FOGSCREEN™
walk through magic

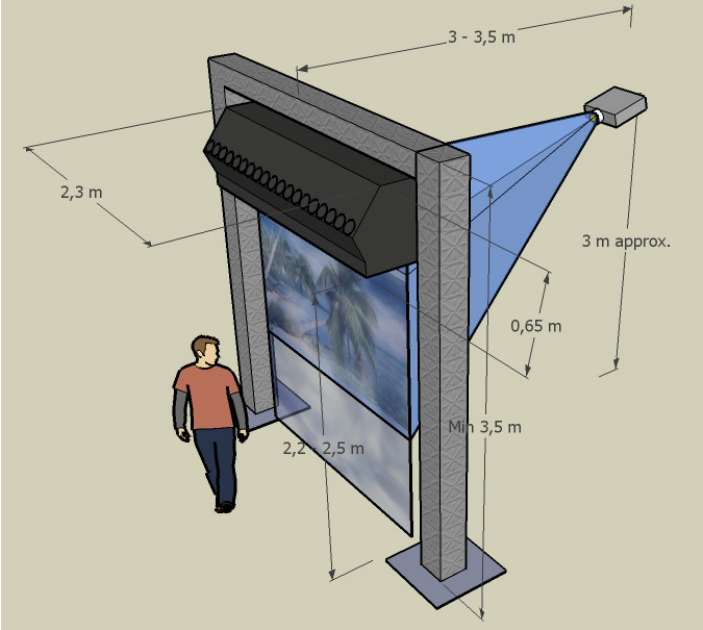
Installation Specification

for FogScreen™ Inia projection screen

Welcome to the specifier's guide to implementing a FogScreen projection screen. The following guide provides all the basic technical information needed to integrate FogScreen projection screen into your fixed installation or temporary event. Any questions not addressed by this document can be answered by your account representative.

Technical Overview

FogScreen is the world's only walk-through projection screen. It uses just tap water and air to generate a thin slice of mist onto which any image or video can be created with a standard projector. FogScreen projection screen's patented technology creates a mist so fine it's electro-statically charged and will repel away from the people walking through it, finally dissipating into the air. The screen generator hangs above the ground and emits the effect downwards using laminar air flow and gravity. There are no side or floor components required.



Included in basic set:

- ✓ FogScreen projection screen unit
- ✓ Control unit
- ✓ Water feed unit
- ✓ Power and control cables
- ✓ Hose
- ✓ Water tank
- ✓ Manual chain lifters

Additional requirements (items to be supplied by client):

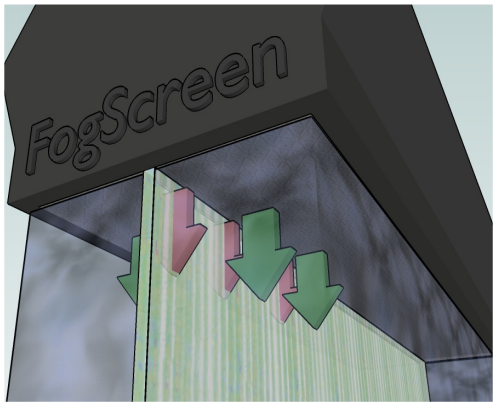
- Rigging apparatus – 2 fixed rig points, or self-standing truss
- Projector – minimum 3,500 ANSI lumen – 5,000 recommended for most installations, and 7,500 in high-light environments
- Content player – DVD player or computer to run content
- Content – any video or stills work on the screen (see content guide attached).
- Sound system – if required by the content

Optimal Installation

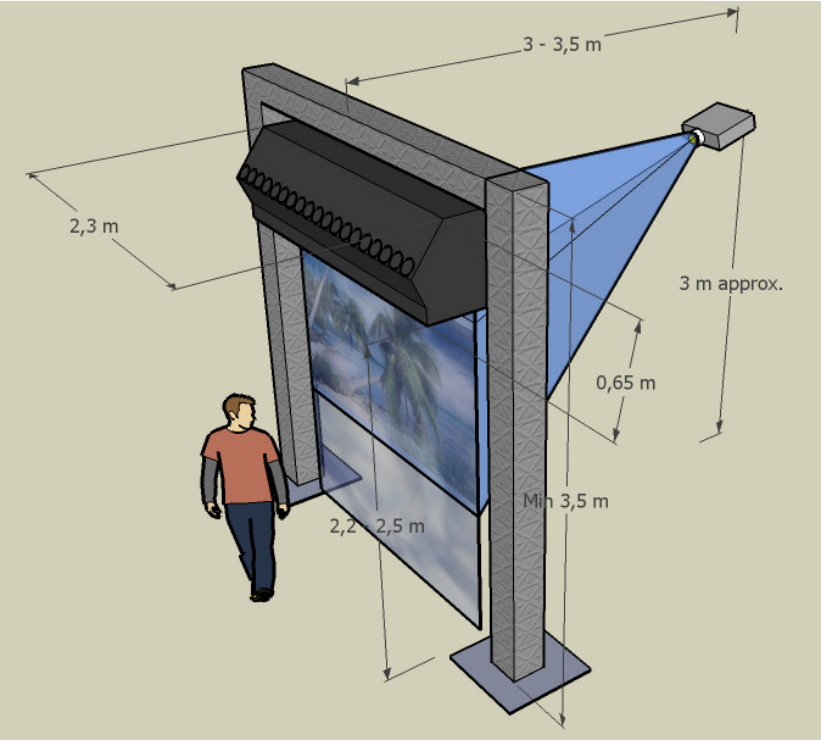
FogScreen projection screen works in many types of installation settings. From low to high ambient light, in tradeshow booths, gala events, museums, dark rides, nightclubs and much more. However, FogScreen projection screen effect is best viewed in controlled environmental conditions. **It is not recommended for outdoor installations**. The ideal installation conditions are as follows:

Low ambient light: The screen looks richer and more opaque in low-light conditions. In brighter conditions the screen still performs well, but it will be more transparent, and will require a more powerful projector to compensate. Also it is recommended that designs incorporate side, top and rear sheltering/dressing to maximize screen performance.

Still air: FogScreen projection screen is built to resist standard atmospheric disturbances. For instance, people walking through make almost no interruption in the screen – even large crowds. FogScreen projection screen mist is sandwiched between two laminar air curtains that resist wind pressure in most indoor conditions. Settings can be adjusted to enhance the strength of this field if needed. However, strong constant winds will disrupt the performance of the screen by creating bowing or arcing, or in the worst case dissipating the screen entirely. Caution should be taken to ensure the screen is not subjected to air currents created by A/C systems, proximity to outdoor exits, or large pressure differentials in entranceways.



Technical Specifications



Projection

FogScreen is a rear-projection screen. The particles of water are not very reflective (only about 5% to 10% bounce back), but they transmit light forward very well – creating the illusion of a floating image. There are no particular brands of projector that work best on FogScreen projection screen, but the lumen rating must be suitable for the lighting environment.

Low light: *Nightclubs, studios, dark rides.*
Minimum recommendation: 3,500 ANSI Lumens

Medium light: Trade show (sheltered installation), ball room, stage
Minimum recommendation: 5,000 ANSI Lumens

High-light: Trade show (open installation), Atrium, Lobby
Minimum recommendation: 7,500 ANSI Lumens

**Note: It is always best to go with the strongest projector budget will allow. For example, a 3,500 lumen projector in a nightclub will produce a great effect; however a 5,000 lumen projector in the same club will look considerably richer and more opaque.*

Positioning: The projector is normally mounted above the FogScreen projection screen and angled downwards to avoid creating a bright hotspot on the viewer's eyes. In most installations, the screen is mounted so the bottom of the generator is about 2.2 m above the ground. In this case the projector is normally about 3 – 3.5 m back from the screen and 3 m in the air. The projector is angled downwards and keystone correction is used to fix the resulting trapezoidal image.

The distance can be shortened to less than 2 m by using a wide angle lens. Also, in some theatrical applications it may be possible to have the projector down low (below stage) and angled upwards.

Projection Size

FogScreen projection screen can be rigged at any height from the ground, but under the best conditions the mist will dissipate fully after about 3 m. Regardless of the rigging height, the best quality projection surface starts from the very top of the screen and ends about 1.5 – 1.8 m below the top.

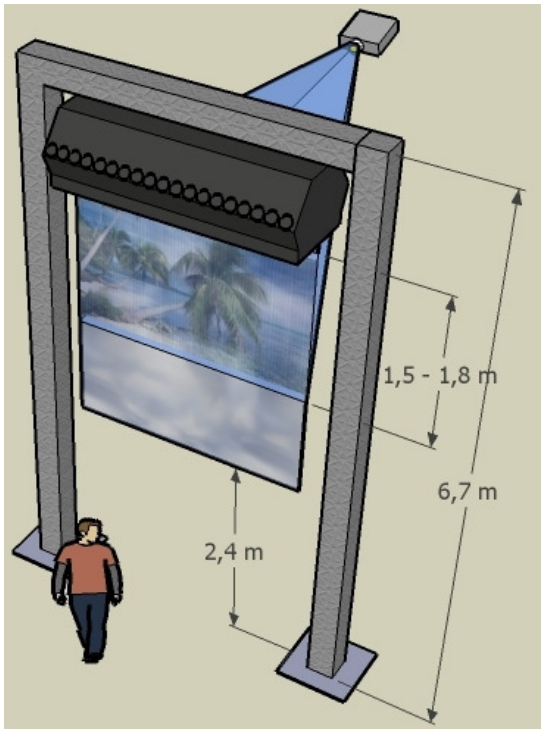
Typically the projector does not illuminate the bottom 1 m of fog, because the resolution is not as sharp as the fog approaches the floor, and the angle of the light passing through the screen becomes more severe.

Rigging

- Weight: 120 kg
- Dimensions (generating device): 2.31 m long x 0.65 m tall x 0.9 m deep
- Minimum Rigging Height:
  3.5 m (2.2 – 2.5 m screen + 0.7 m generator + 0.3 m chain lift & turnbuckle)
- Distance between rig points: 2 m.

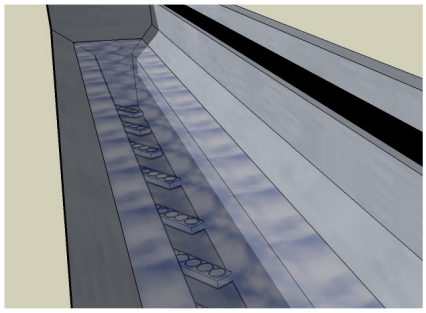
FogScreen projection screen must be hung from two rigging points. For easy installation leave clearance for FogScreen projection screen's transport case to be positioned underneath the rigging points. The transport case is 2.5 m long and must fit between the truss legs to avoid difficulties hoisting the screen from the case. FogScreen projection screen's two manual chain lifters can be attached to the rig points and then connected to the screen.

Installations over 3 m (bottom of generator to the floor): FogScreen projection screen's maximum drop in good conditions is about 3 m. The video-quality projectable area will still be the top 1.5 – 1.8 m, with the remaining 1.2 – 1.5 m being thick dissipating fog. Many clients have chosen to rig the screen much higher – 4.5 to 6 m or more. In these installations, the maximum drop will still be only about 3 m. The effect will appear to be floating in the air above the viewer – and the screen will not reach the floor. This works for some installation concepts – but if the concept calls for a walk-through experience it will be too high. Also, video-quality projected images taller than about 1.8 m will not work.



Leveling

It is critical to the screen's performance that it is leveled left to right and front to back. For left/right leveling use the manual chain lifts, or other rigging cables to ensure the screen is balanced. For front to back leveling use the turnbuckles attached to the rigging loops to adjust the tilt of the screen.



Failure to level the screen will result in significant dripping, or failure to function

To check levels, remove the fan cover and splash guard and look at the water level. By comparing the water level to the lines of the steel water tank (as illustrated), a good leveling can be achieved using just your eyes.

Electrical Requirements

FogScreen projection screen runs on 110V and a 15 amp circuit. There is only a single electrical connection required – and it is recommended to have an Edison input or adapter on hand.

Water Requirements

FogScreen projection screen can draw water from a water tank or from a pressurized water line. It only requires 6 to 10 liters per hour of regular tap water with normal settings. In permanent installations it is advisable to add a reverse osmosis filter to take some of the mineral content out of the water, as this will reduce the maintenance cycle. Permanent installations will always be fixed to a pressurized waterline to ensure a continual water source. The screen is self-regulating and the magnetic valve will open whenever new water is required. It is recommended to use a water softener and possibly other means to filter the water before use if the water quality is low.

There are two options for temporary events:

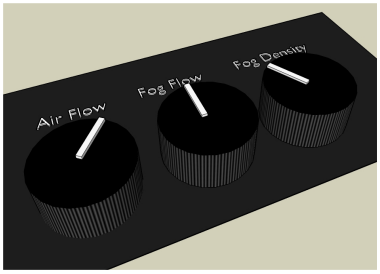
1.) Pressurized water line: Ensure that the venue has available plumbing. In tradeshows, this can normally be ordered to the booth. The connector will need to attach to a 6.5 mm (1/4") fitting.
2.) Water tank: FogScreen projection screen ships in two cases – the screen case, and a smaller Peli-case that contains the CU, hoses, cables, pump and chain lifters. Once the screen is set up, the Peli-case is empty and can be used to store water. This case will store about 120 - 130 liters of water – enough to last about 2 days of 8 hour use. The case can be set on the ground up to 10 m away from the FogScreen™. The case dimensions are 0.8 m wide x 0.5 m tall x 0.6 m deep.

Floor Requirements

The fog generated by FogScreen projection screen is perfectly dry because of the small particle size. However, FogScreen projection screen is a water-based display so there will be some condensation drops that build up in the generator that will fall to the floor below the screen. Under normal operating conditions this is not more than 1 or 2 drops per minute. It does not create a significant water problem on the floor, but any amount of water can lead to a slip hazard. For installations over hard surfaces (tile, wood, concrete etc…), an absorbent or tufted mat is recommended. The mat size should be approximately 2.3 m x 1 m to catch all the condensation. Over the course of a regular operating day, the mat will get damp to the touch, but will dry before the next use the following day.

Optimal Settings

FogScreen projection screen has 3 settings which can be adjusted to change the performance of the screen in different conditions:



1.) **Air Flow:** This setting controls the speed of the fans that create the protective air curtains around the fog. If it is windy, this setting can be increased, but the trade off will be less laminarity, and a more turbulent image. The normal setting for this should be between 12 o'clock and 2 o'clock on the dial.
2.) **Fog Flow:** This setting controls the speed of the fans that blow into the water tank and force the fog out of the generator. This can also help the screen resist windy conditions, although the trade off is more condensation dripping from the generator. A 12 o'clock setting is best for this dial. Anything above 12 o'clock will increase dripping
3.) **Fog Density:** This setting controls the power to the transducers. Increasing this dial will significantly increase the amount of fog produced. For some clients this may be desirable as an effect.

! *Be aware that any Fog Density setting beyond 11 o'clock will SIGNIFICANTLY increase dripping. Thicker fog may look good for some applications, but it actually creates a poorer resolution by creating a denser, more turbulent surface for the light to project through.*

Maintenance

Ongoing maintenance for permanent installations is discussed in the user manual to the FogScreen projection screen. It varies depending on usage, water and air quality. It involves wiping down the tank and transducers to remove mineral deposits that build up over time. Air filters should also be cleaned periodically to ensure a smooth airflow is maintained.

! **For temporary events it is essential that the tank and transducers are drained, and wiped dry before shipping.**
To do this, you must first drain the tank. This is accomplished by reversing the pump direction on the main control unit. Turn the water feed switch counterclockwise and hold it for 5 seconds. Release the switch and the pump will reverse. Then after draining is complete, remove the top fan cover and splash guard to access to the water tank and transducers. Pull out the transducers for easy access to the bottom of the tank and the un-drained water at the bottom. Using a towel, wipe down the transducers and soak up the remaining water in the tank.

Content Creation

It must be remembered that FogScreen projection screen is first and foremost and effect screen – not a high-resolution display. It is detailed enough to easily watch a movie on when set up properly. The video quality images it produces are impressive considering it is simply floating on air currents, however content should be considered carefully to maximize results:

- ✓ High contrast
- ✓ Bright colours
- ✓ Large objects
- ✓ Text larger than 15 cm

Finally, as described earlier, the resolution quality is best at the top of the screen, and degrades as the screen falls. As such, any high detail graphics, particularly smaller text should be oriented towards the top of the screen.

Examples: