

# DISPLAY SPECIFICATIONS

**ARTIST:** Bruce Nauman

**TITLE:** *Mapping the Studio II with color shift, flip, flop & flip/flop (Fat Chance Jon Cage)*

**ACC NO:** T11893

## DESCRIPTION

Large scale installation with seven video projections and sound.



*Installation shot Tate Modern*

## EXHIBITION FORMAT DETAILS

The seven projections are fed from seven unsynchronised DVDs each of which is 5 hours and 45 minutes long. The piece starts with the title of the piece and the location (for example "Location 1" etc.). The discs are not synchronised and designed for the colour shift, flips and flops to occur at different times.

## EQUIPMENT LIST

The following is the equipment used in the Tate Modern display 2004-6

- 7 x Sharp PX25 LCD projectors. The projectors should have lens shift.
- 7 x Sharp PLNS-0236-CEZZ Bayonet mount adapter
- 7 x Sharp AN-W6EZ wide angle lenses.
- 7 x Unicol Gyrolock brackets for suspending the projectors from the ceiling (should allow for pan, swivel or tilt)
- 7 x Pioneer 7300 DVD player
- 7 x Denon Amplifier PMA-355UK
- 7 x JBL Control 25T White

## DETAILS OF THE INSTALLATION

**(The following description is based on the Tate Modern Installation 2004-6) See plans below.**

- The space should allow for an entrance at one end of the space and an exit at the other end.
- The projected images are all 5.33m wide and 4m high.
- The bottom of the image is 15cm from the floor.
- The ceiling in the Tate Modern installation is 4.7m high. In this case the ceiling was created using black stretched fabric. This ceiling is only necessary because the gallery at Tate Modern is a double height gallery and so there was a need for a complex supporting structure from which to suspend the projectors. There was a concern that this would be distracting. In most cases Nauman would leave these types of details visible - working with the basic structure of the room.
- The DVD players and amplifiers are positioned in the wall cavity, which at Tate are wide enough to act as equipment rooms.
- The projection distances using these lenses are all set at 6.9m except for image 5 which is 8.8m.
- The projectors are suspended from the ceiling using brackets. The weight of the projectors are 9.7kg.
- The images project directly onto the wall.
- The logbooks are supplied as a word document. These were printed out and mounted onto Foamcore and spot lit from above.



*Logbooks on the far wall, notebooks viewer's left.*

- The walls in the main space are painted white. The walls and ceiling in the ante chamber, where the logbooks and notebooks are shown, are painted mid grey.
- The floor on this level of Tate Modern is polished concrete.
- The gallery had no acoustic treatment.
- The speakers (JBL Control 25T white) were placed to the top right and left of each image, and their positioning is designed to be unobtrusive. The bottom of the speaker is positioned 50 cm from the top of the image.

## **OTHER MATERIALS REQUIRED FOR THE INSTALLATION**

- The projectors feed their signal from the DVD players using the component output. The 75Ω shielded video and audio cable was concealed in the ceiling.
- The projectors are suspended from a Unistrutt framework. Boards were fixed to the Unistrutt and then a Unicol CP1 ceiling plate was fixed to the board. A Unicol column was cut to the correct length and fixed to the ceiling plate, with a Unicol GK4 mount and adapter plate on the other end. This adapter plate fixes to the projector. Unicol modified the adapter plates for this installation to allow access to the external filters which had been attached to minimise dust. These brackets allow for pan, swivel and tilt adjustments.
- Equipment cupboard – with shelving.



*Shot of equipment room*

- Benches - For the installation at Tate Modern 4 benches were placed at an angle in the room.

## **SPARES AND CONSUMABLES**

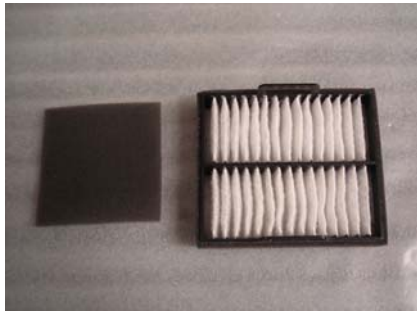
### **Spare projectors**

At least two spare projectors are required for this installation to ensure one backup unit is always available and to allow one projector to be part of a rolling programme of servicing. We found that the blue LCD panel was the most common cause of failure in a display period of over a year. These were found to fail at approximately 4,500 hours. Although the blue polarising filters are given a mean time before first failure of 57,000 hours we also found that the coating may have become damaged earlier and the filters were changed at the same time as the panels.

### **Filters**

In order to cool the lamp housing of the projector, fans draw air into the projector via a filter. The Sharp XG-P25X ships with filters which will remove dust down to 200 microns. In order to reduce dust further we attached a much finer disposable filter from a different model Sharp projector (XG-V10WE) to the outside of the vent using a silicon seal. These filters will remove particles down to 0.1 microns (cigarette smoke is 20 microns). These projectors allow temperature readings to be taken from sensors inside the projectors. This

enabled us to ensure that the projectors were not over heating and that the air flow was not limited by this change of filter. The part number of the filter is PFILD0110CEZZ. For replacement schedule of the filters see "Maintenance" below.



*On the left is the original filter on the right the replacement filter*

### **Lamps**

The lamps have a life span of approximately 1,500 cumulative hours. The indicator light will show after 1,400 hours. The part number for lamp with cage module is BQC-XGP25X//1

### **KEY QUALITIES & INSTALLATION REQUIREMENTS**

- The dimensions of the space reference the size of the original studio.
- It is optional as to whether the logbooks are shown in the entrance way.
- The sound level is approximately 71 decibels in the centre of the gallery. This reading was taken at the beginning when there were no distinct noises recorded. The ambient audio is loud – it will sound distorted due to the gain control of the microphone. It is also the composite of the sound and therefore 7 times louder than any single location. The cat is a good indication as it is one of the loudest sounds in the piece. (see Michael Short's comments re. setting up the sound levels). The sound is audible outside the space.
- The projectors must render the colour well. They should not be so bright as to raise the ambient light level of the work so high that the images become washed out. The projectors should be individually adjusted to bring out the contrast of each picture. Special attention should be given to image 6 which is very dark, it is important to check that the detail is not lost during some of the colour changes.

### **TECHNICAL KNOWLEDGE NEEDED FOR THE INSTALLATION**

- Technicians installing this work need to have a good knowledge of the projectors used. They need to understand how to change the lenses and carry out maintenance.
- A Genie or similar scissor lift is required for installation and maintenance.
- If suspending the projectors from the ceiling, a structural assessment is necessary to check weight bearing capacity and design of any structures built.

### **POWER REQUIREMENTS**

- 7 power supplies in the space for the projectors (power consumption 380 W each unit). This supply remains on.
- 7 sockets in the equipment space linked to a "mushroom" on/off button (7 DVD players)
- 7 sockets in the equipment space to remain on (7 x Amplifiers)
- 2 individually switched sockets in the equipment room (1 test monitor, 1 light)

### **KEY OPERATIONAL NOTES - PROCEDURES FOR SWITCHING ON AND OFF**

**Switch off** – the DVD players are connected to one single off button which is switched to "off" at night. When the projectors lose their signal they automatically go into standby mode. There is a constant power supply to the projectors and the amplifiers. This procedure avoids the risk of power going off to the projectors before they have properly cooled causing a decrease in the life of the lamps.

**Switch on** – in the morning the DVD players are switched on. The projectors are moved from "standby" to "on" using the remote control.

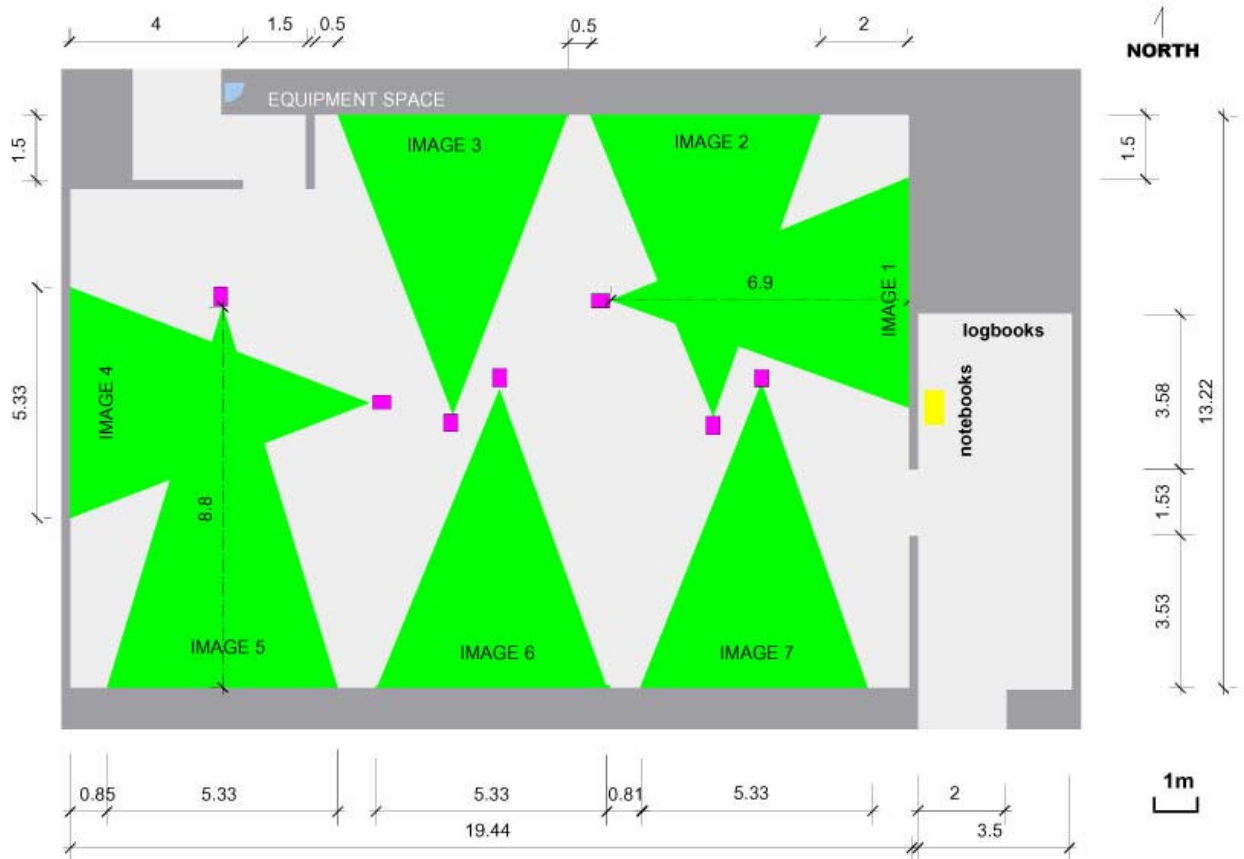
### **MAINTENANCE**

- Filter change – 600 hours
- Lamp change – 1400-1500 hours
- Projector swap out for servicing – approximately 4,500 hours

- Cleaning DVD players (compressed air – using a compressor with filtered air, for example those used by dentists. Eg Clean-Air Model 30/7 S)
- Two people required for maintenance – a log is kept of the following:
  - Log lamp hours, and internal temperature.
  - Check white screen and black screen for discolouration, dead pixels, dust and convergence.

Likely operational failures – clogging due to dirty filter causing automatic shut down. Deterioration of the panels causing discolouration of the image. (Blue panel goes first). Lamp failure.

## Plan

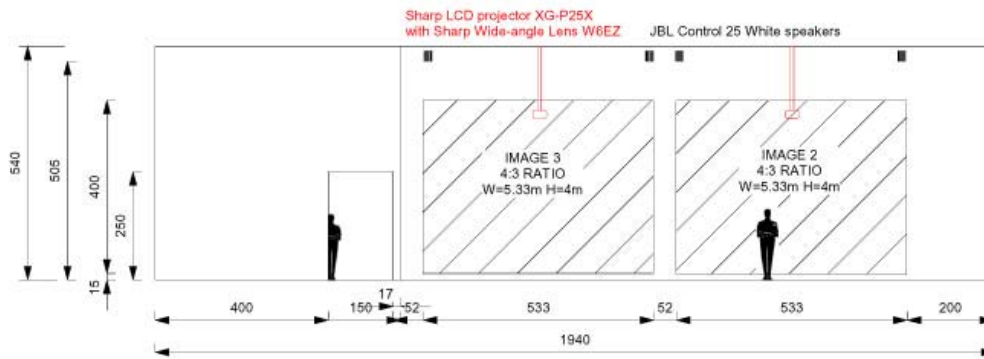


## Elevation

T11893, Bruce Nauman  
MAPPING THE STUDIO II  
Display at TATE Modern Level 5  
2005-2006

NORTH WALL ELEVATION

Scale 1:100 (centimeters)



**Ceiling:** black stretched fabric (no acoustic material)

**Walls:** white

**Floor:** concrete

**SIGNED:** Pip Laurenson, Time-based Media Conservation

**DATE:** December 2005