

# Exhibition Design

## From Vision to Visitor

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### Evolution Generates Diversity

As the world has changed, so have plants and animals—often in response to each other.



How could the number and kinds of butterflies and moths change so dramatically?

Over time, as the world changed, some species disappeared. Others endured. And some gave rise to new species through the process of evolution. This process helped to generate the diversity we see today, including the appearance, 50 million years ago, of specialized moths that fly by day.

We call them butterflies.



As an exhibition designer, I believe our fundamental goal is to inspire museum visitors through design. We strive to create spaces that are engaging and memorable. We act as advocates for museumgoers of all types: different age groups, learning styles, and physical abilities. Our focus on the visitor experience enables us to shape a museum's academic subject matter, present it in ways that will pique the curiosity of museum patrons, and figure out what there is to see, hear, feel, and do. Our goal is to foster special connections between a museum's collection, its messages, and its guests.

I have been working as an exhibition designer for more than two years at Reich+Petch, an international design practice focusing on cultural projects.<sup>1</sup> The firm works globally with museums of all types (such as science centers, visitor centers, art galleries, and zoos), institutions, cultural organizations, and corporations. Projects span the globe, and range in size from a 1,000-square-foot gallery to an entire 400,000-square-foot museum. In my time with the firm, I have experienced the excitement and team effort needed to produce amazing exhibitions. In addition, our projects provide me with newfound knowledge in areas in which I may have had no previous background. I often joke about not yet being able to name as many dinosaurs as my colleagues!

The goal of this article is to take you through a typical exhibition design process from my perspective as an emerging design professional. I have broken down the progression of a project into its three main phases: schematic design; design development and final documentation; and shop drawing review and fabrication. All of

<sup>1</sup> I joined the firm after completing my Masters of Architecture degree at Ryerson University in Toronto, Ontario where I was introduced to the field of exhibition design.

these lead up to the final steps: installing museum artifacts and opening to the public.

### **Kickoff! Schematic Design**

The start of a project can be the most exhilarating. I can't wait to hear clients discuss with enthusiasm their aspirations for the exhibition, as well as the excitement curators have for a collection and the subject matter. The schematic design phase is also a time when we get to know the museum, learn about the distinct culture of the institution, and see how we will work together as a team.

At the outset, we begin working through the structure and flow of ideas to create an interpretive narrative and approach. Sometimes the museum team already has a strong sense of the main message and interpretive approach for their project; other times we work together to bring a clear and understandable framework to the ideas. At times, we want to flip the messaging on its head and shake up what the museum may have been working on for months – which can be a tricky way to start the project! Our intentions when doing so may be to create a stronger entrance statement or to improve the circulation of the gallery. Fortunately, clients are typically open to us reviewing their work to date with fresh eyes and suggesting another option or approach to consider. Early visitor testing of ideas can be helpful for us to analyze comprehension, interest about the topic, and options for narrative approaches. It is not uncommon for us to shape, reshape, and reorganize the exhibition over the first months of the project before arriving at a final structure for the “interpretive plan.”

An interpretive plan is a document that breaks down the main subject matter of the exhibition into subtopics and organizes

them in sequence. An interpretive planner, who is either part of our design team or provided in-house by the client, prepares this document. The interpretive planner will research the given subject matter to compartmentalize information in a way that will be best understood by, and of most interest to, museum visitors. The interpretive plan is a critical piece to the exhibition design process as it structures the order of an exhibition and outlines the content that will be incorporated into exhibits, displays, and interactives. For instance, if there is a topic on sustainability it may be further divided into subtopics of its social, economic, and environmental aspects, each with their own number of individual exhibits.

Equally important to reviewing the exhibition content is analyzing who the typical exhibition user or visitor might be. We find out what the client knows about their audience in terms of demographic as well as behaviour – how rowdy are the crowds? Sometimes, we develop personas for different visitor personalities to help evaluate possible design directions from various points of view. For example, one person may don the persona of an elderly person who is not tech-savvy while another may put his/her self in the shoes of a child with a visual impairment. We will analyze different exhibit approaches from these unique perspectives in order to establish any commonalities or differences in their

possible exhibition experience. If there is an intended audience for the exhibition, we strive to create an experience suitable for that group. If an exhibition is geared towards, say, young children, what objects and information might they find most exciting? To determine this, we review the collection with the museum's visitor testing group or perform quick research on items that might have great stories to tell. Once we have a general sense of what will be displayed, we would ask ourselves how it can be presented to kids in ways that are accessible both physically and intellectually. Will parents be able to understand, participate, and explain the content to their children?

Based on these early discussions, we sketch, model, and assemble visuals that will help convey concepts for the gallery (fig. 1). We take a first pass at how visitors are likely to flow through the space and the story that unfolds along that journey, and explore innovative ways to present the exhibition's narrative. Our drawings develop along with the interpretive plan in order for the design to sync well with the exhibition content. For instance, there may be a prominent story or major collection piece highlighted in the interpretive plan that begs to be a key focus of the exhibition.

Tightly connected to the interpretive planning is our understanding of the artifact or specimen collection and which objects or

We have often found that museum teams themselves do not yet have a sense of the relative size of the objects, and without that information, it's impossible for our designers to evaluate not just how the collection will fit in the given space, but how it can fit and have room to breathe and be rotated out for other objects.

content to feature and prioritize. In the early phases of a project, we assess whether there is a match or mismatch between aspirations for the quantity of objects/content that will be put on display and how much the space can actually hold. As a junior designer, I spend a lot of time working with the artifact lists, digitally scaling and tracing object images to test their fit and arrangements in the gallery. Depending on the project, this

can be an immense effort, and the tracing can be tedious. Nevertheless, it is very important. We have often found that museum teams themselves do not yet have a sense of the relative size of the objects, and without that information, it's impossible for our designers to evaluate not just how the collection will fit in the given space, but how it can fit *and* have room to breathe *and* be rotated out for other objects.

**fig. 1.** Sketch of a preliminary exhibit concept conveying scale, casework, and multimedia. This type of sketch would be used in the schematic design phase of a project to illustrate early ideas.

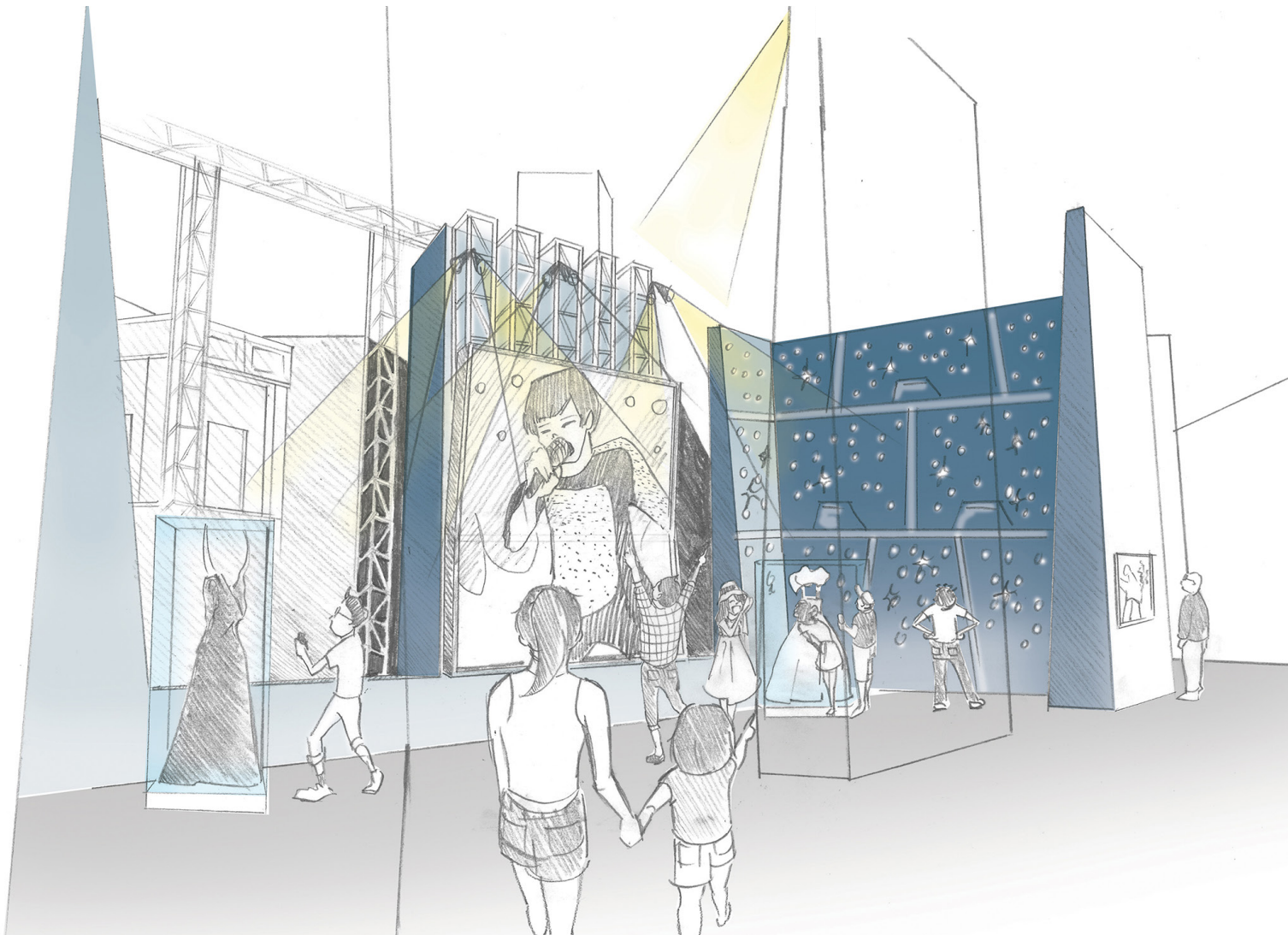




fig. 2. *Butterflies + Plants: Partners in Evolution* at the Smithsonian's National Museum of Natural History is an example of how R+P created a tone that is vibrant and whimsical through curvy forms and bright colors.

Another task of the schematic design phase is to work with clients on an appropriate “tone” for the gallery as well as its overall “look and feel.” Is the museum’s vision for the gallery, say, fun and contemporary, or traditional and serious (figs. 2 & 3)? Brainstorming within the office, sketching, and reviewing images of our past work, among other resources, fuels my inspiration for an exhibition’s design. Installation art and high-end retail displays often spur our creative thinking. Inspiration images are helpful references at this stage as they are quick to pull together and can elicit positive or negative reactions from the client – guidance we keep in mind when creating new material. Design sketches, either hand-drawn or computer-generated, are useful in conveying look and feel. Junior designers



fig. 3. *Nation to Nation: Treaties between the United States and American Indian Nations*, at the Smithsonian's National Museum of the American Indian, illustrates a more traditional and serious exhibition tone through the use of dark wood and a more somber color palette.

fig. 4. Comparison of a mechanical interactive (top) and a digital interactive (bottom) in the Cretaceous gallery and Fossil Lab, respectively, at the Phillip J. Currie Dinosaur Museum in Wembley, Alberta, Canada.

are most often involved in this phase by creating these visualizations, under the direction of the senior team, to help discuss design progress with clients.

Finally, we also explore how we hope to engage visitors with exhibits. More and more, museums seek to provide unique learning experiences that go beyond reading information and viewing an artifact. If a museum expresses a desire for more interactivity, we look at possible high- or low-tech solutions and decide what content is worth pursuing as a hands-on activity. Raising the level of interactivity can be important, but it also increases levels of complexity, long-term maintenance, and, in turn, the cost. Our design team typically encourages a mix of activity types and exhibit techniques to provide experiences catered to different learning styles and group sizes (fig. 4). We always try to be innovative, yet timeless, in our design approach. We also tend to be more experimental when the client is open to a bit of risk. It is exciting when we can do something that pushes the envelope.

Our objective for schematic design is to commit to an exhibition scheme and a detailed interpretive plan that together provide a clear understanding of how the main messages are realized in a stimulating and powerful design approach.

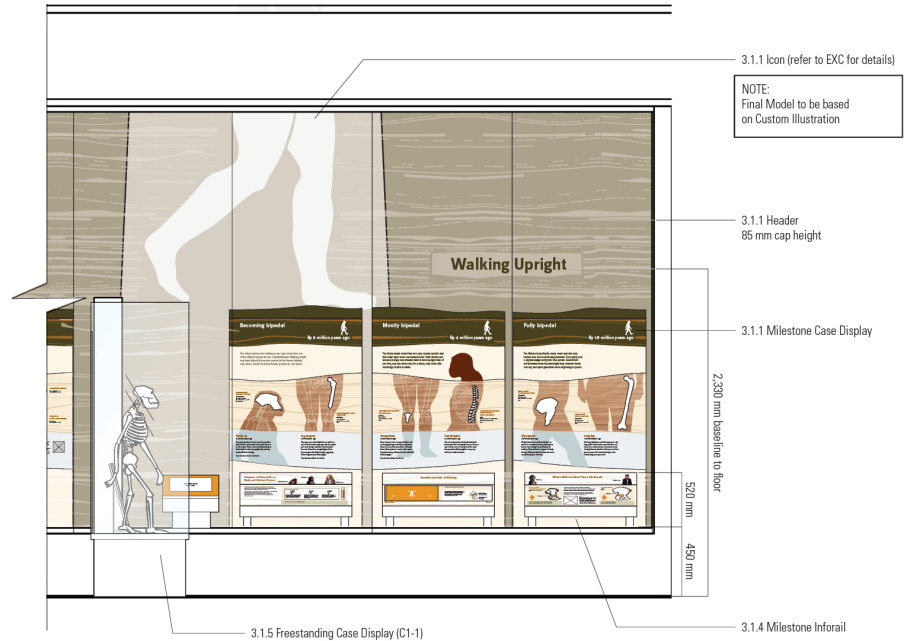
### All Aboard and Full Steam Ahead: Design Development and Final Documentation

Once there is consensus on the look and feel of the exhibition, its exhibit components, and their locations within an exhibition, we further detail the design. The design team breaks down the exhibition into smaller components – perhaps by area in the gallery, by similar case types, or by



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**fig. 5.** This is an example of a design development drawing from the *David H. Koch Hall of Human Origins: What Does It Mean To Be Human?* exhibition at the Smithsonian National Museum of Natural History. In this phase, dimensioned drawings of physical exhibit components are layered with graphics, the exhibition script, and annotations describing various components. This drawing is specific to one area of the gallery: section 3.1-Walking.



interpretive content (fig. 5). As such, every exhibit component is carefully scrutinized (sometimes a whole workshop could be dedicated to one aspect of the exhibition, such as the mounting of artifacts) and then sketched in further detail to ensure the full team understands its physical makeup and interpretive purpose. Drawing the exhibits again at a finer level of detail makes each a bit more tangible; how each will ultimately be constructed is more easily understood. The script is developed, and includes the museum’s messaging, stories surrounding the collection, and each artifact’s label information. The script is finalized in an iterative collaboration between the writer (either the museum curator or an interpretive planner) and our graphics team. The graphic designers will insert the received text and collectively we assess what levels of messaging are needed and what the lengths for interpretive content should be.<sup>2</sup> This can be a bit of a battle, often with our team suggesting that less is more to capture the attention

<sup>2</sup> The content for an exhibition often has a number of levels and a hierarchy for the text is established through topographic size and style from a Level 1, for main messages and big statements, down to a lower level for photo captions and labels.

of readers. In design development, more thought is put into the materiality of exhibits and how they are assembled. We choose whether the construction is of wood or metal and select the finishes to add to them, such as plastic laminate, paint, or acrylic. For a traveling show, which may have specific size requirements for transportation, we work out maximum sizes for cases, graphic panels, and interactives. In design development, we also audit our work for accessibility to ensure a comfortable and inclusive experience for all. We will use museum standards or building code equivalents that will determine, for instance, suitable wheelchair clearances and viewing heights in order to comply with ADA requirements. Where possible, we even try to supersede ADA regulations in techniques or technologies that increase access to museum content.

To further develop the visitor experience for each exhibit, we may work with the museum team on user testing to gather feedback on design approaches, graphics, and sometimes prototypes or samples. The spatial requirements for a physical activity (moving through a tunnel, let’s say) may be tested through a prototype. Similarly, samples

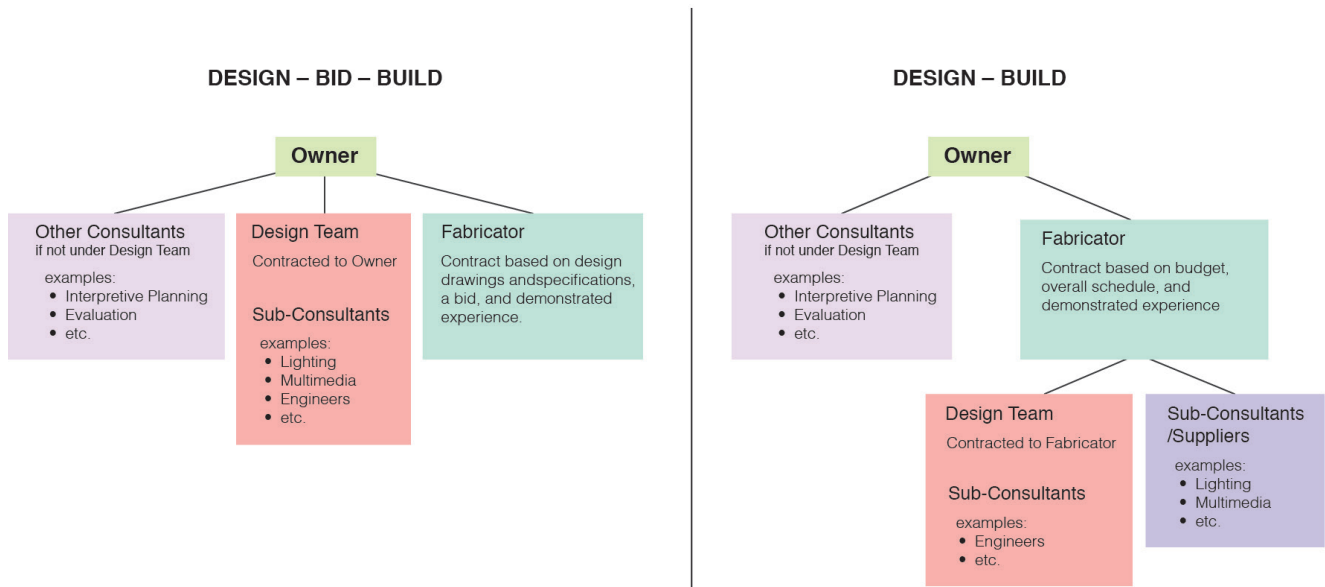


fig. 6. A diagram to illustrate the difference between design-bid-build and design-build project contracts. Note the position of the design team.

of interpretive text may be put in front of visitors to evaluate which style of writing is more intuitive or easily understood. One of the most important issues for evaluation is to get the feedback early enough so that it can actually impact a design. We are often on fixed deadlines and if considerable work proceeds before we receive evaluation feedback, it is increasingly harder to fold in substantive changes.

Design development, with its thorough analysis of every piece of the exhibition, often provides a reality check to what can or cannot fit – be it artifacts or the amount of text or images – due to space or budget limitations. The museum may face tough decisions as to what will be included in the exhibition. For the project to run smoothly, design development is the time to comb through every aspect of the exhibition and work out the details to the whole team’s satisfaction.

With client approval of the design development work, the team shifts its attention to finalizing the fabrication and graphics packages for the exhibition. “Documentation” is the process of

developing, drafting, and annotating the exhibition in a full package of drawings and documents. In this stage we develop details and specifications, finalize graphics, and work out the fabrication for all features of the gallery. Our drafting and graphic work gets down to the nitty-gritty and nuts and bolts of the exhibits. In addition to drawings, we write specifications that describe all of the expectations for products used, fabrication quality, performance criteria for custom elements, cut sheets for equipment, and requirements for samples and mock-ups during the fabrication phase. The final set of documents describes and illustrates every exhibit component in detail.

How the documentation work gets done depends on whether the project is set up as a “design-bid-build” or “design-build” contract. In a design-bid-build project, the exhibition designers are directly contracted to the owner and the fabricator is only later chosen through competitive bids based on the final exhibition documentation. A design-build project is when the owner hires the fabricator at the outset of the project. The exhibition design team is a sub-contractor to the fabricator (fig. 6).





**fig. 7.** Here I am testing a virtual reality exhibit for *Beyond Human Limits*, a traveling exhibition R+P created for Science North in Sudbury, Ontario, Canada.

For a traditional design-bid-build project, as the focus of the project shifts to documentation, so do the key people in our office when the technical team comes on board. This group is comprised of experienced drafting technologists with a focus on exhibit construction. Our team also grows to include a group of specialist consultants – although some may have been involved and contributing from the beginning of the project. At Reich+Petch, we work with lighting designers, engineers, and multimedia developers, to name a few, to coordinate and integrate their scope of work into the exhibition. This involves a lot of communication and drawings sent back and forth to maintain the design vision, while also adhering to consultants' requirements on issues ranging from life safety to changing lightbulbs. In addition to questions of structural integrity, together we determine

exhibits' materiality and related maintenance needs, so we can be sure to build in adequate access and a high level of durability into the final documents. For a typical design-bid-build project, the final documentation is then used to select a fabricator through a competitive bid process. This scenario is advantageous because it focuses the design stages on creative development and the fabricator comes on board with documents that define a clear scope of work.

In the case of a fabricator-led design-build project, the fabricator has already been involved at an early stage of the project to be able to shape the design details and test the budget more carefully. In the design-build projects that I have worked on, consulting with a fabricator early on has been tremendously useful in preparing exhibition documentation packages. Every project has unique elements, and a fabricator's expertise helps iron out issues of assembly and durability before moving too far ahead with a design that may not be feasible for any number of reasons. As an emerging professional, it has been immensely beneficial to have a fabrication team at the table while working through exhibition designs because the fabricator will take on technical aspects that, as a young designer, I have much less experience with.

### **Getting Built: Shop Drawings and Fabrication**

Whereas our designers led the earlier phases, the fabricator now takes the lead. The project splinters into many individual pieces and each specialist works on their aspect, whether a specific model, graphics, or specialty casework. The fabricator then works with everyone to bring all the different elements together into a final comprehensive product.

Our design team switches from production mode to one of review and problem solving. While it may seem as though the creative process has long ended, our creativity is still valuable during this phase. As an example, we may need to quickly come up with or vet an alternate approach or product as suggested by the fabricator.

Exhibition designers assess shop drawings and material samples for consistency with design intent, durability, accessibility, sustainability, and integration of systems. We work with curators to review any content-specific components for accuracy. We visit the fabricator's shop to review progress and discuss any issues while exhibits are still being built so that they can be addressed as easily as possible. The fabricator may also produce working prototypes of exhibit interactives for testing purposes. My favorite visits are those that allow me to put myself in visitors' shoes (fig. 7)!

### **Showtime: Installation and Opening**

Once fabrication is complete, our shop visits transition to museum site visits during the exhibition installation. It is thrilling to see materials arrive on site and come together to transform an empty space into an inviting exhibition. Throughout installation, we continue our role as reviewers. We are also quick problem-solvers, should any issues arise from site conditions or unforeseen circumstances. Once exhibit installation is done, the careful process of mounting the objects, aiming the lighting, and testing the media completes the project.

An exhibition's installation offers the opportunity to reflect on the entire design process and to learn from our chosen methods. For instance, we may have experimented with new ways of presenting content through

advances in technology. Were they installed without a hitch or was significant time spent on troubleshooting errors?

I find that as a young designer, I learn the most when I am able to stay on a project all the way through to opening day. So far, I have been able to do that on three projects at Reich+Petch, and seeing the transition from design ideas to formal drawings to actual construction has been incredibly valuable and rewarding.

My advice to other emerging professionals is to make a checklist of various factors that may affect exhibit designs and evaluate work from these different perspectives – be it the client's aspirations, accessibility requirements, or fabrication techniques. I also suggest knowing the client well but the visitors even better. An exhibition is created for both parties but the visitors will ultimately determine a project's success. Lastly, have fun. I would hope that the process of putting an exhibition together would be just as enjoyable as experiencing it in built form. Exhibition designers have the pleasure of creating environments that examine and explain our world, and enrich the human experience. The opportunity to impact people in such a real and meaningful way is something that I strive to embrace every day.

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