

## Specification for IRR Access House

### 1. SCOPE

1.1. Scope. This specification reflects those characteristics that are essential to the minimum needs of the Government for an IRR Access House (referred to as "house" herein). The house will consist of a small lockable structure with adjustable base filler pieces (called skirts), no floor, adjustable feet for height positioning, and an opening roof for crane access to the interior. The house shall be delivered on-site ready for use.

### 2. APPLICABLE DOCUMENTS

2.1. General. The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the issue in effect on the date of an invitation for bids or a request for proposals shall apply. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in this specification, whether or not they are listed.

2.2. Government Documents. The following specifications, standards and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

#### UNIFIED FACILITIES CRITERIA (UFC)

UFC 3-310-01: Structural Engineering

(Copies are available online at: <http://dod.wbdg.org/>)

#### FEDERAL STANDARDS

#### NAVAL FACILITIES ENGINEERING COMMAND

NAVFAC P-307: Management of Weight Handling Equipment (December 2009)

(Copies available online at: [https://portal.navfac.navy.mil/portal/page/portal/docs/doc\\_store/pub/p-307%20december%202009.pdf](https://portal.navfac.navy.mil/portal/page/portal/docs/doc_store/pub/p-307%20december%202009.pdf) or from Naval Inventory Control Point, ATTN: NAVICP 03334 Room 3200, 700 Robbins Avenue, Philadelphia, PA 19111-5098)

#### CODE OF FEDERAL REGULATIONS (CFR)

29 CFR 1910: Occupational Safety and Health Standards

29 CFR 1915: Occupational Safety and Health Standards for Shipyard Employment

29 CFR 1926: Safety and Health Regulations for Construction

(Information is available online at: [www.gpoaccess.gov](http://www.gpoaccess.gov))

#### PUGET SOUND NAVAL SHIPYARD & INTERMEDIATE MAINTENANCE FACILITY (PSNS & IMF) BREMERTON SITE

PSNS&IMF Drawing 980R-62, "IRR Access House Skirt"

(Copy included with specification)

#### WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT)

(Commercial vehicle information is available online at: <http://www.wsdot.wa.gov/CommercialVehicle>)

2.3. Non-government documents. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of documents are those cited in the solicitation or contract.

#### INTERNATIONAL CODE COUNCIL (ICC)

International Building Code, 2009 or more recent

(Copy of this document is available online at: <http://www.iccsafe.org>)

## Specification for IRR Access House

2.4. Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

### 3. REQUIREMENTS.

3.1. Design. This specification covers the minimum Government requirements for an IRR Access House, referred to herein as "house." The house shall provide weather protection, a lockable and secure work space, adjustable stand-off height from the supporting surface, and roof structure which can be opened for interior crane access. The house shall be capable of being lifted by crane for installation on work site.

3.2. Contractor responsibilities. The Contractor shall be responsible for the following:

3.2.1. A house which is engineered, assembled, and delivered ready for use as specified herein. "Skirts" manufactured per government drawing and to suit vendor house design along with attachment hardware.

3.2.2. The documentation and organization of all technical data that applies to the design, configuration, and instructions for the house.

3.3. Government responsibilities. The Government will provide the following:

3.3.1. Unload at delivery. The government will provide forklift or crane, as needed, to unload house from the contractor's delivery vehicle.

3.3.2. Receiving Activity Technical Point of Contact. The Receiving Activity Technical Point of Contact will be Code 350 John Robinett and can be contacted by phone (360) 340-4890 or email john.d.robinett@navy.mil. For issues regarding cost and/or schedule contact the appropriate Contracting Officer. The Receiving Activity Technical Point of Contact shall serve as the Contractor's primary contact for all interaction with other Shipyard and Government activities.

3.4. Specific requirements.

3.4.1. Configuration. See Figures 1-3 for house features and parameters, with additional requirements listed in sections 3.4 and 3.5.

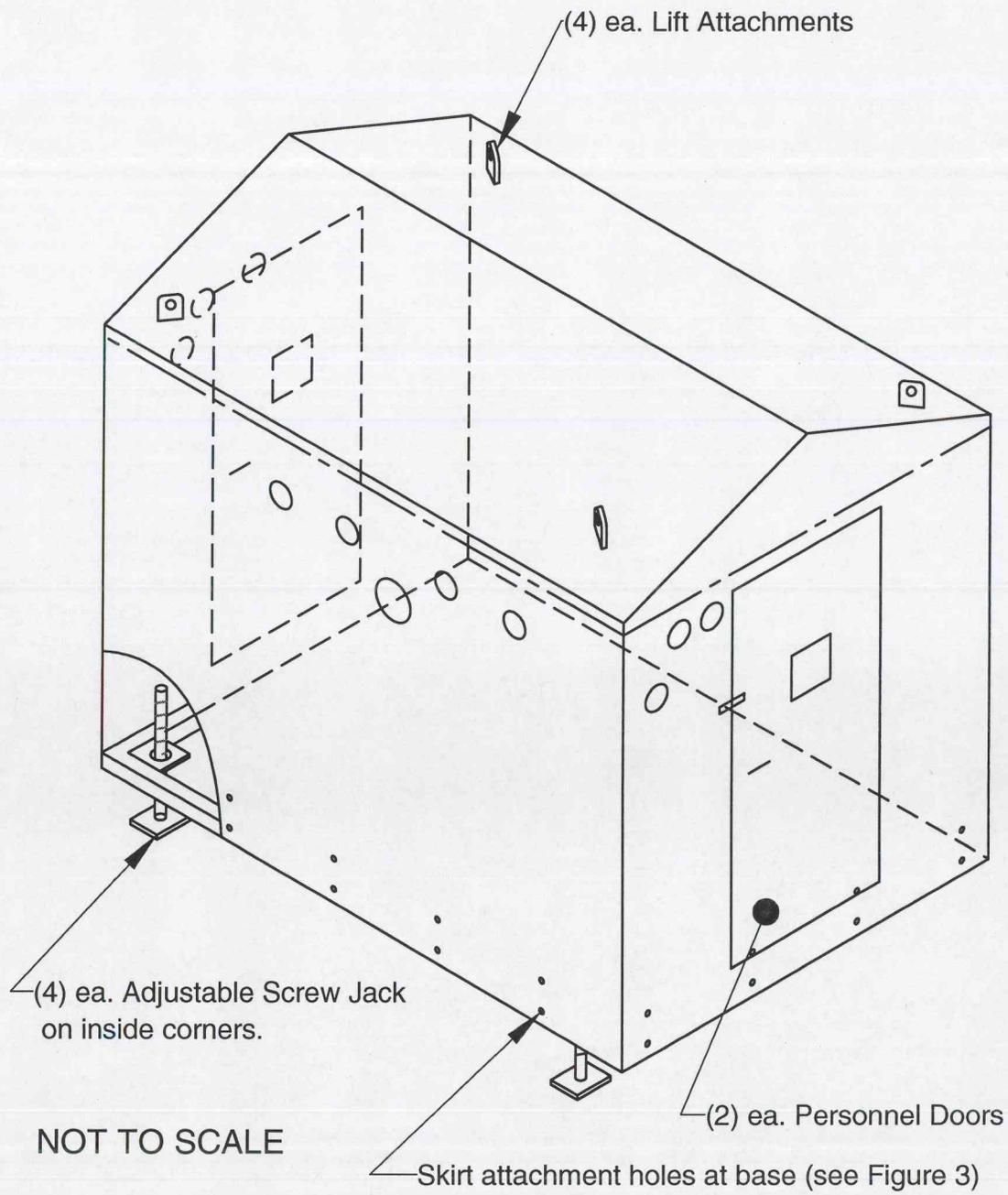
3.4.1.1. Exterior Security. All fasteners including lock hasp shall install such that they are not capable of removal from the exterior of the house with normal hand tools (wrench, pry bar, etc.). An example of an acceptable bolted connection would be a nut on the interior of the house with bolt threads upset to prevent the nut from backing off. An example of an acceptable self-tapping screw connection is screwed in from the exterior with the point bent over preventing unscrewing after installation.

3.4.1.2. Personnel Doors. Personnel doors shall be out-swinging and of opposing hand (e.g., one left hand and one right hand door).

3.4.1.3. Roof Opening. Roof shall be capable of opening to allow internal crane access. When roof is open the house shall withstand wind loading for extended periods.

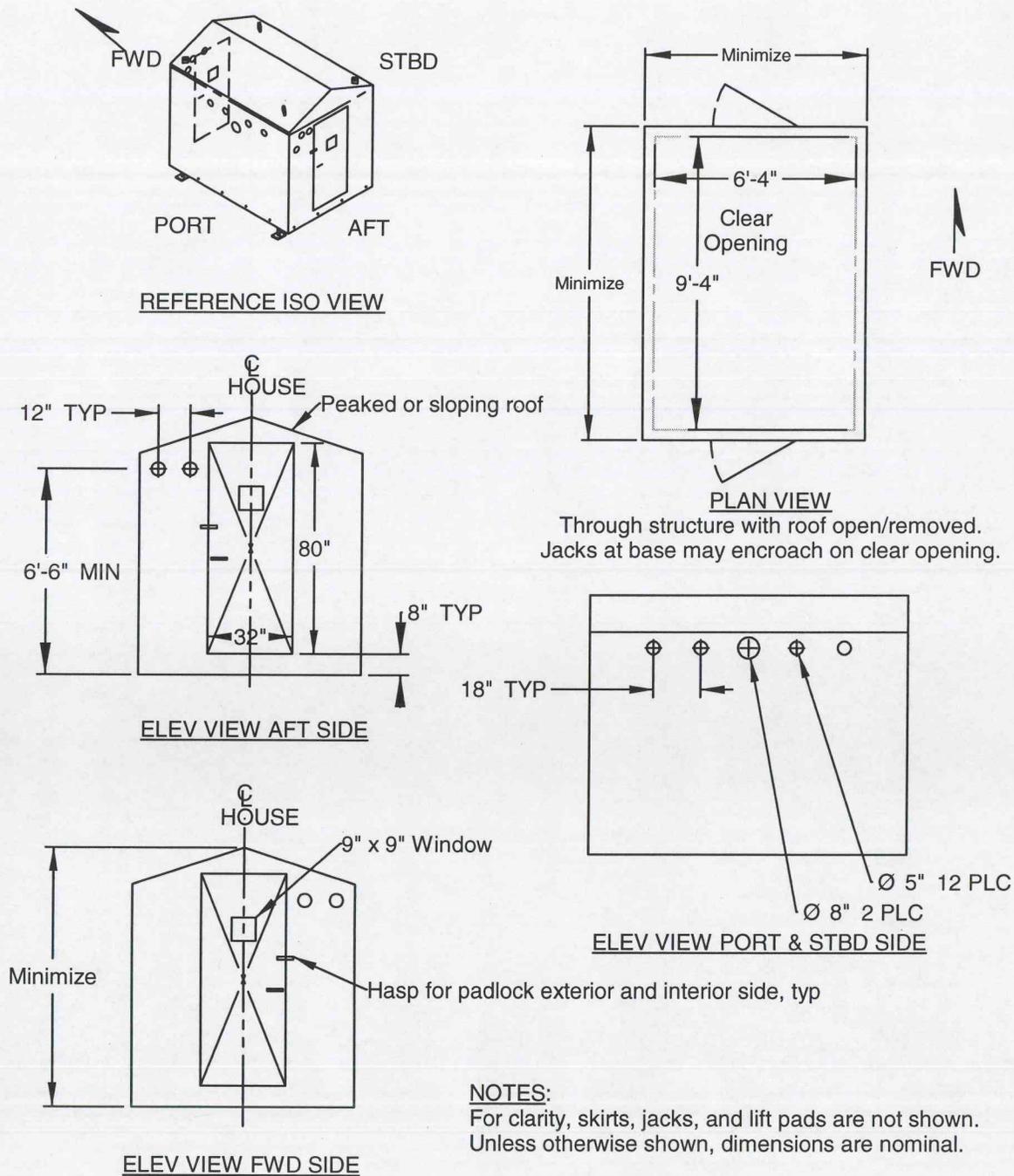
3.4.1.3.1. Roof Opening Style. The self-opening roof hatch shall not require a crane for opening/closing. Manual opening and closing of roof shall be accomplished without the need for special tools and without the aid of a ladder and exterior fasteners shall meet the security requirements contained elsewhere.

### Specification for IRR Access House



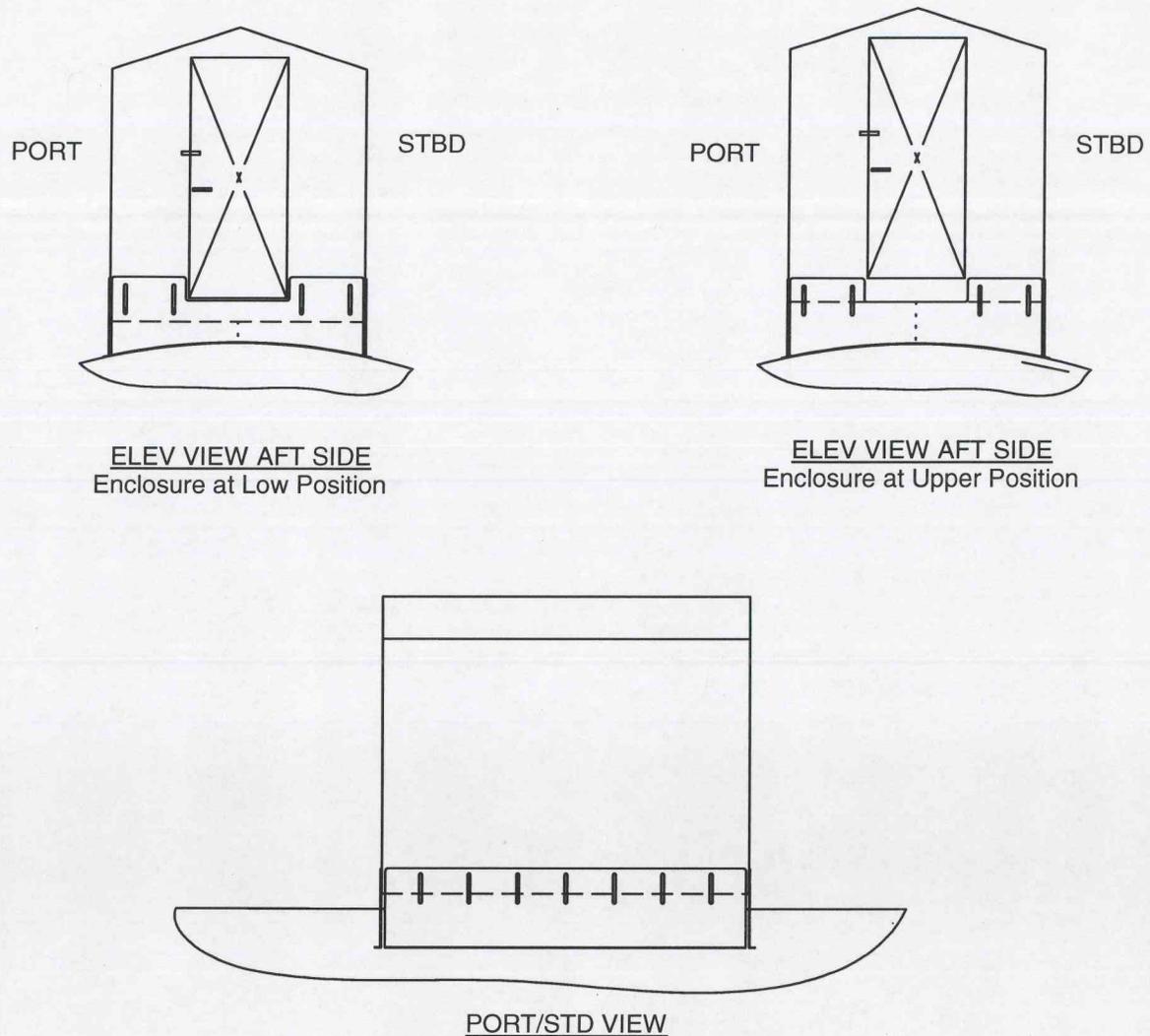
**FIGURE 1: ISOMETRIC OVERVIEW**

### Specification for IRR Access House



**FIGURE 2: HOUSE FEATURES/REQUIREMENTS**

## Specification for IRR Access House



**FIGURE 3: SKIRT INTERFACE OVERVIEW**

3.4.1.4. Tie-Down. Provide designated points on interior of house to allow temporary connection to a secure point on the ground. The tie-downs will be used to temporarily keep the structure stable prior to securely attach house to the supporting structure by skirt welding.

3.4.1.5. Jacks. Provide ability to adjust the house height off the supporting structure with use of manual jacks at each interior corner. Jacks shall be capable of supporting the house weight and all environmental loads. Jack foot shall swivel port/starboard direction to adapt to the sloping surface. Jack foot shall be flush with house base when retracted. Adjustment range shall be 0 to 18-inches minimum.

3.4.1.6. Crane Pickable. The house shall be capable of picking by crane preferably without the need for a strong-back or spreader beam. Design requirements for lifting attachments are contained in section 3.5.

3.4.1.7. Miscellaneous. The house shall not have a floor, no electrical features, and be non-insulated.

3.4.1.8. Weather Resistant. All joints shall be designed to be assembled in a manner that prevents the collection, retention, or entrance of moisture.

## Specification for IRR Access House

3.4.2. Skirts. The skirts fill the gap between the house base and the supporting structure of the house.

3.4.2.1. Skirt fabrication. Fabricate one set of "skirts" for each house per Drawing M-980R-62. Style shall be as determined in contract documents.

3.4.2.2. Skirt attachment. House shall accommodate attachment of skirts with bolts as shown in the referenced drawing and as shown in Figure 3. House bolt pattern shall be staggered vertically (or two bolts per slot) to provide stable attachment of skirts. Hardware to attach skirts to house shall be provided by contractor.

3.4.3. Engineered Design. The house shall be designed by a licensed professional engineer in accordance with the International Building Code and other recognized codes as applicable.

3.4.3.1. Environmental loads. Snow and wind loading shall be in accordance with UFC 3-310-01 for the Bremerton, WA region. The wind exposure category is D. The shelter risk or occupancy category is I.

3.4.3.2. Roof Live Load. An additional roof live load of 5 psf shall be combined with other loads.

3.5. General requirements. The following general requirements shall apply to the house delivered under this specification.

3.5.1. Response to Request. As a part of the response to this request, descriptive literature shall be furnished in sufficient detail to show that the proposed design will meet these specifications. Vendor submittals shall include information on the item being submitted, sketches with critical dimensions, statements of compliance or exceptions to the specification, and performance statements with special attention to the key performance criteria stated herein.

3.5.2. Material. The house shall be constructed of parts and material that are new, without defects, and free of repairs. Walls, sheathing, roof, and structural members shall be metallic.

3.5.3. Operation and Usage. The house shall be designed for and to operate in a severe marine-industrial environment.

3.5.4. Corrosion Protection. All materials shall be protected from, or naturally resistant to, corrosion.

3.5.5. Fastening Devices. Screws, pins, bolts, and similar internal and external parts shall be installed with means for preventing change of tightness. Parts subject to removal or adjustment shall not be swaged, peened, staked, or otherwise permanently installed. Fastening devices shall be tightened to torque limits as established by the manufacturer's standard for tightening to preclude loosening by normal operation or vibration. Also see 3.4.1.1 "Exterior Security."

3.5.5.1. Hasp Features. Padlock hasp attachment, similar to other mechanical fasteners, shall not be capable of removable from the exterior of the house. Hasp shall be suitable for use with a "Sargent and Greenleaf" brand padlock model 8077AD (padlock is not to be provided by contractor).

3.5.6. Noncombustible Materials. The house shall be constructed of noncombustible materials, except for weather sealing material as required.

3.5.7. Lifting attachments. The use of spreaders or strongbacks shall be kept to a minimum, but if they are deemed necessary, a lift sketch detailing the required spread, capacity and orientation of that gear shall be provided for review at the time of the submittal of the equipment design.

3.5.7.1. Weight. Label the actual weight on the side of the house.

3.5.7.2. Lift attachment design criteria.

3.5.7.2.1. The allowable bending strength,  $F_b$ , shall be  $1/3$  of the yield strength ( $F_y/3$ ) or  $1/5$  of the ultimate tensile strength ( $F_u/5$ ), whichever is the most conservative, of the lifting attachment material.

3.5.7.2.2. The allowable shear strength,  $F_v$ , shall be 0.58 times the allowable design bending strength  $F_b$  defined above.

3.5.7.2.3. The allowable bearing strength,  $F_p$ , shall be 0.3 times the ultimate tensile strength of the lifting attachment material.

## Specification for IRR Access House

3.5.7.2.4. The lifting attachments shall be sized based on actual weights plus 10% for unexpected growth in the weight of the load. The resulting value shall be further increased to reflect the loads induced by the angle the slings make to the plane the lifting attachments lie on. The attachments shall be oriented so the slings shall not pull out of the plane of the individual lifting attachment by more than 5° unless they are designed to withstand the resulting side load. In addition, the individual loads for each point shall be calculated based on the configuration of the rigged equipment and the location of its center of gravity.

3.5.7.2.5. For 3 or more lifting attachments only 2 lift attachments shall be assumed to carry the load unless a spreader or strongback is used.

3.5.7.2.6. The structure supporting the lifting attachments shall be designed to sustain the various lateral loads imparted by the arrangement of the lifting attachments and the induced sling angle.

3.5.7.2.7. The lifting attachments are required to withstand a load test of 200% (+5%-0%) of the Working Load Limit (WLL) for 2 minutes. Acceptance criteria shall be: No bending, cracking, or permanent deformation of the lifting attachments or associated structure. The contractor's certified representative will perform the load testing plus a pre- and post-load VT per the inspection requirements of American Welding Society (AWS) D1.1 and submit documentation of the satisfactory results of all the various tests. The lifting attachments shall be labeled with the WLL and the test date.

3.5.7.2.8. In certain cases, the prior concurrence of the cognizant technical Code at Puget Sound Naval Shipyard & Intermediate Maintenance Facility, the load test may be waived and a magnetic particle test (MT) of the attachment weld substituted, meeting the acceptance criteria of MIL-STD-2035A, Class 3 or equivalent standard as approved by the Government, provided the testing is performed by a certified third party and documentation of the satisfactory results are provided with the receipt of the equipment.

3.5.7.2.9. All calculations required for the design of the lift points shall be performed by a Professional Engineer and shall be provided for review at the time of the submittal of the equipment design.

3.5.7.3. Swivel hoist ring design criteria.

3.5.7.3.1. The total weight of the equipment for determining lift point capacity shall be the estimated weight of the item plus 10% for unexpected growth in the weight of the item.

3.5.7.3.2. The sling load at a given lift point shall be the vertical load at that point increased by the resultant sling angle.

3.5.7.3.3. When installing 3 or 4 swivel hoist rings, only 2 shall be assumed to carry the load unless a spreader or strongback is used.

3.5.7.3.4. The use of spreaders or strongbacks shall be kept to a minimum, but if they are deemed necessary, a lift sketch detailing the required spread, capacity and orientation of that gear shall be submitted. In addition, the individual loads for each point shall be calculated based on the rigged configuration of the equipment and its center of gravity.

3.5.7.3.5. The swivel hoist ring interface (i.e., threaded fitting, etc.) shall be designed for the resultant sling load and be able to withstand the manufacturer's required bolting torque, but it will not require proof testing. For steel, the minimum thread engagement shall be 1-1/2 times the diameter of the hoist ring fastener. An alternate method is to bolt through the structure using a washer and a SAE Grade 8 nut with full thread engagement (minimum 2 threads protruding). The hoist ring manufacturer may be consulted about the adequacy of the hoist ring/structure interface.

3.5.7.3.6. The structure supporting the swivel hoist ring attachments shall be designed to sustain the various lateral loads imparted by the arrangement of the swivel hoist rings and their induced sling angle loads.

3.5.7.3.7. If swivel hoist rings are provided with the equipment, the hoist rings' manufacturer's certification shall be provided with the receipt of the equipment confirming each hoist ring has been proof tested to 200% of the ring's rated capacity (working load limit).

3.5.7.3.8. Label the actual weight on the side of the structure.

## Specification for IRR Access House

3.5.7.3.9. All calculations generated for the design of the lift points shall be certified by a Professional Engineer and be included for review at the time of the submittal of the equipment design.

3.5.8. Identification Plate/Label. The following information shall be on each house: Nomenclature, Contractor's name, manufacturer's name, system model number, system serial number, date of manufacture, contract number and any other pertinent information for identifying the house as a unique component of the house.

3.5.9. Warranty. Supplies furnished shall be covered by warranty from defects in design, materials and workmanship. The warranty shall be the manufacturer's standard commercial warranty which shall conform to all the requirements of the contract. Acceptance of the manufacturer's standard commercial warranty shall not minimize the rights of the Government under clauses in the contract, and in any conflict that arises between the terms and conditions of the contract and manufacturer's warranty, the terms and conditions of the contract shall take precedence. The warranty period shall commence when final acceptance has been achieved as determined when all contract line item numbers have been processed through Wide Area Workflow (WAWF).

3.5.10. Safety devices. All machine parts, components, mechanisms, and assemblies furnished on the unit shall comply with all specific requirements of "OSHA Safety and Health Standard (29 CFR 1910), General Industry" that are applicable to the equipment itself.

3.5.10.1. Safety guarding. Covers, guards, or other safety devices shall be provided per OSHA 29 CFR 1910. The safety devices shall not interfere with the operation or maintenance of the equipment. The safety devices shall prevent unintentional contact with the guarded part, and shall be removable to facilitate inspection, maintenance and repair of the parts.

3.5.10.2. Safety signs and labels. Safety signs and labels in accordance with ANSI Z535.4 shall be securely attached to the equipment in visible locations, with any safety precautions to be observed by the operator or maintenance personnel permanently marked on the signs.

3.6. Documents to be provided. The Contractor shall provide the following documents as part of the contract:

3.6.1. Design information. Within 45 days after the effective date of the contract, the contractor shall submit two copies of the house drawings and a set of engineering calculations.

3.6.1.1. Drawings shall show all critical dimensions, lift sketch, all features as per this specification, and a list of component manufacturers and model numbers.

3.6.1.2. The drawings shall be reviewed for compliance to this specification by the Government user prior to the shipment.

3.6.1.3. The Government will notify the contractor in writing within ten (10) working days of receipt of requested information if it complies with this specification.

3.6.1.4. If revisions are required to the plan or drawings, the contractor has ten (10) working days to revise the plan/drawings and resubmit them for a new review.

3.6.1.5. If further comment rounds are required, both Contractor and Government shall continue to reply within ten (10) working days.

3.6.1.6. Government review and/or approval of submittals, certifications, and schedules do not relieve or reduce the Contractor's obligation to comply with all contract requirements.

3.6.2. Lift Sketch. The Contractor shall provide a lifting sketch that shall identify the following in accordance with NAVFAC P-307:

3.6.2.1. The weight of the load

3.6.2.2. The location of the center of gravity

3.6.2.3. The minimum capacity and length of the slings

3.6.2.4. The minimum capacity of other standard lifting gear

3.6.2.5. The attachment (lifting) points for each load

## Specification for IRR Access House

3.6.2.6. Limitations on allowable orientations for any other parts making up the lifting assembly

3.6.3. Lifting Attachment Certification. Each Lifting Attachment shall be provided with the manufacturer's certification. Each Swivel Hoist Ring, if used, shall be provided with the manufacturer's certification document which reflects the SHR serial number and record of a 200% proof test based on rated WLL.

3.7. Technical data. The following technical data shall be furnished as part of the contract.

3.7.1. CD-ROM. The contractor shall provide all final "as built" contract drawings and engineering calculations on CD-ROM disk(s). The format of the drawing files shall be in AutoCAD. Files shall have "DWG" or "DXF" extensions in version 2010 or older. Contractor may request to supply drawings in an alternate file format if desired and approved by the Government. Calculations shall be PDF format.

3.7.2. Foundation forces. Identify forces to resist when securing house to supporting structure.

3.7.3. User Guidelines. Any restrictions on house use shall be identified.

### 4. QUALITY ASSURANCE

4.1. Responsibility for inspection. The Contractor shall be responsible for the performance of all inspection requirements (examinations and tests) as specified herein. The Government reserves the right to perform any of the inspections set forth in this specification, where such inspections are deemed necessary to assure supplies and services conform to the prescribed requirements.

4.2. Responsibility for compliance. All items shall meet all requirements of sections 3, 4, and 5. The inspection(s) set forth in this specification shall become part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspections, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.3. Basic performance tests at origin. Basic performance tests, if requested, shall be conducted on the primary system and all associated system to the extent practicable, to demonstrate functionality. The tests shall be performed either by the Contractor personnel of their service organization directly, or by an independent testing agency. The Contractor may use his own facility or any other facility suitable for the performance of the inspection requirements specified herein. The Government shall have the option to send one or more technical representatives to witness the basic performance tests at origin. The Contractor shall schedule and coordinate the test at origin at least 20 working days prior to the test; the Contractor shall notify the Government Point of Contact of the scheduled date, time, and location of the test.

#### 4.4. Inspection at origin

4.4.1. Initial Test and Grooming. The Contractor shall perform an inspection of the each house prior to delivery for integrity.

4.4.1.1. All welds for integrity and appearance.

4.4.1.2. Surfaces examined for sharp edges and burrs.

4.4.1.3. Fasteners checked for tightness and if fixed to prevent loosening due to vibration.

4.4.1.4. Corrosion protection checked for flaking, blistering, etc.

4.4.2. Acceptance tests at destination. Upon satisfactory completion of the inspection requirements above, the house will be evaluated at destination as follows.

4.4.2.1. The government shall ensure the house can perform as required in Section 3.

4.4.2.2. All functions shall be exercised to the extent necessary to prove proper operation in accordance with specification requirements.

## Specification for IRR Access House

4.4.3. Final Acceptance. Upon satisfactory completion of delivery and evaluation, the contractor shall utilize electronic invoicing. Invoices must be submitted using Wide Area Workflow (WAWF) – Receipt and Acceptance. The contractor shall self-register at the web site: <https://wawf.eb.mil>. Contractor training is available on the Internet at <https://wawftraining.eb.mil>. Additional support can be accessed by calling the NAVY WAWF Assistance Line: 1-800-559-WAWF (9293).

### 5. DELIVERY

5.1. Delivery Date. It is required that all goods and services provided by this specification be delivered as specified in the contract.

5.1.1. Delivery. Delivery shall be coordinated with contracting. House transportation from the manufacturer's facility to destination shall be the responsibility of the Contractor.

5.1.2. Packing Material. Shredded paper, newspaper, office scrap, computer sheets, or wax paper, in packing material for shipment to Navy activities is prohibited.