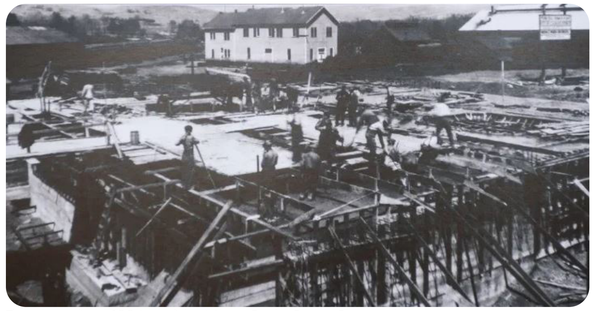
MARTIN W. DRAKE COMMUNITY OPEN SPACE

HISTORY OF THE SITE

The Martin Drake Power plant, named posthumously for Martin W. Drake, a prominent City Council member and advocate of city utilities, was established in Colorado Springs in 1925.

For much of the past century, the power plant was renowned for being remarkably efficient and safe, though these became rather controversial points in recent years as renewable resources came to power a greater portion of the city. Two fires, one in 2014 and another in 2019, reduced the productivity of the power plant enormously and prompted public debate over whether it should be kept in use. The Drake Power Plant was phased out of use over the course of 2021 and 2022, and fully decommissioned at the end of 2022.

The power plant and its iconic silhouette remain an important part of Colorado Springs history, so the Martin W. Drake Community Open Space will endeavor to preserve and honor its memory.



This photo, from 1924, is of the Martin Drake Power Plant under construction.

Old photo of the Martin Drake Power Plant.

This photo, from 1925, is of the building that will be repurposed into a museum and community resource center as part of the Martin Drake Community Open Space revitilization project.

SITE ANALYSIS

The Martin Drake Power Plant was decommissioned in September of 2022. This site is approximately 44 acres and is a short walk from residential areas, resulting in easy access for community members and to parking. The site is located near a highway and has a clear view of the mountains with no obstructions, but is near commercial buildings in its north-eastern corner. In the winter months, the site receives sun from the south and wind from the west, while in the early months, the water accumulated from rainfall will runoff to the west.

CONCEPTUAL DESIGN

ENVIRONMENTAL CONSIDERATIONS

Grasscrete – Used primarily in the multi-purpose surface lot, this low maintenance surface is composed of concrete with gaps in which grass can be planted. Grasscrete has low water requirements, does not need to be mown, and the grass resorbs the carbon dioxide released by the concrete, making this surface carbon neutral.

Agrivoltaics – Produce in the community garden will be grown underneath solar panels. The shade from the solar panels ensures that less water is lost from transpiration and evaporation. Additionally, energy from the solar panels will be used to power the city.

Solar windows – The glass dome of the butterfly pavilion will be partly composed of solar windows (transparent solar panels) which will also generate electricity for the city.

Artificial hills – The Drake Community Open Space will have two artificial hills of different sizes composed of waste fly ash and covered with sod.

Bridge and observation deck – The outer walls of the two smokestacks will be repurposed into vertical gardens. They will each have an elevator inside to take visitors to observation decks at various heights in the smokestack. The smokestacks will be connected by a bridge that gives an excellent view of the park.

Planters – Parts of the remaining smokestack will be dismantled and repurposed as garden beds.

Rentable shops – There are twelve small rentable spaces in the park's plaza that will be available to local vendors to rent on a seasonal basis. The revenue from the rental of these spaces will benefit the city of Colorado Springs.

Event Center – One of the cooling towers from the power plant will be repurposed as a rentable event space.

Amphitheater – see Structure and Architecture section

Sound barriers – To reduce noise pollution from the nearby Interstate-25, concrete sound barriers will be constructed along the west side of the site, between the freeway exit ramp and Fountain Creek.

GRASSCRETE

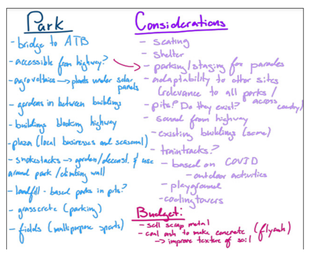
AGRIVOLTAICS

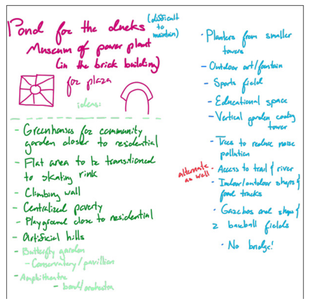
GREEN ROOF

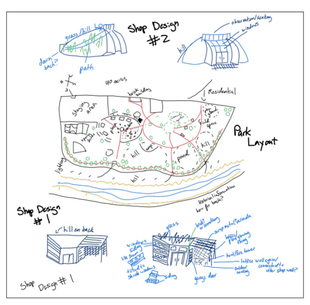
COOLING TOWER

NOISE BARRIER

DESIGN PROCESS







1. Brainstorming Sessions

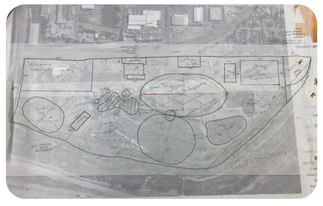
-Weighed the pros and cons of each project choice and decided on the park.
-Considered what site would be relevant to our project and chose the Martin Drake Power Plant.
-Analyzed the site and considered what aspects would be kept and what would be demolished.
-Listed the requirements for the park and began to create design boards.

2. Planning

-We each brought our own sketches of a potential park layout, then worked as a group to finalize a layout.
-Broke off into groups based on our interests and worked on the corresponding areas of the park.
-Made detailed sketches of both the park and the buildings.
-Faced the challenge of making sure that the park was sustainable, but also met the requirements of the competition.

3. Design Selection

-Focused on the architectural aspect of the park and its relevance to the city, surrounding areas, and community.
-Worked together to finalize the design of the plaza and surrounding shops.
-Used Sketchup to model the shops and the other aspects of the park.



LANDSCAPE AND MATERIALS

Shops:
Stucco, recycled plastic faux wood exterior
Brick
Green roof
Steel beams
Glass windows
Glass or canvas shade sails

Butterfly pavilion:
Glass
Solar windows
Steel

Museum:
Brick
Glass

Rail Road Flower Beds:
Reused train tracks (from original site)
A majority of the train tracks can be sold for steel.
Only small sections will be saved as landscape feature
Small/Medium Plant Install
Planting Soil

Landscape:
Natural Turf (Sod)
Tall Fescue Grass (sustainable in cool weather climates)
Kentucky Blue Grass (durable grass species, can handle heavy traffic)
Artificial Turf
Polyethylene Turf (grass like similarities and low maintenance)
Large Plant Installation
Ponderosa Pine, Douglas Fir
Colorado Blue Spruce
Medium Plant Installation
Gro-Low Fragrant Sumac, Creeping Mahonia
Small plant installation (Colorado Native Species) Rocky Mountain Columbine, Arrow-leaf Balsamroot, Heartleaf Bittercress, Heartleaf Anica, Blue Star
Flagstone
Paths
Gravel
Concrete
Flower Beds

COLUMBINE

DOUGLAS FIR

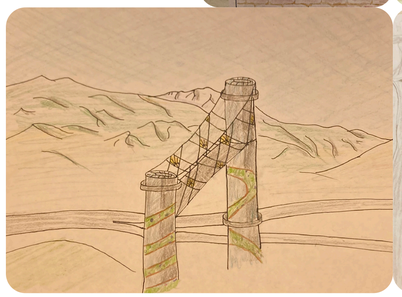
SUMAC

700 CONEJOS ST., COLORADO SPRINGS, CO

CONCEPTUAL DESIGN

Through hand drawing and digital collaging we explored different concepts and elements of our open space. In the end, these images served as visual representations of the primary concepts that we were hoping to imbue in the project; a transition between the previous and current forms of our beloved city and a positive outlook for the future.






COMMUNITY OUTREACH

Downtown Colorado Springs contains a significantly high number of unhoused persons. In order to help these members of our community, a portion of the income received from the rental of spaces in the park will be contributed to local homeless shelters, in partnership with the Colorado Office of Homeless Initiatives.

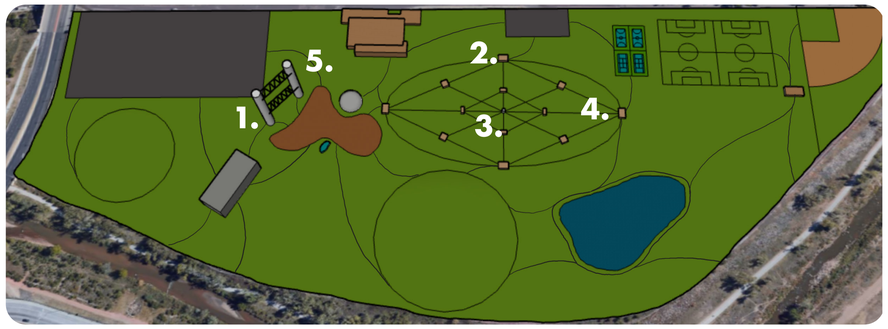
Because the Martin Drake Power Plant was built in 1925, nearly 100 years ago, the dismantling of the power plant and the construction of the park will be supervised by the city archeologist to ensure that all historically significant elements of the site are preserved.

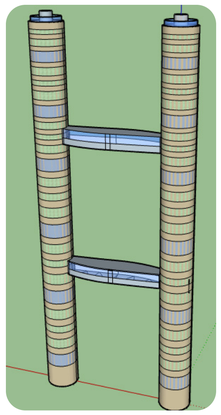
The rentable shops in the plaza of the park will be available to small local businesses, especially those that may not be able to afford to rent a retail space full-time. By rotating the vendors in the park, the Colorado Springs community will be able to experience a variety of local offerings and provide support to small businesses and the local economy.

The community garden will be available to all Colorado Springs community members, especially those who live in the downtown area.

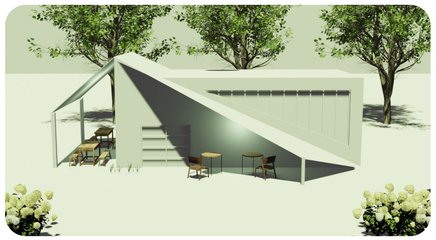
Both the museum (focusing on the history of energy and environment in Colorado Springs) and butterfly pavilion located in the park will aim to educate Colorado Springs residents and visitors, as well as providing an enriched and non-traditional park experience.

OPEN SPACE AERIAL PLAN AND RENDERINGS

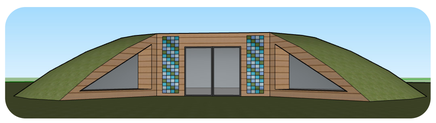




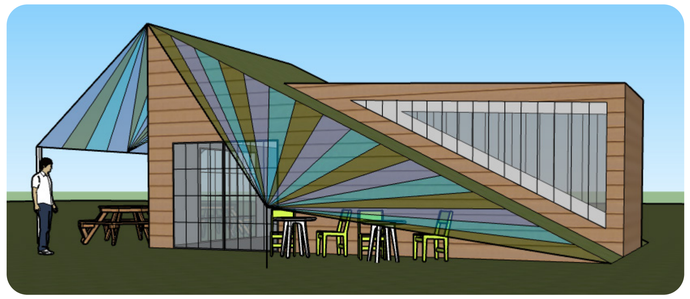
1. Converted smoke stack gardens and observation bridges



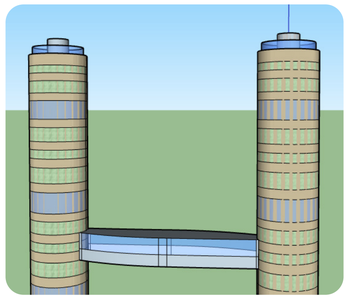
2. A render of a rental space massing model to understand scale with landscaping, seating, and the shade sails utilized for comfort.



3. Example of an undeground birm shops and event space that utilizes the man made hills.



4. A rental space rendering visualizing materiality and color as part of the natural tones of the Open Space



5. Closeup understanding of the observation bridges

SUSTAINABLE DESIGN & CONSTRUCTION

With a focus on sustainability and adaptive reuse of existing buildings and structures, we aimed to identify a clear path to LEED v4 BD+C Gold certification. By assessing our project, our goals, and how we would implement design and construction we were able to reach a guaranteed score of 64 points with a possibility of earning an additional 10. This means that our goal of reaching LEED Gold is realistic and something that we would hope to accomplish with this project.

LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Y	?	N			
			Credit	Integrative Process	1
12	0	0	**Location and Transportation**		16
			Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
2			Credit	High Priority Site	2
3			Credit	Surrounding Density and Diverse Uses	5
3			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1
10	0	0	**Sustainable Sites**		10
Y			Prereq	Construction Activity Pollution Prevention	Required
1			Credit	Site Assessment	1
2			Credit	Site Development - Protect or Restore Habitat	2
1			Credit	Open Space	1
3			Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
1			Credit	Light Pollution Reduction	1
5	0	0	**Water Efficiency**		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
1			Credit	Indoor Water Use Reduction	6
1			Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1
15	6	0	**Energy and Atmosphere**		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
6			Credit	Enhanced Commissioning	6
	6		Credit	Optimize Energy Performance	18
1			Credit	Advanced Energy Metering	1
2			Credit	Demand Response	2
3			Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
2			Credit	Green Power and Carbon Offsets	2
8	0	0	**Materials and Resources**		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
3			Credit	Building Life-Cycle Impact Reduction	5
1			Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
2			Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1			Credit	Building Product Disclosure and Optimization - Material Ingredients	2
1			Credit	Construction and Demolition Waste Management	2
13	0	0	**Indoor Environmental Quality**		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
1			Credit	Enhanced Indoor Air Quality Strategies	2
2			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
2			Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
2			Credit	Interior Lighting	2
3			Credit	Daylight	3
1			Credit	Quality Views	1
			Credit	Acoustic Performance	1
0	4	0	**Innovation**		6
	4		Credit	Innovation	5
			Credit	LEED Accredited Professional	1
1	0	0	**Regional Priority**		4
1			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
64	10	0	**TOTALS**	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

STRUCTURE AND ARCHITECTURE

The structures within the park will follow the themes of the development and modernization of Colorado Springs, the transition to clean energy, and connecting with nature.

Museum:
The museum will focus on the history of the power plant and Colorado Springs' transition to clean energy. It will educate visitors on energy sustainability and the park's role in contributing to a clean environment.

Historic preservation of the museum: Because the goal is to educate people on energy in Colorado Springs, the museum will retain much of its industrial aesthetic and power plant machinery. However, it will also include exhibits of solar energy and hydroelectric energy plants.

ART DECO ARCHITECTURE

Amphitheater:
The amphitheater will be built into the hill, and will match the art deco style of outdoor theaters and other buildings across Colorado Springs built in the mid-1900's (such as Acacia Park and America the Beautiful).

ACACIA PARK BANDSHELL

Event Center:
The event center will be an indoor/outdoor space that continues the theme of incorporating nature. It will include modern architecture elements such as metal paneling and solar panels that tie into sustainability and recent projects around Colorado Springs (such as the Olympic and Paralympic Museum).

Bridge/Viewing Towers:
The bridge and viewing towers will be heavily focused on nature. The viewing towers will have vertical gardens along the outside walls, and the style of the bridge will be modern and influenced by the shape of a leaf.

US OLYMPIC & PARALYMPIC MUSEUM

Rentable shops:
There will be 12 rentable shops, 3 in each quarter of the plaza. They can be used independently or connected into a larger shop for bigger clients. The shops will feature garage doors on one wall that can be opened during the summer to create a larger outdoor space, and closed during the winter to trap heat. Their roofs will be covered in native grass, which will be watered by the rains and drain through gutters on the sides.

CONSTRUCTION SCHEDULE, PHASING, & ESTIMATE

	Q1 2023	Q2 2023	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024	Q1 2025	Q2 2025	Q3 2025	Q4 2025
Permitting												
Demolition												
Environmental Remediation												
Underground Utilities												
Grading												
Foundations												
Construction												
Hardscaping												
Landscaping												

DEMOLITION PHASE

CONSTRUCTION PHASE

LANDSCAPE PHASE

Landscaping	Cost per ft²	Cost per acre (43,560 ft²)	Amount	Total Cost
Gravel	$2.50		3,000	$7,500.00
Flag stone	$5.00	-	10,000	$50,000.00
Artificial Turf / Recreation Fields	$5.00	$217,800	75,750	$378,750.00
Natural Turf (Sod)	$0.15	$6,534	1,380,200	$207,030.00
Large Plant Installation (Trees)	$25.00	$1,089,000	20,000	$500,000.00
Medium Plant Instalation (Bushes)	$5.00	$217,800	15,000	$75,000.00
Small Plant installation (Floral)	$15.00	N/A	20,000	$300,000.00
Flower beds	$25.00	N/A	22,500	$562,500.00
Surface Lot	15		150,000	$2,250,000.00
Pond	10		200000 (SF)	$2,000,000.00
Total Landscaping Cost				$6,330,780.00

Construction and landscaping estimates pulled from the full cost estimate workbook.

Construction	Cost per ft²	Amount	Total Cost
Bridges	500,000	2	$1,000,000.00
Vertical gardens	65	50,000	$3,250,000.00
Glass for Towers			$5,000,000.00
Elevators	650,000	2	$1,300,000.00
Shops	225	4,000	$900,000.00
Museum Interior	300	20,650	$6,195,000.00
Bathrooms	300	200	$60,000.00
Butterfly Pavilion	75	3,850	$288,750.00
Total Construction Cost			$17,993,750.00

Cost Estimate	Totals
Decomissioning and Environmental Remediation	$30,604,100
Demolition	$1,692,400
Grading and Concrete	$2,183,850
New Building Construction	$11,896,450
Renovation of Existing Buildings	$6,377,000
Utilities	$2,001,000
Landscaping	$6,330,780
Permitting, General Conditions, and Contingency	$11,093,141
Total Cost	$72,178,721