



POWERHOUSE SCIENCE CENTER

Masterplan April 2012







Introduction

- 6 WELCOME
- 7 EXECUTIVE SUMMARY
- 8 BRIEF PROJECT HISTORY

Masterplan

- 10 MASTERPLAN
- 11 CONCEPTUAL APPROACH
- 12 CONTENT SELECTION

Visitor Experience

- 14 VISITOR EXPERIENCE INTRODUCTION
- 15 EXHIBITION GALLERIES
- 17 PROGRAMS
- 20 BUILDING SITE

Permanent Exhibitions

- 22 PERMANENT EXHIBITION OVERVIEW
- 23 IN THE EARTH AND SPACE SCIENCES CENTER
- 29 IN THE POWER STATION
- 37 CENTERPIECE EXHIBITS

- 40 THANK YOU

INTRODUCTION

WELCOME

Public literacy in the fields of science, technology, engineering, and math (STEM) is vital. Proficiency in the STEM fields will drive future economic prosperity, improve quality of life for all, and ensure both equity and excellence in education.

To answer a growing need for enhanced education and public engagement with science and related fields, students and adults alike are turning to informal science education resources.¹

Throughout California, to support the improvement of science education, 30 percent of school districts rely on informal learning institutions such as science centers.² A National Science Foundation study concluded that in the areas of STEM education, all students should have the opportunity to experience the types of inquiry-based learning, open-ended, real-world problem-solving, and hands-on training found in science centers.³ In fact, 95 percent of what average Americans learn about science — and what inspires them with a passion for the subject — comes from such informal environments.⁴

As an exciting response to such demand the Powerhouse Science Center will embrace its mission as *"a dynamic regional hub that engages and inspires people of all ages to explore the wonders, possibilities, and responsibilities of science."* The Powerhouse will serve as a regional leader in science education, exploration, and promotion for Northern California.

REFERENCES

1) P. Bell, B. Lewenstein, A. W. Shouse, and M. A. Feder, eds., 2009, *Learning Science in Informal Environments: People, Places, and Pursuits*, The National Academies Press, Washington, D.C.

2) Center for the Future of Teaching and Learning at WestEd, the University of California, Berkeley's Lawrence Hall of Science, 2011, *High Hopes – Few Opportunities: The Status of Science Education in California*.

3) NSF, "Preparing the Next Generation of STEM Innovators."

4) Bell, *Learning Science in Informal Environments*.

EXECUTIVE SUMMARY

The creation of the Powerhouse Science Center brings a premier institution for informal science education to the Sacramento Area. Scientific knowledge is essential for many aspects of today's society, including; making informed decisions about health and wellness, civic engagement with science public policy, and achieving prosperity in our highly technological economy. Yet, despite its importance, children in the United States are only ranked 14th in scientific literacy by the OECD.

Informal learning can be an important part of the solution to this educational crisis. Informal learning is a self-directed, lifelong process that can provide a crucial complement to formal classroom education. As an institution, the Powerhouse provides a portfolio of visitor experiences that support informal learning and public engagement with science, including; the architecture, building site, exhibition galleries, and programs. These offerings provide opportunities for visitors of all ages to be inspired by science in ways that are personally meaningful.

The Powerhouse is deeply connected to the Sacramento community. It is an important element of the educational infrastructure, both providing resources, such as educator professional development, and being enriched by its partnerships with other education institutions. The institution also maintains strong relationships with the business community, working together to enhance public science literacy and support rising economic priorities in the region.

MISSION STATEMENT OF THE POWERHOUSE SCIENCE CENTER

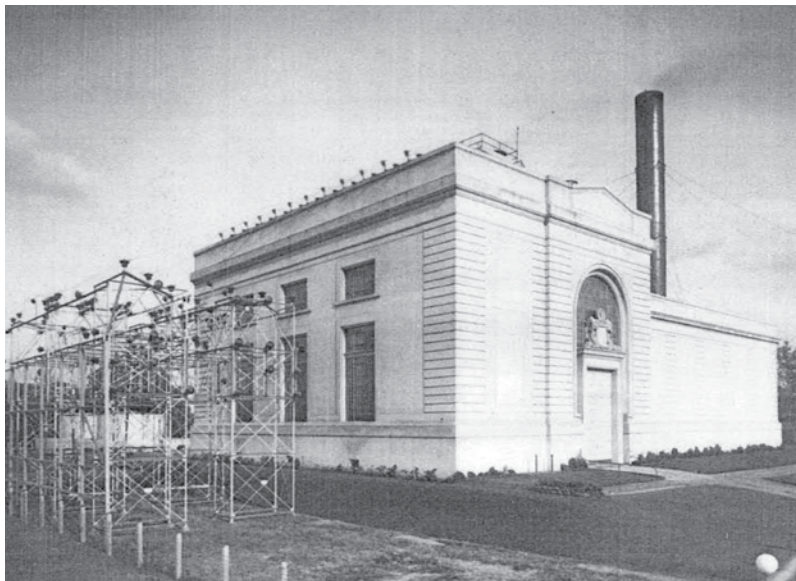
The Powerhouse Science Center is a dynamic regional hub that engages and inspires people of all ages to explore the wonders, possibilities, and responsibilities of science.

In achieving this mission, the Powerhouse seeks to energize the exploration of science and empower the public to improve our world.

BRIEF PROJECT HISTORY

The Discovery Museum Science & Space Center has served the Sacramento Community for over 60 years as a nonprofit agency teaching adults and children about science. Originally founded in 1951 as the California Junior Museum, the Discovery Museum created a place where children could experience science and nature through interactive programs and exhibits. The Discovery Museum is proud of its history as a highly-valued education resource offering the excitement of scientific discovery and hands-on learning to students, families, and all members of the community.

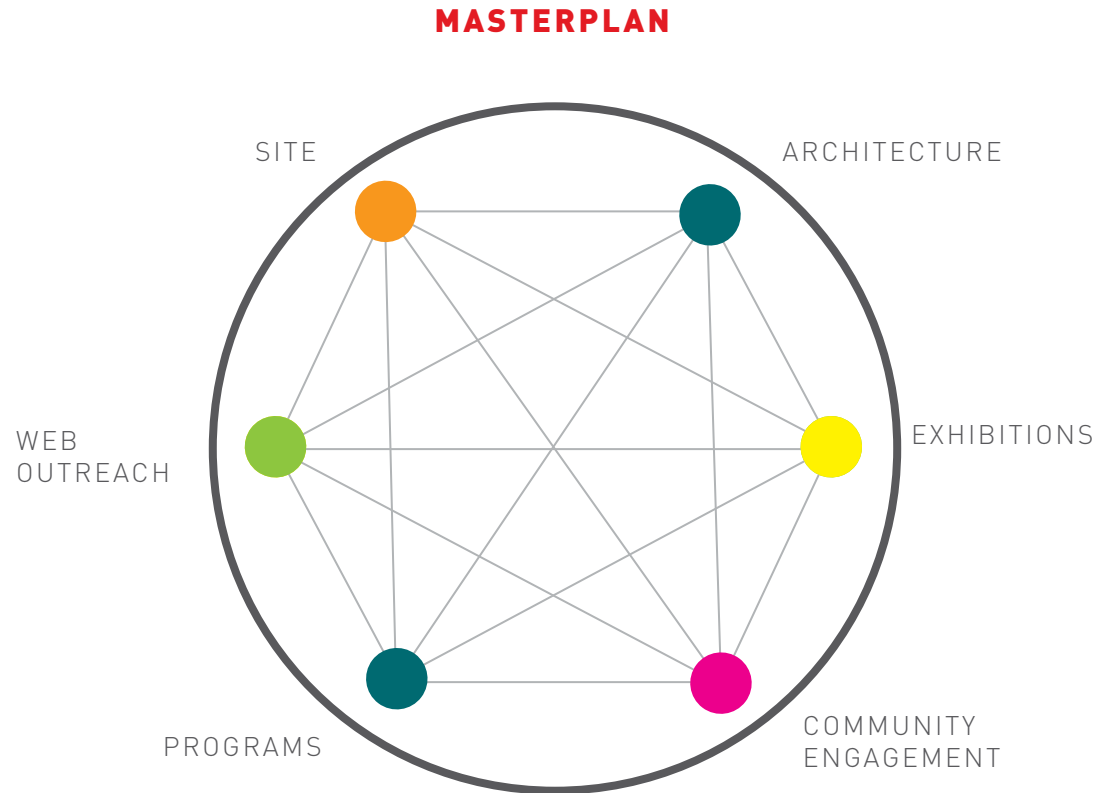
The Discovery Museum is engaging in an exciting transition to a new facility that incorporates the historic PG&E power station on the Sacramento River. When the new facility opens its doors, the Discovery Museum becomes a new institution, the Powerhouse Science Center. The Powerhouse will serve as a leader in informal science education in Northern California.



MASTERPLAN

MASTERPLAN

This Masterplan is an organizational scheme that establishes the relationships between all the aspects of the Powerhouse Science Center as an institution. These include; exhibitions, programs, community engagement, web outreach, architecture, and site. At the core is a vision of the visitor experience, a plan for the organization of the exhibition galleries, and a framework for future development. The Masterplan brings cohesion to the various elements of the Powerhouse and helps communicate a clear image of what the institution is all about.



CONCEPTUAL APPROACH

The Powerhouse Science Center is embracing a new paradigm for STEM education and public engagement in the 21st century. By creating synergy between formal and informal learning, social responsibility, and entrepreneurship, the Powerhouse is building a place where the next generation of innovative scientists, engineers, and educators are inspired.

MISSION STATEMENT

“The Powerhouse Science Center is a dynamic regional hub that engages and inspires people of all ages to explore the wonders, possibilities, and responsibilities of science.”

HOW COME?

Science reveals wonders in our world. Basic science explains the patterns and phenomena we see in the world around us.

WHAT IF?

Science empowers us to create new possibilities. When we understand the way the world works we can create innovations that change the world for the better.

SHOULD WE?

We are responsible for how we use our knowledge. Altering the world will have positive and negative consequences that should be carefully considered.

CONTENT SELECTION

The content presented by the Powerhouse covers three exploration areas. Effective coverage of all three of these areas is an important criteria for choosing what content should be presented by the Powerhouse institution as a whole, including its exhibition galleries and programs.



EXPLORING OURSELVES

Life Sciences & Human Ingenuity

- Biology
- Health
- Innovation



EXPLORING OUR WORLD

Natural Sciences & Environmental Stewardship

- Ecology
- Green, Renewable Energy
- Earth System Science



EXPLORING OUR UNIVERSE

Space Sciences

- Astronomy
- Aerospace

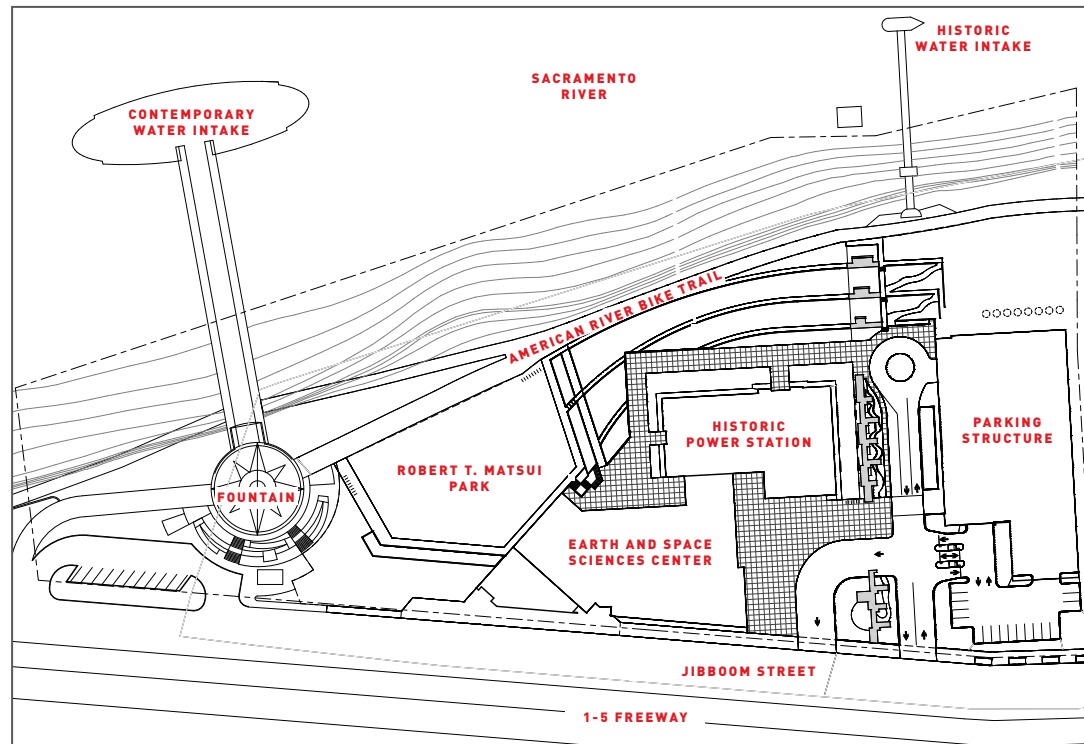
VISITOR EXPERIENCE

VISITOR EXPERIENCE INTRODUCTION

The Powerhouse serves its visitors through its exhibition galleries, programmed spaces, and site. Partnerships with local industry, businesses, and the educational community enrich the Powerhouse's offerings in all these areas, creating an emotionally impactful and intellectually stimulating visitor experience.

The Powerhouse sits on the banks of the Sacramento River and is composed of two main wings, the historic PG&E power station and the newly constructed Earth and Space Sciences Center (ESSC).

Highlights in the surrounding landscape include contemporary and historic water intake facilities and the Robert T. Matsui Park. Visitors can approach the Powerhouse using either the I-5 Freeway or the American River Bike Trail. Attention to the visitor experience has permeated the design decisions for every aspect of the Powerhouse Science Center. A visit to the Powerhouse creates a cohesive and engaging experience, including everything from the visitor's first view of the Powerhouse, to the parking structure, the main lobby entrance, and each component of the building architecture and site.



EXHIBITION GALLERIES

The exhibition galleries are a signature aspect of the Powerhouse experience. Many visitors will be introduced to the Powerhouse by visiting the exhibition galleries, so these spaces are a gateway to the programs and events offered by the institution. Supporting this role, the exhibition galleries are fun, dynamic, content-rich spaces worth revisiting many times.

EXHIBITS

Exhibits at the Powerhouse offer a mix of experiences to appeal to visitors of different ages, interests, and learning styles. Exhibit experiences welcome active participation from all visitors regardless of cultural and educational background. Exhibits are designed to stimulate the interest of visitors at multiple levels, by using both clear presentation of information and a variety of interactive experiences. Content is layered for ease of access, providing additional information for visitors who want it, while not overloading those who do not. Unique and memorable key exhibits in each gallery create interest and excitement.

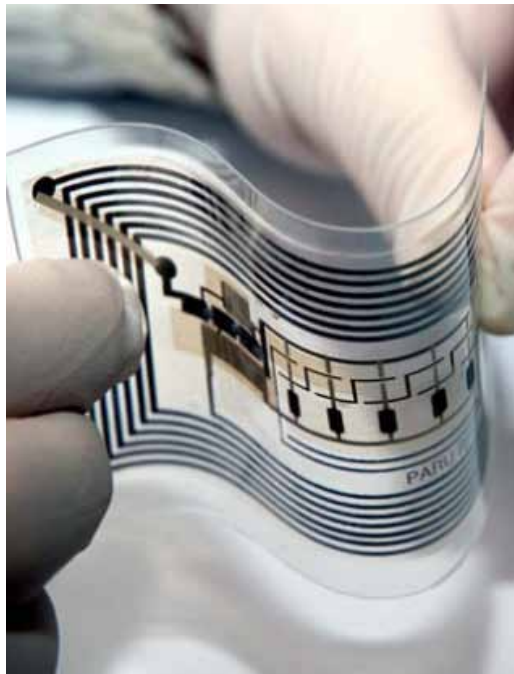
ENVIRONMENTAL QUALITIES

The Powerhouse is an engaging and inspiring space to explore science. The interior treatment of the facility as a whole has a cohesive look and feel that supports the unique identity of the Powerhouse as an institution. However, each exhibition gallery offers a distinct immersive experience to complement its topic. The features, colors, and materials used in each exhibition gallery support the storyline being told in the space. From graphics and exhibit materials, to lighting and wall treatments, each space is designed to create an impactful and compelling visitor experience.



TECHNOLOGY

The Powerhouse serves a diverse audience of visitors, who come to the science center with a variety of personal interests and cultural and educational backgrounds. State of the art technology is used to ensure that every visitor's experience is personally relevant and engaging by customizing exhibit content to a visitor's individual interest, age level, or language. Technology can also make connections between exhibitions, by revealing places where broad subjects such as robotics or engineering are examined in each of the galleries. Additionally, technology can be used to overlay new content and visitor input onto existing exhibitions. For example, the Powerhouse can design themed scavenger hunts via smartphone applications, post breaking science news stories, present visitor-created content, and much more.





PROGRAMS

The Powerhouse includes many programmed spaces to complement the exhibition galleries. These programmed spaces offer a wide variety of activities for visitors of all ages, school groups, business leaders, and educators seeking professional development.

DOMED THEATER

The Powerhouse contains a full-domed, 150 seat digital theater. In the domed theater, immersive video technology takes visitors on explorations of the universe and planet Earth. A continuously updated show schedule ensures that there is always something new for visitors to see.



AEROJET CHALLENGER LEARNING CENTER

Designed in cooperation with NASA, the Aerojet Challenger Learning Center is an interactive educational program that uses the excitement of space flight simulation to inspire visitors. Teams of visitors experience both Mission Control, modeled after the Johnson Space Center, and the Spacecraft, a laboratory in a futuristic space vehicle. Visitors use teamwork, communication and problem solving skills to accomplish real-life challenges in space mission scenarios.



LABORATORIES AND CLASSROOMS

Formal, guided learning activities take place on the second floor of the ESSC in two adjacent classrooms with integrated laboratory stations. The wall dividing these two rooms is retractable so the two spaces can be merged into one room for larger groups. Although these rooms are generally open for public use, they can also be reserved for specific groups. Another group of classrooms is also located in the basement of the historic power station.



DEMONSTRATION SPACES

Each floor of the historic power station has a designated demonstration space. These spaces are open-ended platforms where a wide variety of activities, demonstrations, and presentations can occur. The physical spaces are defined by a system of sliding glass walls that provide acoustic control, but create a permeable boundary that welcomes free visitor circulation. However, the walls can be arranged to fully enclose the space for reserved group activities.



ARCHEOLOGICAL DIG

Participants in this program enter an outdoor dig site and are immersed in a hands-on, interactive, archeological project. Here, visitors learn how archeologists uncover and interpret clues about the past. Visitors search for and dig up buried artifacts, catalog them, and research their history.





EVENTS AND LECTURES

The Powerhouse has a variety of flexible spaces that can be used for special events and lectures. The largest event spaces are the main lobby and café, which can be merged together to create one main area for social events and banquets. The domed theater provides another venue for large group lectures and presentations. The laboratories and classrooms in the ESSC can also be used for presentations, seminars, and discussions with smaller groups.



BUILDING SITE

The natural and historic elements of the landscape complement the Powerhouse building, creating a cohesive visitor experience. The integration of the Powerhouse Science Center with a historic power station and its location by the Sacramento River offers many unique opportunities to explore themes such as, the relationship of humans with our environment, the conservation of natural resources, and the importance of sustainability. These messages are explored through exhibits and activities located both inside the building and on the outdoor site, connecting the exterior and interior content.

GREEN, RENEWABLE FEATURES

A variety of green, renewable energy technologies are used on the building site to support the Powerhouse's goal of promoting environmental stewardship. Photovoltaic structures and urban wind turbines generate renewable electricity. A hydrogen fuel cell stores renewable energy for future use. Additionally, a Living Machine™ utilizes the natural filtration system found in wetlands to purify and reuse water for irrigation in the surrounding landscape.



WATER INTAKE FACILITIES

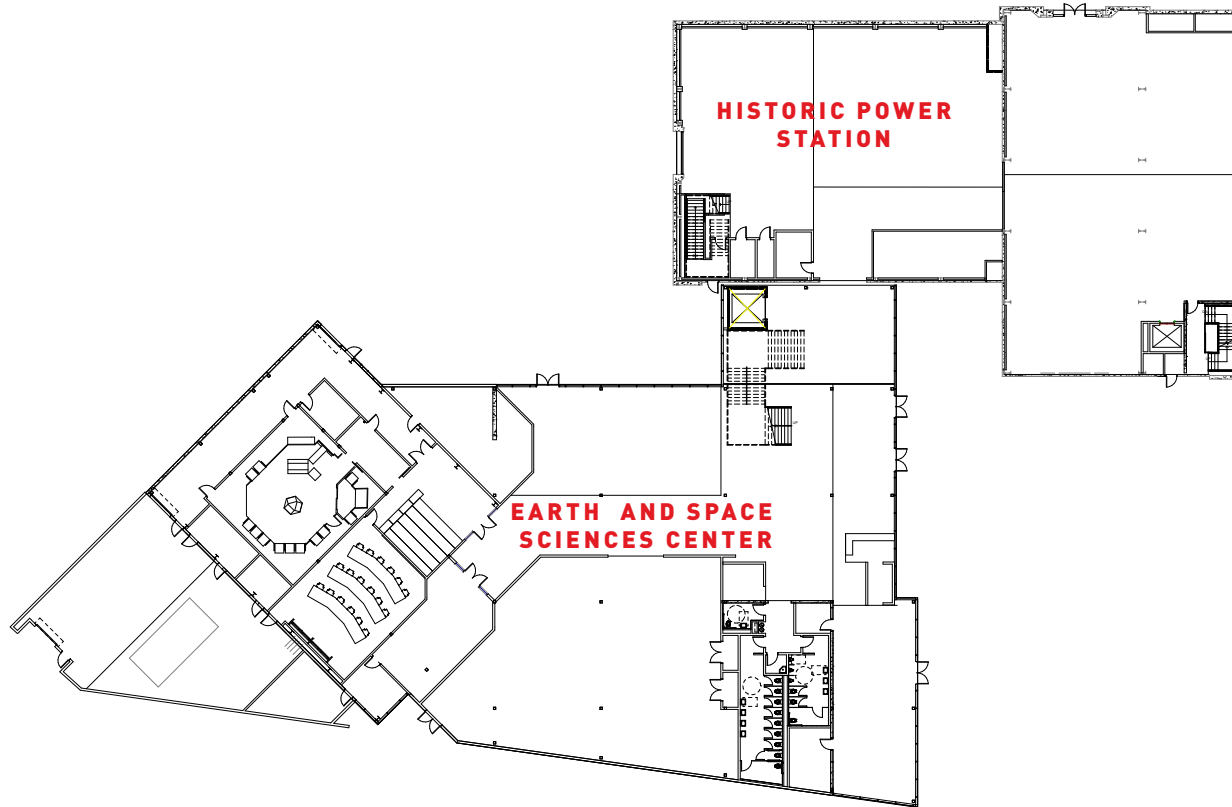
The site has two water intake facilities, one that was recently constructed and is currently used to supply drinking water to the Sacramento Area and one that was historically used by the City of Sacramento. The new water intake facility is currently a beautiful location to take in views of the river; and is supported by interpretive exhibits that let visitors explore where their water comes from.



PERMANENT EXHIBITIONS

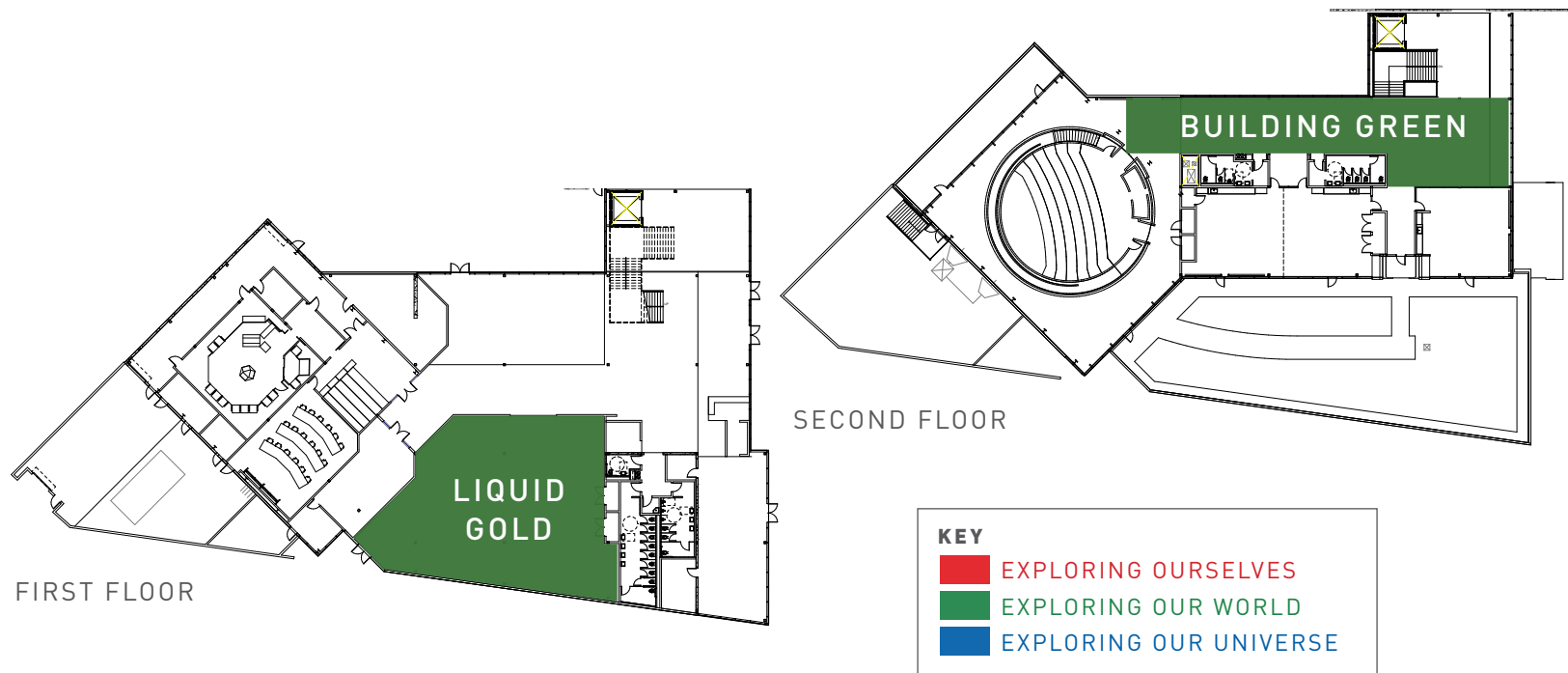
PERMANENT EXHIBITION OVERVIEW

The Powerhouse Science Center consists of two attached buildings; the historic power station and the newly constructed Earth and Space Sciences Center (ESSC). The first floor of the ESSC contains a main exhibition gallery and a nature center, the second floor has a smaller exhibition cluster and a center designed for younger visitors. The historic power station serves as the primary exhibition space; it has been initially designed to contain six exhibition galleries. The exhibitions presented in each gallery will change over the life of the institution to cover new topics or keep the topics up to date.



IN THE EARTH AND SPACE SCIENCES CENTER

The purpose of the exhibitions and programs located in the ESSC is to educate people on the natural sciences and inspire environmental stewardship. To this end, both of the exhibitions in this building are part of the Exploring Our World exploration area. The content presented in this building is based on an Earth System Science curriculum framework that applies principles and concepts of California's adopted Education & the Environment Initiative. Visitors examine Earth's four natural spheres (Water, Air, Land, and Life) through the eyes of environmental sustainability. By observing, understanding, and predicting global environmental conditions, visitors learn how each of Earth's spheres are all interconnected with one another – and us.



LIQUID GOLD: SUSTAINING OUR WATERSHED (WORKING TITLE)

Fresh water is a precious natural resource that is under global pressure from human consumption. Human use of natural resources increased dramatically as our population exploded over the past century. There is a reciprocal relationship between humans and our environment; the availability of natural resources guides the development of human communities, and humans alter the environment to use its natural resources. Few landscapes offer as dramatic a picture of this relationship as the Sacramento River Watershed, which has been extensively engineered for human use.

This exhibition examines global sustainability challenges in the context of the Sacramento River Watershed. Some of these challenges are; population growth, pollution, species extinction, over-consumption of natural resources, and climate change. Looking at these concepts through a local perspective offers visitors opportunities to “think globally and act locally” through authentic experiences with science in their community. A Magic Planet™ digital globe exhibit is also used to provide a truly global perspective on these challenges. The custom programming on this globe examines the sustainability topics raised in the exhibition using satellite and scientific images of our planet.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: Exploring the natural world fascinates people of all ages. A great diversity of plants and animals inhabit the ecosystems of the Sacramento River Watershed. Each of these species have relationships with each other and their environment. Examining these connections reveals how Earth’s spheres of water, air, land, and life interact.

POSSIBILITIES: Human communities around the world radically alter landscapes to use natural resources. The Sacramento River Watershed as it exists today is as much a product of human engineering as it is of nature. Projects to build reservoirs, hydroelectric dams, levees, artificial wetlands, and

water pumping stations have altered the river dramatically. Currently, three sectors compete for water use; agriculture/aquaculture, urban areas, and the environment. The balance we strike between these uses has profound environmental and economic implications for the state of California.

RESPONSIBILITIES: Balancing the use and preservation of natural resources is a challenge that all human communities face. Understanding how these issues directly relate to their lives inspires visitors to conserve water and sustain the Sacramento River Watershed for the good of its ecosystem and their community.

CONCEPTUAL RENDERING OF LIQUID GOLD EXHIBITION



- A** From Mountains to Sea: Follow the topography of the Sacramento River Watershed.
B Pacific Flyway: View the watershed as a migrating bird
C River Chemistry: Test water samples for purity and pollutants
D Engineering the Watershed: Manage the flow of our water

- E** Swim for Your Life: Race up the river as a salmon in a full-body game
F Carving a River: Experiment with erosion to create a river's path
G Small but Powerful: View an ecosystem of tiny microorganisms
H Sustaining Our Planet: Gain a global perspective on environmental challenges

BUILDING GREEN: SUSTAINABLE SPACES (WORKING TITLE)

Energy and resource-efficient construction is an important way to reduce our environmental impact. The Building Green exhibit cluster showcases how the Powerhouse building and its surrounding landscape are designed to maximize sustainability. The exhibition also highlights other community and city planning efforts in the Sacramento Area to use green construction strategies. Visitors are encouraged to apply similar ideas to make their own homes and yards greener.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: People construct buildings and create landscapes to control environmental qualities and provide resources such as electricity, energy, and water. However, as valuable as they are to humans, the buildings and landscapes we create can significantly affect the environment.

POSSIBILITIES: Green, sustainable construction strategies are enabling us to construct buildings and landscapes that have less environmental impact. Incorporating alternative sources of energy generation can reduce the use of non-renewable fossil fuels. Hydrogen fuel cells are a clean method of storing renewable energy. Water purification systems and landscaping with native plants can reduce fresh water consumption. The sustainability of the building as a whole should also be considered, from its energy-efficiency to the materials used in its construction.

RESPONSIBILITIES: The Powerhouse uses many green, renewable technologies to conserve energy and natural resources. Electricity is generated on site from wind and solar power and is stored by a hydrogen fuel cell. A Living Machine™ uses natural filtration to purify and recycle water for irrigation. The riverfront park uses native plants to reduce water consumption and support local ecosystems. The building itself is designed using LEED construction strategies. You can make a difference too; there are many small and large changes you can make around your home, yard, and community to help conserve energy and natural resources.



NATURE DISCOVERY CENTER

A collection of live animals, including, fish, reptiles, mammals, and birds inhabits the Nature Discovery Center. Visitors can observe animal behaviors and physical adaptations through encounters with these animals. Exhibits and small group demonstrations let visitors explore in depth how individual animals live in their unique environments. Scheduled live animal demonstrations for larger groups occur in the briefing room of the adjacent Aerojet Challenger Learning Center.

CONCEPTUAL RENDERING OF NATURE DISCOVERY CENTER



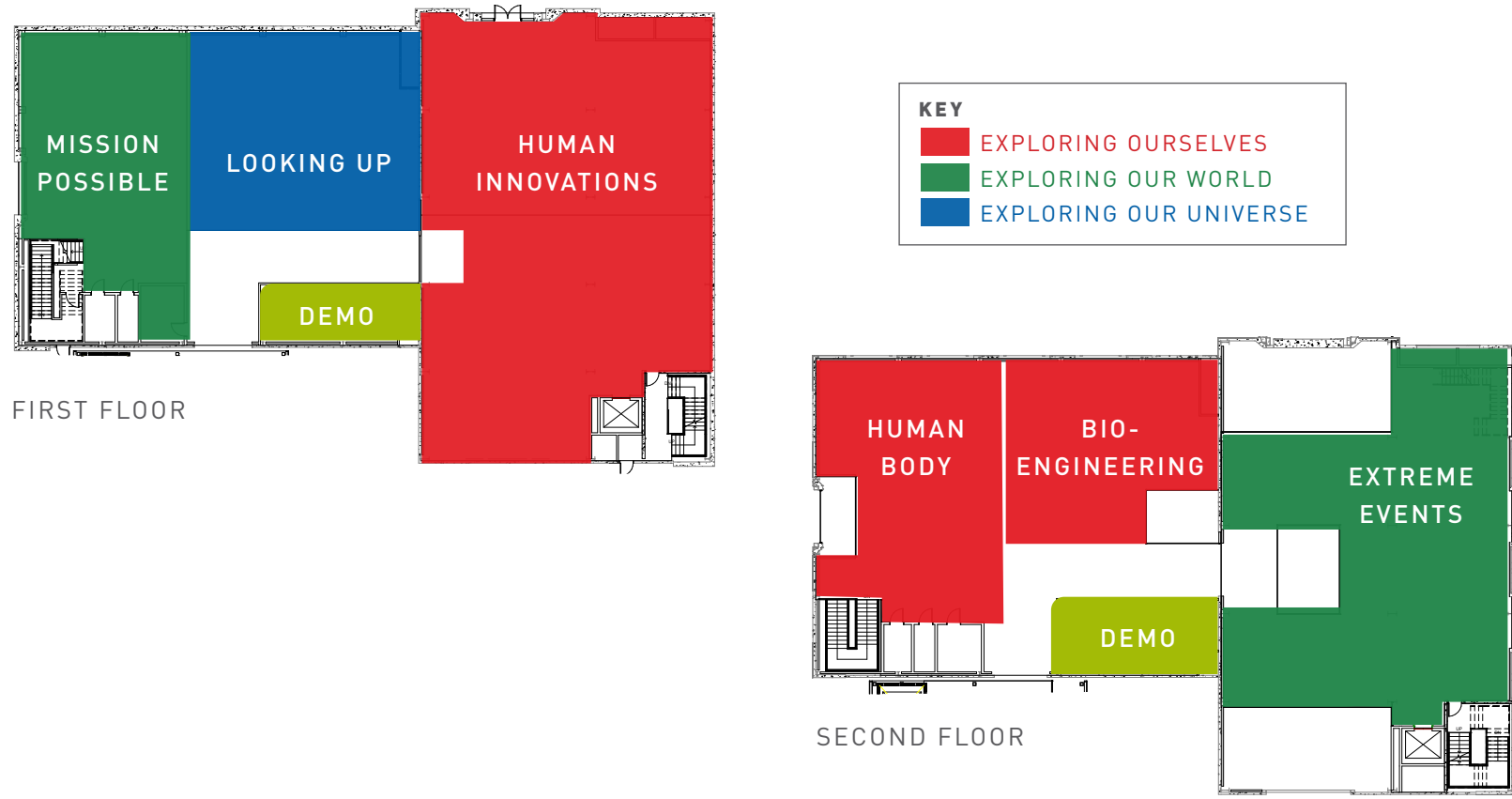
FIRST DISCOVERY CENTER

The First Discovery Center is an exhibition gallery specifically designed for younger children, age range 0-6 years. The center consists of two main areas, an interior room on the second floor of the ESSC and a defined section of the roof outside. Here, children can experiment with open-ended activities, use kinesthetic learning, explore cause and effect, and engage in dramatic pretend play. This type of learning through play uses many aspects of the scientific process, such as; observing the world around you, experimenting with new objects and situations, and communicating information with others.



IN THE POWER STATION

The historic power station is the main exhibition space in the Powerhouse Science Center. Its six galleries contain exhibitions that together cover the three exploration areas, Exploring Ourselves, Exploring Our World, and Exploring Our Universe. Demonstration spaces on each floor create platforms that support a wide variety of activities that can relate to any of the topics explored in the exhibition galleries.



MISSION POSSIBLE: SAVING OUR PLANET (WORKING TITLE)

Innovative technologies and strategies are being used to meet the energy and material demands of modern life with less environmental impact. Energy and products derived from fossil fuels have enabled many improvements in our quality of life. However, they have also damaged the environment and accelerated the looming danger of global warming and climate change. Green technologies are being developed to provide alternative, renewable sources of energy and increase how efficiently we use energy and natural resources. We must act, both as a global community and as individuals, to meet the challenge of saving our planet.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: The use of fossil fuels for energy underpins modern life. The historical power station that is part of the Powerhouse Science Center today was originally built to generate electricity from fossil fuels for the city of Sacramento. The exponential rise in fossil fuel use over the past century has increased human greenhouse gas emissions. Greenhouse gasses trap heat from the sun, causing global warming. Obtaining, transporting, and burning fossil fuels also pollutes and damages the environment. Our rate of fossil fuel consumption exceeds the speed with which it will be naturally replenished, making fossil fuel a non-renewable resource.

POSSIBILITIES: Humans use energy and natural resources to meet our needs. We are developing and using a variety of innovations to meet these needs in an environmentally

responsible way. Examples of these innovations include renewable sources of energy such as wind, solar, geothermal, and nuclear power that do not directly emit greenhouse gasses. Other technologies are increasing how efficiently we use energy and natural resources.

RESPONSIBILITIES: The question of how we will power our world is one of the most important challenges we face today. We all need to work together at federal, state, and city levels to create programs and policies to help solve this problem. There are many ways you as an individual can reduce your environmental impact, including; reducing waste, recycling, turning down the thermostat, and using public transportation. Small choices you make can create a big difference.

CONCEPTUAL RENDERING OF MISSION POSSIBLE EXHIBITION



- A** Our Warming Planet: See the consequences of fossil fuel use and climate change
B Path to a Greener World: Take a journey to explore green, renewable energy sources
C Wind Energy: Examine the inner workings of a wind turbine

- D** Sun Power: Use photovoltaic panels to turn sunlight into electricity
E Underground Energy: Dig into the ground to explore geothermal power
F It's Easy to Be Green: Be inspired to make your community greener!

LOOKING UP: OBSERVING OUR UNIVERSE (WORKING TITLE)

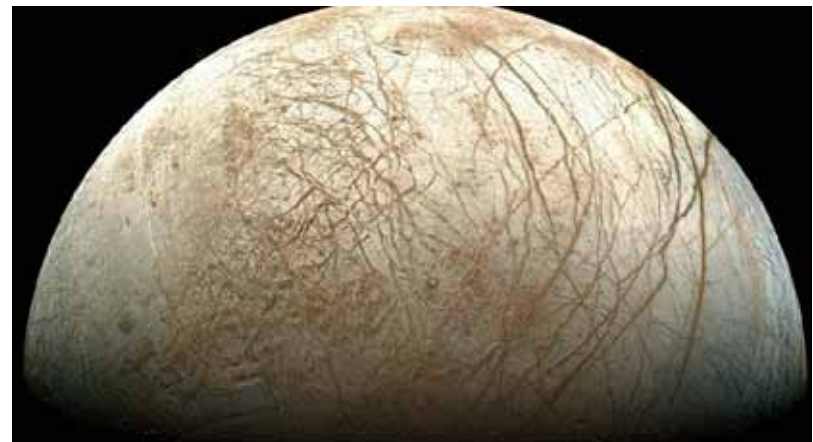
The night sky has captivated the human imagination for thousands of years, inspiring stories and scientific theories to explain the movements of the celestial objects. This exhibition explores our current understanding of the universe and examines the technological innovations that enable us to observe beyond what can be seen by our eyes alone. Space exploration, the search for extraterrestrial life, and research on the origins of the universe are captivating and inspirational scientific projects that inspire wonder in us all.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: Astronomy provides a new perspective on our universe by revealing faraway sights such as our Milky Way galaxy, supernovae, and the surface of Mars.

POSSIBILITIES: We are developing remarkable technologies to study places we cannot yet go, including telescopic imaging and robotics.

RESPONSIBILITIES: Understanding our place in the universe gives us a new perspective on our species and our relationship with planet Earth. It also demands a great deal of our resources as a society.



HUMAN INNOVATIONS: GETTING FROM HERE TO THERE (WORKING TITLE)

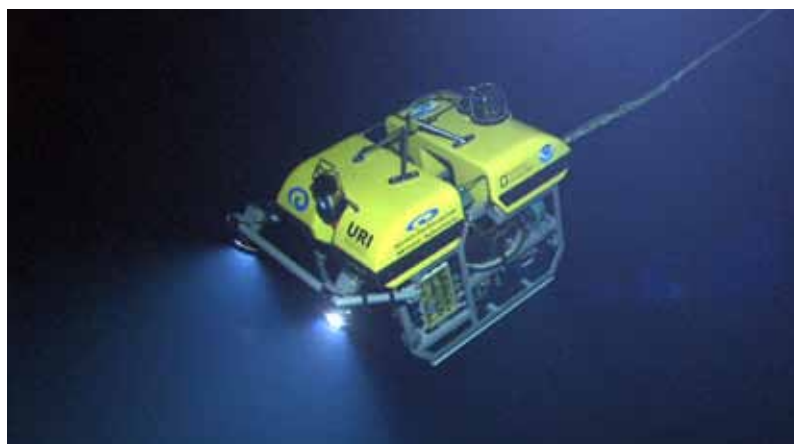
More than any other species, humans are defined by the technologies we use. The ubiquity of technology in our daily lives means that technological innovations have the potential to dramatically change the way we live. Many examples of these dramatic changes have occurred in fields such as transportation and communication over the past century, and have triggered radical changes in human societies on a global scale. Some of the innovations that have recently altered our lives include; advanced vehicles such as airplanes and trains, robotics, and information technology.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: It's often difficult to tell how a piece of technology works, but technological innovations are all founded in basic science and engineering principles.

POSSIBILITIES: Our innovations allow us to do amazing things, such as instant global communication and traveling faster and farther than ever before.

RESPONSIBILITIES: Innovations can solve many problems and improve our quality of life, but they can also alter human societies in profound ways that have ethical implications.



EXTREME EVENTS: SURVIVING NATURE (WORKING TITLE)

Extreme natural phenomena such as floods, volcanoes, tsunamis, earthquakes, and forest fires are examples of the dramatic forces of nature. Each of these events can cause great destruction, but humans are inventing technologies and systems to warn and protect us from them. We are also creating innovative engineering techniques to make our buildings more resistant to these forces. However, humans often construct homes in places that are vulnerable to extreme events. The exhibition questions how much we should build in vulnerable places.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: Natural disasters are extraordinary natural phenomena that are triggered by the energy and power present in Earth's systems.

POSSIBILITIES: By studying how natural disasters happen, we can develop warning systems to give ourselves time to prepare for them. New engineering strategies can also make our buildings and other structures resistant to these forces.

RESPONSIBILITIES: The loss of human life and economic destruction caused by natural disasters calls into question whether we should build in vulnerable places to begin with.



HUMAN BODY: STAYING HEALTHY (WORKING TITLE)

Understanding how our bodies work is a fascinating topic for visitors of all ages. This exhibition explores different aspects of human anatomy, such as gait analysis of how our legs move when we run, the electrical impulses that cause our heart to beat, and the blood cells that fight off infections. Doctors and scientists are creating cutting-edge medical breakthroughs to cure diseases and heal injuries, including robotic surgery and prosthetics. This exhibition also empowers visitors to improve their own health and wellness by examining healthy life choices, such as exercise and good nutrition.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: Your body is an extraordinary structure. Exploring our anatomy shows how our bodies allow us to do amazing activities every day.

POSSIBILITIES: Cutting-edge medicines and surgical techniques are letting us live longer and healthier lives.

RESPONSIBILITIES: You are the person who has the most control over your body. Making healthy life choices is an effective way to improve your health and wellness.



BIOENGINEERING: DECODING LIFE (WORKING TITLE)

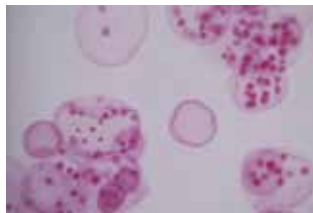
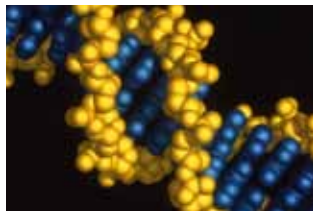
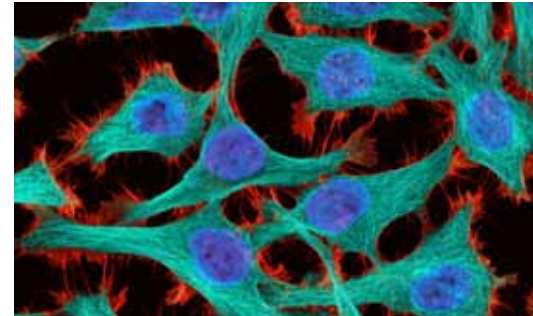
Accompanying the Human Body exhibition is an exhibition focusing on bioengineering. This exhibition explores the science of genetics in both plants and animals and examines how genes encode proteins. Scientists can now alter genes to study basic biology in animals and create new, genetically modified organisms. These biotechnologies are used to improve human health through the creation of new medicines and agricultural crops, but they have also been the focus of intense ethical debates. The exhibition includes ways for visitors to comment on the ethical issues raised by these new technologies.

ENDURING UNDERSTANDINGS/CONTENT OBJECTIVES

WONDERS: The genetic code contains the instructions for building proteins. Proteins have many functions; they are the basic toolkit of all cells.

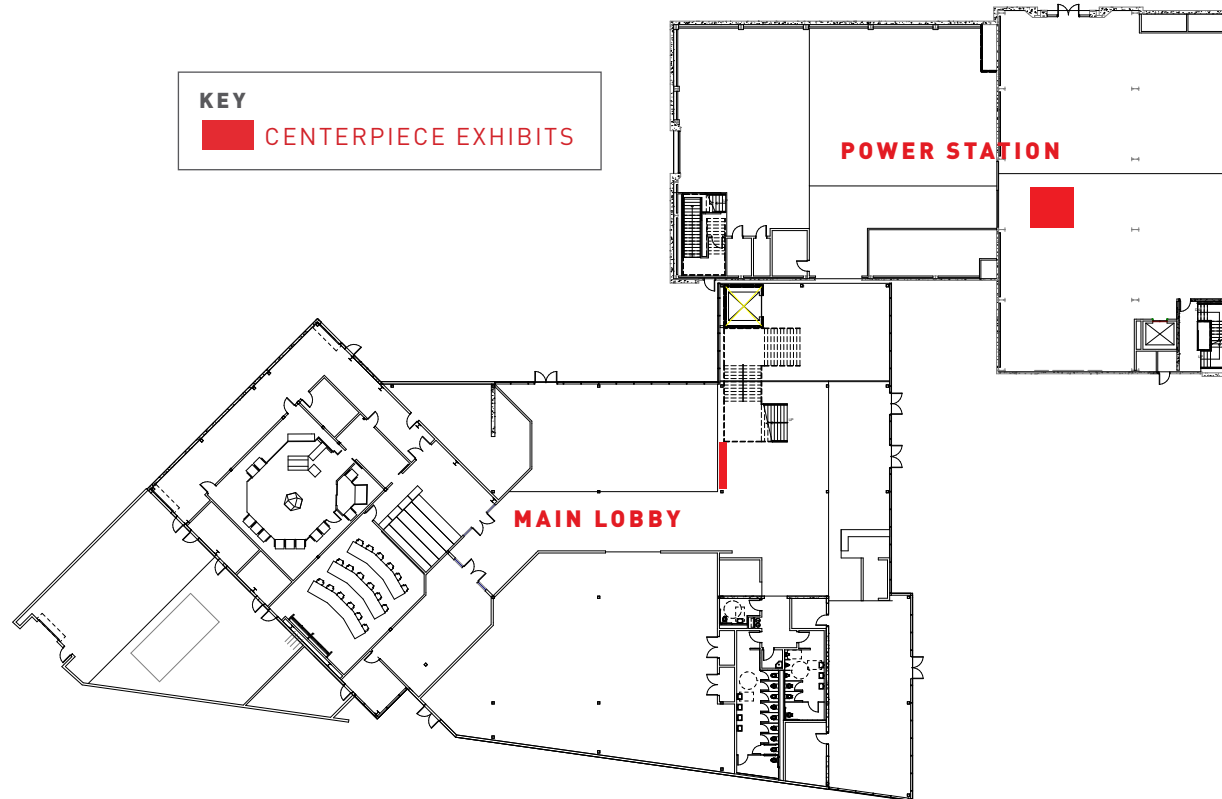
POSSIBILITIES: Genetic research has led to new bioengineering technologies that allow scientists and doctors to create new medicines and new organisms.

RESPONSIBILITIES: Bioengineering raises ethical questions that have to be carefully considered.



CENTERPIECE EXHIBITS

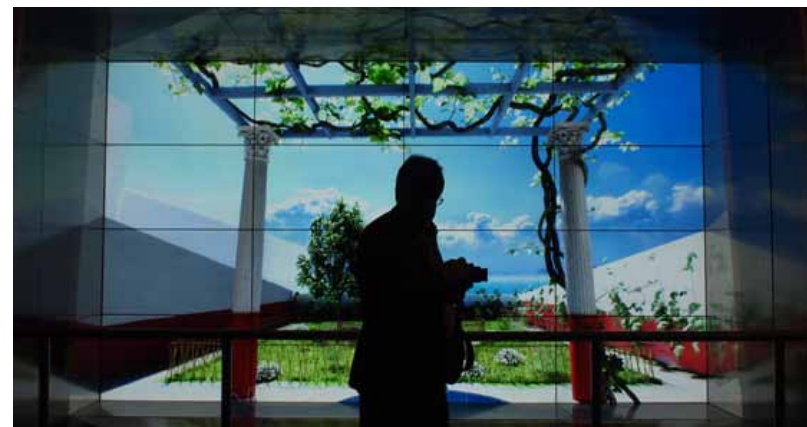
The Powerhouse contains two large-scale centerpiece exhibits. One of these exhibits is located in the main lobby and the other will occupy a two-story, 60 foot tall space at the center of the turbine room in the historic power station. Both these centerpiece exhibits share the purpose of creating an impactful focal point that ties the content of the whole facility together. However, they will each take distinct forms and support different types of content and interactivity.



CENTERPIECE: MAIN LOBBY

The centerpiece exhibit in the main lobby is the first exhibit visitors see when they enter the Powerhouse. Because of its location, this exhibit is an introduction to the Powerhouse, providing information about the identity of the Powerhouse as an institution. This exhibit is also exciting, interesting, and dynamic to create a preview of the engaging visitor experience inside.

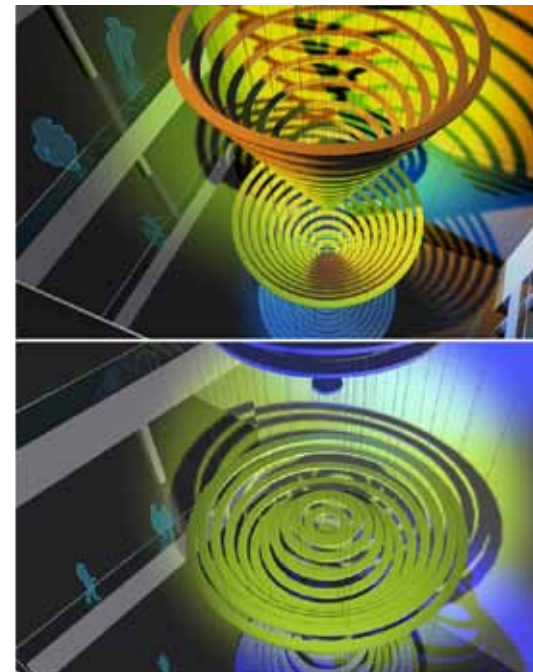
Another valuable function of this exhibit is to divide the main lobby from the café, providing visual interest and acoustic control. However, it is also important that this exhibit be retractable or removable to allow the café and main lobby areas to be merged for large events such as banquets, ceremonies, or lectures. These requirements suggest that the exhibit could take the form of a horizontal display screen.



CENTERPIECE: POWER STATION

The centerpiece exhibit in the turbine room is visible from the central circulation on both floors of the power station. This location suggests that this exhibit is an excellent place to integrate content from different exhibition galleries or highlight an overarching theme from all the exhibition galleries.

The form of this exhibit is a vertically-oriented three-dimensional sculpture. This exhibit must be visible and engaging to visitors on both the first and second floors of the power station. It should also occupy the floor opening area without fully blocking the opening.



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