NuBOOM Ultra Pre-Installation Planning

Purpose

The NuBOOM Ultra is allotted a two (2) day installation time commitment. However, when many of the issues presented below are addressed prior this allows for a smooth flowing process, which could be performed in less than one day.

Scope

This is intended for installation planning by the facility. Having clear expectations of roles and responsibilities will greatly improve the ease of installation and impact on the facility.

Overview

Installation team receives the NuBOOM shipment, unpacks, and moves the room of installation. Approximately, one hour after reception a meeting of the room's power user's (Surgeons, Anesthesiologists, Nurses, etc), facilities manager, contractor/electrician, and any other stakeholders will be held. This meeting is to determine the position of the cabinet, boom positions (range of motion for monitor position needs), Shelves and touch panel position, and power wiring route.

Following this meeting, the cabinet will be anchored to the floor, the electrician will connect the electrical mains, and the installation team will assemble the NuBOOM. After assembly, the devices cameras, ultrasound, recorders, vitals, etc) will need to be connected and each signal tested and labeled. Final acceptance and user's training concludes the process.

The Process and Decisions

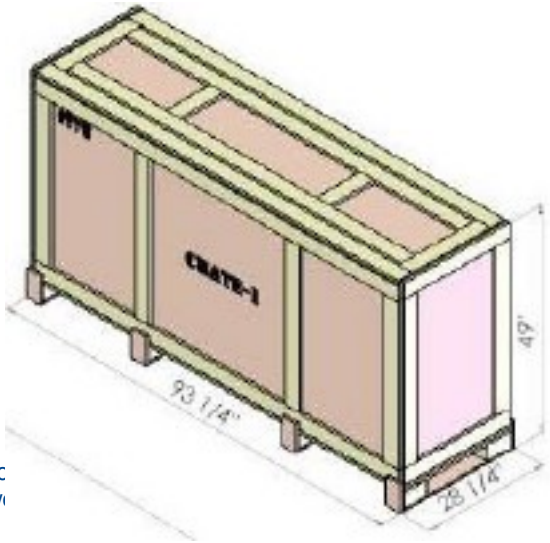
1) Installation team receives the NuBOOM Shipment.

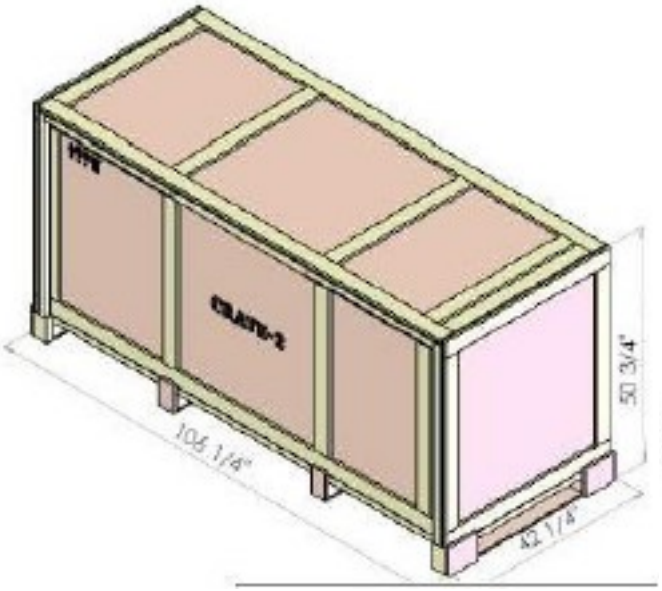
Three (3) large crates. Each weighing approximately 340 kg would be unpacked outside and the NuBOOM components would then be brought inside. This step should take about an hour.

Issues: In advance of arrival define a drop off area (normally this would be a loading dock). Delivery through another entrance is warranted if the route is shorter/easier to manage. A person designated as a security person at the drop off site to watch over the shipment while the installation team moves the components into the room is recommended if delivery is made in a public area. Define the easiest route from the drop off area to the room of installation.

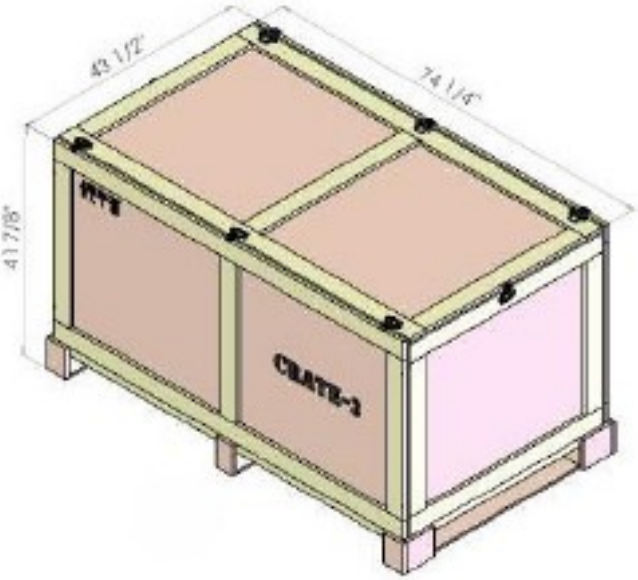
Crate 1 - Cabinet = 237cm x 72cm x 124.5cm

This will be the largest single piece. It is packed on its side with furniture dollies strapped to it. The lid is used as a ramp. It easily rolls through doors and down halls. It weighs about 300 kg.





Crate 2 - Booms = 270cm x 107cm x 129cm
The two booms and four monitor handles are in this crate. After moving in the cabinet, the furniture dollies can be used to roll in the booms.



Crate 3 - Electronics = 189cm x 110.5cm x 106.5cm
The electronics rack, monitors, and all accessories ordered with the product are packed in this crate.
For security reasons this crate should not be opened until all contents can be moved to a secure location (room of installation).

Issues: If stairs must be used (i.e. no elevator) plan for extra laborers. Removal of debris (wooden crates and packaging material) must be dealt with. In most cases it is not difficult to find persons willing to claim this valuable treated plywood.

2. Perfect Placement Meeting

About one hour following delivery the installation team will lead a meeting to determine placement. This is a critical piece of the installation process. It is very important that as many Operating Room personnel as is practical participate in the Perfect Placement process. This may include surgeons, anesthesiologists, nurses, Operating Room managers, hospital biomeds and others (attendance is taken). Keep in mind that this is the first time some of the participants have seen this product. Understanding how the room is used (where are people and devices, and how do you move during procedures) will aid the installation team in guiding you toward the final placement decision.
Decisions made during this meeting include: cabinet placement, boom positions and range of motion needed by the monitors, and positions of touchscreen, shelves, and any accessories.

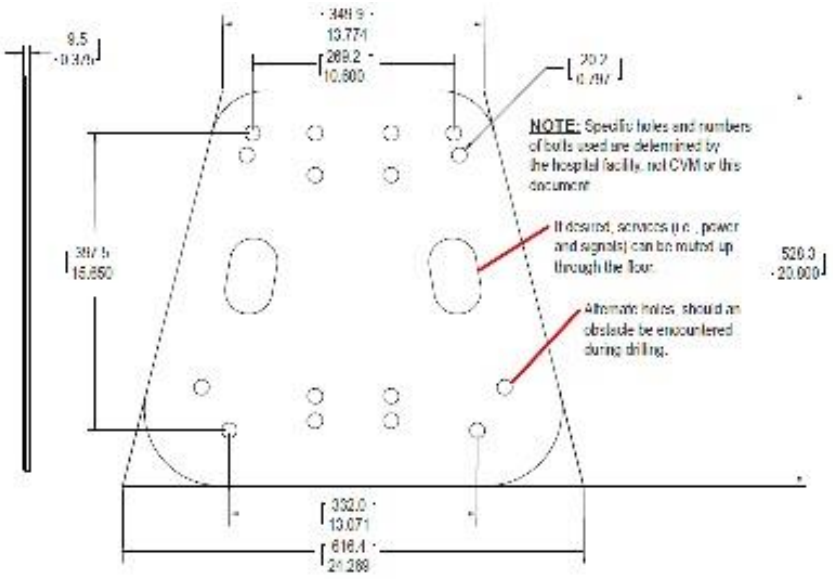
Issues: Determine in advance who the ultimate decision maker will be. In the event there is any disagreement there is one whose decision weighs more than others (and those in attendance will usually already know who that person is). In Advance of this meeting consider generally where it should be placed taking into consideration the ceiling: lights, sprinkler heads, gases, and anything

else that may interfere with overhead movement. Routing the electrical power to the NuBOOM should be considered in advance as well.

3. Anchoring

It is recommended to use eight (8) concrete wedge anchors to secure the system to the floor.

A drill-through template is securely taped to the floor in the desired position of the cabinet.



Issues: Unreinforced concrete, thin slab and poor quality material will cause anchoring concerns that should be considered in advance. A plate on the other side of the concrete floor may be required in an older facility with thin slabs. Noise and vibration caused by the hammer drill may require a scheduled time (i.e. after the eye surgery next door is completed). The installation process stops until the anchoring is completed.

Anchoring is typically supplied & performed by a facility contractor. Notify CVM in advance if the installation team is to provide for anchoring (if codes allow).

NOTE: it is not recommended to drill and seat anchors prior to the Perfect Placement meeting.

4. Electrical Connection

There are five (5) labeled circuits within the NuBOOM. It is recommended to supply a minimum of three (3) 240V 10amp (or 120V 20amp) circuits to the NuBOOM by combining circuits. Five (5) circuits is preferred.

One circuit is dedicated solely for the use by the NuBOOM internal components (including monitors, touch panel, and electronics). There are no user outlets for use on this circuit. The other circuits are for user's devices.

The NuBOOM provides two (2) 6' conduit whips (routed through a cosmetic chase) and a 12" x 12" junction box. This box can be used to mount inside the ceiling and make the power mains connections within. A facility's electrician would perform the connections to the power mains and energizing.

Video Conferencing will require a single Ethernet connection to the internet. The cable would be run at the time the power is being connected. (See Video Conference Advance Planning below)

Issues: When combining circuits the power load must be considered. In advance of installation the wire for these circuits can be run to and coiled in the ceiling for use when the placement and anchoring is completed. If there is no false ceiling surface mount conduit is used to deliver the facility's circuits.

5. Assembly

Once the system is anchored and powered the installation team would complete the assembly of the system. As the final assembly is nearing it will be requested to bring in the devices to be used. The

devices will be connected, tested, and cables labeled. Some devices may remain mobile and can be connected to connection plates on the side of the cabinet.
Issues: Determine in advance what devices will be used on the NuBOOM. During the placement meeting knowing the devices, their connections, and where they will be placed will minimize distracting changes. Input source cables are routed within the cabinet to their desired device locations. Everyone will be curious about the new system, we expect that. Please do not distract the installation team during this time.

6. User's Training
Once the system is completed, and fully tested. The installation team would begin providing user's training. Typically, Day Two of the installation is devoted to training. There are three levels of training, Basic User (selecting images to display—5 minutes), Power user (able to access admin. Set up, name and configure icons, create presets 5 minutes + 10minutes), and BioMed (or facility A/V person) who may connect additional devices to the NuBOOM in the future (basic troubleshooting to determine if an issue is with the NuBOOM or the device's connection—5 to 20 minutes depending on previous A/V experience of the technician).
Issues: Training in small groups (3-6 people) according to their level (User, Power user, BioMed) works best. Plan a schedule for training on day two (2) of the installation. Plan to train enough people to make this use of this system common knowledge amongst the staff. Cases scheduled for Day Two of the installation may require some flexibility on starting time (in the event of a delay in the process).

7. Video Conference Advance Planning
The Video Conference planning is fairly straightforward to a skilled IT professional. The NuBOOM will require a network drop (terminated with RJ45 male - 586B standard) connected to the internet. The video conference codec is set to receive it's IP by the facility's network DHCP server.
Issues: The IP address of the VC may change due to the DHCP lease time. This does not affect outgoing sessions. Only for in-coming sessions will knowing the IP address be important. The VC Codec can be configured for a Static IP or the network's DHCP Server can be set to not renew IP leases.