

Large Object Handling Principles
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Handling and moving a large art object is often simply assembling a group of art handlers, surrounding the object, and lifting the object from one place and carefully moving it from one point to another. However, when the artwork is unusually large, heavy, fragile, or restored many factors need to be considered. The idea isn't to make the process more complicated than it needs to be, but to eliminate any unnecessary steps in the process. The top priority is ensuring the safety of both the object and the handler.

Planning, coordinating, and communicating with the parties involved will minimize potential dangers to people and property, and benefit the objects we handle.

This document is intended as a review of art handling techniques, principles, and decisions involved in handling large objects. The following is a mental checklist of principles that apply to handling of objects which have minimal or no protection from environmental conditions and the movement of objects within museum galleries, storage facilities, packing and crating facilities, conservation labs, or photo studios. These in-house movements present the greatest hazard to the objects. Unlike packed or crated objects, these objects are not protected from shock, vibration, abrasion, or changes in climatic conditions. Additionally, the surfaces of these objects are vulnerable to anything that might disfigure the surface of the object.

In addition to being technicians, we are valuable observers who, through our work, gain an intimate knowledge of the objects.

Handling procedures

Identify who is authorized to handle works of art. Only one person directs any operation. Be sure you know who the supervisor is and accept direction only from the supervisor.

Complete a visual inspection prior to moving a work of art. Check existing condition and handling restrictions. Look for existing damage or former repairs, and consult a conservator; this can save the object from further harm. Identify each object's inherent properties to help define the method for handling.

Determine if the object has loose or moving parts before handling it. If elements are removable, remove them and transport separately. If they are not removable, secure them in place to prevent damage during the move.

Never leave an object unsecured.

Be sure that everything the object contacts is clean and dry, your hands, gloves, packing or padding. Know when to use gloves on objects, and what objects are best handled without gloves. Establish general rules for using gloves with object types.

Unless one person can easily and without hesitation manage both the size and weight of the object, two or more people must handle it. One person should never attempt a two-person job. Do not risk the safety of the object or the handlers with too few art handlers.

Two many hands can be as dangerous as too few.

Minimize the handling of objects as much as possible. Carry or lift objects only as far as necessary; bring the cart to the object rather than the object to the cart.

Move and store objects in their most stable position.

Never overload moving carts or lifting equipment.

Do not allow distracting conversation during a handling operation.

Planning

Team member roles and responsibilities should be clearly defined before each move.

Confusion in most situations is inefficient; in moving large objects it is dangerous. Know the limitations of your staff and physical resources.

Identify the object and its physical characteristics: type of material, dimensions, weight, the objects stability, and center of gravity.

Where is the object being moved? The critical path of movement will influence how the object is moved and what equipment and resources will be required. Identify obstacles and potential hazards in the path of movement, and access to the final location for the objects placement.

Only those individuals needed for the safe movement of the object should be in the area.

Equipment

Selecting the right equipment for moving and installing each object requires careful consideration of the objects mass properties. The larger the object, the more substantial

the type of transport equipment needed. Modes of transport carts range from furniture dollies, lightweight carts, platform trucks, pallet jacks, hydraulic lifts, forklifts, and a number of specialized carts with pneumatic tires. (Rubber tires inflated with compressed air providing a more cushioned ride).

In addition to moving equipment, selecting the right installation equipment depends on the object and details of its installation. When objects are too large or heavy for art handlers to safely handle, hydraulic lifts, crank lifts, forklifts, gantries, or cranes can be implemented for the appropriate application. When larger equipment is being considered it is equally important to consider the loading capacities of the work areas indoors or out to avoid property damage and personal injury. Carefully assess the stability of the ground or resting place for the object.

Forklifts are useful in tight spaces indoors and out. An electric powered riding or walkie style forklift is a good choice for indoor use. Lifting hooks and boom attachments are available for forklifts, making them more versatile. Adding attachments to a forklift will change its load center, and its capacity for lifting a given object should be carefully calculated.

Gantries are available in a variety of fixed and adjustable sizes with varying load capacities and heights. Gantries are good choices for site installations with restricted access indoors or out. One benefit of a gantry as opposed to a forklift is its ability to lift heavy loads without adding the extra weight of the forklift to the floor load. Gantries can easily be configured with multiple chain hoists for lifting at different points. Gantries must be moved between sites in sections for assembly often requiring additional lifting equipment.

Cranes are the best choice for moving objects into place in the open-air environment, where uneven terrain, landscaping, and elevated walls inhibit site access. Cranes can also move more weight in more directions and distances than other types of equipment. Cranes are available in a wide range of sizes and load capacities. Set up time with cranes is often faster with cranes than other equipment.

Other equipment and materials include Johnson bars, chain hoists and trolleys, lifting tines, clevis hooks, synthetic round or continuous loop slings, nylon web slings, sling protectors, nylon webbing, Teflon sliders, hardwood and Teflon wedges, Sorbothane pads, furniture pads, variety of foams; Ethafoam and Volara, soft Tyvek wrap, and Mylar sheets.

Equipment and Safety checklist

Inspect all equipment before each use to maintain working order.

Maintain a safe operating radius free of hazards.

Keep a clear path for object movement with an alternate set down area for the object.

Inspect slings before each use for damage that could result in sling failure.

Use adequate protection and cushioning between the rigging and the object to prevent damage to the object.

Select slings appropriate for the object and its weight and maintain the proper lifting angle tensions can be maintained.

Choose suitable sling hitches to maintain load control and center of gravity. Secure all connections among slings, and hooks to ensure attachment point integrity and maintain positive sling-to-load engagement.

Make sure the lifting point is directly above the objects center of gravity.

Perform test lifts to ensure the load is well balanced.

Personnel Considerations

Identify an escape path. Never let personnel get under or between a suspended or moving load with no way out should the load fail. Keep the area clear of spectators for their safety and that of the installation crew.

Maintain clear communication between riggers and equipment operators.

Common sense in handling objects is the single most important attribute one can apply to this process. Since we are professionals, our task is to minimize the risk as much as possible by considering anything that can adversely affect the safety of the object and its movement. Safety in handling is the responsibility of the art handlers involved, and a well-informed art handler minimizes risk to the object. The care and experience of the art handler provide the best protection against damage. Always assume no art movement is routine, and all objects are unique in as much as they are the same, they are different.