

Programming and Feasibility Report

# CCFP NATURE CENTER



Homer, IL  
BE Project #24133  
April 30, 2025

# CCFP NATURE CENTER

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# 1.0 Introduction

## Project Introduction

Champaign County Forest Preserve's (CCFP) Interpretive Center is located off of South Homer Lake Road in the Homer Lake Forest Preserve. The existing building acts primarily as a visitor center, introducing park visitors and student groups to wildlife and nature.

At 764 total acres, Homer Lake Forest Preserve includes 10 miles of walking trails. Offering fishing and boating, the preserve includes the Salt Fork Center which can be used for larger gatherings. The park is historically significant, including the 14 acre former Homer Park on the Salt Fork River.

This report describes the methods used to understand the site and building and conduct a code analysis and existing conditions assessment. Recommendations are made for the Nature Center moving forward, including costs and schedule. Ultimately, the renderings and plans developed in conjunction with this report are a tool for CCFP to use to secure funding for the project to be constructed.

## Stakeholders

Champaign County Forest Preserve Core Committee:

Bridgette Moen, Planning Director

Lorrie Pearson, Executive Director

Mike Daab, Deputy Executive Director

Skylar Smith, Homer Lake Superintendent

Mark Hanson, Curator of Collections and Exhibits

Stacy Clementz, Youth Programs Manager

Kamryn Suttinger, Director of Museum and Education

Chelsea Prah, Public Programs Manager

Design Team:

Damon Wilson, BE

Todd Higginbotham, BE

Shawn Ankenbrandt, BE

Kent Locke, BE

Dave Frigo, Hitchcock Design Group



**FIGURE 1.1:** South approach to the existing Interpretive Center

# 2.0 Executive Summary

## 2.1 Scope of Work

The scope of work for the project was to develop a programmatic report for the building renovation, addition, and site improvements. Assessment of the existing building included infrastructure, accessibility and life safety with recommendations for upgrades as required. Information gathering and programmatic meetings culminated in a concept plan and renderings for fundraising.

## 2.2 Program

Our team engaged with CCFP’s Core Committee and identified the following major space needs:

- Flexible classroom space
- Improved exhibit space
- Enhanced pre-function and entry sequence
- Reconfigured office spaces
- Support spaces for animal care, wellness and program preparation
- Accessible restrooms

How this program was arrived at, and a copy of the final program matrix, is included in Section 3.3.

## 2.3 Sustainability Objectives

Given a main objective for CCFP is environmental stewardship, having a building that conveys a commitment to sustainability to the public is important. The new design will employ LED energy efficient lighting, low flow fixtures, and a well insulated building envelope. Outside the building, exhibits and outdoor classroom space showcase CCFP’s environmental and conservation objectives. Dark-sky compliant outdoor lighting will be provided. Solar panels were considered, but found to be not feasible due to the amount of shading on the site.

## 2.4 Existing Conditions

Following an assessment of the existing conditions of the site, the Bailey Edward team determined the Interpretive Center overall is in fair to good condition, and did not find any issues currently affecting the usability or safety of the space. Some issues of note include areas of exterior siding deterioration, single pane windows, aging interior finishes, and restrooms that are not fully accessible. The mechanical, electrical and plumbing systems



FIGURE 2.1: Rendered view from the south



FIGURE 2.2: Interior rendering of the center link

are in fair condition and adequately serving the existing building.

## 2.5 Recommendations and Design

The renovation and addition will serve to further CCFP's values of Stewardship, Community, and Discovery. The proposed addition allows views of nature to the west, and encourages exploration in the building and the preserve. The sloped form of the addition provides a non-residential look while grafting of the existing building roof. The existing building will be re-clad in the same materials as the addition so that it is perceived as one new building.

Recommended material and system treatments are discussed further in Section 5.

## 2.6 Cost

The anticipated project costs include a new building envelope, structure, mechanical, electrical and plumbing components, and interior walls. Overall construction cost with a 25% contingency is estimated to be around \$1.2 million, including contractor bonds and overhead and profit. Although contingency can be less once the design is finalized, there is potential for additional cost increases due to tariffs and current market volatility.

Some items are not included in the cost estimate, because CCFP anticipates handling these construction portions in-house. This includes:

- Interior finishes
- Exterior sitework and landscaping improvements
- Restroom accessories
- Any new exhibits, equipment or furniture



FIGURE 2.3: Concept floor plan

# 3.0 Report Methodology

The following represents the methodology utilized to develop the Feasibility Study of the Champaign County Forest Preserve’s Nature Center. Bailey Edward reviewed existing documentation provided by CCFP, visited the site to evaluate existing conditions, developed a conditions assessment, reviewed code and accessibility constraints, and developed the programmatic goals into planning concepts for the new vision for the Nature Center.

## 3.1 Review of Existing Documentation

Bailey Edward reviewed the following existing documents provided by CCFP:

### Drawings

- HLIC plan
- Draft Building Diagrams previously developed by CCFP
- AutoCAD Site plan (HLIC CAD)

### Other Documents

- HLIC Pristine Building Inspection from June 2024
- HL NC Septic Estimate
- CCFP Utility Bill
- “Expanding Classroom” Brochure

In addition, Bailey Edward reviewed online available documents and used Google Earth to aid in concept and report development.

## 3.2 Site Investigation for Conditions Assessment

Bailey Edward initially visited the site with a Matterport scanner, which allowed for a 3D scan of the interior of the building to be generated. Subsequent visits were performed to gain more detailed information and verify important site conditions.

A place for everyone to explore and discover; regardless of age, ability, education

A fresh opportunity for learning that leads to lifelong dedication to and/or love of nature

Engaging learning environment for visitors with productive work space for staff and enriching and healthy home for ambassador animals.

The new building should be something that attracts folks to the preserve, teaches them about nature, then encourages them to go out and explore the preserves.

FIGURE 3.3.1: Client results from “Describe your vision for the project outcome in one sentence?”

### 3.3 Program Summary & Assessment

During the design process, meetings were conducted every 2 weeks with the CCFP Core Committee, to ensure the design and budget remained on track. An initial programming meeting was held January 14, 2025 to present precedents, initial thoughts and bubble diagrams, and gather more information on CCFP's wants and needs. A Mentimeter survey was used to poll all stakeholders wants and vision for the project.

Subsequent meetings acted to further verify and refine the design and program, culminating in a final concept plan and renderings.

#### Classroom

From meeting feedback, several key considerations influenced the classroom design:

- Flexibility, and ability to hold 2 classes at once, is desired
- Ability to access classroom from the exterior, to avoid disruptions to other spaces
- Easy access to outdoor learning
- Table and chair storage, along casework for storage of program materials, is needed at both classroom spaces
- AV/IT should be adequate and flexible for future needs

#### Offices

An improved working environment is high on CCFP's priority list, and meeting feedback was crucial to verifying space needs. 2 options were discussed – one with 1 enclosed office, and one with 2 enclosed offices. 2 enclosed offices, with 2 workstations and 3 'touch down' stations in an open office, were preferred by CCFP.

A workroom should be near the offices and provide storage and lay out space for program preparation by staff. Reception was desired to have a connection to Open Office, while maintaining a view of the entry and being a welcome point for visitors.

#### Wellness/Huddle

The amount of space required for these two rooms, and if one or both rooms are needed, was discussed during programming meetings. Staff could likely use the workroom or classroom as a huddle space to have

Facilitate opportunities for the public to learn, when the staff is present or not. Welcome the public with restrooms, preserve information, etc. Adequate staff space for collab and planning.

1) Uplift community interest/excitement (I fear we've become wallpaper) 2) Staff space- functionality 2) Programming needs- functionality

Improved space for programs, Improved exterior access to restrooms, create a welcoming atmosphere to the preserve

- Kickass outdoor space - Comfortable indoor learning environment - All-ages appeal and accessibility

FIGURE 3.3.2: Client results from "Name the 3 most important needs this project should address?"

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private conversations, as both classroom and workroom are not likely to be in use concurrently. Ultimately, a plan option with both a huddle and wellness room was decided on.

The huddle room allows for small meetings between 2-4 employees, with a monitor on one wall. The wellness room provides a quiet space for nursing mothers, or anyone who needs a quiet, stimulus free break area.

### Animal Care

An improved animal care space is paramount to the nature center being fully functional. Initial requirements were stated at the January 14 meeting, and expounded on throughout concept design. 160 square feet was determined to be adequate, and should include some specific items such as a deep double basin sink, animal quarantine space, and refrigerator. Low-maintenance, water resistant materials should be used in this space.

An adjacency to the exhibit space is desired, to allow easy cage cleaning and feeding from the backside of animal exhibits. This adjacency will also allow the Nature Center to remain open during animal care days, if desired.

A floor drain is desired, connecting to waste piping close by.

Program Space	Capacity	SF / Occ.	Est. Net S.F.	Quantity	Subtotal SF	Notes
<b>STAFF</b>						
COPY AREA	n/a	-			-	part of open office
OPEN WORKSTATION/RECEPTION (3 STAFF)	2	38	72	1	160	
TOUCHDOWN STATIONS (SEASONAL)	3	25	75	1	75	
PROGRAM MANAGER OFFICE	1	150	100	1	100	
OFFICE	1	150	90	1	90	
MISC. STORAGE	1		37	1	37	
Kitchenette	n/a		84	1	84	
<b>Subtotal - Net</b>					<b>546</b>	

<b>EDUCATION</b>						
ACTIVITY/EXHIBIT	10	30	586	1	586	
EXHIBIT ACCESS	n/a		-	1	N/A	Exhibits accessed from animal care/taking
ANIMAL CARE/TAKING	1	300	150	1	154	Includes animal quarantine space
CLASSROOM ADDITION	30	20	1200	1	1200	Operable wall panel
TABLE/CHAIR STORAGE	n/a		140	1	140	
<b>Subtotal - Net</b>					<b>2060</b>	

<b>SUPPORT</b>						
MECHANICAL/JANITOR	n/a	-	95	1	95	
SINGLE USER RESTROOM	n/a	-	63	2	126	
RESTROOMS	n/a	-	102	2	204	
PROGRAMS WORK AREA AND STORAGE	n/a	-	270	1	270	
ENTRY/RECEPTION	n/a	-	80	1	80	
ADDITION CIRCULATION	n/a	-	576	1	576	
ADDITION HVAC	n/a	-	57	1	57	
CIRCULATION - EXIST. BLDG.	n/a	-	227	1	227	
HIDDLE/SENSORY ROOM	4		65	1	65	
MOTHER'S/WELLNESS ROOM	1		65	1	65	accessible by visitors
<b>Subtotal - Net</b>					<b>1775</b>	

TOTAL ALL INTERIOR SPACES  
 \*This total is NET square footage

4381

<b>OUTDOOR/MISC</b>						
PRE-FUNCTION PAVILION						See site plan
OUTDOOR LEARNING						See site plan
PATIO/DECK						Potential pass-off of classroom addition to support outdoor learning
OUTBUILDING						Move west, see site plan

Gross square footage addition = 2480 sf
Gross square footage existing = 2100 sf
Total Gross Square footage = <b>4,580 sf</b>

Figure 3.3.2 Program Matrix

# 4.0 Building Condition Assessment & Code Analysis

## 4.1 Site Assessment

The site surrounding the existing nature center is a huge asset to the facility. Having the building surrounded by woodland and restored prairie/savanna allows for patrons to be totally immersed in nature.

Once entering the park, the nature center is readily visible and accessible. The gravel entry drive, drop-off and vehicle and bike parking are intuitive, but the drop off area and informal parking at the entry lane are undefined. A welcome sign with a park map provides wayfinding along the entry drive walk. The gravel parking lot to the southwest is approximately 20 feet wider than it needs to be, and was mostly empty on the day of the design team's site visit. A storage shed on the lot is in good condition and provides wayfinding signage and park information to visitors. The concrete walk up the main entry is wide, well-lit and accessible. There are a fair amount of native plantings near the building and main walk, but the educational signs for them are few. The shaded open space south of the entry drive serves as programmable space, but users must cross the entry lane, and N. Homer Lake Road poses a safety concern for children and others using the space.

The east side of the building is mostly lawn, open to S. Homer Lake Road and the farm fields farther east. A septic field in this area hinders landscape development but does not exclude carefully placed elements. A few large shade trees offer some shade, and linear foundation plantings offer filtered screening of the building. A split rail fence separates the east yard from the main entry yard.

The north side of the building offers excellent view into the woodland and savanna to the north. The access to this area, and its seating and exhibits, however, lack formal walks and ADA accessibility from the site and the building.

The west side of the building also affords excellent views to the adjacent Windsong Prairie and Savanna. It lacks accessible walks near the building but offers a large adjacent turf area that serves as programming space. Two large trees have recently been removed and a storage shed serves as the focal point. A small fenced in area serves to screen



FIGURE 4.1.1: Existing semi-circle entry drive



FIGURE 4.1.2: North side of the nature center. Water feature is non-functioning



FIGURE 4.1.3: Existing outdoor classroom



## B. WALLS

### Exterior

The existing exterior walls consist of 2x4 wood studs, fiberglass batt insulation in the cavity, and wood siding on wood sheathing. No base of wall flashing was observed. The wood siding is in fair condition in general but does exhibit several areas of missing or deteriorated wood due to insects, woodpeckers, and/or moisture. See Figures 4.3.3 and 4.3.4. CCFP desires, and it is recommended, that new durable, low-maintenance siding be installed. It is assumed the wood studs and sheathing are in fair condition and can be retained. Under the Existing Building Code, existing cladding can be altered without adding wall insulation. If desired, continuous insulation could be added to improve energy performance. Existing exterior walls at the west workroom do not have insulation. The majority of these walls will become interior walls due to the addition. However, cavity insulation should be added where these walls remain facing exterior.

### Interior

Interior walls are wood framed. The interior finishes at interior walls and the interior face of exterior walls vary. At restrooms, this is white laminate panels, in good condition. The exhibit space has softwood plywood paneling, while other spaces have vertical wood paneling in various finishes. Gypsum board, where occurring, is in good condition. Interior wood finishes appear in good to fair condition with some scuffing and wear consistent with its age. See Figure 4.3.5.



FIGURE 4.3.2: Existing condition of concrete at south entry



FIGURE 4.3.3: Wood siding deterioration at west side

## C. CEILINGS

Ceilings throughout are 1x stained wood members attached to underside of roof trusses. Wood molding is present at the top of walls. Ceilings appear in good condition.

## D. CRAWLSPACE AND FOUNDATION, FLOOR FRAMING

The building has a crawlspace at the east side. Access is provided by a floor hatch in the current mechanical/janitor's room. The structure is wood joists bearing on concrete block. Floor joists also bear on a double 2x wood beam, with jacks on concrete. Existing structure appears in good condition.

The west room of the building, which functions as the current workroom for programming and



FIGURE 4.3.4: Wood siding deterioration at east side

miscellaneous storage, is a slab on grade with typical concrete foundation walls. The concrete slab extends several inches past the exterior wall face, resulting in the exposed slab edge, see Figure 4.2.6. This slab is about  $\frac{3}{4}$ " lower than the rest of the building, see section 4.4 Accessibility. The slab and foundation wall appear in good condition with minor surface cracking. A larger crack at the north side (see Figure 4.3.6) should be monitored.

## E. DOORS

There are 3 exterior doors to the building, including the wood patio exit door. The main entry, and workroom exit door, are painted hollow metal. Interior doors are typically wood with wood frames. Interior doors are in fair condition with some paint chipping and minor abrasions. Exterior wood frames have paint damage and some deterioration, see Figure 4.3.7.

## F. WINDOWS

Windows in the main building are wood clad vinyl frames, with storm window present at operable locations. Refer to Figure 4.3.8. Glazing is single pane, including single pane picture (fixed) windows. Window operation varies, many are single-hung while others are awning or sliding operation. Insect screens are present. Windows in the west Workroom addition are double pane, fiberglass slider windows. Exterior window trim is in fair condition, with wear consistent with its age. Interior window trim exhibits knicks and scuffs consistent with its age. Some windows are anticipated to be removed or infilled due to the addition.

## G. ROOF AND STRUCTURE

The existing composition shingle roof is approximately 12 years old, sloped to the east and west. Although not closely observed, the shingles were noted in a 2024 inspection to be in good condition.

There is a continuous ridge vent, and vinyl soffit vents are present. The wood roof deck and structure appear in good condition. Existing 2x4 bottom chord trusses have batt insulation in between them, with 3" to 6" of insulation present. This results in well below current energy code standards of R-49 insulation for wood framed attic spaces. However, given the IEBC Alteration Level 3 (refer to code compliance section



FIGURE 4.3.5: Interior wood paneling at Open Office



FIGURE 4.3.6: Cracking at slab/foundation wall, NW corner



FIGURE 4.3.7: Wood trim damage at Workroom entry

of this report), no added attic insulation is required at the existing building. Gutters, downspouts, fascias, flashings and trim appear in good condition.



**FIGURE 4.3.8:** Window at exhibit space interior



**FIGURE 4.3.9:** Wood trusses and insulation at attic

## 4.4 Mechanical, Electrical and Plumbing Existing Conditions

The following report section describes existing MEP conditions seen on site from the February 25, 2025 site investigation.

### A. HVAC

There is no natural gas service or propane tank. Electric heating and electric cooling is provided for the building.

There are supplemental electric baseboard heaters with integral thermostats along the outside walls in several rooms. See Figure 4.4.1.

There is a fan coil unit in the attic that is connected to a 4-ton heat pump located at grade on the building's west side. There is refrigerant piping that connects the fan coil unit to the heat pump. The fan coil unit provides heating and cooling through ductwork in the attic to ceiling supply registers and return grilles.

The ductwork was recently insulated, and the heat pump was recently replaced. The heat pump uses R-410A refrigerant, production of which will be phased out in the next several years due to its effects to the ozone. There are ceiling toilet exhaust fans which are vented through roof caps.

The storage room addition does not have insulation in the walls, and did not have heat until recently when the ductwork was insulated and additional ducts were routed to this room. Ceiling supply registers and a return grille are present in the workroom.

The ductwork is in the attic, outside of the building envelope, so any modification to this system would require attic insulation upgrades. All ductwork would need to be pressure-tested to meet the current energy code.

There is an existing de-humidification unit in the crawlspace. No moisture issues for the crawlspace were observed or reported, this unit can remain.

### B. ELECTRICAL

#### Power

There is a 200 amp underground electrical service from the utility power pole near the road to the electric meter mounted on the east exterior wall.



FIGURE 4.4.1: Baseboard heat at office



FIGURE 4.4.2: Attic Unit



FIGURE 4.4.3: Crawlspace de-humidification

There is an electrical panel just opposite the meter in the utility room. Romex wiring is used throughout the building for wiring lighting, receptacles and equipment.

### Lighting

Surface mounted fluorescent lighting with T-8 lamps are present in spaces, typical. There are several LED fixtures in the workroom. The lighting is controlled by standard wall switches.

### Emergency/Exit Lighting

There is one exit sign at the front door and one battery wall pack emergency light in the hall to the front door.

### Telephone/Data

Telephone/cable enters the building near the electrical service and then into the utility room.

### Security/Intrusion

There is a security/intrusion detection system of the building with the main control panel just inside the front door.

## C. PLUMBING SYSTEMS

### Water

There is a well approximately 200' away from the building that provides water for the building. The water enters the crawlspace and is routed to the utility room. There is a pressure tank with pressure switch in the utility room. Supply water is then routed in copper cold water distribution lines with a shut off valve for the building, and a shut off valve for the outside water features.

There is a 40 gallon, 4.5 kW electric water heater in the utility room that provides hot water to the service sink in that room, lavatories in the two bathrooms and wet bar sink in the hall.

### Sanitary

The sanitary from the plumbing fixtures is collected in the crawlspace through PVC piping and routed outside to a septic system/field situated between the building and the road.

### Storm

There are gutters and downspouts that spill to grade.



FIGURE 4.4.4: Existing panelboard and Romex wiring



FIGURE 4.4.5: Electric meter mounted on building's east side



FIGURE 4.4.6: Emergency exit sign and typical surface mounted light

## D. PLUMBING FIXTURES

Existing fixtures are functional and in good condition. The existing mop sink is proposed to remain in place, refer to recommendations.

## E. FIRE PROTECTION

There is no existing fire protection system.



FIGURE 4.4.7: Security panel in janitor/mechanical room



FIGURE 4.4.8: Existing water heater



FIGURE 4.4.9: Pressure tank for well water

## 4.5 Accessibility

The locations observed for this report include all rooms of the existing Interpretive Center and the adjacent approach and walks. As noted in the Code Analysis section, this renovation and addition is required to meet the 2010 Americans with Disabilities Act and 2018 Illinois Accessibility Code, whichever is most stringent.

### Exterior Doors

The existing south (front) entry is accessible, and can be retained as an exit door in the new design. The north patio door is not ADA compliant due to the high threshold, see Figure 4.5.1.

The door leading from Exhibit to Workroom is equipped with a wood transition of approximately  $\frac{3}{4}$ " height, see Figure 4.5.2. While this is not ADA compliant for new construction, this door and transition will be removed for the new design. The workroom floor will need a new subfloor built up to be level with the adjacent spaces. The new addition would then match this finish floor elevation.

Some existing doors have lever sets, while others have door knobs. Any existing to remain doors should be upgraded to have ADA-compliant lever sets.

### Exterior Approach

A concrete sidewalk from the west currently connects to the south porch. There is a transition of approximately 1" here, which does not meet the  $\frac{3}{4}$ " max. beveled transition requirement for an accessible pathway, see Figure 4.4.3. A new accessible path is proposed leading to the new front door of the addition. The new path can align with the existing slab, correcting this condition.

### Restrooms

There are two existing restrooms, labeled as men's and women's with accessibility signage. While the men's restroom is very close, neither restroom fully meets current accessibility standards. At the women's restroom, toilet partition layout does not allow an accessible door approach or turn around space. The restrooms are proposed to be brought up to ADA standards without moving plumbing walls, see proposed plan.

The current plumbing fixtures and grab bars appear to meet accessible mounting locations. The flush valve of the women's water closet is on the wall side, which

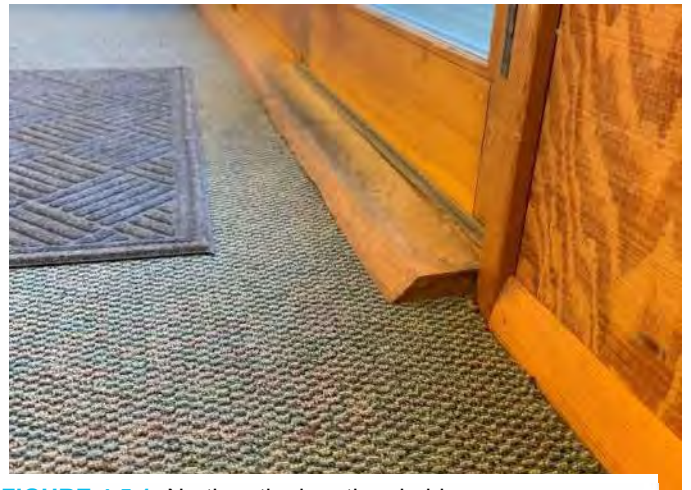


FIGURE 4.5.1: North patio door threshold



FIGURE 4.5.2: Porch transition at west side



FIGURE 4.5.3: Women's water closet

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would need mirrored to meet code. Refer to plumbing narrative for more information.

While not required by code, three changing stations are shown in the concept plan. One of these is located at a new gender-neutral restroom.

### Primary Function Spaces

The existing primary spaces (offices and exhibit) are on an accessible route. Accessibility will be maintained with the new design.

## 4.6 Code Analysis

The Authority having Jurisdiction (AHJ) at Homer Lake is Champaign County, who recognizes the following building codes:

- International Building Code (IBC), 2021
- International Existing Building Code (IEBC), 2021
- International Mechanical Code, 2021
- Illinois Energy Conservation Code, 2021
- 2014 Illinois Plumbing Code
- National Electric Code (NFPA 70), 2020
- 2018 Illinois Accessibility Code\*
- 2010 Americans with Disabilities Act (ADA) \*

\*Whichever is most stringent

### Existing Building Requirements

The improvements to the existing Interpretive Center should be considered under the International Existing Building Code – Alteration Level 3, as determined by the Work area compliance method, (IEBC 301.3.2). This applies to alterations involving space reconfiguration and where the work area is greater than 50% of the building area. The occupancy type of the existing building is not changing.

### Existing Building Description

1. The existing building classification: Type VB Construction Type, (Section 601).
2. Building area
  - a. Existing = 2100 sf
  - b. Addition = Approx. 2470 sf
  - c. Total = 4570 sf**
3. The building is not sprinklered.

Any new elements within the existing building will need to comply with IBC 2021. Elements unaffected or untouched by the alteration can remain, provided they are not affecting required accessibility or safety. The IEBC refers to the IBC in regards to if an automatic sprinkler system or fire alarm system is required at the existing building:

Automatic sprinkler system is not required as the area of the addition and building remodel is under 6000 square feet (Table 506.2).

For an assembly occupancy of less than 300, a fire alarm system is not required. (IBC 907.2.1) The proposed design has less than 300 occupants, so no fire alarm system is required.

No structural alterations to the existing building are proposed.

Level 3 alterations are allowed without adding additional wall or roof insulation. (IEBC 907.1). The proposed addition will need to meet IECC 2021 requirements.

**New Addition Requirements**

IBC 2021

Construction Type: Type VB

Use and Occupancy Classification (Chapter 3): A-3 – Museum and similar, non-separated

**General Building Heights and Areas (Chapter 5):**

IBC Chapter 5: Allowable Building Heights and Areas			
Occupancy Classification	Allowable Building Height in Feet Above Grade	Allowable Number of Stories Above Grade	Allowable Area Factor in Square Feet
A-3 Assembly	40 FT	1	6000 SF

The proposed design is within the allowable height and area limits.

**Types of Construction (Chapter 6)**

Since the addition area plus existing area are under 6000 sf, the shared wall (west) wall is not required to be fire-resistance rated. Per IBC 601, no other walls are required to be fire rated, see table below. The proposed design has an open hallway, and not an enclosed corridor, so no corridor fire rating is required.

IBC Chapter 6: Required Fire Ratings		
Element	Required Rating (hours)	Proposed Rating (hours)
Exterior Wall (bearing)	0	0
Exterior Wall (non-bearing)	0	0
Interior Walls	0	0
Roof construction	0	0

**Fire Protection Systems (Chapter 9):**

As mentioned in the existing building requirements, neither an automatic sprinkler system or fire alarm system is required for the proposed building area and occupancy.

**Means of Egress (Chapter 10):**

Minimum Number of Exits or Access to Exits Per Story (Table 1006.3.3)

- 1. Occupant Load of 1-500 is required to have two exits at minimum.

Exit Access Travel Distance (Table 1017.2)

- 1. Maximum travel distance for this occupancy (unsprinklered) is 200 feet – the proposed design complies.

Dead end Corridors (1020.5) -N/A

Occupancy Count (1004.5)

- 1. Business – Worst case of 150 gsf/occupant, or actual count
  - a. Admin/office – 7 + 1(receptionist)= 8
- 2. Mechanical and Storage
  - a. 176 sf / 300 sf/occupant = 3
- 3. Exhibit
  - a. 556 sf/ 30 net sf/occupant = 19
- 4. Huddle/wellness (business)
  - a. 130 sf/ 150 sf/occ = 2
- 5. Classroom
  - a. 1200 sf / 20 net sf/occupant = 60
- 6. Total Occupants = **92**

**Plumbing Code**

The minimum number of required plumbing fixtures was calculated using the current edition of the Illinois Plumbing Code. The existing building contains 3 water closets, 2 lavatories, 1 urinal, a service sink, and no water fountain. The proposed design accommodates the increase in occupants by providing more fixtures, an additional service sink for animal care, and an electric water cooler.

The plumbing code bases occupant load on the occupant load calculated using the IBC, splitting that number in half for men and women. Given this, the plumbing occupant load is 46 women, 46 men maximum. Single user restrooms are allowed to be counted toward the men’s or women’s count, but not both. Building use types in the plumbing code do not necessarily match the IBC, thus the closest reasonable use type was selected. See table below.

<b>Illinois Plumbing Code – Adult Center / Education Use</b>			
Plumbing Fixture Type	Occupant Load Threshold	Required Fixture Count per Occupant Load	Proposed Fixture Count
Water Closet, Male	1-40	2	2
Urinal	1-40	**	1
Water Closet, Female	1-20	3	3
Lavatory, Male	1-40	2	2
Lavatory, Female	1-40	2	2
Service Sink	1 per floor	1	2
Drinking Fountains	1 per 75 total occupants*	2	2*

\* Whenever a drinking fountain is required, bottled drinking water or a water dispensing faucet (water station) may be substituted for a drinking fountain, provided drinking water is accessible to the public  
\*\* A urinal may be substituted for a men’s water closet, up to ½ of all fixtures.

The southern-most single user restroom is proposed to have 2 doors – one interior and one exterior. During occupancy hours, the interior door will be open, allowing this restroom to be counted toward the totals shown in the table.

**Energy Code**

The addition will need to meet or exceed IECC 2021 requirements for Climate Zone 5A for a commercial building. The simplest way to meet requirements is to follow the prescriptive path, main elements of which are listed below. U-value (Thermal Transmittance) is a measure of how much heat transfer occurs through a building material or assembly. R-value is a measure of how well a building material or assembly resists the flow of heat.

IECC 2021 Requirements Synopsis	
Element	Requirement
Slab on Grade	R-15 for 24" below
Exterior Wall	R-13+R7.5ci OR R-20+R3.8ci
Roof – Attic and other	R-49 min.
Windows	Operable U-0.45 or better; Fixed U-0.36 or better
Exterior doors	Doors – U 0.63, except opaque doors shall be U 0.37 or better

Existing building elements, such as attic insulation and windows, need not comply unless they are removed or altered. Vertical fenestration area should not be greater than 30% of the total above grade wall area (C402.4.1).

#### C402.5.9 Vestibules

1. A vestibule is not required for doors opening into spaces less than 3000 square feet. In Bailey Edward's judgement, the classroom and other rooms having doors are considered their own space, thus this exception is met.

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# 5.0 Recommended Treatments

## 5.1 Materials & Building

### Elements Recommendations

#### A. Flooring Materials

Due to shifting walls, saw cutting, and various rework that will be necessary for the new design, all new interior floor finishes are recommended.

Chosen finishes in the existing building can be coordinated with that of the addition to form a cohesive aesthetic.

The existing south slab on grade porch can remain. Refer to Section 6 of this report for site plan concepts that are proposed, including an improved entry sequence that directs users to the new addition front door.

#### B. Walls

As mentioned previously, existing building exterior walls are proposed to be re-clad with low maintenance fiber cement siding. New air barrier and flashings should be installed with the new siding. New fiber cement siding is also proposed at the addition.

#### C. Ceilings

Wood ceilings are proposed for the addition entry, to bring the look and feel of the exterior inside. Ceilings at the entry and classrooms are sloped to make the space feel more open. At the classroom, this also allows in natural light from the clerestory windows.

A wood or wood look ceiling would be appropriate at the existing building in many spaces. Mechanical, animal care and less publicly visible spaces could be a simple gypsum board ceiling.

#### D. Foundations

The addition is proposed to be a slab on grade, with conventional strip footings and foundation walls down to the frost line, with code compliant insulation installed. The existing crawlspace can remain, along with all elements of the existing foundation. Cracks in the existing foundation should be monitored, but do not appear to be causing issue.

#### E. Doors

The existing north and south exterior entry doors are proposed to remain as secondary exits in the new design. The majority of interior doors will be new to align with the new design. New addition entry doors are aluminum, part of an aluminum storefront

system. Door finishes and hardware will be coordinated in the construction documents phase, all hardware is proposed to be mechanical (no electric door hardware).

## F. Windows

Large new glass areas at the addition are proposed to be aluminum storefront material. The clerestory windows and storefronts leading to the west patio look out toward the natural setting of the greater park area. The majority of window locations at the existing building can remain, while those along the west wall will be removed or infilled. All new double pane windows with low-E glass are proposed throughout.

Desired window operation should be further discussed in a future project phase. Natural ventilation could be desirable for a connection to nature and for potential odors.

## G. Roof and Structure

The plywood roof deck and wood trusses at the existing building are proposed to remain. Although the existing roof shingles are in good condition, it is proposed to remove the shingles and underlayment and provide a new standing seam metal roof to match the addition roof. Refer to renderings in Appendix A. New metal roof drip edges, ridge vent, and snow guards should be installed, along with new gutters and downspouts to match the new addition.



**FIGURE 5.1:** Salt Fork Center – Standing seam metal roof

## 5.2 Mechanical, Electrical and Plumbing Recommendations

### A. HVAC

Remove and relocate and add new supply registers, return grilles and associated branch ductwork as required for the existing building and new space plans.

Provide a new heat pump/fan coil unit for the new addition with the associated refrigerant piping, condensate drain piping, outside air intake ductwork to fan coil unit, insulated supply and return ductwork, supply and return grilles.

### B. Electrical

#### Power

Provide a new panel in the new addition. Extend a feeder from the existing panel/service. Modify the existing panel/circuits as required. An existing electric bill was provided and a call was made to the electric company to determine maximum kW, which is 16.5. This converted to 85 amps maximum for the

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peak load for the year. Using a NEC code and multiplying the existing load by 125%, we have 92 amps remaining to be used for the new addition. A new service is not required.

Provide new receptacles for the new and remodeled areas as required.

#### Lighting

Remove and replace the lighting fixtures with new LED types and lighting controls in the existing building as required for the new space plan.

Provide new LED type fixtures in the new addition and provide lighting controls.

#### Telephone/Data

Extend the existing data system to the new addition and new outlets required.

#### Security

Extend the existing security system from the existing building to the new addition

### C. Plumbing

#### Water

Extend the existing cold and hot water from the existing building to the new addition. Provide a hot water recirculation line and pump back to the water heater from the new addition plumbing fixtures.

#### Sanitary

Extend new sanitary from the existing building to the new addition. Provide a new vent through the roof for venting of the plumbing fixtures.

#### Storm

Provide gutters and downspouts and spill storm water to grade.

### D. Plumbing Fixtures

Provide new plumbing fixtures for the new space plan. This includes a deep basin double bowl service sink at animal care, lavatories, water closets, a high-low type combination water cooler, and kitchen sink.

### E. Geothermal

Sustainable design is important to both the Design Team and to CCFP, and various strategies have been discussed at programming meetings. Use of a geothermal system would seem to be a good fit based on the mission of CCFP and the site location. Use of a geothermal system could also prove to be a learning tool for users and visitors alike. However,



oversight of the public entry. Staff work spaces are now adjacent to their workroom and pantry which will improve their workflow.

**Encourage exploration.** The floor plan diagram creates zones for exhibit space and learning space. The central link invites exploration between the two zones and links visitors to outdoor learning areas to the north and south. Direct access to and views of the outdoors from the multipurpose classroom encourages further exploration and blends interior and exterior space.

### 6.3 Outdoor Learning

#### Site Master Plan Recommendations

The goals of the site master plan recommendations are to make the area more accessible, increase the outdoor programming, exhibit and educational opportunities, provide areas for building functions to spill out into the outdoors, and enhance overall safety.

Removing the current entry drive / drop-off accomplishes many of these goals. The resulting large space is free from vehicular conflicts, with a designated drop off to the south at the entry to the parking lot. The parking lot will be expanded in length to the west, but narrowed in width, with a second entry exit to the west to accommodate large events and buses more easily. The storage building will be relocated to the west, to open up views to the building, and make way for a small staging shelter between the parking, drop-off and walks leading to the main entry and educational exhibits.

The open area south of the existing building will function as an outdoor programming space as well as a picnic grove. A concrete walk through the space will circle back north to the building, while providing ADA-accessible picnic seating amongst the existing grove of trees. Bike parking will be provided to intercept bikers traveling from the east and west.

To the east of the building, the bird viewing area will be relocated here as it becomes the “quiet side” of the facility. A 6’ wood fence and a variety of shrubs and perennials will provide screening, shelter, and food sources for the birds. Additionally, to a variety of feeders and a new low maintenance, pondless waterfall water feature will enhance the area’s year-round ability to attract a wide variety of birds and other wildlife.

Foundation plantings will be renovated, and a low stone wall added to the southeast corner of the building to repeat the low stonewall proposed at the main entry drop-off and provide a bit of screen for the existing porch that will now serve staff as an outdoor work and respite area. A mix of evergreen, shade and understory trees

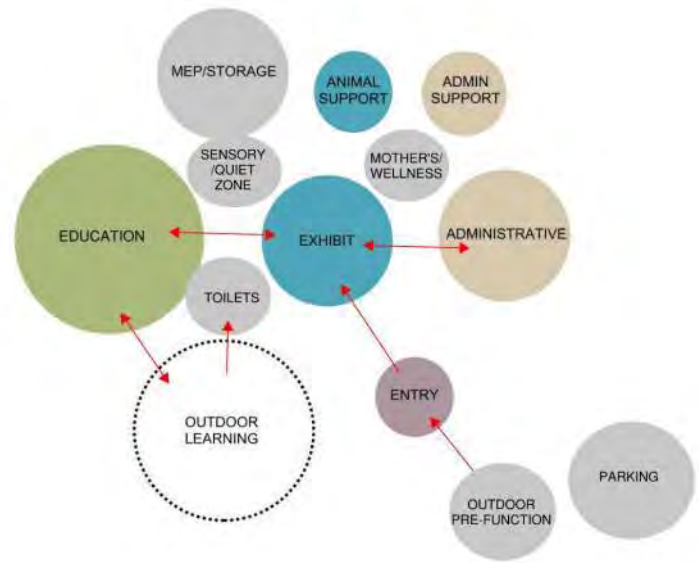


FIGURE 6.2.1: Adjacency Diagram

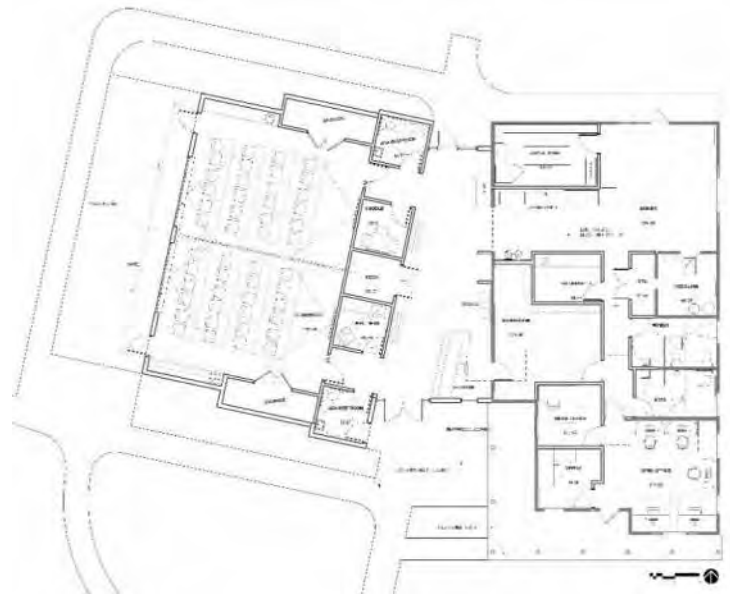


FIGURE 6.2.2: Final concept plan



the same material as the addition, the Center will be perceived as a single building. There is opportunity at the east-facing elevation to further enhance the look of the existing building by bringing the standing seam roofing material down the east face of the building which would give the Center a new look from the street.



**FIGURE 6.4.3:** Building massing study looking NE



**FIGURE 6.4.4:** Building massing study looking north



**FIGURE 6.4.5:** View of massing study from East



**FIGURE 6.4.6:** View of massing study from Southeast

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# 7.0 Cost Opinion Summary

Given the conceptual nature of this phase of the report, the opinions of cost are based on limited detail and the narrative contained herein. A conservative approach to cost escalation, site work, systems/assemblies proposed to achieve environmental goals, and related scopes of work have been taken in developing the cost opinions.

The cost opinion is based on the scope of work items listed below:

Existing Building:

- Reconfiguration of office area, work room, exhibit area
- Cement board siding
- Asphalt shingles
- Plumbing updates
- Electrical service updates
- New lighting
- Duct insulation upgrades

Addition:

- Building envelope
- Exterior doors, windows
- Interior doors
- Folding partition
- Foundation/footings
- Prefabricated wood trusses
- Wood stud framing
- HVAC, electrical, plumbing systems

Subtotal (existing building/new const.)	\$869,515.70
Performance Bond (3%)	\$26,085.47
Payment Bond (3%)	\$26,085.47
Overhead and Profit (8%)	<u>\$69,561.26</u>
<b>TOTAL</b>	<b>\$991,247.90 *</b>
Design Contingency (25%)	<u>\$247,811.97</u>
<b>Total Including Contingency</b>	<b>\$1,239,059.87</b>

\*Site paving, landscaping not included



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## 8.0 Project Schedule

2025 – A/E completes construction documents for bidding in early 2026

2026 – Nature Center Addition Construction (Shell)

2027 – Interior buildout and exterior improvements by CCFP

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# Appendix A: Concept Plans and Renders

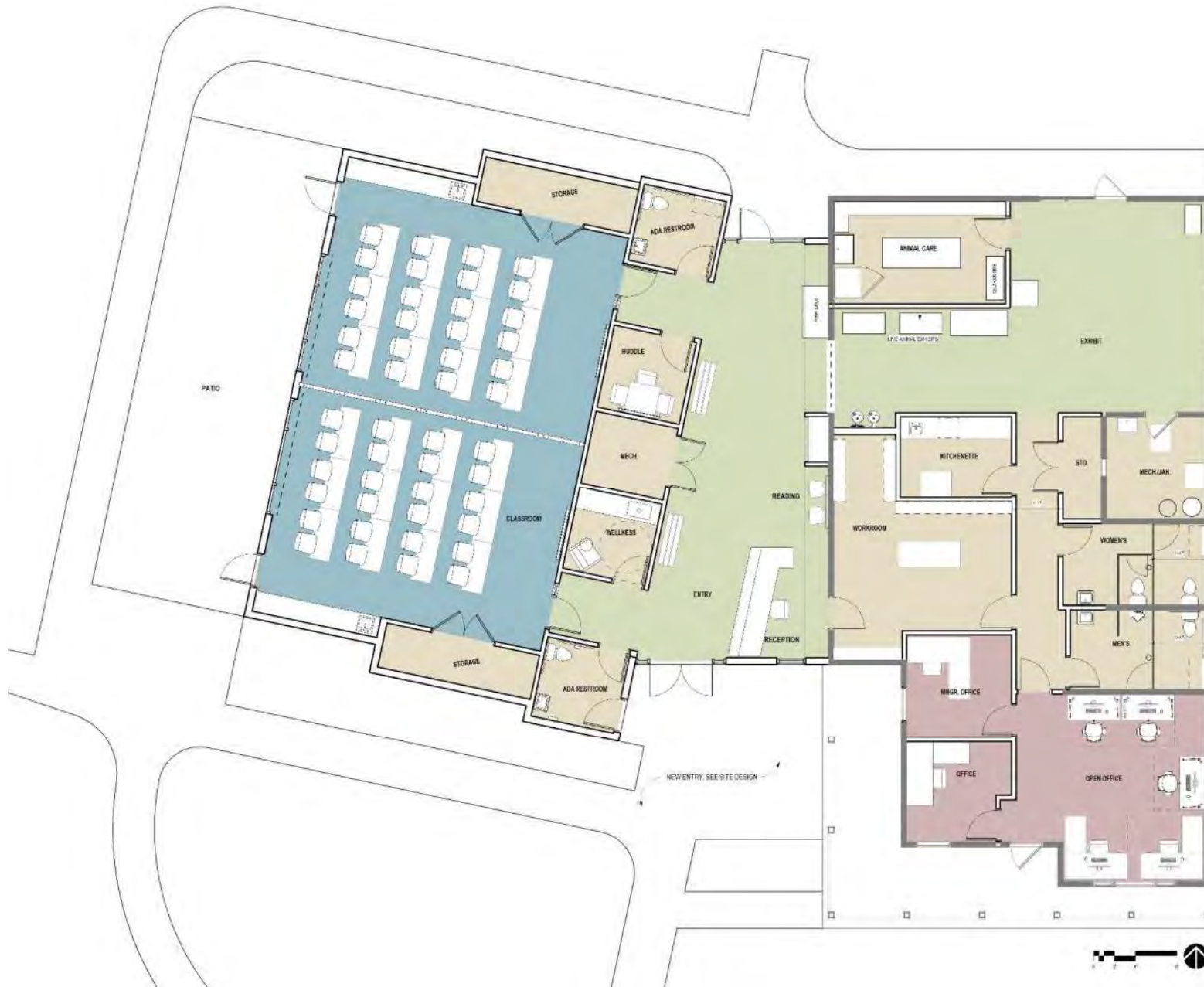
Full Page Concept plans and renderings included on the following pages.



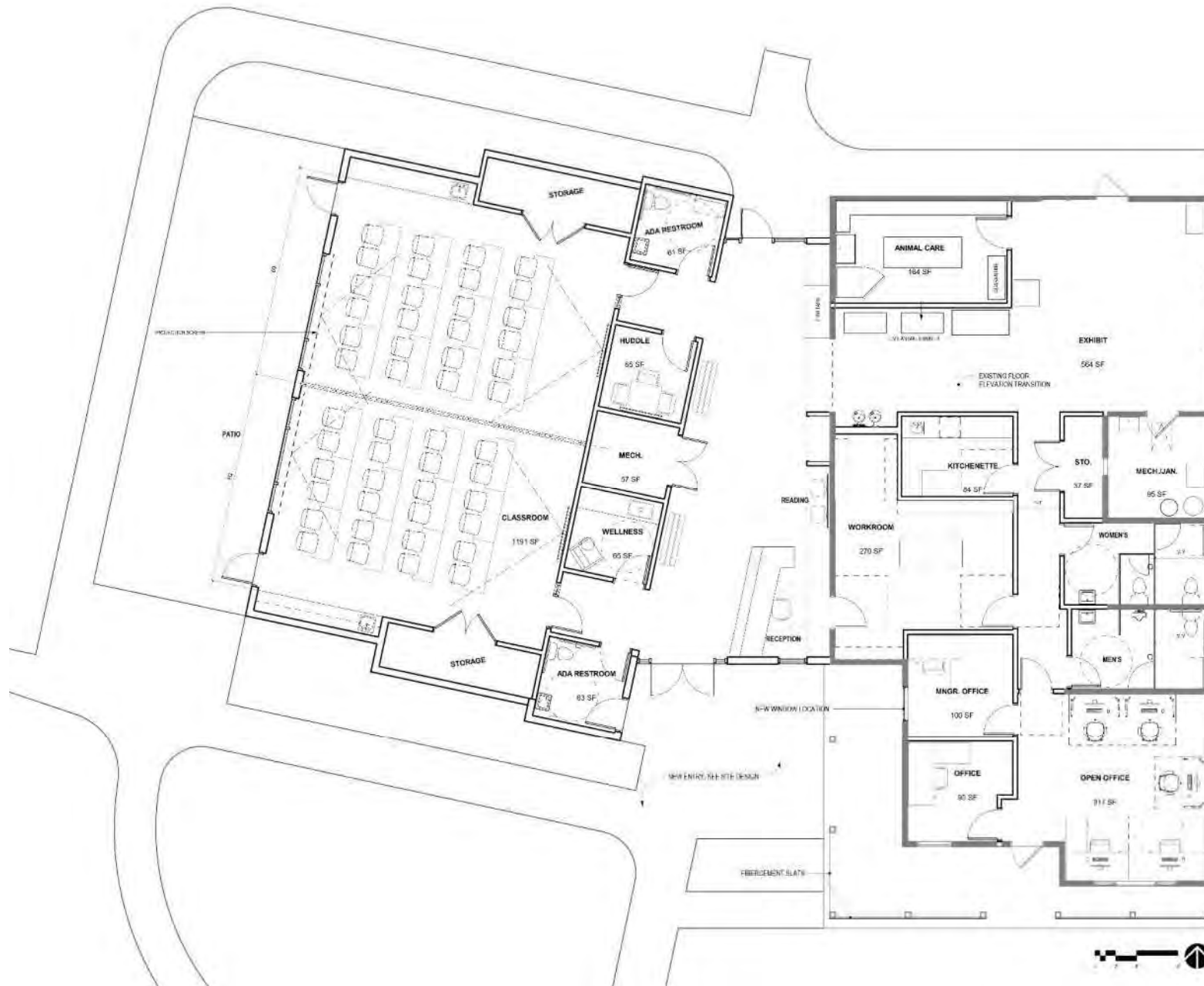
**FIGURE A.1:** Rendered view from the south



FIGURE A.2: Interior lobby rendered view



**FIGURE A.3:** Colored concept floor plan



**FIGURE A.4:** Concept floor plan with areas



FIGURE A.5: Concept site plan

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# Appendix B: Existing Plans

Full page existing plans included on the following pages for reference.

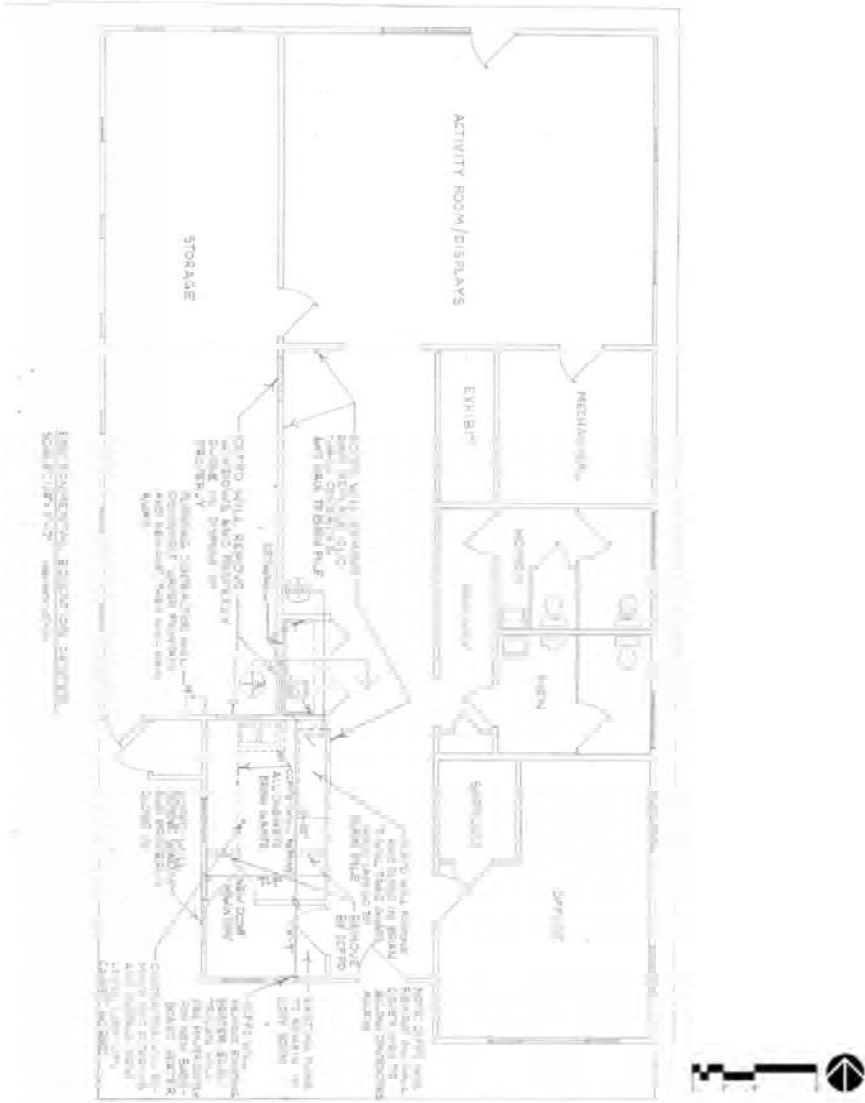


FIGURE B.1: Existing HLIC Plan provided by CCFP



FIGURE B.2: Existing Plan, updated April 2024