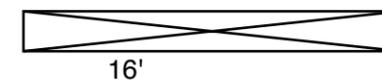
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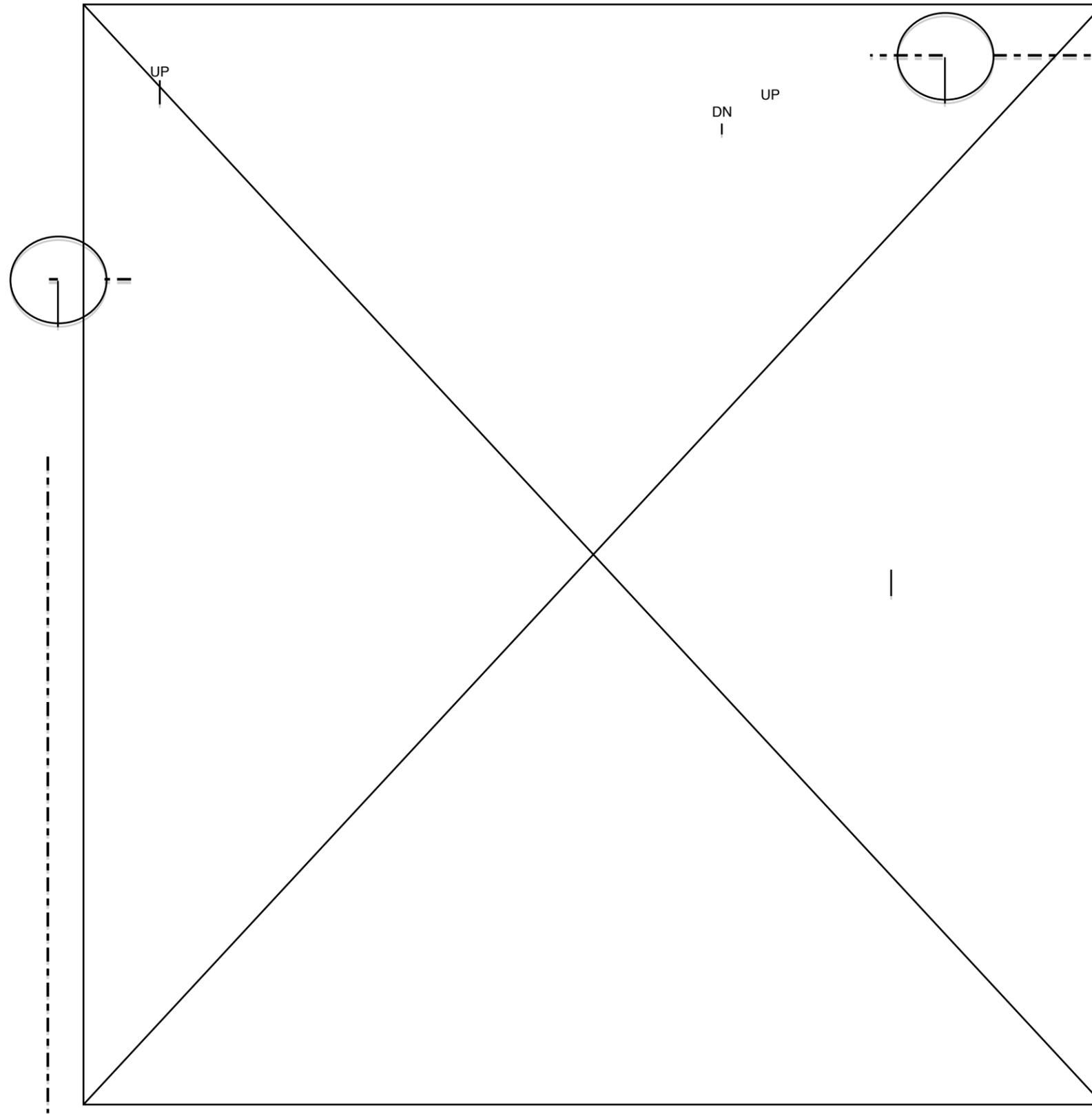
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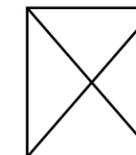
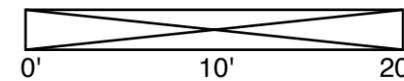
BOATHOUSE



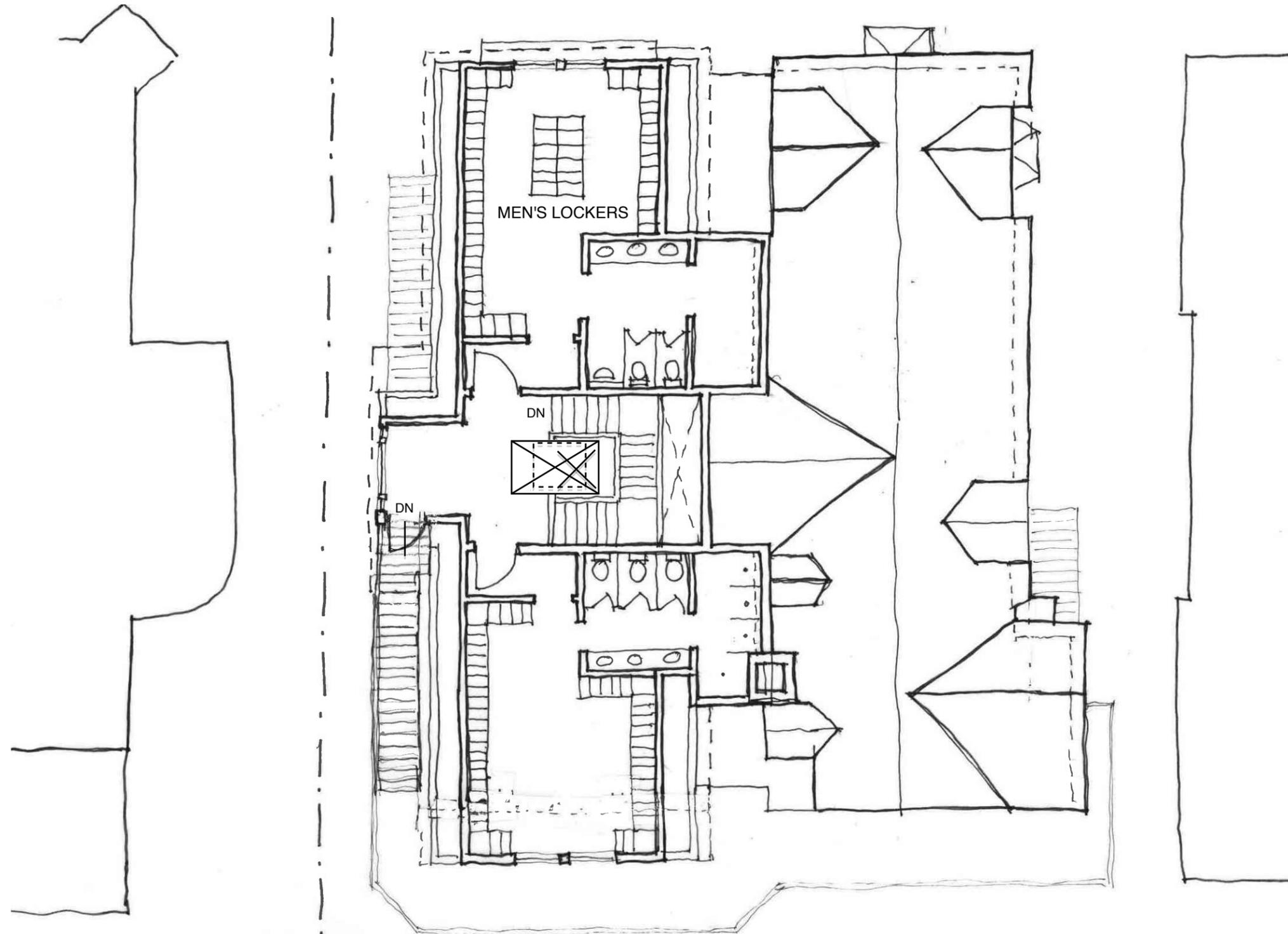
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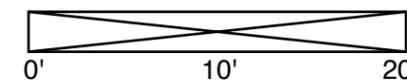
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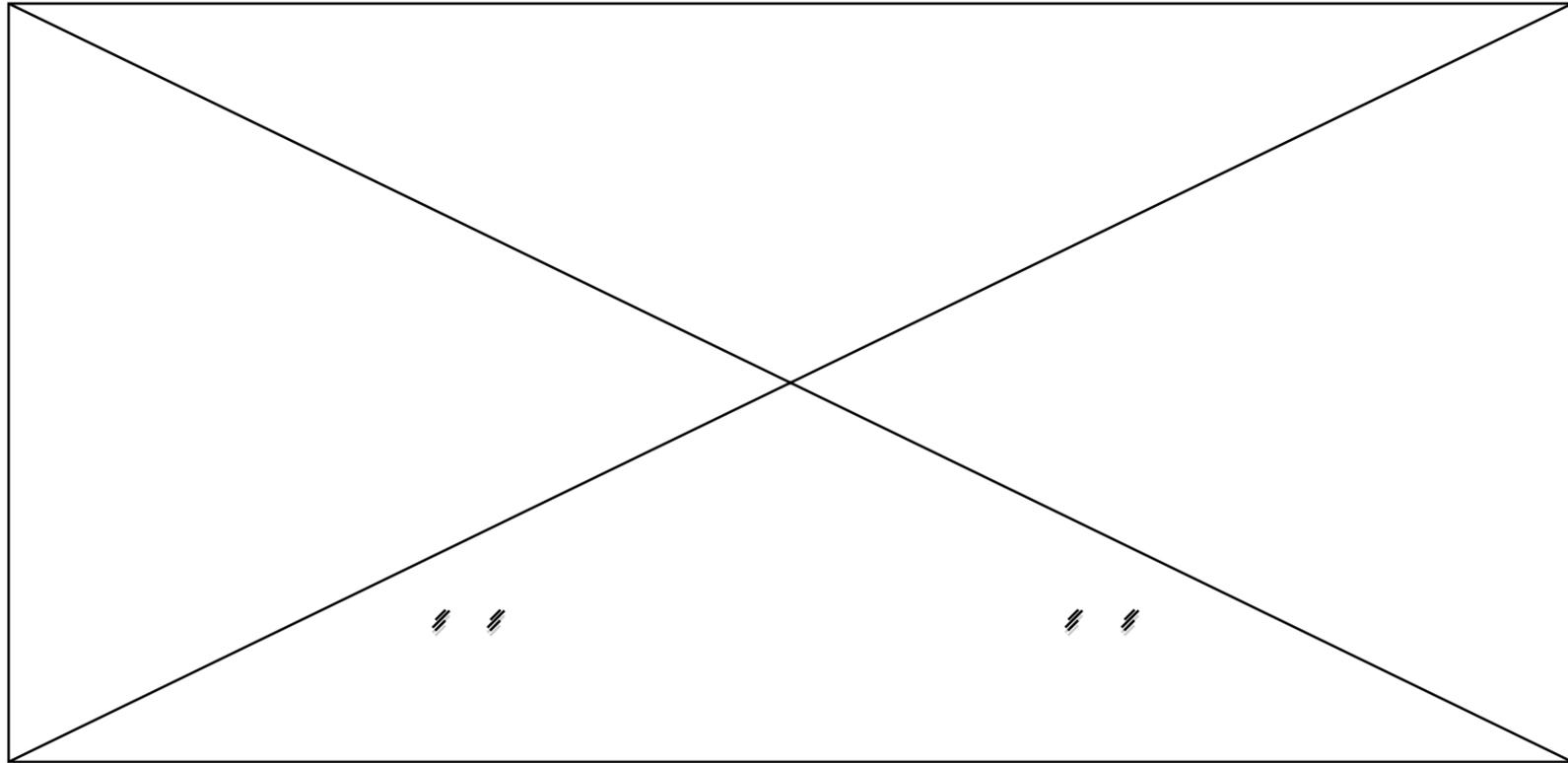
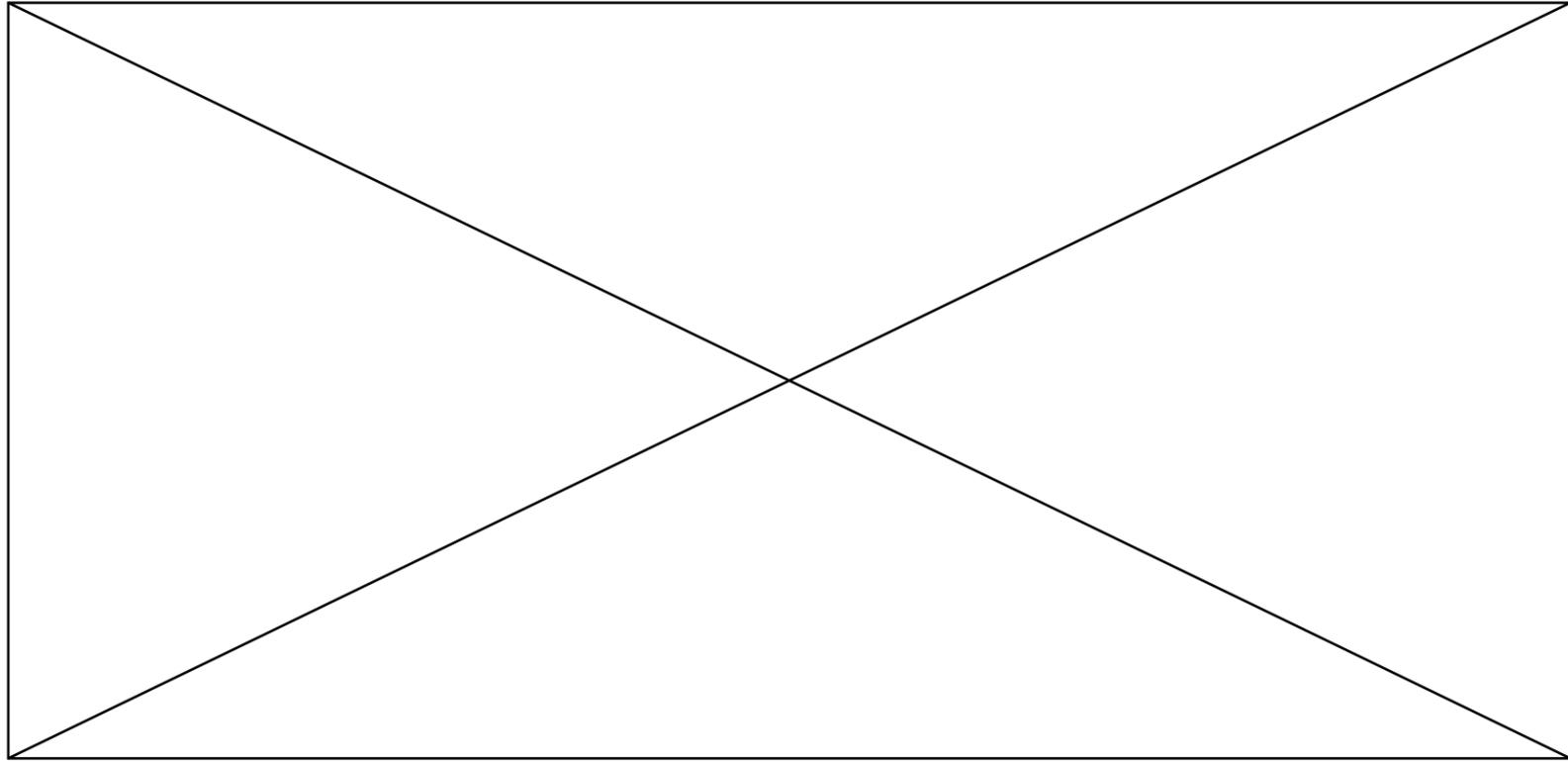
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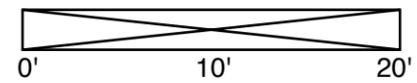
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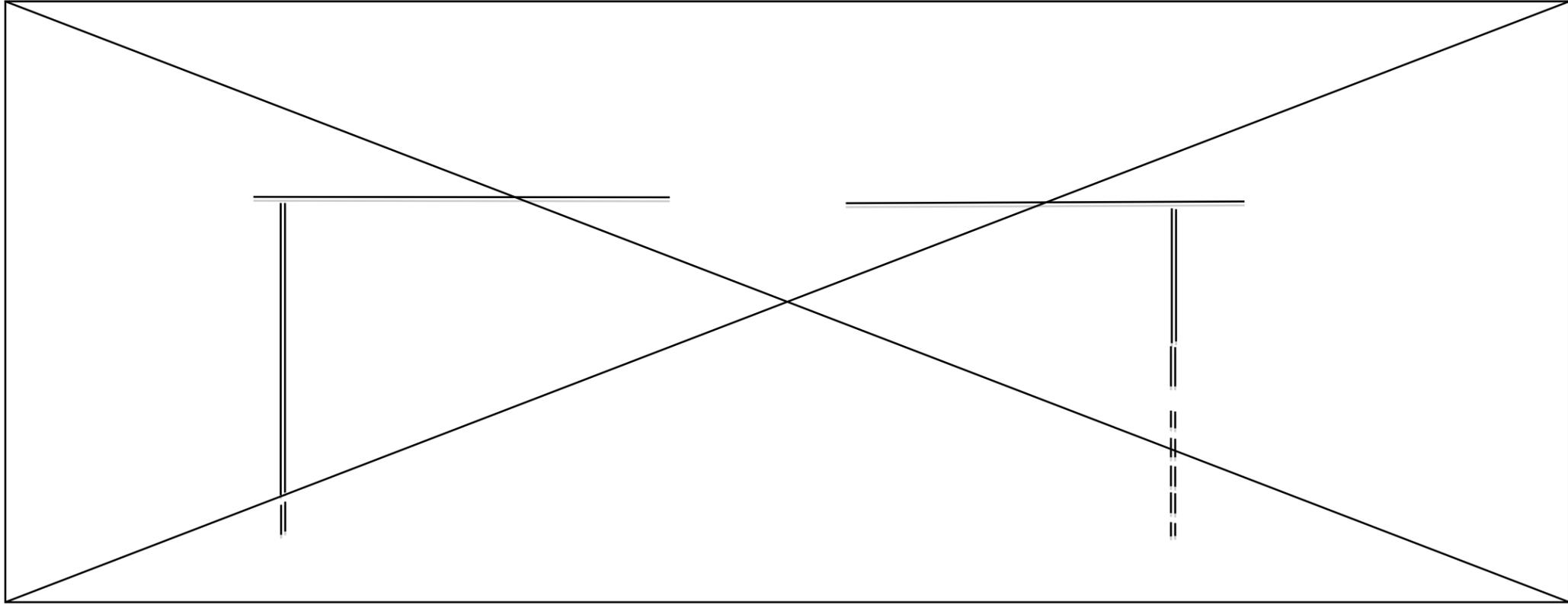
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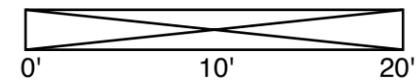
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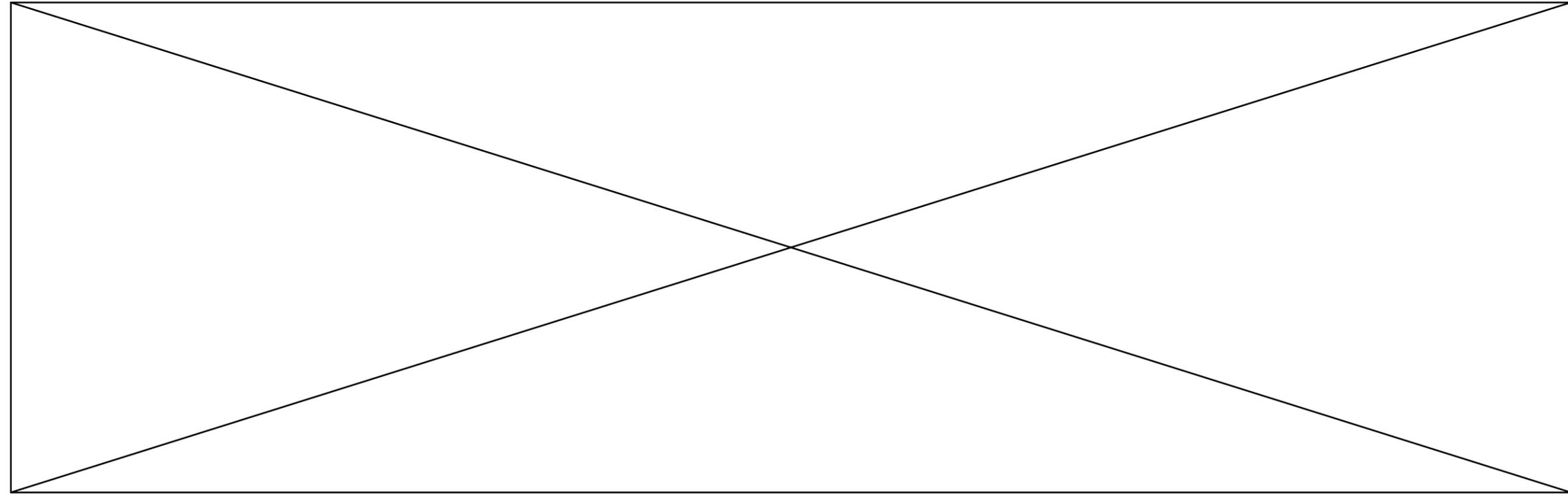
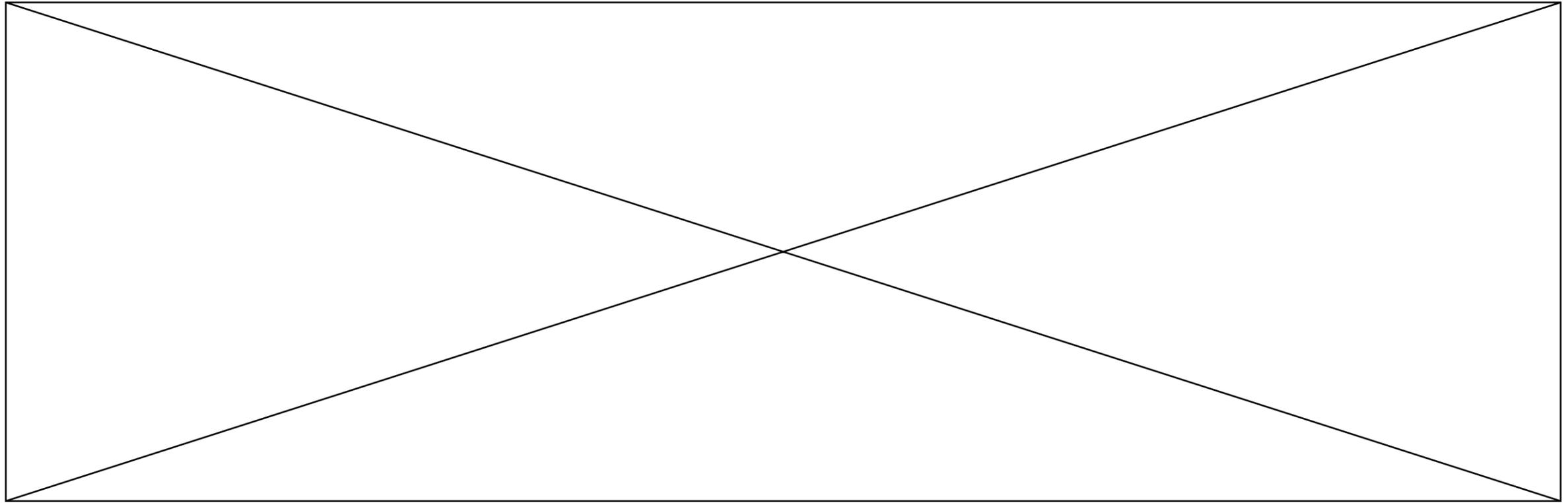
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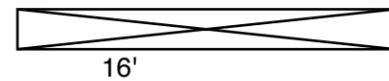
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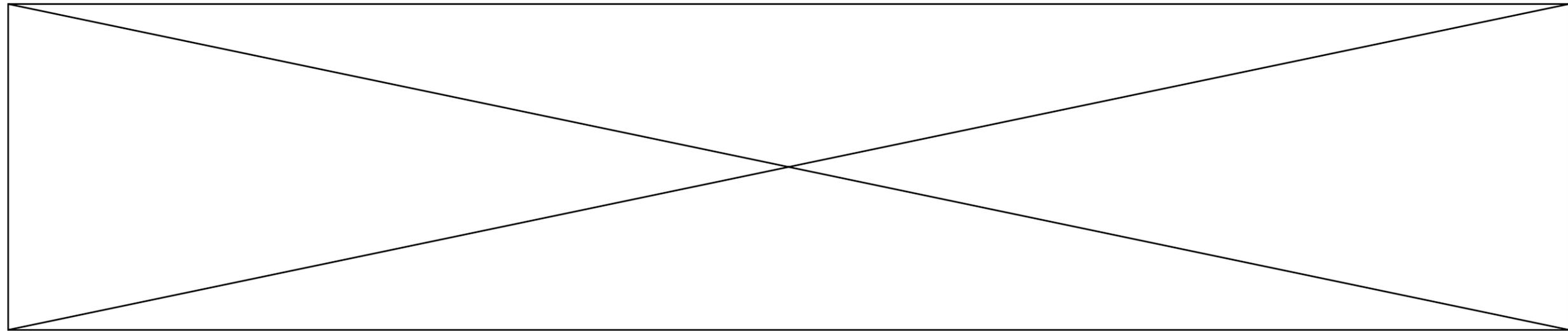
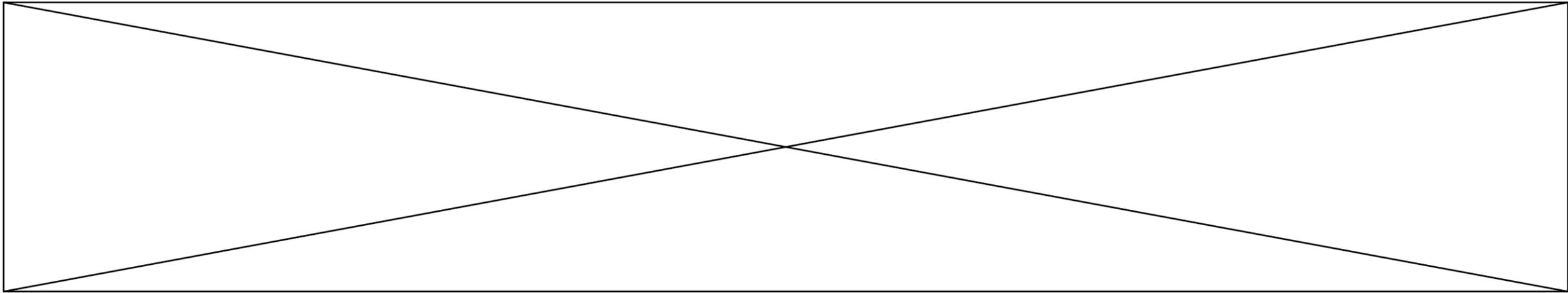
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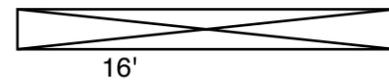
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WMS BOATHOUSE - CHICAGO



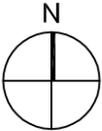
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Conceptual Design

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Structural Recommendations

- I. Proposed New Work and Recommendations:
 - 1) Geotechnical Investigation and Foundation Exploration
 - a. A geotechnical investigation is required to determine if soil can support increased loads of the proposed addition.
 - b. Foundation system below the 1980s addition walls and columns must be verified prior to new work.
 - c. Cause of settlement in southeast corner should be determined and a remediation procedure should be recommended.
 - 2) Proposed Work in Original Boathouse
 - a. Demo and reframe floor openings at north end of boathouse for new elevator and replace stair.
 - b. Provide new mat foundation for elevator.
 - c. Pending results of geotechnical investigation, determine procedure to mitigate settlement and remediate walls at southeast exterior stair.
 - d. Restore deck at southeast corner.
 - i. Temporarily support roof structure.
 - ii. Remediate cause of bearing wall settlement.
 - iii. Remove kitchen walls and floor.
 - iv. Install new posts, railings, and decking.
 - 3) Proposed Renovation of 1980s Addition
 - a. Demolish all structure down to the wood floor framing above the boat bays.
 - i. Cut off existing second floor steel columns below top of wood decking
 1. Steel framing could be reused if possible; however, the heights and locations of existing framing do not seem to be compatible with all aspects for the new design.
 - ii. Remove all exterior masonry walls above the wood framing.
 - iii. Locally remove areas of wood framing required to install new steel or engineered lumber as required for design.
 1. New cantilevered beams for deck extension
 2. New cantilevered floor at new west entry and stair
 3. Support for new elevator from 2nd to 3rd floor
 4. Below new wood bearing walls
 - b. Frame new addition on existing first floor structure.
 - i. Use conventional platform-framed wood bearing wall construction.
 - ii. Floor framing to consist of dimensional lumber and engineered floor joists.
 - iii. Steel or engineered wood post and beams will be required at Nanawall Systems.
 - iv. New roof structure to be built from dimensional wood rafters.
 - c. Exterior stairs to be premanufactured steel framed stairs.

Conceptual Design

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Building Systems Recommendations

I. Future Systems Recommendations:

1) HVAC

- a. Remove gas-fired unit heaters and remove gas piping back to ground floor, and store for future re-installation.
- b. Remove gas-fired furnace, air handler, and associated ductwork.
- c. Install Variable Refrigerant Flow (VRF) system for simultaneous heating and cooling.
 - i. Two (two of three) 5-Ton outdoor VRF units located on flat rooftop space
 - ii. Concealed cabinet-type indoor VRF units with the following sizes and locations:
 1. 2.5 Ton – Erg / Workout
 2. 1.5 Ton – Office / Bathroom / Corridor
 3. 0.5 Ton – Kitchen
 4. 1.0 Ton – Bar
 5. 2.5 Ton – Erg / Social Room
 6. 2.0 Ton – Trophy Room
 - iii. One (one of three) 5-Ton outdoor VRF unit located on flat rooftop space
 - iv. Concealed cabinet type indoor VRF units with the following sizes and locations:
 1. 2.0 Ton – Entry / Stair / Upper Corridor
 2. 1.5 Ton – Men’s Locker Rooms
 3. 1.5 Ton – Women’s Locker Rooms
 - v. Refrigerant piping and required branch controllers run to each indoor VRF unit.
 - vi. Wall-mounted digital wireless programmable thermostats in each of the rooms served by indoor VRF units
 - vii. 1500 CFM energy recovery ventilator (ERV) ducted to occupied spaces

2) Plumbing

- a. Remove tank type gas-fired domestic heater.
- b. Remove existing plumbing fixtures.
- c. Install two new tankless, instantaneous gas-fired domestic water heaters.
- d. Install duplex domestic water booster pump on skid with packaged controls in boat bay.
- e. Install the following fixtures and provide new piping and valves at every fixture:
 - i. 3rd Floor Women’s Shower Room:
 1. 4 showers
 2. 3 lavatories
 3. 3 toilets
 - ii. 3rd Floor Men’s Shower Room:
 1. 4 showers
 2. 3 lavatories
 3. 3 toilets
 - iii. 2nd Floor Women’s Restroom:
 1. 1 lavatory
 2. 1 toilet
 - iv. 2nd Floor Men’s Restroom:
 1. 1 lavatory
 2. 1 toilet

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Building Systems Recommendations

- v. 2nd Floor Unisex Restroom:
 - 1. 1 lavatory
 - 2. 1 toilet
 - vi. 2nd Floor Kitchen
 - 1. 1 stainless steel kitchen sink
 - vii. 2nd Floor Bar:
 - 1. 1 stainless steel bar sink
 - viii. Provide thermostatic mixing valves at all showers and lavatories.
 - ix. Insulate all existing and new hot and cold water lines.
- 3) Electrical
- a. Install new 240V/1Ph 100 Amp NEMA4x rated panel in ground floor boat room.
 - b. Install new light fixtures and receptacles in new rooms.
 - i. Receptacles in restrooms and kitchen shall be GFCI.
 - c. Extend existing fire-alarm system to smoke detectors at new locations.
 - d. Remove and relocate exterior lighting control panel to east boat room wall, adjacent to main panel, to make room for new elevator location.
- 4) Sustainability – All Systems
- a. All new lighting will be LED fixtures.
 - i. LEDs are energy efficient.
 - ii. LEDs do not contribute nearly as much waste heat to the cooling system during summer months like alternatives such as fluorescent and incandescent lights.
 - iii. Additionally LED lights have decreased in cost over recent time, and their lifespan is approximately five times greater than fluorescent lights, meaning less labor spent to replace them.
 - b. Occupancy sensors will be installed in non-public areas such as offices and locker rooms.
 - i. Occupancy sensors allow for further energy savings by automatically turning lights off when a space is not being used.
 - c. The new building envelope will be designed to surpass energy code minimums
 - i. By improving the building envelope, less energy is spent cooling or heating the spaces.
 - ii. Additionally, a high-performance envelope allows cooling and heating systems to be a smaller overall capacity.
 - d. HVAC systems will be selected at the highest efficiency available.
 - i. VRF systems are energy as well as space-efficient.
 - ii. The multiple “zones” available in a VRF system mean that only spaces calling for a demand of heating or cooling will receive conditioning. In this way, the entire boathouse is not being over heated or over cooled when not necessary.
 - iii. Programmable controls allow for the VRF system to turn on in advance of scheduled events, and turn off when not in use. Night time setbacks allow for a minimum temperature to be maintained while the building is not in use.
 - e. Domestic hot water piping will be insulated.
 - i. Less heat is lost to the surrounding spaces through the copper pipes, therefore saving energy.

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Building Systems Recommendations

- f. Other systems explored, but not recommended:
 - i. Solar photovoltaic panels, solar hot water heating, and ground-coupled/geothermal loops are all examples of sustainable building systems researched for the purpose of improving this boathouse.
 - ii. These systems are not recommended for this application due to their complexity and spatial constraints.
 - iii. Water systems like solar or geothermal would require space for tanks, valves, and heat exchangers. The most adequate location—on the ground level, would subtract much needed space for boat storage.
 - iv. Panels located on the rooftop would be visually intrusive, and the square footage required to generate significant power is not available. The payback period would likely exceed the lifespan of this equipment. Electrical power inverters would also take up space within the boat bays.
 - v. The proposed systems (VRF heating/cooling, instantaneous hot water, LED lighting, etc.) are more typical of this region for residential and light commercial applications. The non-recommended systems would require specialized maintenance and possibly an on-site facilities person.

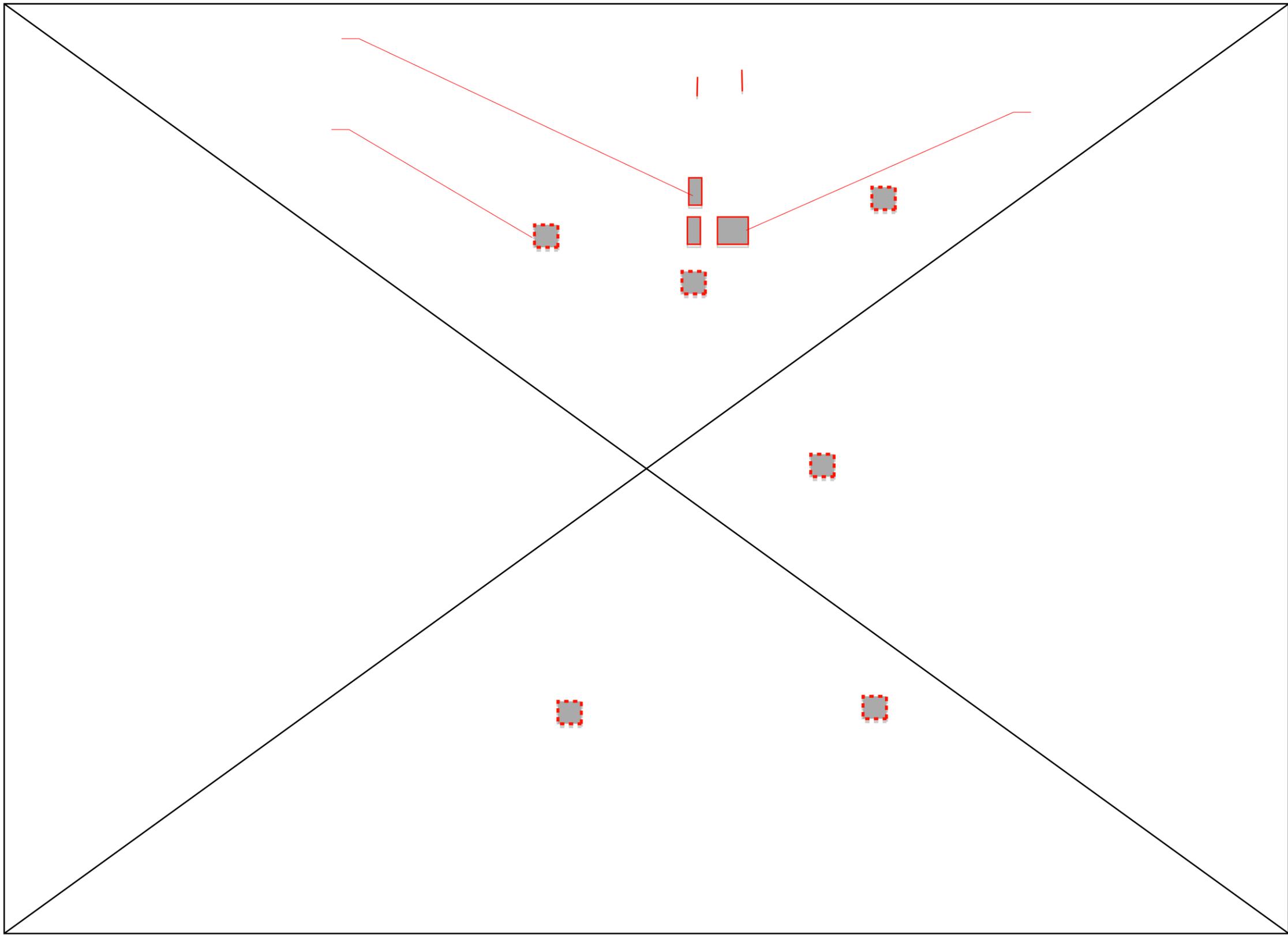
Description of Services

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Value of Services Donated

Letter of Agreement

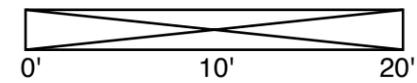
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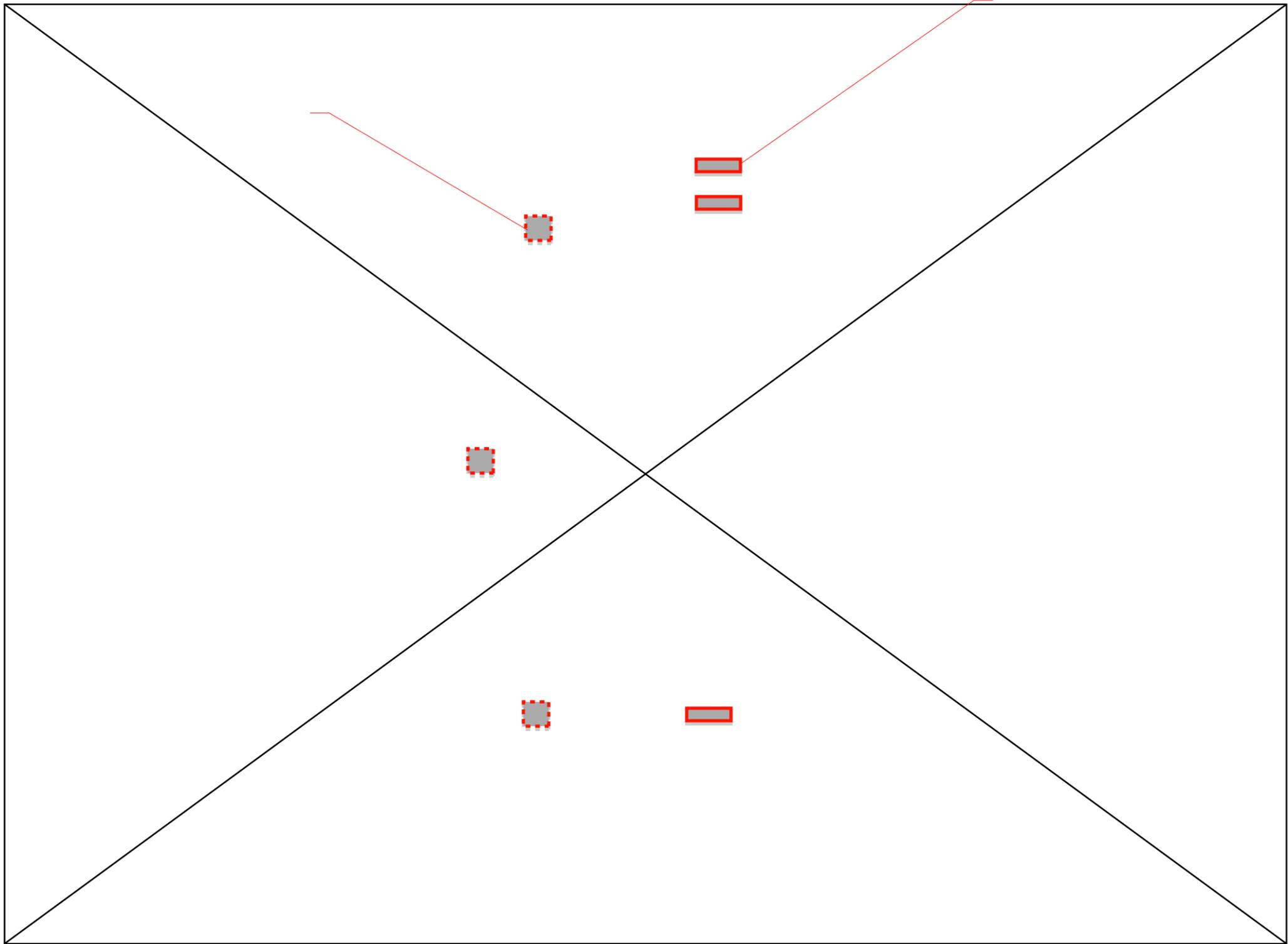
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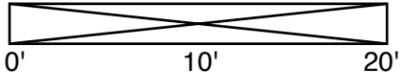
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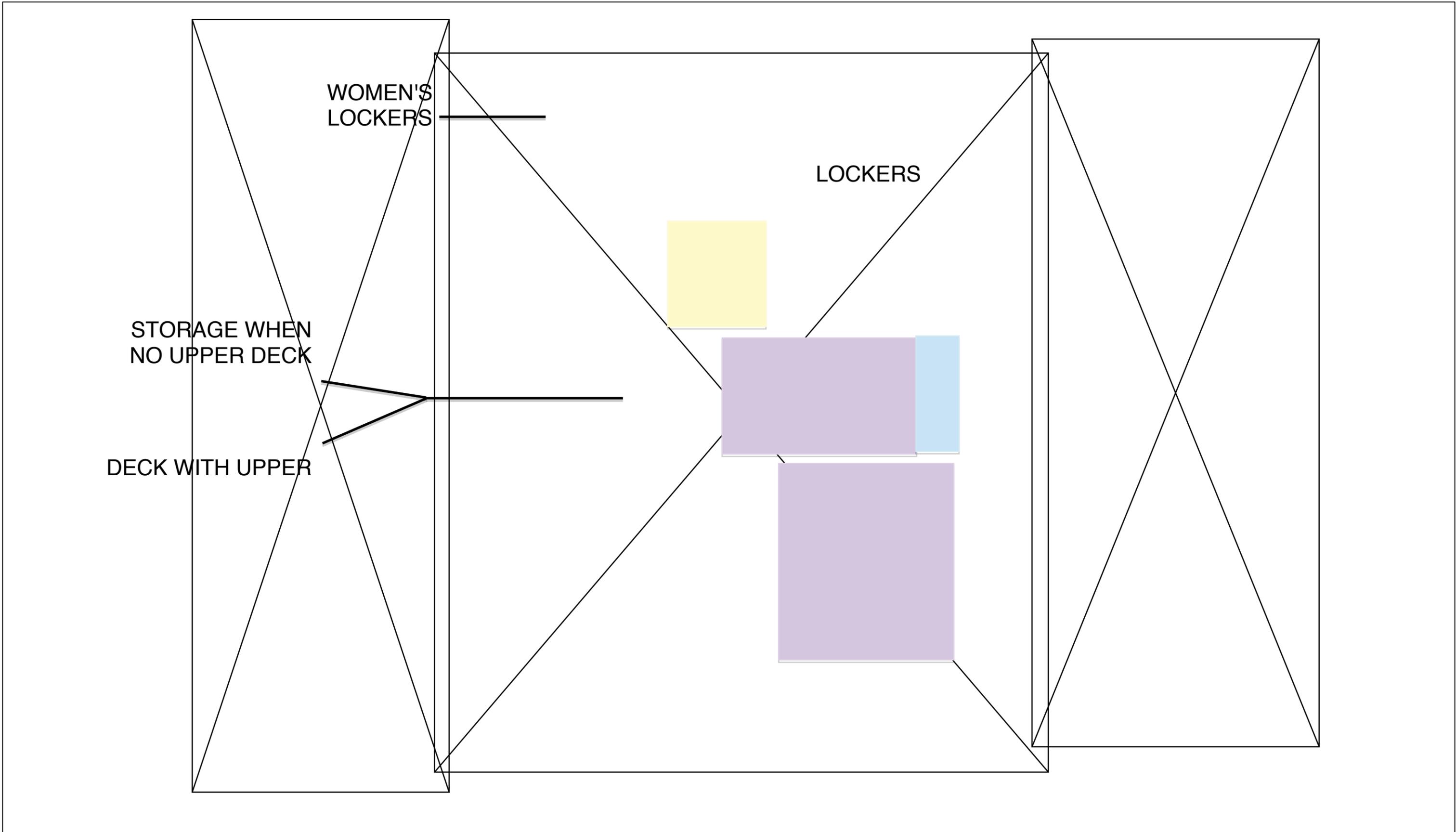


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Preliminary Studies

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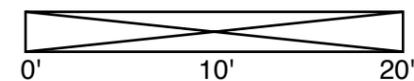
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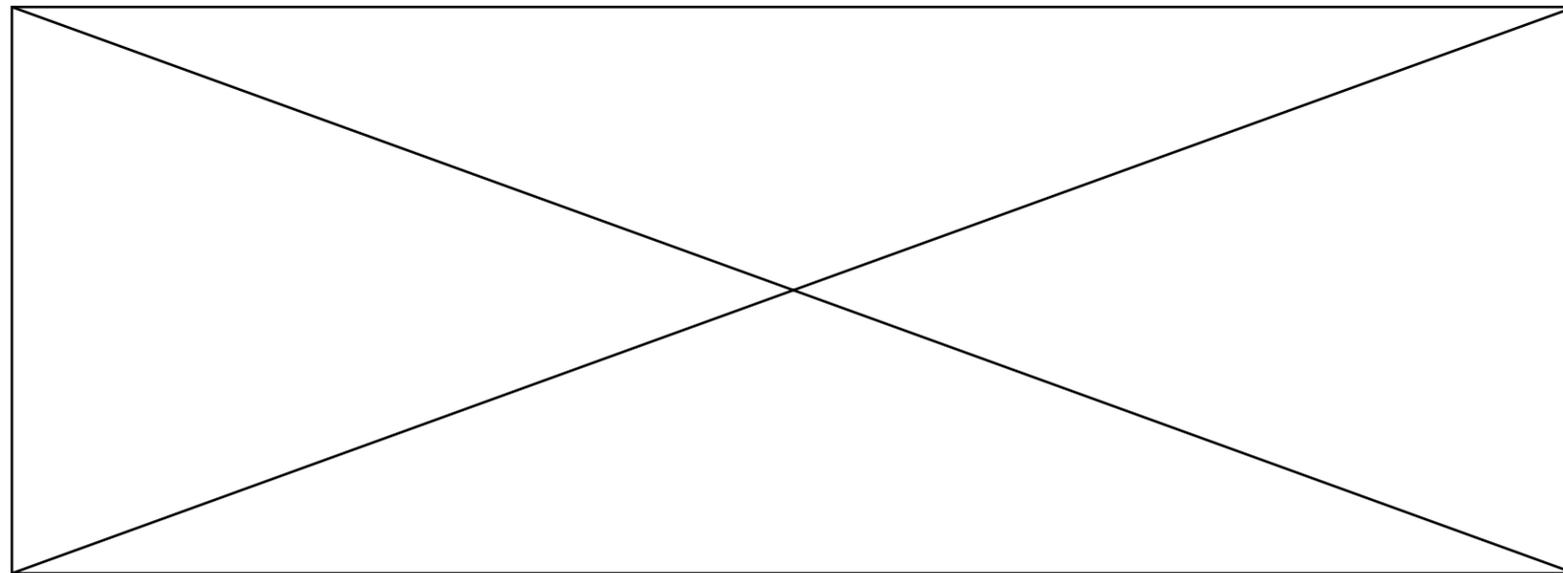
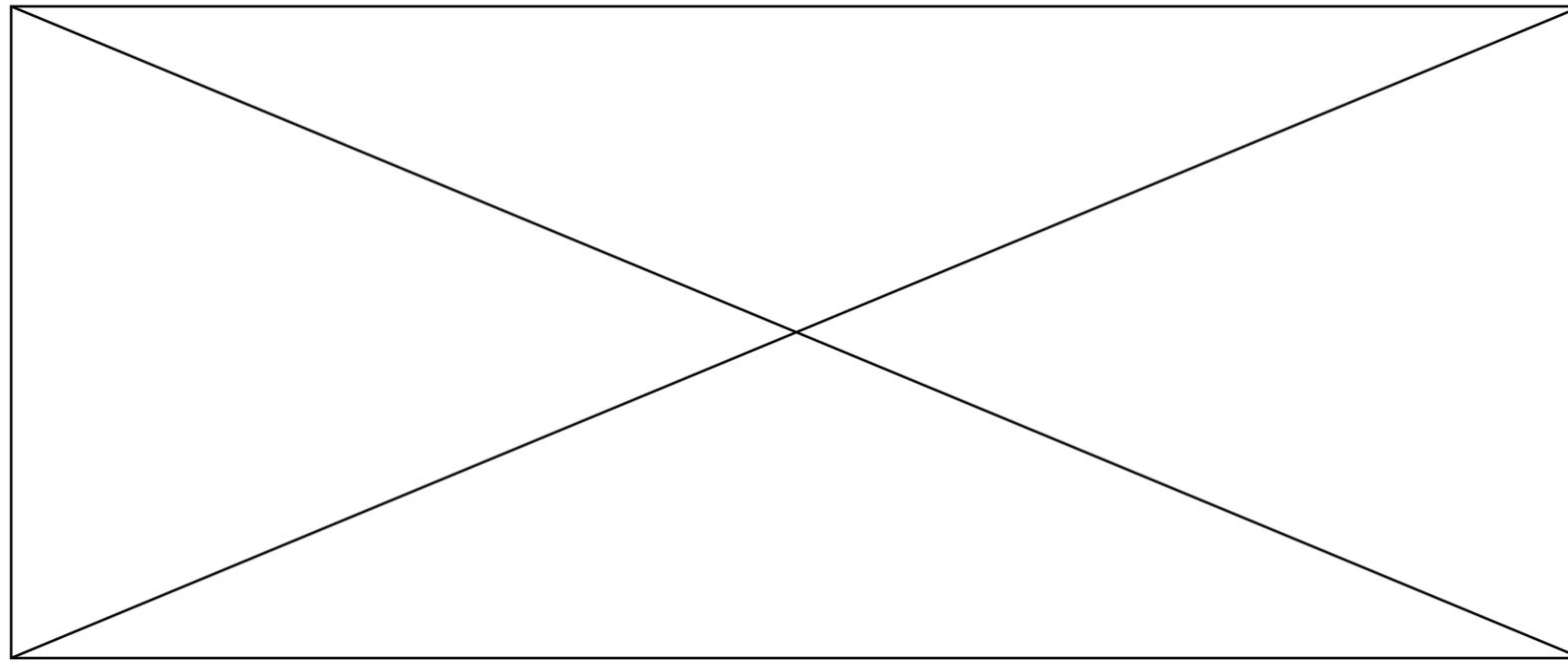
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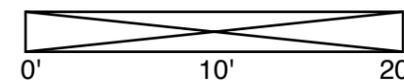
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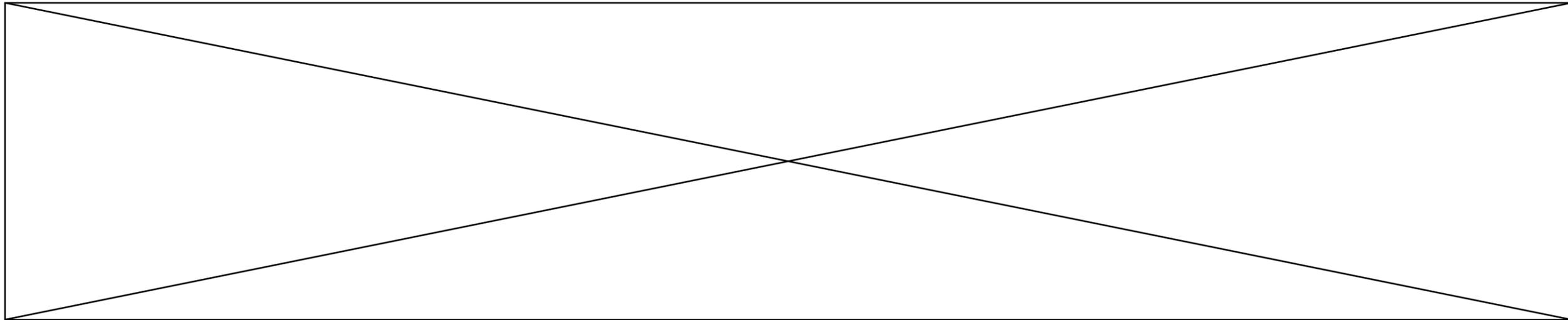
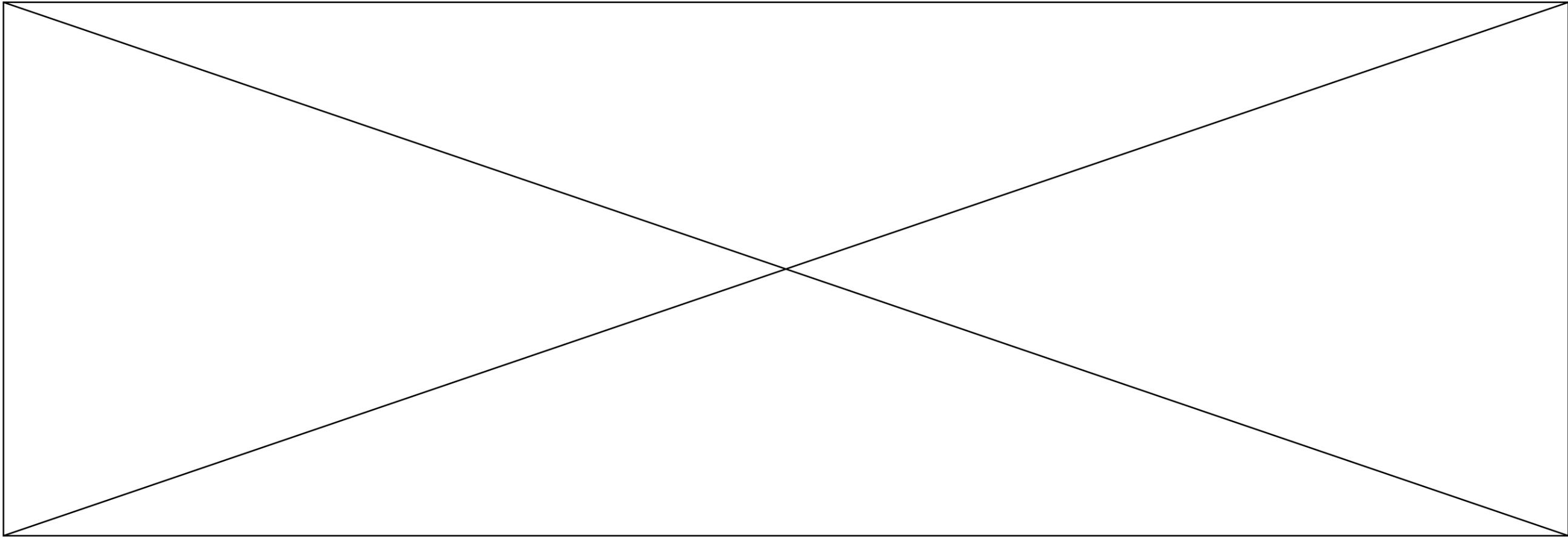
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Project Name

Drawing Title: Proposed Elevations - 2 Story Study



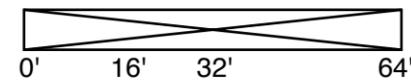
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The Community Design Collaborative

is a community design center that provides *pro bono* predevelopment design services to nonprofit organizations, offers unique volunteer opportunities for design professionals, and raises awareness about the importance of design in community revitalization.