

Neues Kindermuseum im Jüdischen Museum Berlin

Explanatory Report

Overarching Concept Statement

Arche Noah im Jüdischen Museum Berlin will be a place where children from all over the world can do one simple thing: *play together*.

The Noah's Ark story has universally sparked the imaginations of children for thousands of years, and the values embedded in the flood story are as relevant to contemporary life today as they were centuries ago. Our proposed design is a new form of playground based on a modern retelling of the Noah's Ark story. It is an integrated and immersive experience that merges the disciplines of architecture and scenography. Through multiple forms of imaginative play, the intention of our project is to provide museum visitors with a sense of hope, optimism, and possibility for the future.

Why is the Noah's Ark narrative important for our time?

The Noah's Ark story, known to children worldwide for thousands of years, contains important learning objectives relevant for people today. It underscores the importance of:

- ***Diversity: Equality, fairness, and respect for other people and cultures.***
Our proposed design includes a diverse collection of animals representing every animal species from every continent. At first, the animals remain in pairs among their own species and are afraid of others who are unlike them. Slowly, they learn to work collectively for survival. The Noah's Ark story demonstrates how, through caring for others, finding common strengths and working together, diverse populations can survive and thrive.
- ***Stewardship: As a global community, we are responsible for maintaining and preserving the earth.***
Our proposed ark design is intended resemble the vessel that carried Noah and the animals, as well as the form of the Earth. We must care for our planet and its inhabitants, as Noah cared for the ark and every animal onboard.
- ***Migration, Immigration & Acceptance: The Noah's Ark story is a refugee story. Almost all humans belong to a population or culture that has immigrated at some point in time. Issues facing some children and families today include displacement, xenophobia, the loss of culture, hunger, and poverty.***
Our proposed design includes a hands-on experiential path for visitors that follows the migratory journey of the animals. Throughout this journey the animals and visitors (acting as Noah) begin to trust and accept each other.
- ***Second Chances & New Beginnings: When Noah and the animals emerge from the flood, they are granted a second chance to begin their lives again. We believe these "second chances" are one of the most compelling aspects of the Noah's Ark story and the reason the story resonates with strongly with a diverse audience.***
In our proposed design visitors and animals exit the ark across a bridge to the Rainbow Gallery where children and families are invited to imagine and create a better world. Through projects and educational programs visitors are invited to write, draw, role-play, sing, and dance to express their ideas for how the world can be a better place. Visitors can leave their creations in the exhibit for others to discover. This culminating experience instills the notion that creative thinking and problem solving can begin at any age and new ideas are critical for our future.

Who is Noah?

Although all of the elements from the Noah's Ark story (the flood, ark, animals, dove, olive branch and rainbow) are included in our proposed design, there is one exception. Our proposed design imagines that the visitors are Noah. We feel it is important for visitors to actively assume the role Noah played, taking on the responsibility for organizing and building the ark, gathering the animals, caring for them, and delivering them into a new world to begin again.

What educational modalities are used in our design?

Children learn, comprehend, remember and perform in a variety of ways. Our proposed design includes multiple approaches to learning including:

- **Visual /Spatial:** Visitors can draw, make models and sculptures, create photographs and videos, solve puzzles, and design environments.
- **Bodily-Kinesthetic:** Children can use their bodies to solve challenges through hands-on activities such as climbing, crawling, jumping, dancing and role-playing.
- **Musical:** Our proposed design offers the opportunity for programming that allows children to use their voices or musical instruments by themselves, or with others.
- **Logical / Mathematical:** Our proposed design provides opportunities for creative problem solving and hands-on exploration of logic, numbers, and sequence.
- **Interpersonal and Intrapersonal:** Our exhibits include opportunities to learn through interaction with others as well as expressing one's individual goals, values and ideas.
- **Imaginative, Dramatic Role Play:** The entire ark is a large "play house" where children can pretend they are Noah or the animals. Children can practice empathy – imagining how others might feel – by role-playing with each other.

What exhibit design strategies are used in our design?

- **Abstraction:** Our proposed design trusts children's abilities to *interpret* abstraction, which we believe triggers their imagination.
- **Empathy:** Putting oneself in another person's point of view helps to bring sympathy and empathy to people different from oneself.
- **Graphic Language:** Our proposed exhibits intentionally do not include text. Our approach is one of inclusion and equality, meaning that the visual, tactile and sensory nature of the experiences will appeal to people of all ages, backgrounds, ethnicities and physical abilities.
- **Interactivity:** The activities and experiences are highly interactive, both spatially and experimentally. Visitors can employ creative thinking through hands-on interaction.
- **Transformation:** Visitors can transform reusable and found objects by using their hands to create new objects or animals.
- **Working Together:** Children have their most memorable museum experiences when they engage with their families and friends. Our proposed design emphasizes inclusion and interaction so as to compel parents and adult to engage rather than sit back and watch.

Our Approach to the Site

The museum is located within the context of the Kreuzberg neighborhood and is part of the overall museum campus. While we acknowledge that work outside the boundaries of the design competition is not included, we encourage the museum to look for ways to integrate graphics and branding for *Arche Noah* in the Fromet-und-Moses-Mendelsohn-Platz and elsewhere nearby.

Our Approach to the Existing Building

The distinctive architecture of the Eric F. Ross building makes a strong modernist statement that is unlike any other building in the area. Natural daylight from the north enters through the skylight scoops, illuminating the main exhibit hall. The widespan structural frame with minimal columns creates a spacious interior volume for the exhibits, the opportunity to place our proposed circular ark and allows for a visual connection to the Academy and Diaspora Garden.

Our Approach to the Ark

The wooden ark in our proposed design is circular – it has no rudder and no desired direction of travel. It is intended to stay afloat through the storm and flood, and land on solid ground after the voyage. Our wooden ark has 40 structural ribs to represent the 40 days and 40 nights that Noah, his family and the animals were aboard the ark. Our wooden ark complements the Academy's wood-paneled cubes in its materiality, but is distinguished in shape and form. Our proposed ark's warm natural materials contrast with the cool, concrete interior surfaces. The ribbed wooden form of the ark also complements the concrete rib forms in the skylights above.

Our Approach to Exhibits

Our proposed design seeks to blur the lines that typically demarcate architecture and scenographic design. Based on the Noah's Ark story, our approach creates a cohesive experience for children and families that does not rely on a prescribed sequential path, but allows visitors to explore the exhibit at their own pace and order. Our design provides gathering spaces, larger classrooms as well as smaller spaces within the ark and exhibit area for educators to meet with groups of different sizes.

Our Approach to Animals

Static animals exist as sculptures and are assembled from repurposed items, giving second lives to discarded materials while allowing for abstraction and engaged imaginations. Other animals are kinetic puppets that are activated for role-playing to bring animals to life. Additional animals in the exhibit could be created through educational programming and in collaboration with school groups, universities, and local artist workshops.

While some animals may be quite delicate, they could be placed strategically out of reach of visitors. Some hang from rafters or sit on beams. They will effectively be long lasting with an occasional dusting.

Sustainability

The term 'sustainable design' has many interpretations, various rating systems, and measurable values. The Bruntland Report, which illustrated the widespread concern for the state of the environment and popularized the phrase 'sustainable development', defined it as a way to 'meet the needs of the present without compromising the ability of future generations to meet their own needs.' For building design to embody this ethic of sustainable development, it ought to not only reduce resource consumption but also foster environmental awareness in visitors, museum employees and society at large. With its energy efficient design, use of materials, and the interpretive opportunities the proposed design for the Neues Kindermuseum realizes this vision.

Experiential Atmospheres

Our proposed ark structure is designed as a building-in-a-building. In addition to allowing an energy efficient design, this strategy provides various atmospheres as people walk through the museum. The entry box and the museum space are heated, while the Great Hall of the Eric F. Ross building becomes a semi conditioned buffer zone, conditioned to about 12 °C on cold winter days. Daylighting, artificial lighting, thermal conditions, and acoustical properties vary throughout the space and become an integral part of the museum experience. The area surrounding our ark can be used for additional museum programming, as overflow space, or as a year-round protected environment for children's activities/play. The wood structure of the ark provides a pleasant and natural olfactory sensation.

Space Conditioning

Modern sensing technology (modcam) detects people through heat mapping, which can be used for demand-controlled natural ventilation. Motorized openings in the museum wall open into the Eric F. Ross building when people are present. The main volume of the Eric F. Ross building itself acts as a fresh air storage space and a thermal buffer zone, in winter as well as summer. An exhaust fan within the museum roof transfers the exhaust air back into the Eric F. Ross building, which also tempers the Eric F. Ross building in cold seasons. CO2 sensors are used to control air quality through operable windows in the skylights when necessary. The building-in-a-building strategy in combination with modern sensing technology enables a passive operation and eliminates the need for mechanical ventilation. A floor-integrated radiant heating system controls temperature in the gallery and the entry box in winter. The same strategy is used for the entry area and education spaces with operable windows that enable cross ventilation of the upper floor education spaces.

Hot and Chilled Water Generation

A district heating system provides hot water. The thermal mass of the Eric F. Ross structure, combined with natural ventilation (nighttime cooling), is used to keep the building cool in summer without a need for chilled water.

Optional: A geothermal system – using closed loop wells – provides hot and chilled water. A reversible heat pump lifts the ground temperature onto a useful temperature level for heating and cooling. The chilled water in summer provides floor cooling in order to supplement the passive system.

Lighting

Modern LED technology provides a color rendering index of more than 90% and at the same time reduces electricity loads for lighting by a factor of 3 to 4.

Conclusion on the System Approaches and Their Benefits

A combination of passive strategies combined with contemporary sensing technology significantly reduces the energy consumption for building operation, while also minimizing/avoiding mechanical systems, effort in construction, maintenance and operational costs. The strategy optimizes the economics while maximizing user comfort and well-being. The sustainability strategy is embedded and integral to the architectural design and becomes an integral part of the user experience due to a seasonal variation of comfort parameters on the path through the museum.

Structural Design Approach

Our proposed ark ramps and upper level floor are composed of three-layer Cross Laminated Timber (CLT) panels spanning between 215mm x 855mm Glue Laminated (glulam) beam “ribs”. These rib beams are hung from the 215mm x 855mm glulam ribs located at the roof level. The ark roof beams are, in turn, supported by hangers from a tube steel frame composed of HSS508 x 203.2 sections and located between the top of the ark and underside of the existing concrete roof structure.

The HSS frame is supported by two existing concrete columns and a total of fourteen dispersed posts that bear on the existing concrete floor slab below. Seven of the posts land on the existing slab on grade and six of these posts land on the existing basement wall, all of which should require minimal localized reinforcing. The remaining two posts land on the existing structural slab over the basement. These two posts will need to either be supported by beams installed in the basement ceiling or beams extended through the depth of the basement with new footings provided.

Our proposed education area to the north of the ark will have one elevated floor level composed of steel beams with a concrete slab on metal deck. The floor will be supported off of existing concrete columns and new steel columns. New columns will align with existing basement walls to mitigate reinforcing of the existing structure.

Wood Construction of the Ark

The use of wood materials proposed for the exhibition area has environmentally sustainable benefits, in addition to its thematic appropriateness for the exhibition concept and enhancement of the visitor experience.

A building material cited for its benefits of carbon sequestration, wood is a natural, healthy and renewable resource, and expends less embodied energy when used in construction versus concrete or steel. Embodied energy refers to the quantity of energy required to harvest, mine, manufacture, and transport to the point of use a material or product. Cross Laminated Timber (“CLT”) and glued laminated timber (“Glulams”) are manufactured from trees harvested from sustainably managed forests. The use of these engineered wood products in the construction of the exhibition area yields a much lower embodied carbon footprint compared to steel and concrete construction. CLT construction results in much less waste produced at the site and limits dust creating wet trades or brick/block work.

Our Approach to Materials and Specifications

Materials specified for the building construction and exhibition will be selected for their natural material content, resource efficiency, durability, low chemical and volatile organic compound content, and water saving qualities. We will design the exhibitions so that they can be easily deconstructed for future re-use and refresh of content.

The engineered wood products and finishes in our ark will provide a warm and consistent appearance throughout with a natural and clean look, as opposed to stains or painting. Within our ark exterior envelope, insulation will be installed to achieve necessary U-values.

At the entry/education box, the concrete floor slabs will be sealed for a clean, easy-to-maintain, and durable finish. The walls and ceilings will be of lightweight metal construction and painted wallboard. These walls will be insulated to achieve desired acoustic and insulation values.

Between the Diaspora Garden and the Neues Kindermuseum, a wall of lightweight metal framing, with wallboard on each side for acoustical separation will be installed. Glazed wall and doors at the floor level will allow for physical and visual transparency.

Our Approach to Multimedia

Our proposed design intentionally foregoes the use of electronic media. Children and adults will be free to interact and to play without the interference of digital screens. The museum may choose to strategically add digital media in the future, but the scenography as designed stands alone without it. Therefore, the media budget for scenography is defined as zero.

Our Approach to the Exterior Grounds

In anticipation of the experiences that unfold within the Eric F. Ross building, we propose depicting animal sculptures and wayfinding devices outside of the building. These are not essential to the experience inside and we realize that their actualization will be subject to external review and approval. Not knowing what will actually be possible, the budget for these branding and visual suggestions is defined as zero.

Our Approach to Fire Safety

The proposed design has been reviewed and facilitated by a fire safety consultant located in Berlin to assure that it conforms to local standards and requirements. Because the fire safety consultant was most comfortable describing this technical topic in his native language, the narrative is provided below in German so that content or meaning is not lost in translation.

Grundzüge für ein Brandschutzkonzept

Beurteilungsgrundlagen:

- Bauordnung für Berlin vom 29. September 2005 (GVBl. S. 495), zuletzt geändert durch Gesetz vom 29. Juni 2011 (GVBl. S. 315, in Kraft getreten am 10. Juli 2011)
- Muster-Verordnung über den Bau und Betrieb von Versammlungsstätten (Muster-Versammlungsstättenverordnung – MVStättVO) Fassung Juni 2005 (zuletzt geändert durch Beschluss der Fachkommission Bauaufsicht vom Februar 2014)

Anmerkung: Die MVStättVO ist gemäß § 1, Anwendungsbereich, nicht für Ausstellungsräume in Museen anzuwenden, um in der Nutzung keine Einschränkungen für das EG und das OG im Kindermuseum zu bedingen, werden die Anforderungen der MVStättVO orientierend berücksichtigt. Ebenfalls wurde in dem bestehenden Brandschutzkonzept für das gesamte Gebäude der Bereich bereits als Ausstellungs- und Veranstaltungsbereich ausgewiesen.

Das Kindermuseum wird in der westlichen Hallenhälfte des ehemaligen Blumengroßmarktes, jetzt: Bildungsakademie des Jüdischen Museums Berlin, integriert.

Horizontale Ausdehnung der gesamten Halle: Ost-West-Richtung ca. 127 m, Nord-Süd-Richtung ca. 54 m
Auf der Westseite wird der bestehende dreigeschossige Verwaltungstrakt (EG zzgl. 2 OG) vom Kindermuseum abgetrennt.

Das Kindermuseum hat Ausdehnung von: Ost-West-Richtung ca. 52,7 m, Nord-Süd-Richtung ca. 54 m

Vertikale Ausdehnung: Mit Ausnahme des dreigeschossigen Verwaltungstraktes auf der Westseite handelt es sich bei der Halle um eine eingeschossige Halle.

OKFF des 2. OG Verwaltung liegt bei 6,8 m.

In das Kindermuseum wird auf der Nordseite eine Ebene eingezogen, in das Zentrum der verbleibenden Fläche wird ein zweigeschossiges „Haus im Haus“, die „Arche“ (EG und OG) eingestellt.

Die Arche sowie die Nutzungen auf der Nordseite werden eine äußere Hülle erhalten, da die Halle nicht temperiert wird. Arche und Nordseite erhalten Heizung und Lüftung.

Nutzung

Erdgeschoss: Foyer auf der Nordseite mit Ticketverkauf, Snacks, Garderobe, Nebenraum, Security, WC, Halle mit eingestellter Arche. Die Fläche des eingestellten Raumes beträgt ca. 716 m².

Obergeschoss: Nordseite Education-Räume, Nebenräume, Technik und zwei Treppenräume, die obere Ebene der Arche ist Ausstellungsraum.

Beurteilungskriterien: Gebäudeklasse 3, Sonderbau

Rettungswege

Erdgeschoss: Das Foyer hat einen unmittelbaren Ausgang ins Freie (zweiflügelige Tür > 1,8 m, ausreichend für 300 Personen). Es besteht Anbindung an den neuen Treppenraum auf der Nordwestseite. Das Erdgeschoss der Halle ist über Türen angebunden an den Übergang von Arche und Foyer. Auf der Südseite existieren zwei Ausgänge unmittelbar ins Freie sowie an den Treppenraum aus dem UG, der in das OG verlängert wird. Die Ausgangsbreite unmittelbar ins Freie beträgt 1 m und 1,8 m = 400 Personen, zzgl. Treppenraum 1,8 m = 300 Personen, zzgl. Ausgang zum Foyer.

Die Arche ist angebunden an das Foyer und hat Ausgänge zur Halle. Die Türen werden im lichten jeweils eine Breite von mind. 1,2 m haben.

Die Rettungsweglänge innerhalb der Arche beträgt weniger als 30 m (der Durchmesser der Arche beträgt ca. 31 m), ebenso die Länge innerhalb der Halle.

Obergeschoss:

Auf der Nordseite werden zwei Treppenräume hergestellt. Die Räume „Education“ werden einen vom Foyer unabhängigen Rettungsweg zu den Treppenräumen erhalten. Das Foyer und die obere Ebene der Arche ist an die beiden Treppenräume auf der Nordseite angebunden. Auf der Südostseite wird der Treppenraum

aus dem Untergeschoss bis in das Obergeschoss verlängert, so dass aus der Arche ein Rettungsweg in entgegengesetzter Richtung hergestellt wird.

Die lichte Rettungswegbreite zu den drei Treppenräumen wird jeweils 1,2 m betragen.

Die Treppenräume haben Ausgänge unmittelbar ins Freie.

Konstruktion: Die tragende und aussteifende Konstruktion der Halle ist Bestand. Für die Dachkonstruktion ohne definierten Feuerwiderstand ist eine Sprinklerung im Bestand vorhanden.

Nach MVStättVO muss die tragende Konstruktion bei nicht erdgeschossigen Versammlungsstätten feuerbeständig sein.

Die tragende und aussteifende Konstruktion der eingestellten Arche wird aus Holz bestehen und so dimensioniert, dass ein Feuerwiderstand von 30 Minuten erreicht wird. Die beiden Ebenen der Arche werden Sprinklerschutz erhalten. Aufgrund der Sprinklerung bestehen wegen des Brandschutzes keine Bedenken gegen die beschriebene Abweichung, eine Erleichterung wird im Rahmen des Genehmigungsverfahrens beantragt.

Die eingestellte massive Ebene auf der Nordseite wird eine feuerbeständige tragende und aussteifende Konstruktion erhalten.

An den Raumabschluss zwischen Arche und Halle werden aufgrund der Sprinklerung der Arche und des Hallendaches keine brandschutztechnischen Anforderungen gestellt. Für die Sprinkler über dem OG müssen unterhalb der Verglasung ggf. Wärmestaubleche berücksichtigt werden, um das Auslösen der Sprinkler sicher zu stellen.

Abschnittsbildung: Für die bestehende Halle ist gemäß existierendem Brandschutzkonzept eine Bildung von Brandabschnitten nicht vorgesehen, die Trennung zwischen Ost- und Westhälfte erfolgt durch eine mobile Rauchschrürze und verdichtete Sprinklerung entlang der Rauchschrürze.

Eine bauliche Trennung zwischen den beiden Hallenhälften ist vorgesehen, diese muss keinen definierten Feuerwiderstand besitzen, aber aus nichtbrennbaren Baustoffen bestehen. Die Verbindungstüren im Erdgeschoss werden rauchdicht und selbstschließend ausgeführt.

Die Trennwände auf der Westseite zwischen Versammlungsstätte und Verwaltungstrakt sind im bestehenden Brandschutzkonzept als F 30-Wände angegeben.

Die Wände der neuen Treppenräume werden feuerbeständig sein, Türen in diesen Wänden – aufgrund der Sprinklerung – rauchdicht und selbstschließend.

Anlagentechnische Maßnahmen: Eine Brandmeldeanlage ist im Bestand vorhanden, wobei innerhalb der östlichen Hallenhälfte zwei Schutzkategorien (Kategorie 1 und 2) angegeben sind. Wir gehen davon aus, dass alle Räume, mit Ausnahme der in DIN 0833 angegebenen Ausnahmen, in den Überwachungsumfang der Brandmeldeanlage aufzunehmen sind.

Manuelle Brandmelder sind neben den Ausgängen ins Freie und neben den Zugängen zu den Treppenräumen vorgesehen.

Die Alarmierung im Brandfall wird durch die Brandmeldeanlage automatisch erfolgen.

Selbsttätige Löschanlage: Im Bestand ist eine Sprinklerung des Hallendaches und somit auch der darunterliegenden Fläche gegeben. Die Räume, die neu in die Halle eingestellt werden, erhalten zukünftig Sprinklerschutz, ausgenommen sind die WC-Räume.

Für die Löschwasserversorgung der Feuerwehr im Gebäude sind trockene Steigleitungen erforderlich und vorgesehen, da die Treppenräume nicht über Feibster verfügen. Die Einspeisestellen werden sich neben den Zugängen zu dem jeweiligen Treppenraum befinden, die Entnahmestellen innerhalb des Treppenraums im OG.

Sicherheitsbeleuchtung in den Rettungswegen und gemäß Muster-Versammlungsstättenverordnung.

Rauchableitung

Die Rauchableitung erfolgt von den Räumen zur Halle und von der Halle über Dach ins Freie.

Im Hallendach sind mindestens erforderlich: 12 m² geometrisch freie Öffnungsfläche, im Dach der Arche 7 m² geometrisch freie Öffnungsfläche. Die Flächen zur Rauchableitung werden bei Detektion von Rauch durch die BMA selbsttätig öffnen.

Die vom Raumverbund zur Halle abgetrennten Räume auf der Nordseite werden Fenster oder Türen haben, über die Brandgase zur Halle abströmen können.