

Cardiac and Vascular Education Room

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A presentation to
Missouri Baptist Healthcare Foundation



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SAM FOX SCHOOL OF DESIGN & VISUAL ARTS

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INTRODUCTION

1.0

VCRS

The Visual Communications Research Studio (VCRS), a program offered by the Visual Communications Area in the College & Graduate School of Art at Washington University in St. Louis, provides research experiences in applied communication design for post-baccalaureate fellows.

Who we are

Funded jointly by the College of Art and the Kauffman Foundation Grant for entrepreneurship and innovation at Washington University, the VCRS represents a frontier in innovation research at the Sam Fox School of Design and Visual Arts.

The VCRS provides a locus for program faculty, post-baccalaureate research associates and selected undergraduate interns in applied communication research projects.

The program engages in collaborative projects with University, commercial, and non-profit partners. The studio's projects, which are often design-focused, provide educational value, are consonant with faculty research interests, create collaborative opportunities, serve selected community interests, and generate revenue appropriate to the project.

What we do

- 1 Information and exhibition design for science and engineering applications, working in support of advanced scientific research, applied solutions, and science education for students at all levels;
- 2 Branding and identity development in both the profit and non-profit spheres, or in support of social and commercial entrepreneurship;
- 3 Blue sky research projects in areas identified as future consumer products, services, and experiences;
- 4 Projects in support of important research initiatives with the Sam Fox School of Design and Visual Arts

OPPORTUNITY NO. 1

2.0

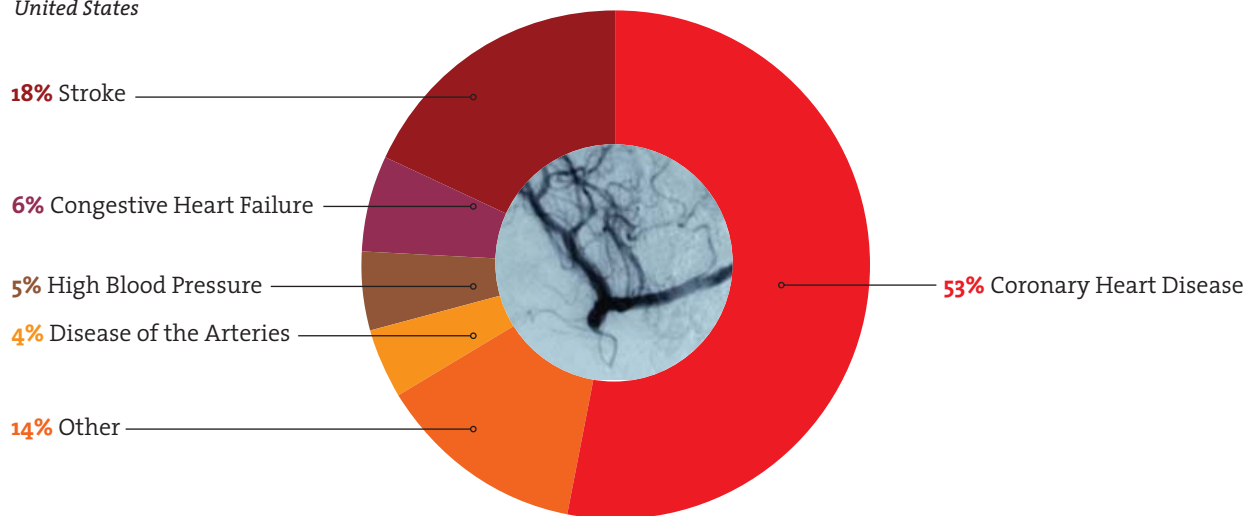
Why is heart
education
so important?

In the United States today¹:

- › Heart disease is the leading cause of death for all populations and genders
- › Almost 60 million Americans have one or more types of heart disease
- › One out of every two deaths are attributed to heart disease and stroke
- › Annual cost of cardiovascular disease is projected to exceed \$394 *billion* this year alone

BREAKDOWN OF DEATHS FROM CARDIOVASCULAR DISEASE

United States



SOURCE: CDC/NCHS

If there is a crisis in cardiac and vascular health—and the statistics plainly suggest that there is—specific actions can ameliorate it. Extensive research proves that simple lifestyle changes can dramatically reduce the risks of disease.

The importance of patient education and focus on the elimination of risk factors can hardly be overstated.

¹Heart Disease for Dummies, James M. Rippe, MD

Why a cardiac vascular education room at Missouri Baptist Medical Center?

AUDIENCE

3.0

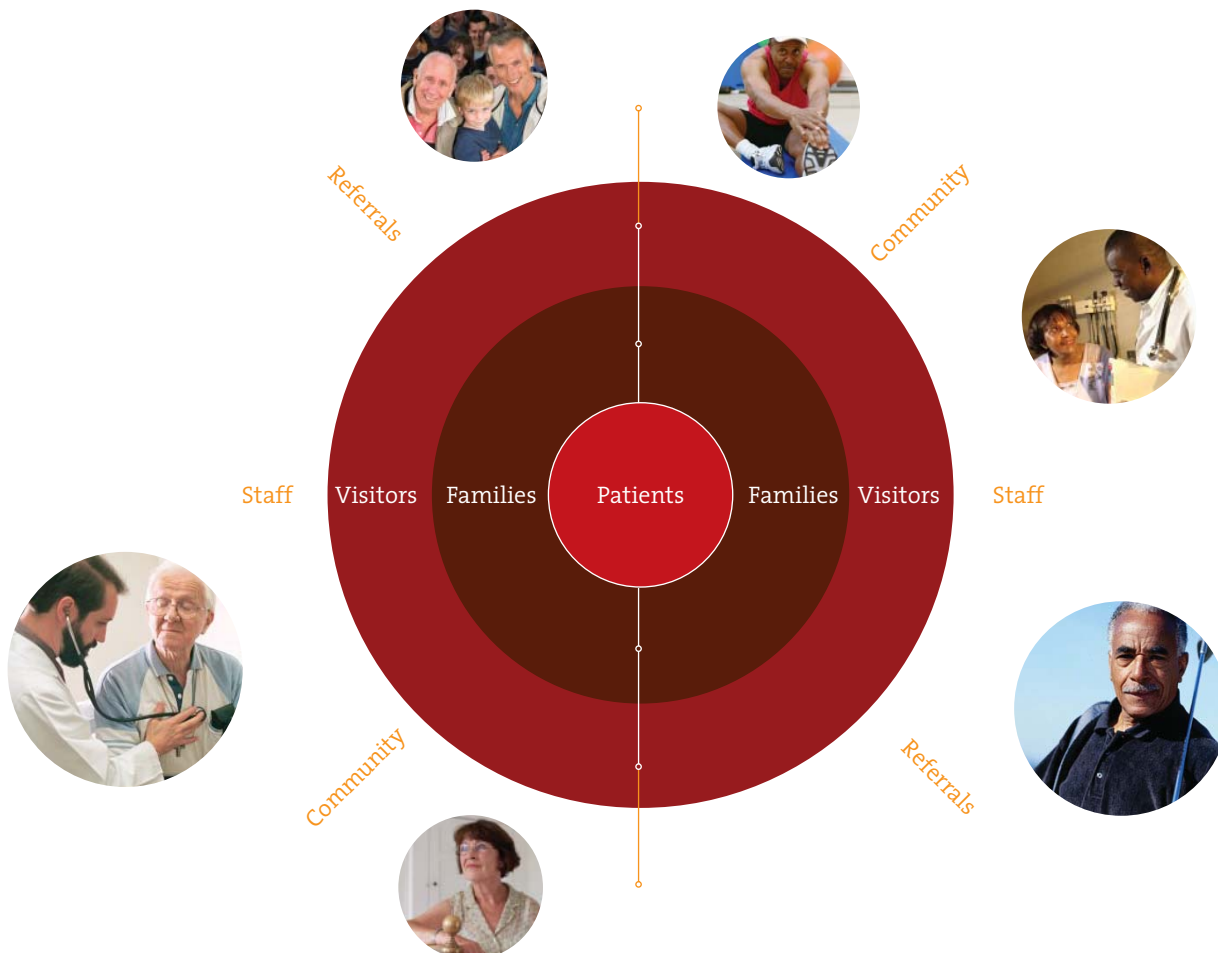
Who will visit
the cardiac
and vascular
education room?

Questions concerning audience are crucial, for several reasons. We are concerned to know who will be visiting the education room, why they are there, what they need to leave with, and how well they are likely to absorb and retain different kinds of information.

Who Will Visit?

The most basic fact about the education room has to do with its location. The room will not be found in a shopping mall or a science museum. The cardiac and vascular room is located on a hospital floor. Thus, there will be very few disinterested visitors.

A significant majority of visitors will have heart disease, or will be related to someone with heart disease. If they only just learned this to be the case--as will be true for many--they are likely to be anxious and disoriented. Since people tend to be hungry for information at times of crisis, we can anticipate that a great many visitors will be coming to the cardiac and vascular education room with a strong desire to learn.



Are there any broadly shared characteristics among the patient audience? Although we do not have systematic data on the Center's patient population, there are a few general trends which seem to be borne out by anecdotal interviews with Missouri Baptist personnel.

- 1 Most patients are over the age of 50
- 2 Many/most patients are overweight
- 3 Many patients come from rural communities
- 4 A certain fraction of patients—not a majority, but a significant slice of the pie—smoke cigarettes.
- 5 It may be possible to infer from the above that the level of education attained by the average patient does not extend significantly beyond secondary school. (Plainly, this is speculation, but it is worthwhile to ponder as we strategize the exhibit.)

Can any key messages be identified for the visitor population?

Much of the information pertaining to heart and vascular disease is factual in nature and probably vaguely alien, insofar as it applies to internal anatomy which is by definition not visible to the layman under normal circumstances. Visitors will need to understand “the plumbing” on a basic level, to be sure.

But from a health management point of view, perhaps the most important aspects of the education room have to do with behavior and motivation. The changes in behavior involved in addressing risk factors require more than passive reception of information. Modification of diet, the importance of exercise, and smoking cessation may turn out to be crucial messages.

What mode of address or medium will best address the audience?

We live in an increasingly visual culture. The number of people who gather news and information through primarily textual sources (e.g., newspapers) continues to drop. Meanwhile the incidence and range of visual representations used to communicate basic information is on the increase. Many people gather all or almost all of their information about the world through television. Pamphlets and books which are dominated by text do not appeal to this audience.

Meanwhile, the volume and complexity of knowledge at the disposal of a medical professional leads in the opposite direction. Because this knowledge is the extremely hard-earned product of diligent study, medical professionals can be forgiven if they throw up their hands and conclude that patients really can't understand the material. But people do want to understand, even if they may lack the skills or the wherewithal to engage the science on its own terms.

For this reason, the problem of patient education in the cardiac and vascular field may require simplification and visual analogy, but not at the expense of specificity.

Finally, the prominence of interactive modules and kiosks in contemporary communications suggests that interactivity may provide a way to enliven image-driven textual material. If so, care must be taken to make the experience as un-technical as possible, since many older adults still experience some anxiety with computer technology.

FUNCTION

4.0

What is the
purpose
of this room?

What the education room is for:

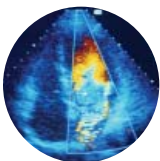
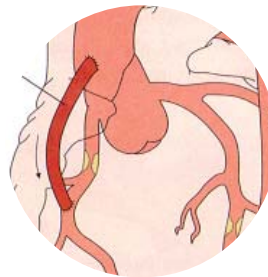
- › Educate visitors on prevention, diagnosis, intervention and rehabilitation

What the education room is **NOT** for:

- › Lounge or extension of waiting area

What should a visitor walk away with?

- › Knowledge and understanding of heart issues
- › Adopt a heart-healthy lifestyle



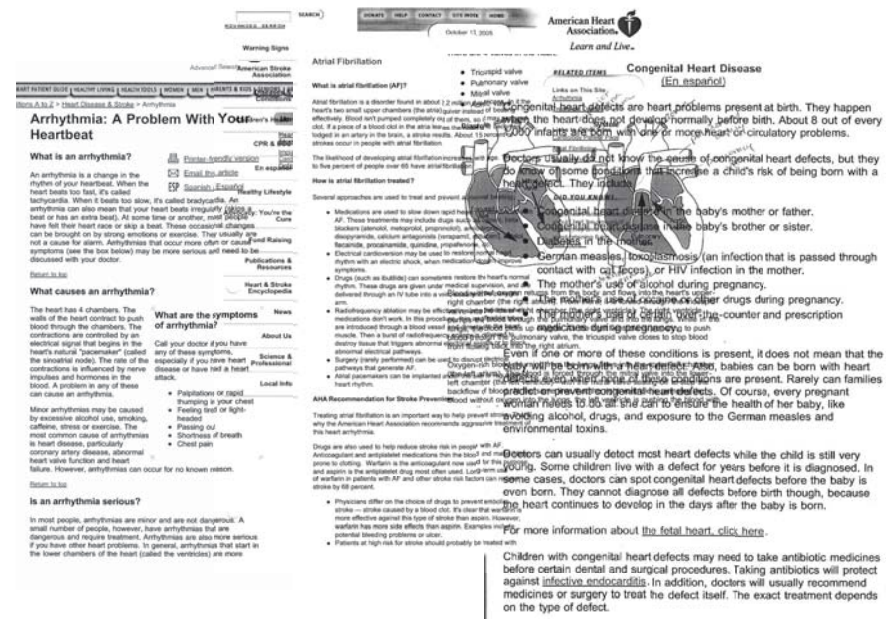
CRITERIA

5.0

Visual design and the elucidation of content

EXAMPLE 1:

Information on heart disease is typically highly complex and can be obtained from a variety of sources



EXAMPLE 2:

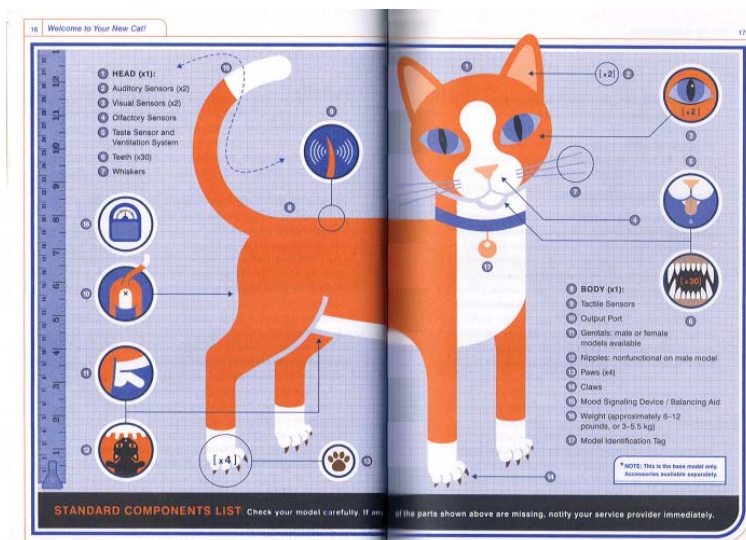
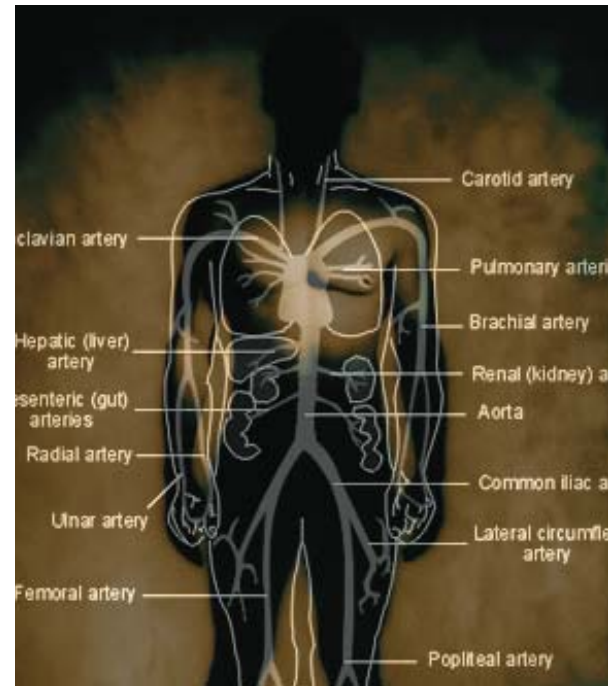
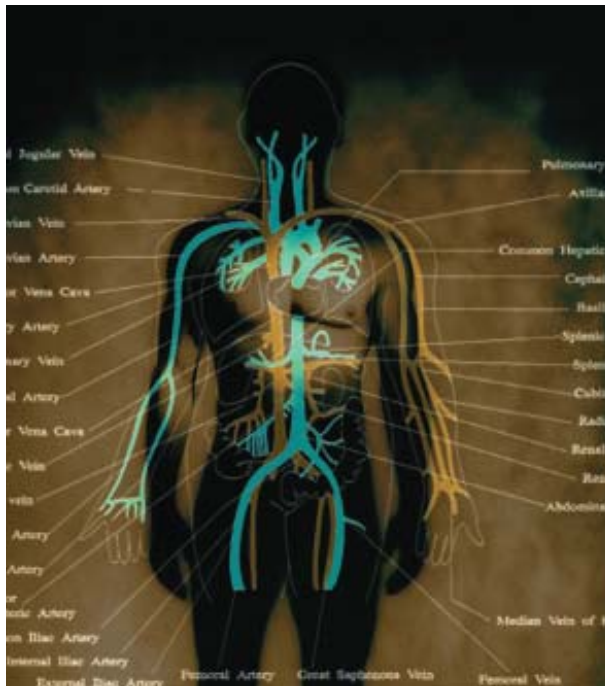
Distilled information is user-friendly and adaptable in any environment

Heart Disease Characteristics

	ATRIAL FIBRILLATION	ARRHYTHMIA	VALVE DISEASE
WHAT HAPPENS?	Ventricles don't pump blood effectively. As a result, blood pools in the body.	Irregular heart beat. Too fast (tachycardia). Too slow (bradycardia)	valves don't close properly or they leak so pumping is inefficient
WHAT ARE THE VARIATIONS OF THIS DISEASE?	Chronic, Adrenergic, Neurogenic, Familial, Vagal, Paroxysmal	Atrial fibrillation, paroxysmal tachycardia, ectopic beats, tachycardia	insufficiency, stenosis
WHAT ARE THE RISK FACTORS?	increase with age	heart failure, alcohol use, smoking, caffeine, stress, exercise, heart attack	weak tissue, calcium build up, diet pills, coronary heart disease,
WHAT ARE THE SYMPTOMS?	fatigue, cough, angina, stroke	tired/light-headed, palpitations, fainting, chest pain, short of breath	some do not have symptoms, others gradually increase symptoms

EXAMPLE 3:

Information is easier to obtain when extraneous parts are eliminated and the subject is simply drawn and labeled.



EXAMPLE 4:

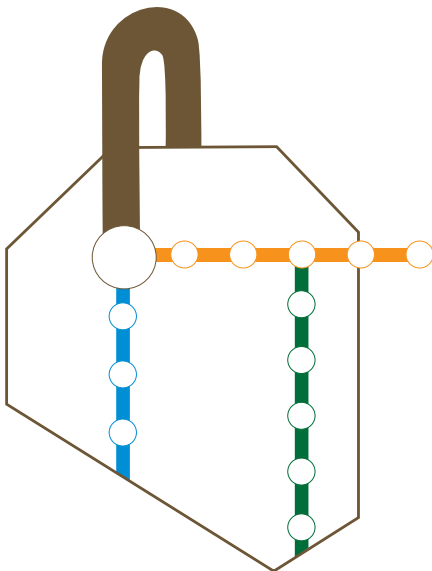
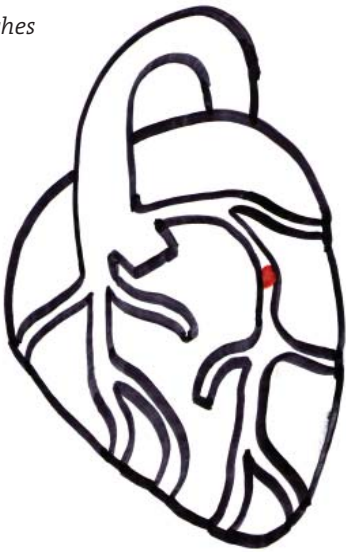
3D models help to understand the form of the heart and its mechanical functions.



EXAMPLE 5:

Combination of heart anatomy with subway map visual analogy to show schematic of coronary arteries.

sketches



What information
will be available?

How does the heart work?***Anatomy and function***

- > Contextualization
- > Structure
- > Function
 - circulatory path
 - electrical aspect
- > Emphasis on importance of heart health and risk factors

How can I tell if my heart is healthy?**What can go wrong?*****Basic diagnostic procedures***

Basic explanation of: what the test is, why and under what circumstances it is performed, and what results are for the following tests:

- > Non Invasive Tests
 - Echocardiogram and Transesophageal Echocardiogram (TEE)
 - Electrocardiogram, Signal Averaging Electrocardiogram, Holter Monitor, and 30-Day Cardiac Event Monitor
 - 24-Hour Ambulatory Blood Pressure Monitor
 - Tilt Table Test
- > Stress Tests
 - Stress Echocardiogram
 - Stress EKG
- > Nuclear Stress Tests
 - Dobutamine Stress Echocardiogram
 - Dual Isotope Chemical Stress Test, Dual Isotope Thallium Stress Test, and Persantine Stress Test

What if my heart isn't healthy?**How can it be fixed?*****Further Diagnostics & Interventional Procedures in the Cath Lab***

Basic explanation of: what the procedure is, why and under what circumstances it is performed, and what results are for the following procedures:

- > Cath Lab Diagnostics
 - Functional: cardiac cath
- > Cath Lab Interventional procedures
 - Functional: balloon angioplasty, stents, atherectomy
 - Electrical: ablation, defibrillator, pacemaker

Surgery

Basic explanation of: what the procedure is, why and under what circumstances it is performed, and what results are for the following procedures:

- > Bypass
- > Valve replacement

What next?**What steps do I need to take to keep my heart healthy?****How do I avoid being back?*****Recovery and Prevention***

- > Rehab program
 - Inpatient consultation
 - Outpatient monitored rehabilitation
 - Outpatient maintenance rehabilitation
- > Awareness of risk factors and contributing factors
 - Heredity
 - Gender
 - Age
 - Smoking
 - High blood pressure
 - Blood cholesterol levels
 - Stress
 - Obesity
 - Inactivity
 - Diabetes
- > Preventative Behavior
 - Healthy diet
 - Exercise
 - Refraining from risk behaviors
- > Understanding reoccurring symptoms
- > Psychological and emotional

CONCEPT ONE

7.0

My Heart Your Heart

Engaging experiences with three personal narratives covering vital issues, with a common focus on understanding & caring for the heart.

Point of Entry/Organizational Strategy

Given the often overwhelming scope and quantity of information available on the heart, this concept aims to provide an engaging point of entry—the human story—for understanding issues of the heart. Through the presentation of three individual accounts—each focussing on a major issue and the individual's path through diagnostics, procedure, and recovery—vital issues are presented in detail. This character-based approach may work especially well for those who are easily intimidated by medical science.

A second point of entry is provided for more analytical audience members. A distinctly separate but supporting secondary track of information on periphery of the space provides a comprehensive overview of information and references interactive opportunities presented in personal accounts.

Tone

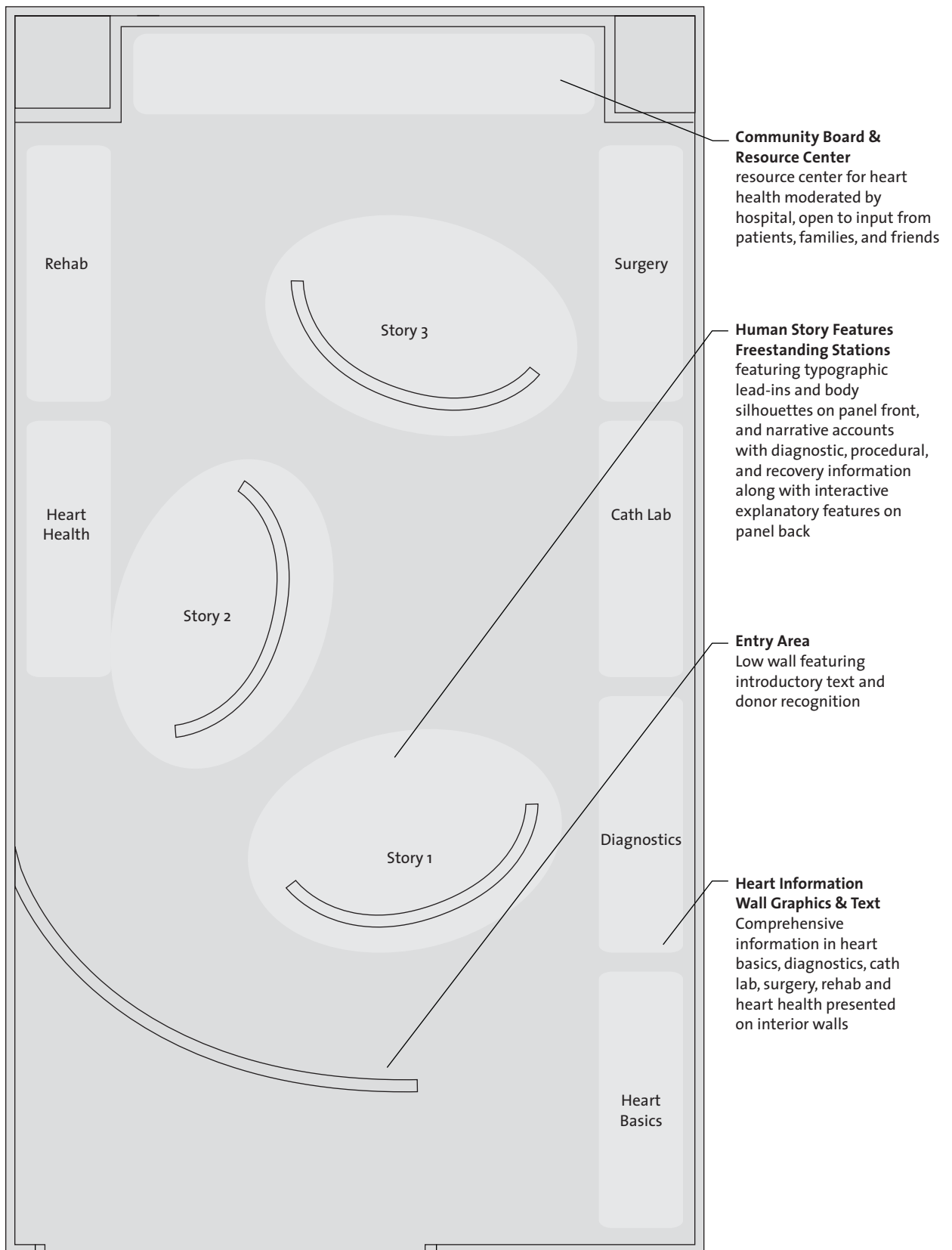
personal
narrative
supportive
illuminating
candid

Graphic Elements

Subdued colors, contemporary
humanistic typography, handwritten
type accents, cut-out silhouettes of
different body types

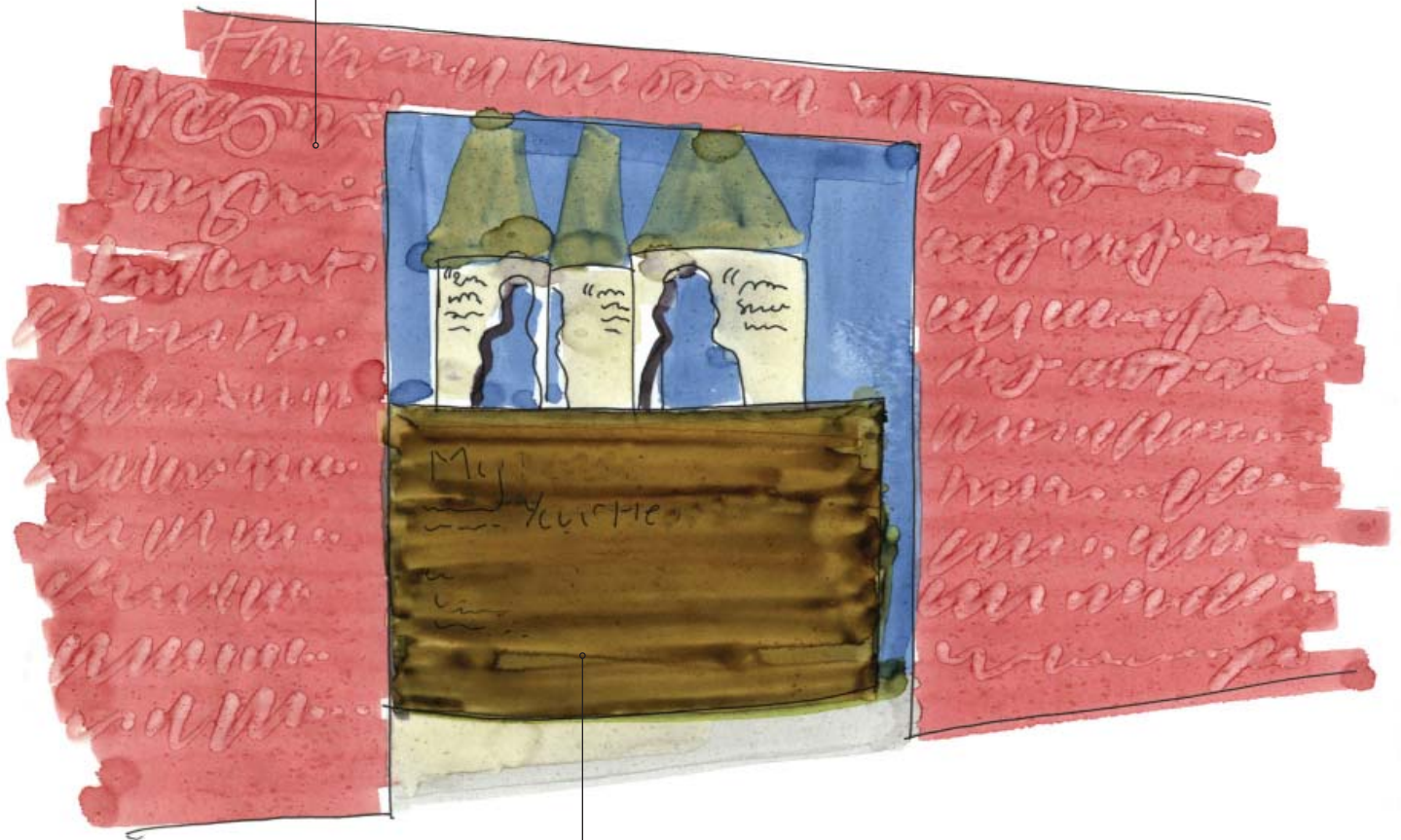
Spatial Features

Open plan with freestanding stations
of interest at center, opportunity for
individual paths of circulation, curved
walls, dimensional wall features



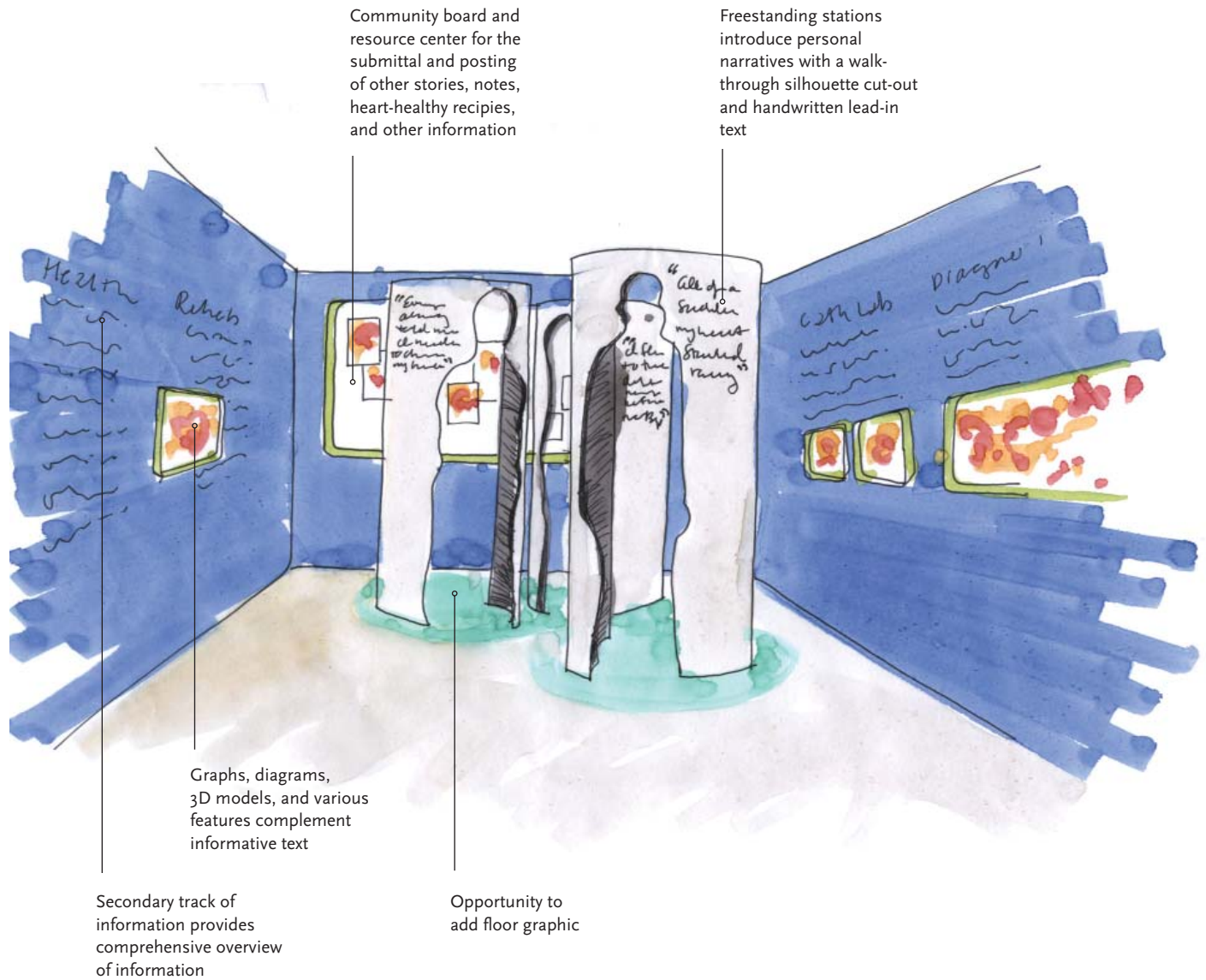
Schematic Floor Plan
Concept 1
Scale: 3/8" = 1'

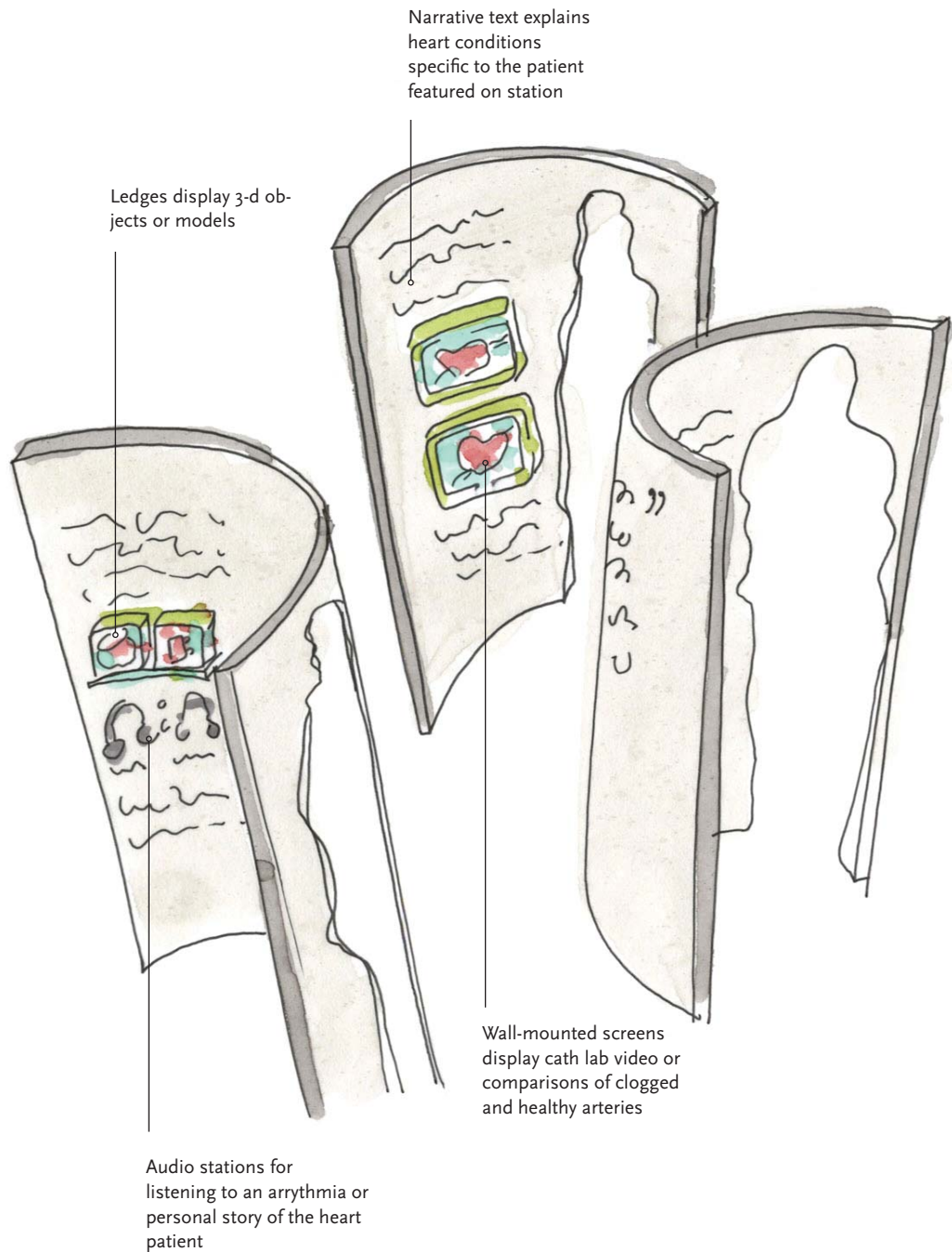
Painted exterior wall with
handwritten text pattern
complements personal
narrative
concept inside



Curved wood veneer
entry wall featuring intro-
ductory text and donor
recognition

View from hallway





Freestanding station detail

CONCEPT TWO

8.0

Heart of the Matter

A progressive path through layers of the heart and its issues, from function through stages of diagnostics to procedures to maintenance.

Point of Entry/Organizational Strategy

This concept offers a more traditional, progressive navigation through stages of heart treatment, with interactive features and layered transparent elements placed throughout its peripheral circulation path. At the center of the space sits a layered installation explaining basic functions of the heart, which serves as a focal point for the exhibit and point of reference.

Sections of information are organized by questions, providing alternate points of entry while also taking a more personal approach to providing basic information. This concept has a journalistic spirit, and pursues the who what why of cardiac and vascular disease and health.

Tone

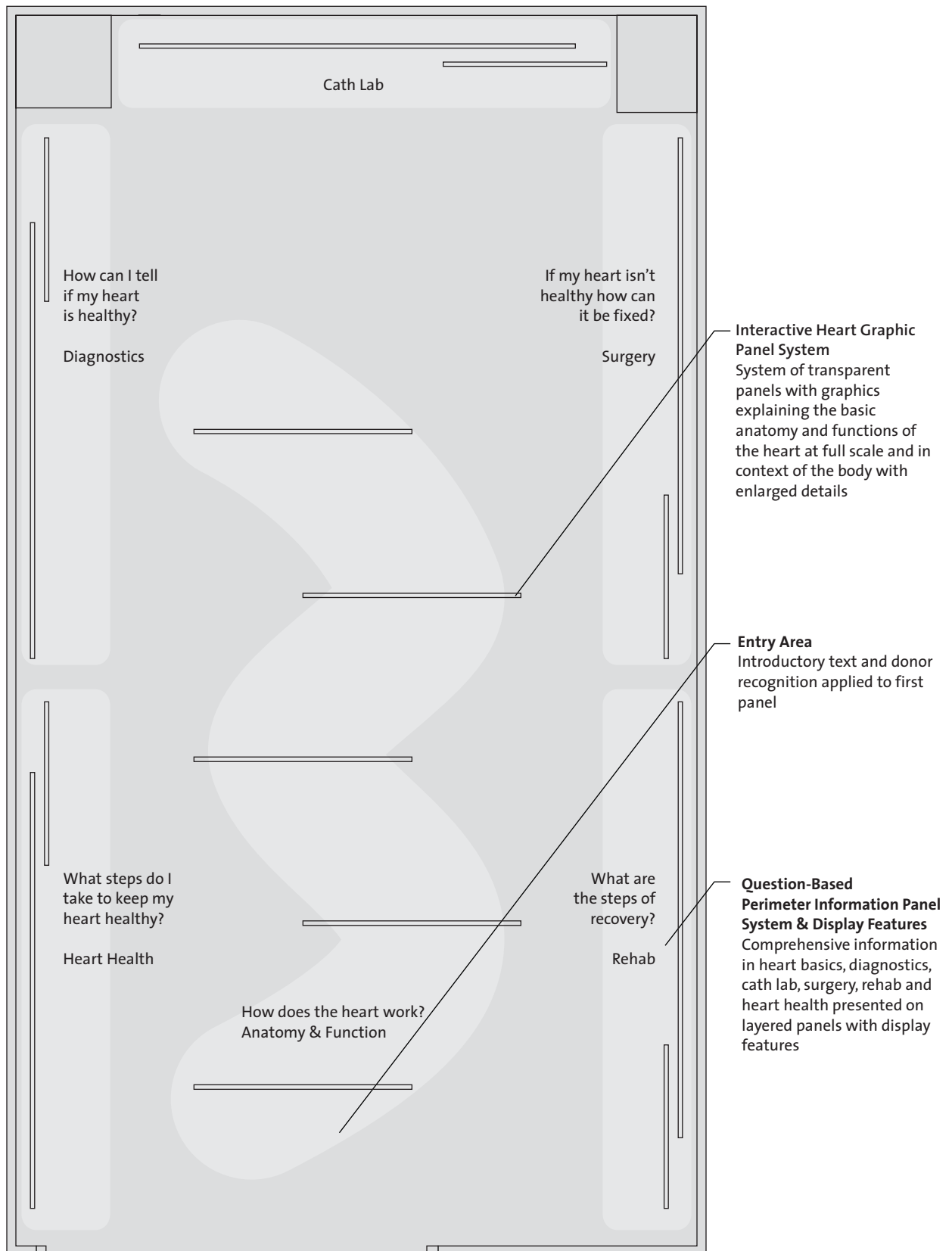
refined
accessible
progressive
demonstrative
elucidating

Graphic Elements

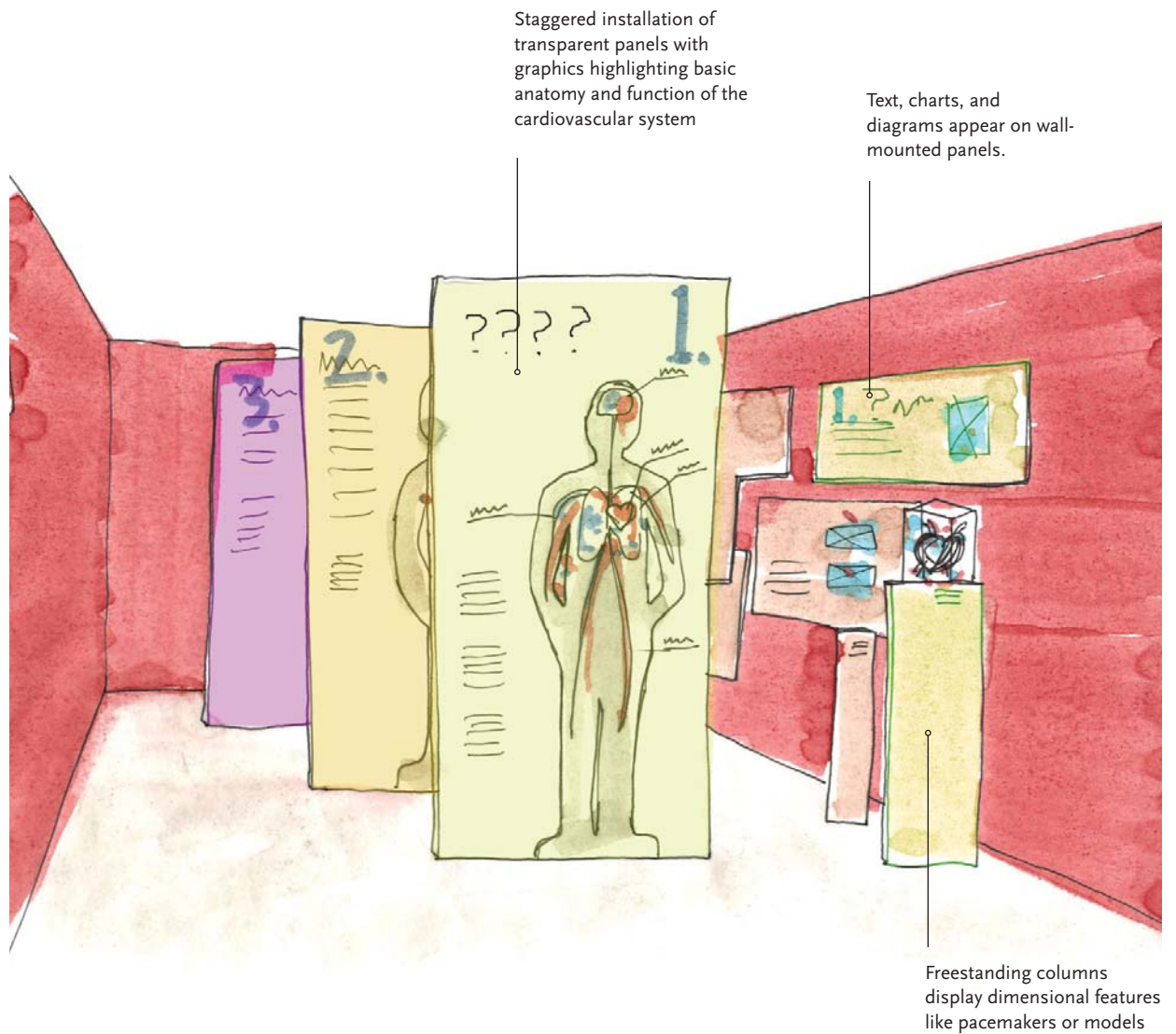
Bright colors, clear contemporary typography, simplified and engaging visual explanations, graphic illustrations, iconography, diagrammatic graphics

Spatial Features

Wall-mounted informational panels, large scale layered transparent graphic panel systems at room center, complementary smaller scale layered transparent elements and interactive systems in applications throughout exhibit.



Schematic Floor Plan
Concept 2
Scale: 3/8" = 1'



Each panel correlates to a zone in the room with more detailed information.

Panels installed at varying heights and distance from wall to create heightened sense of interest and importance

Panels spaced to allow for dynamic circulation through space

Panel installation provides introduction to exhibit and layers of information explaining the basic functions of the heart

Panel installation detail

CONCEPT THREE

9.0

Navigating the Heart

An exploratory journey through the the heart, with featured zones detailing major issues in context of anatomy

Point of Entry/Organizational Strategy

The concept of this scheme centers on a dramatically scaled presentation of the heart and interior of the body, which allows for a dramatic engagement with and understanding of the heart's anatomy and function. From the central focal point of a large, interactive heart element stem paths leading to zones of information featuring dimensional displays and interactive activities relevant to various issues of the heart. The progression from diagnostics to rehabilitation for each major category is described within each zone. This concept has a more immersive quality and invites the viewer to take an exploratory approach to learning about the heart.

Tone

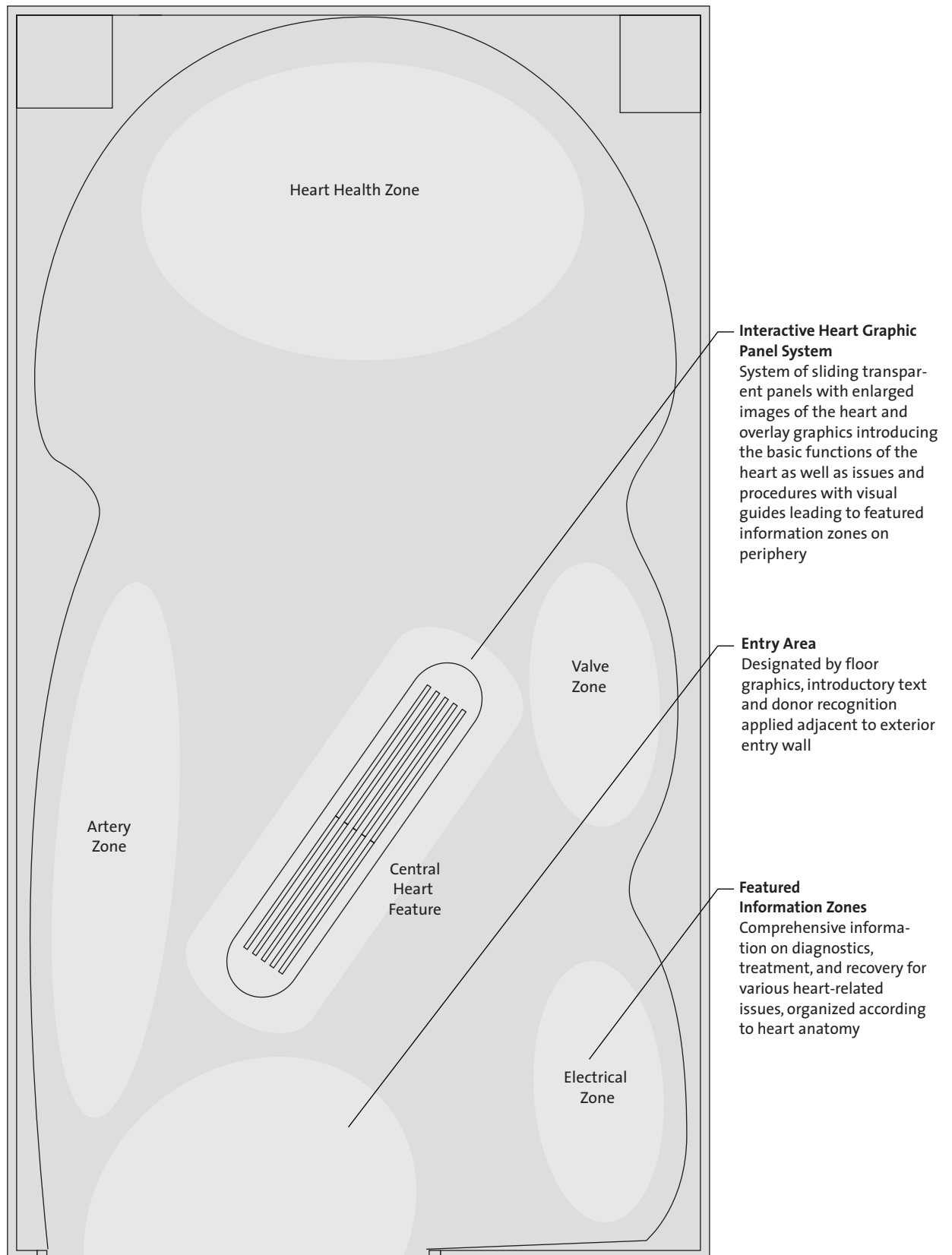
dramatic
dynamic
organic
exploratory
immersive

Graphic Elements

Rich colors representative of the body environment, bold and dynamic typographic applications, vivid and engaging illustrations and graphics

Spatial Features

Large sliding panel interactive heart feature, dimensional wall applications, rounded interior build out, inventive surface manipulation



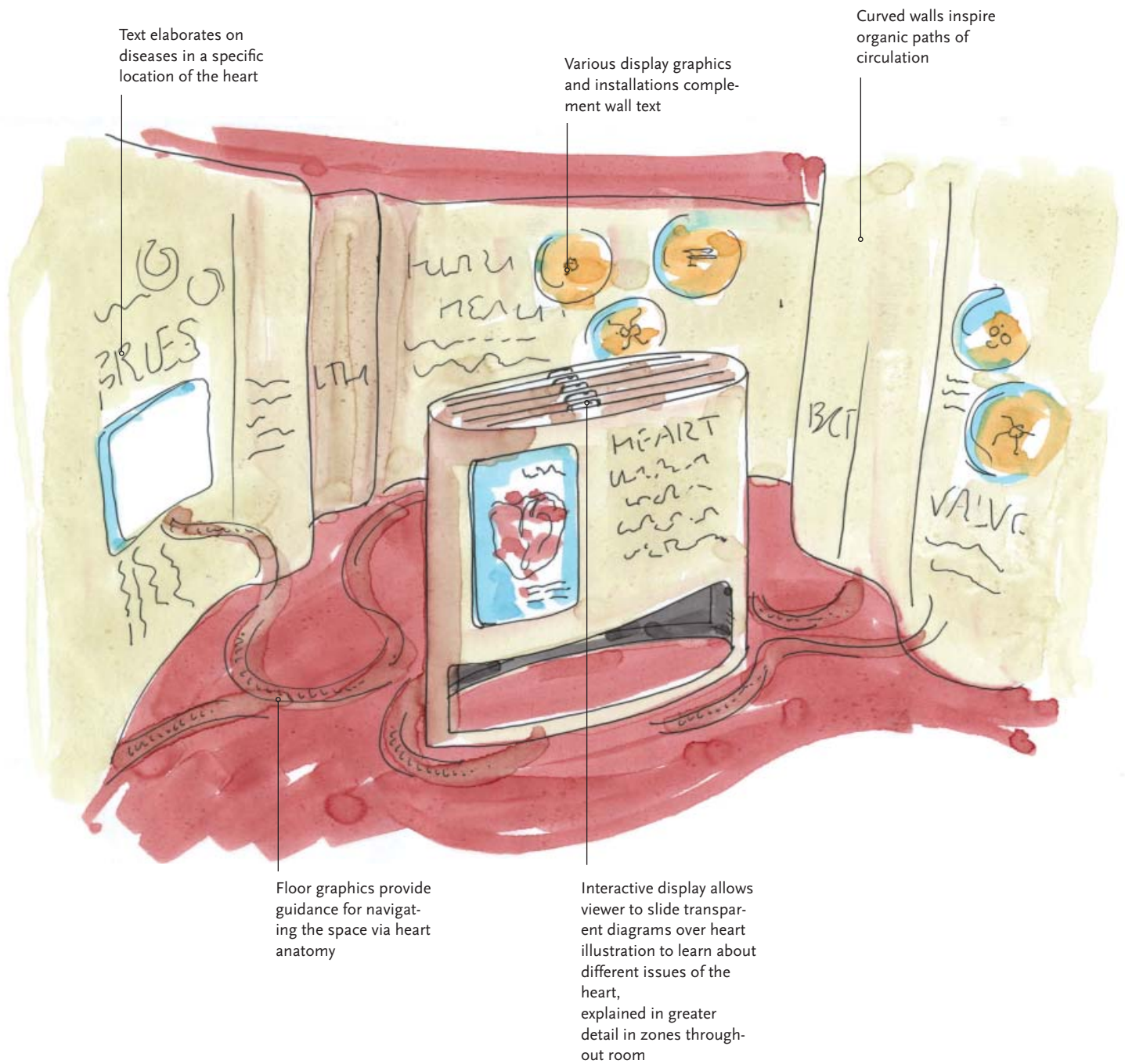
Schematic Floor Plan
 Concept 3
 Scale: 3/8" = 1'

Title and donor
text applied to exterior
wall adjacent to entry

NAVIGATING THE HEART

Floor graphics flow out
of the room into hallway,
creating a dynamic sense
of entry at the threshold

View from hallway



View into room facing rear wall

BIBLIOGRAPHY

10.0

Resources

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& Emily Crawford/Fast Company

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Answering Your Questions About the Electrophysiology Study by Guidant

e.guides Human Body by Richard Walker

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by Sandy Watson and Kenneth Gorski

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Patient's Guides by Heartwise

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The Visual Dictionary of the Human Body by DK Publishing

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<http://www.nhlbi.nih.gov/health/public/heart/>

<http://www.fda.gov/hearthealth/>

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<http://www.heartfoundation.com.au/>

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<http://www.pbs.org/wgbh/nova/heart/heartmap.html>

<http://www.cosi.org/onlineExhibits/openHeart/heart.html>

<http://www.msichicago.org/exhibit/heart/>

http://www-medlib.med.utah.edu/kw/pharm/hyper_heart1.html

Interviews

Linda Wisneski, Supervisor, Cardiac Rehab
at West County Sports Fitness Center

Jennifer Francis, Cath Lab Manager

Mary Carter, Interim Cardiac & Vascular Services Director
and Head Nurse

Carol Farris, Cardiovascular Teaching Coordinator

Karen Maine, Cardiac Diagnostic Center

Lee Janssen, Mended Hearts

Lora Castleman, MSN

Thank you.