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| U | UNIVERSAL TERMINAL SYSTEMS | |
| T | S | ISANDBOX SOFTWARE INSTALLATION AND CALIBRATION GUIDE |



2016

Recommended system requirements.

- Processor: Intel Core i3-3220 or better
- Motherboard: ASUS H81M or similar
- RAM: DDR3 DIMM, 4GB, PC12800, 1600 MHz
- Available space on hard drive: 10 GB
- Graphics card: GF-GTX650/750 or better (only Nvidia brand)
- Projector: Epson EB-W28 or similar Epson projector (LCD: 3x0.59" P-Si TFT; Contrast: 10000 : 1; Brightness: 3000 ANSI lm; Resolution: WXGA 1280x800)
- Depth measurement sensor: Kinect 1.0 (USB 2.0) / Kinect 2.0 (USB 3.0, Windows 8/8.1 x64)
- OS: Windows 8 / 8.1 / 10

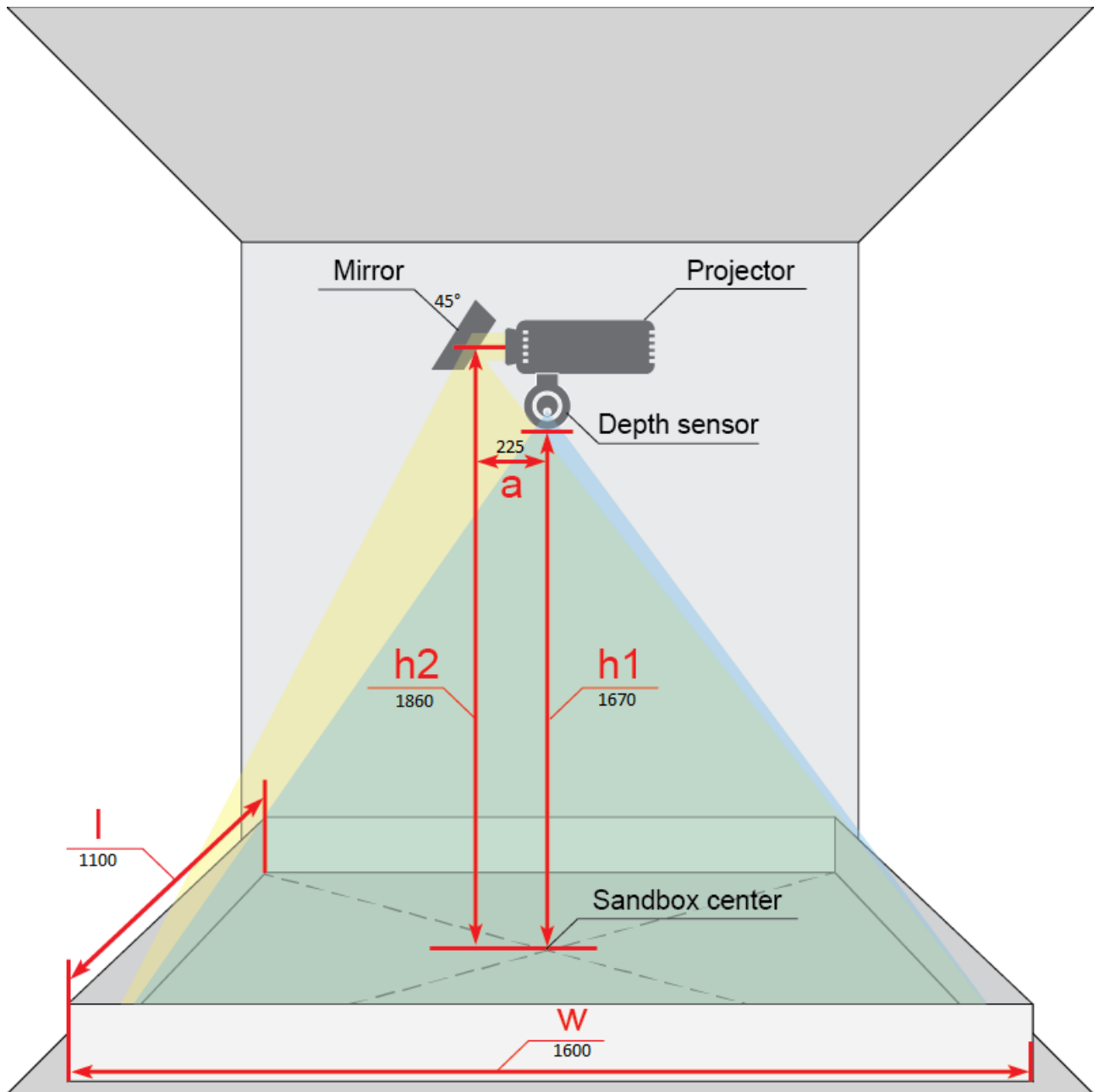
Sand and lighting.

We recommend using regular small or medium fraction certified washed brown river sand. It is not too fine, nice to touch and doesn't create a lot of dust. The downside is its color – the lighter the sand, the better and brighter the image projected on it. It's recommended to keep sand wet so it's easier to build with. Kinetic (polymeric) sand is not recommended, because, in our experience, in large quantities (more than 1kg) it tends to turn to stone in time if not moved around every day.



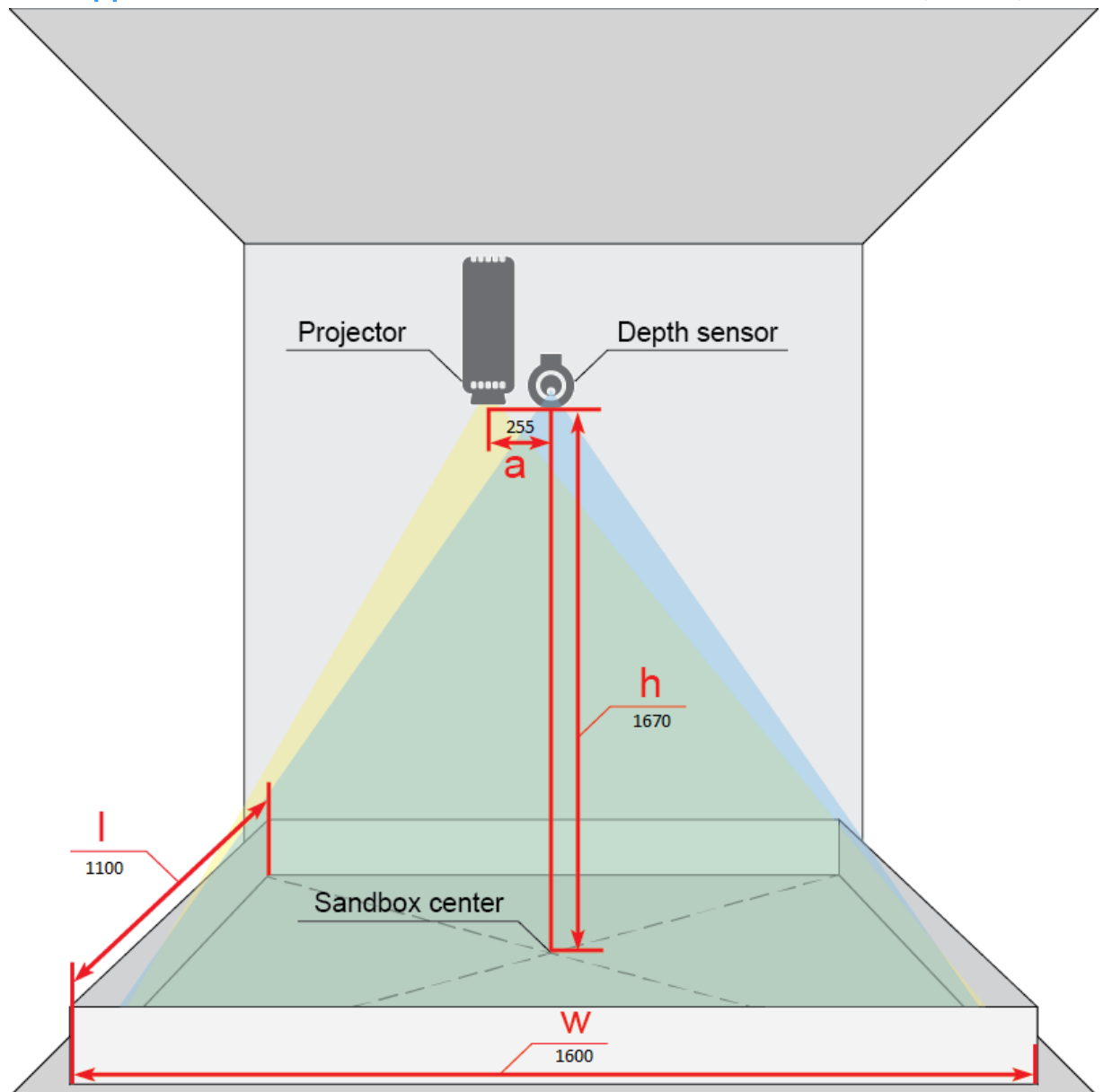
The room in which the sandbox is situated has to be as dim as possible – that will make projection appear brighter and more colorful.

Approximate measurements for sandbox with mirror (in mm).



- Use these approximate measurements when creating sand reservoir (Width X Depth X Length) mm **1660x1100x350 (WxLxD)** - or different, but keep in mind the 16:9 aspect ratio. Use 0,25-0,3 m³ of sand, not more than 400kg.
- The sensor (Kinect 2.0) should be situated vertically, camera down, parallel to the floor, at the center of the sand reservoir. Distance between sand reservoir bottom and sensor (**h1**) should be minimum 150cm, maximum 180cm.
- The mirror should be situated at about 180-190cm height (**h2**) from the sand reservoir bottom. The mirror angle should be 45+/- 30 degrees relative to the floor.
- Distance between projector and mirror (**a**) 25-35cm.

Approximate measurements for sandbox without mirror (in mm).



The measurements are the same as with the mirror construction. Distance between projector and sensor [a] 20-35cm.

Important: When using different sand reservoir measurements and equipment placement, keep this in mind:

1. Minimum distance between sand reservoir bottom and sensor – 150cm.
2. The sensor should be right in the middle of a sandbox, or not further than 20 cm.
3. If the projection does not fit reservoir, use “Rect settings” in the administration settings software of iSandBOX.



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