

# Installation Guidelines for FogScreen Inia

23 June 2004

These general installation guidelines are recommendations, but depending on the environment etc., also other kinds of solutions may be implemented. Permanent and temporary installations may have some different requirements.

## What is needed to operate the FogScreen?

**Included in our basic set:** The dry FogScreen device, control box

**Included as options:** One projector (at least 3500 ANSI lumen), image source (PC, DVD player, ...), loudspeakers, ground support structure, grating on the floor

**We recommend:** dark background/drapes 2-3 meters behind the screen (dark blue, dark red, black etc), or if no background, we recommend >8500 ANSI lumen projector

**We need:** electricity 110V or 220V 2,2kW, water (water line or water reservoir)

During installation and dismounting we may need to loan some common tools like power screwdrivers, ladders, etc. occasionally. Some lifts or cranes may help on lifting the device up for rigging.

**Consider also:** further decoration (the FogScreen device may be hidden in some ornamental structure) etc.

## Projection and Lighting Requirements

The FogScreen works very much like any ordinary screen in terms of projection properties. Normal stray light is no problem, as long as the projector is bright enough. However, the background wall should be rather dark for best image quality and effect, as the FogScreen is slightly translucent. **Dark background is highly recommended!** The dark background can be large, diffuse, black drapes, black-painted wall, etc. The effect can still be seen without any black background, and it can be viewed from both directions, but it is then not so eye-catching.

The required projector brightness depends on the environmental brightness. For relatively bright environments, a projector of at least 3500 ANSI lumen, but preferable 6-15.000 ANSI lumen with high contrast (1:800 or more) is recommended., without dark backdrop >8.500 ANSI lumen projector. Also large zooming and good keystoneing properties may be useful in some cases. Also e.g., slide or movie projectors can be used.

## Rigging

We will suspend the fog screen device from above, so hooks in the ceiling or a truss structure are needed. We can also provide a light, but very steady ground support structure ourselves.

The bottom of the device should be rigged at around 2 meters (6'7" feet) above the floor, so that people can easily walk through. The projected image can be 1,5-2m high, so the bottom of the image projection is near the floor.

Basically the projector can be placed almost anywhere, but we prefer that the projector to be placed on about 2.3 meters (8') high or higher on an adjustable shelf or on another truss so the projector's hot spot does not hit the viewers' eyes. The distance between the device and the projector is preferably 4 meters, depending on the projector's zoom, but 3-5 meters are also possible. **Rear-projection** is

recommended. The image can be viewed very well from far away, so preferably the audience could see the image already while arriving from afar.

The dimensions of the current devices are 900\*2310\*650 mm (D\*W\*H), and the weight is around 150 kg (300 lbs). There are 4 rigging points, the distance of rigging points is 2080 mm, and the width of rigging points 0-470 mm: you can combine the rigging points and have only two in the ceiling. The rigging points are 170 mm below the highest point of the unit. The flight case crate dimensions are 2400\*1000\*H850mm (775mm without wheels) mm. The crate has wheels on it. A smaller case (480\*590\*800mm) contains some tools and other equipment.

### **Networking / Data Service Needs**

Not required by us. It is up to you what is the image source of the projector.

### **Carpeting for Dripping Water**

The device creates only little humidity, roughly 4-6 litres (1-1,5 gallons) / hour, which equals roughly to the perspiration and breath of a group of some 30-40 people, so it should be no problem at any venue. All of the fog evaporates into air. In special cases like in very small rooms, or larger rooms with very low ventilation, or with very sensitive materials, special precaution with the humidity must be taken. At least a humidity meter and associated alarm may be recommended for these special cases.

A small portion of the fog concentrates onto the inner structures of the device, so a few water droplets will drip from the unit now and then. Normal carpeting is enough to absorb it. The risk of potential water hazards is very, very small, but a plastic sheet under the carpeting is recommended to further protect the floor. The dripping and splashing area is around 2.2 x 1.5 meters (yards).



### **Electrical Service Required**

Our device can use 115V/20A or 230 V/10A, and consumes roughly 2-3 kW. In addition, we need electricity for a projector, a PC, a DVD player, loudspeakers, and possibly for some decorating lights etc.

### **Water Supply**

We need water supply for carefree continuous use! An ordinary cold-water tap will do. The water consumption is about 5-10 liters (1-3 gallons) / hour. It varies, as the environmental parameters vary, and the fog density is adjustable. An ordinary plastic water pipe would be fine. No high pressure is needed. Some kind of shut-off valve and a fitting e.g., NPT 1/4" at the booth is needed. For short events or trade fairs a water tank is enough, but requires a water refill every night. Please tell us beforehand how you will arrange the water supply.

The fog is odourless and disappears into air. We add no chemicals to the water. We use water because it is safe, harmless and low-cost. The fog even feels dry to the touch and does not make things wet. If there are significant impurities in the water, it must be purified before putting it into the FogScreen unit. Usually ordinary tap water is OK. Limestone in the water should be removed in permanent installations, if the local water supply has a very high concentration of it.

We need to empty the water in the device when it is stopped. No permanent installations for removing the water are needed for temporary setups. It can be done in the evening after the closing time.

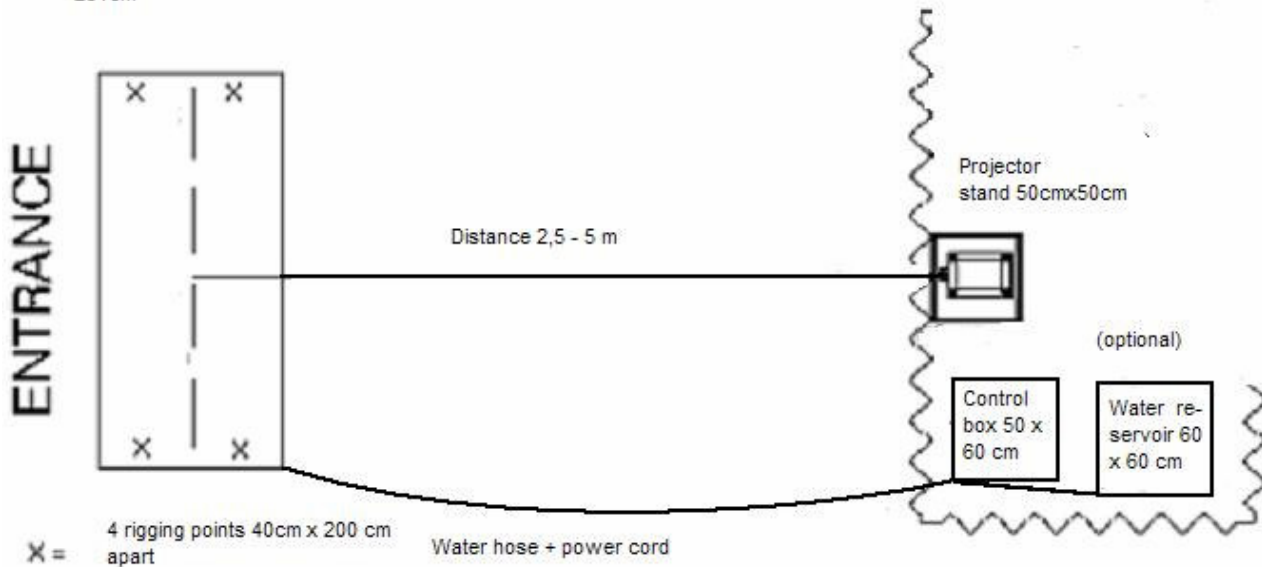
### **Installation Layout**

Here is how our Siggraph 2003 installation looked like. The dark background should have been taller. FogScreen device is the black box above. Drapes must be black and opaque. Rubber mat on the floor holds the dripping water and prevents the floor to get slippery. It does not have to be thick, but it should cover the dripping and splashing area 2.2 x 1.5 meters (yards). If the floor is made of wood or such, then some more protection may be a good idea, e.g., a plastic sheet under the rubber mat.

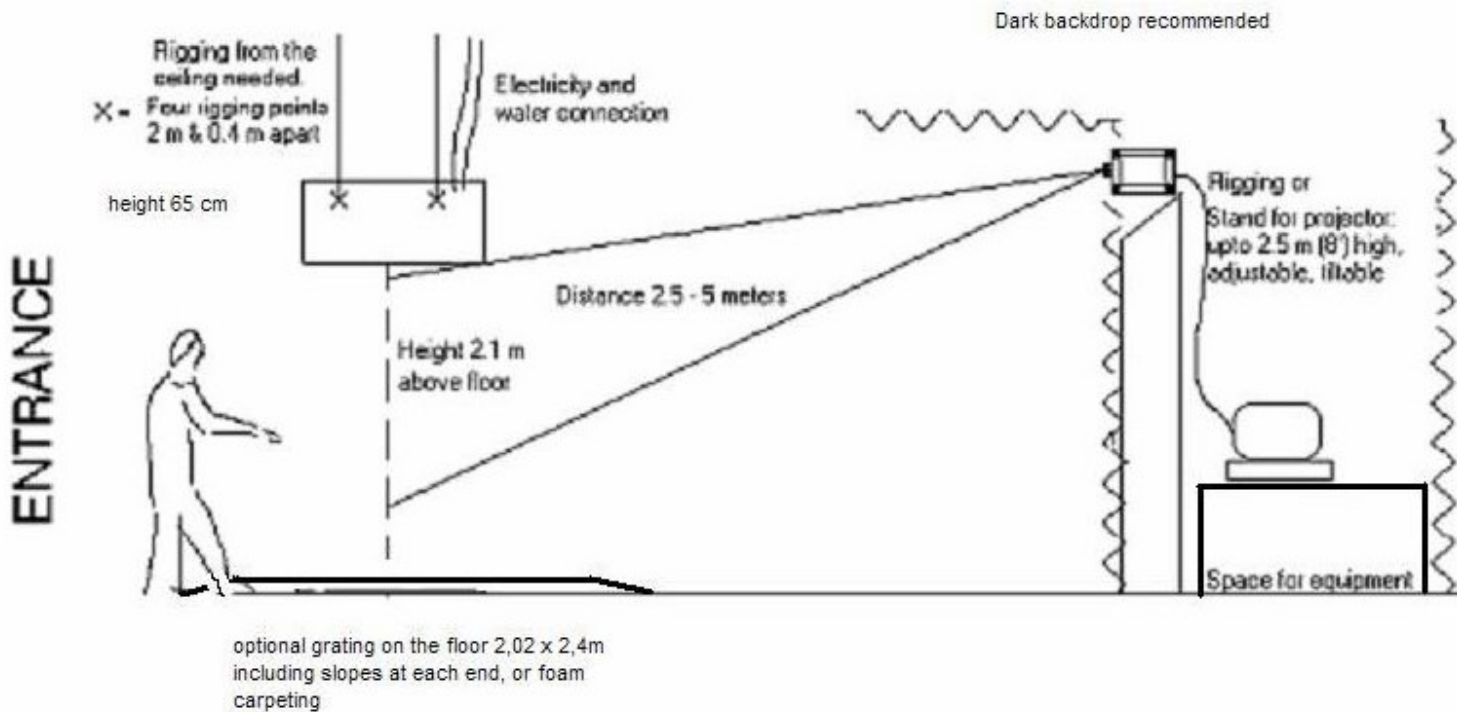


Below is a sketch of a possible setup. The backstage space for projectors, image sources, etc. is not needed if the equipment are placed somewhere else. Also the drapes on the sides are not really necessary, especially if there are no bright lights or windows on the sides. However, the dark background drape should be large enough, i.e., significantly bigger than the fog screen, in order to enable nice viewing also from sides. It should also be high enough to block ceiling lights when standing near the FogScreen. The FogScreen device itself blocks also some ceiling lights.

FogScreen Unit 90cm x 231cm



In the following there are some examples of rigging from the ceiling with wires, and then the same thing using a stand or truss. The electricity cords and the water line should be hung from ceiling to the device, to make the public area as accessible and safe as possible.



Rigging from the ceiling or from a ground support

## **Projection Content**

Animations, still images, videos, 3D graphics and any other types of content can be used. Most images look excellent on the fog screen. However, there are some guidelines for the imagery to ensure it looks good. It might be a good idea, if we check some sample images of your projected material in advance just to be sure that they look good on fog.

First of all, there has to be some contrast on the images. For example some artistic or submarine full-blue low-contrast images have not worked on fog. Very dark images are “forbidden” in bright environments. On the other hand, in very dark environments, bright objects with black background look amazing, like if the objects are floating in thin air, as fog is barely visible in the dark areas. Very bright images can hide anything behind them, but then again, you need contrast (no large plain white areas).

We can also provide an option for interactive screens, so actually the fog screen transforms into a computer touchscreen. This extends the possibilities even further. The imagination sets the limits.

Loudspeakers are also needed as most video materials etc. have sounds. A proper sound space makes the images look even better. The FogScreen device itself is rather silent. With the interactive option, you could even make sounds or music by touching the objects on the fog.

Some special ideas for content:

**Walk thru yourself:** Attach a videocamera as input for the projector and direct it so that it captures people in front of the screen. They see themselves and can walk thru themselves.

**Videoconference with a ghost:** A real-time videoconference on the screen enables you to talk with a real person appearing in the thin air.

**Stereo:** Basically also many kinds of stereoscopic projections are possible, but that is another story. Any standard stereoscopic methods should work, but not polarization glasses.

**Virtual reality:** Track the stereo glasses, so you can also see behind the objects.