



***Variable Aspect Ratio  
Projection Screens***





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## ***Variable Aspect Ratio Projection Screens***

### **Variable Aspect Ratio Screens**

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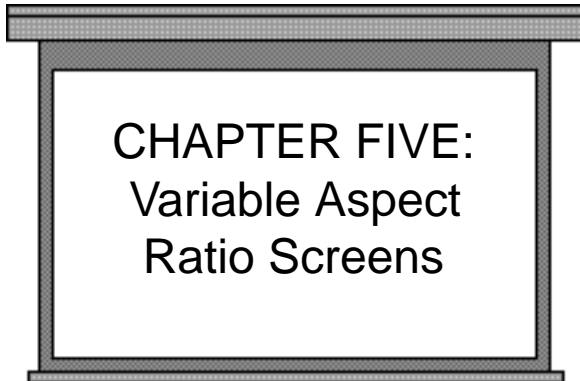
## **SCREEN MANUFACTURERS PROFILED IN THIS GUIDE:**

DA-LITE SCREEN, 3100 North Detroit St., Warsaw, IN 46581 800-622-3737,  
[www.da-lite.com](http://www.da-lite.com)

DRAPER, 411 S. Pearl St., Spiceland, IN 47385 800-238-7999,  
[www.draperinc.com](http://www.draperinc.com)

VUTEC Corporation, 5900 Stirling Road, Hollywood, FL 33021 800-770-4700,  
[www.vutec.com](http://www.vutec.com)

STEWART FILMSCREEN, 1161 West Sepulveda Blvd., Torrance, CA 90502  
800-762-4999, [www.stewartfilm.com](http://www.stewartfilm.com)

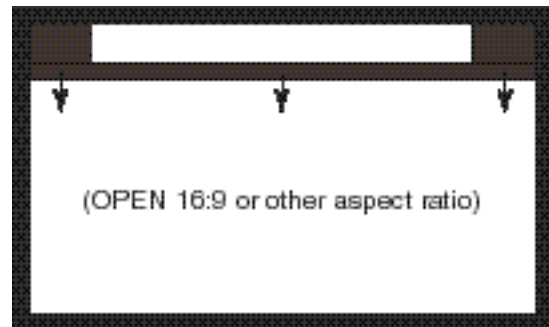


Variable aspect ratio screen systems are a convenient way to add professional looking screen masking to home theater rooms. Each of the products we describe here are available in many sizes and configurations. This page is simply to illustrate the basic systems that you can chose from. For further information, visit the manufacturers web sites (See page 4 for a list).

### Flat Screen with Motorized Left and Right Masking Panel Assembly

These masking systems consist of a fixed frame assembly that mounts over a stretched flat screen. It has motorized panels that lower on the left and right sides changing a 4:3 screen to a 16:9 (or other) aspect ratio. They are sold under the following brand names:

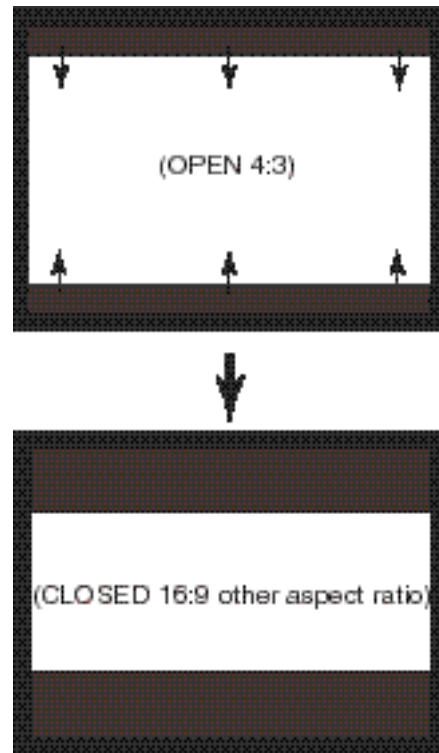
- DRAPER Eclipse H™ system
- STEWART Vertical Screenwall Electrimask™
- VUTEC Vision XFV™
- DA-LITE Pro Imager Horizontal Masking System



### Flat Screen with Motorized Top and Bottom Masking Panel Assembly

These masking systems consist of a fixed frame assembly that mounts over a stretched flat screen. It has motorized panels that lower on the top and bottom changing a 4:3 screen to a 16:9 (or other) aspect ratio. They are sold under the following brand names:

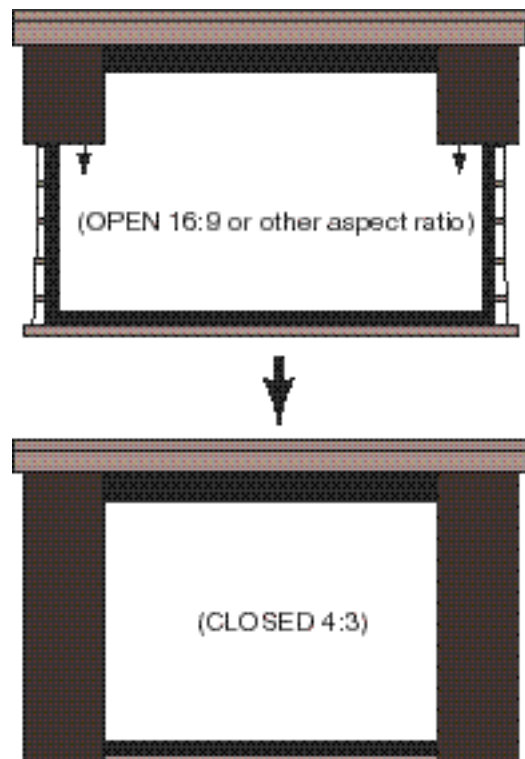
- DRAPER Eclipse V™
- STEWART Horizontal Screenwall Electrimask™
- VUTEC Vision XFH™
- DA-LITE Pro Imager Horizontal Masking System



### Electric Roll-Down Screen with Motorized Left and Right Masking Panels

These masking systems consist of a regular rolldown screen assembly with left and right masking panels built into the same housing. When lowered they convert a 16:9 (or other) aspect ratio screen into a 4:3. They are sold under the following brand names:

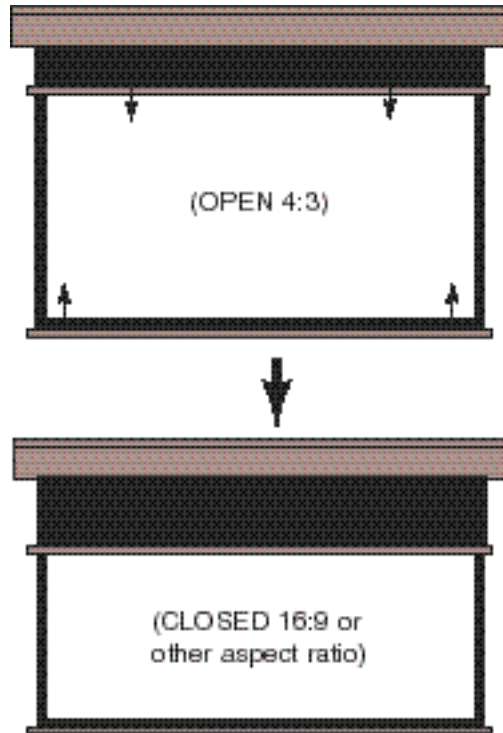
- STEWART Vertical ElectriScreen ElectriMask™
- DA-LITE Dual Masking Electrol™
- DRAPER Access Multiview™



### Electric Roll-Down Screen with Motorized Top and Bottom Masking Panels

This system consists of one screen surface (Typically 4:3) and one upper masking panel. The 4:3 surface is lowered for 4:3 sources and when 16:9 sources are viewed, the 4:3 screen moves up several inches and the black upper masking panel rolls down. The result is a 16:9 viewing surface. These screens are sold under the following brand names:

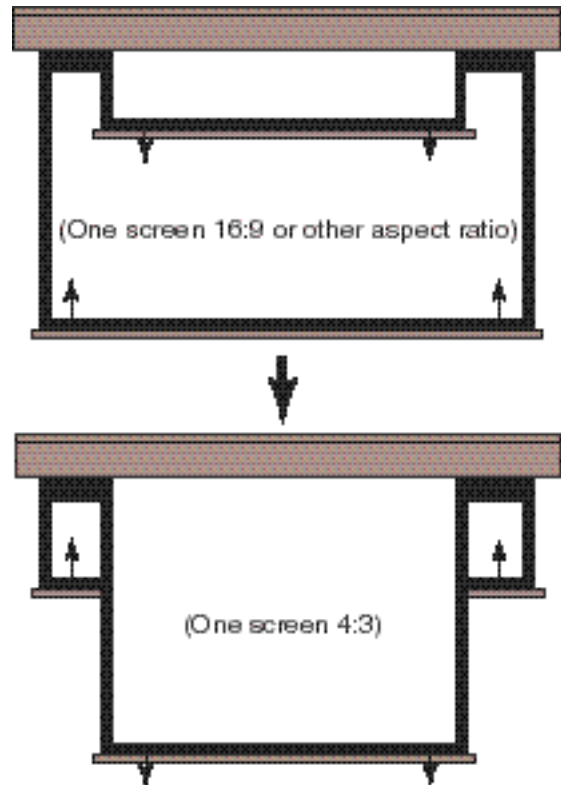
- DA-LITE Horizontal Electrol™
- VUTEC Vision XM™
- DRAPER Access Sonata™



### Dual Aspect Ratio Screen Assembly

Offered as VUTEC Vu-Flex Pro Duplex™. This system consists of two separate screen surfaces housed in the same assembly. One surface is used at a time and both roll down in the same plane so image focus is constant. Typically these screens are ordered with a 4:3 surface and a 16:9 (or other ratio) surface.

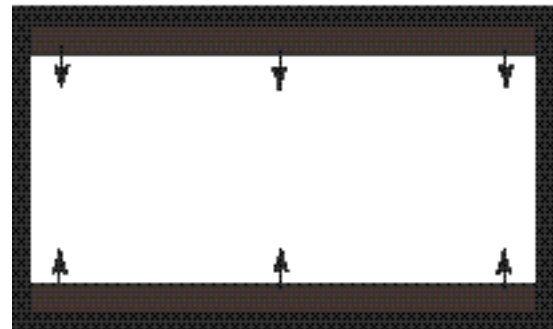
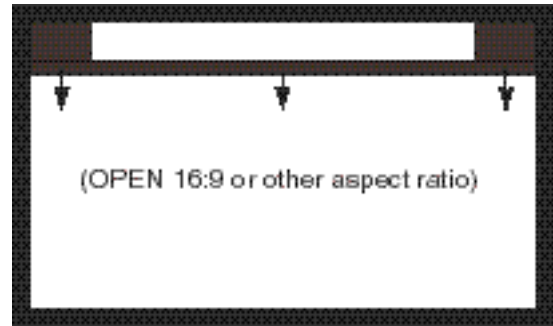
- VUTEC Vu-Flex Pro Duplex™

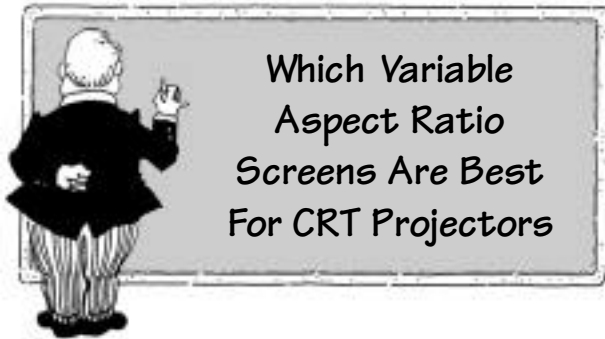


### Flat Screen with Motorized Top and Bottom and Left and Right Masking Panel Assembly

These masking systems consist of a fixed frame assembly that mounts over a stretched flat screen. It has motorized panels that lower on the left and right sides changing a 16:9 (or other) aspect ratio screen to a 4:3 .

- STEWART Ultimate 4-Way Electrimask-Screenwall™ system



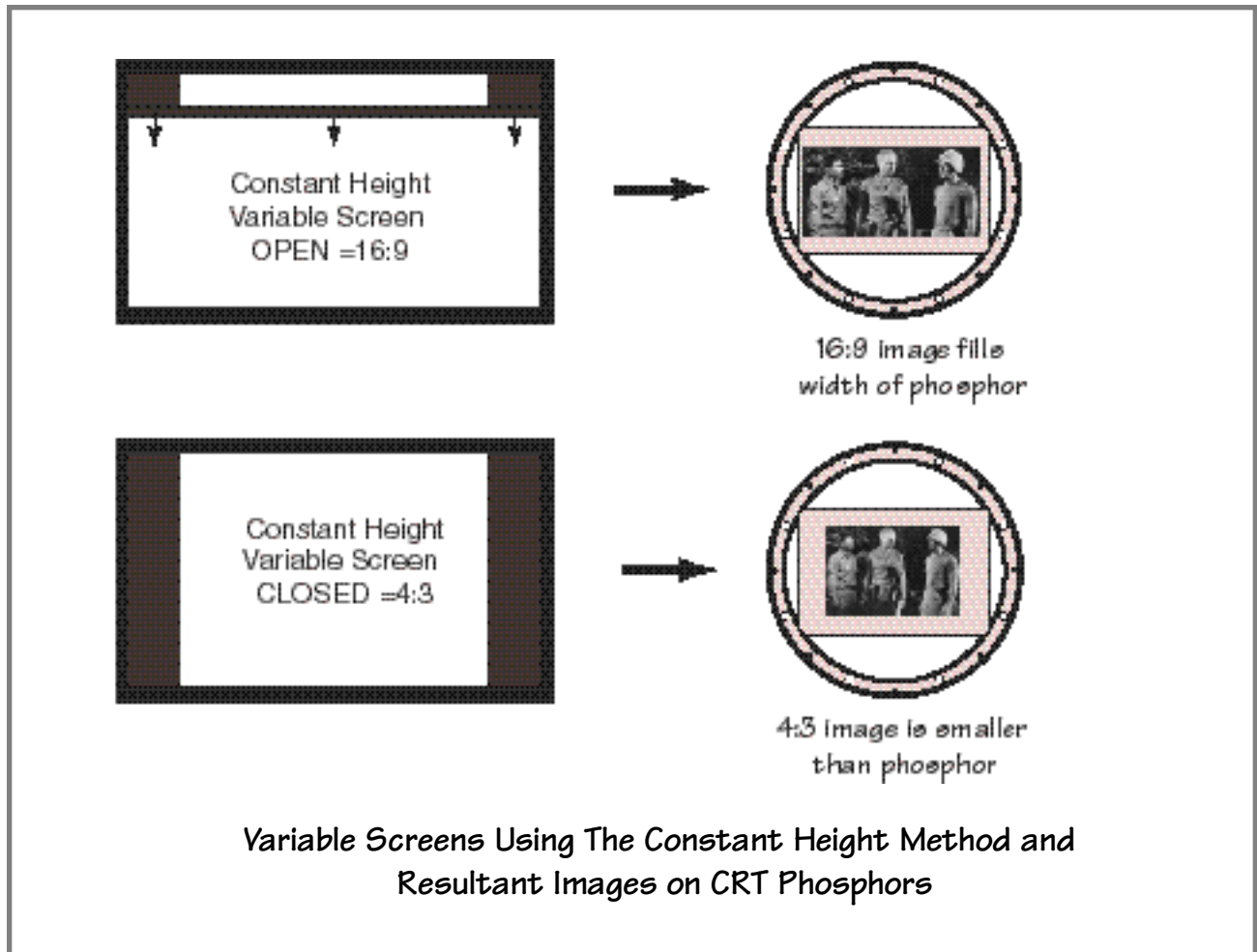


Not long ago, all CRT-based front projection monitors had analog-controlled convergence systems. This meant that the color registration of the three projection tubes was controlled by a complex bank of waveform pots driving analog convergence circuitry. These analog systems worked well enough but suffered from a significant limitation; most allowed registration alignment for one aspect ratio only. Today, CRT projectors are more

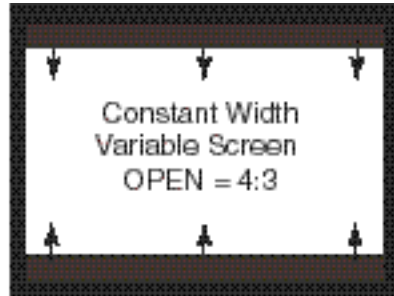
advanced and most offer digital convergence systems which allow for easy switching of image aspect ratios. The result of this advancement, though, is that those that are building a home theater with a front projector have to give some serious thought as to what aspect ratio switching *philosophy* to follow; constant height or constant width.

**The Constant Height Method:** This method keeps the height of the two different projection screens the same. This method works well enough, as far as switching aspect ratios is concerned, but may lead to uneven phosphor utilization. See our diagram below.

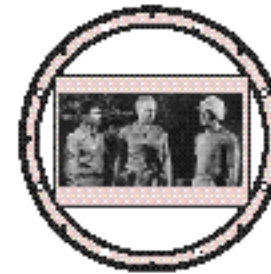
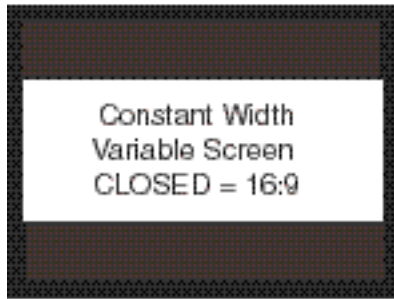
**The Constant Width Method:** This method keeps the width of the two different projection screens the same. Many manufacturers prefer this method because it utilizes the full area of the 4:3 phosphor target in the projection tube. See our diagram on the next page.





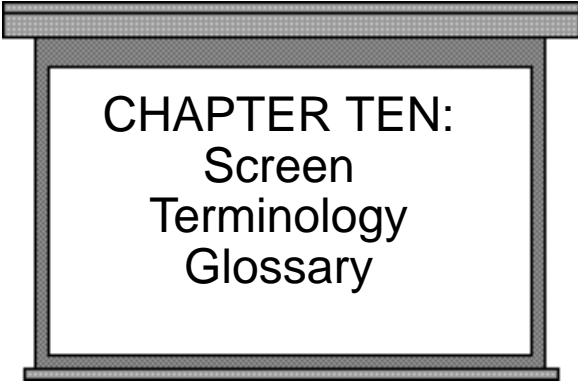


4:3 Image fills the entire phosphor



16:9 Image fills width of phosphor

Variable Screens Using The Constant Width Method and Resultant Images on CRT Phosphors



## CHAPTER TEN: Screen Terminology Glossary

**Ambient Light:** The light in a viewing room produced by sources other than the screen

**Aspect Ratio:** The numeric relationship between a screen's height and width. Generally speaking an aspect ratio defines a "shape".

**Black Drop:** On a rolldown flat screen this is the area that is black on the top or bottom of the picture areas.

**Brightness:** A viewer's subjective response to a display's luminance

**Contrast ratio:** The numeric relationship between the brightest and darkest portions of a video display. It is generally expressed in foot-lamberts as a ratio of max/min.

**CRT:** Cathode ray tube, a vacuum tube where electrons are drawn to phosphor targets via high voltage potentials. This is the technology behind standard "picture" tube-type televisions.

**DLP:** Digital light processor, a technology based on the Texas Instruments DMD micromirror imaging chips. These chips have a field of reflecting mirrors that can be modulated to produce video images.

**Foot-Lambert:** A unit of luminance equivalent to 1 lumen per square foot.

**Fresnel Lens:** A device constructed of a large number of closely spaced concentric circles cut into an optical surface. The circles are cut so that they reduce the incident bend angles of the projection source and collimate the light into one beam.

**Gain:** A measurement of the amount of light radiating perpendicularly from a screen. Unity gain (a gain of 1) is generally standardized via a block of magnesium carbonate.

**LCD:** Liquid Crystal Display, a technology of video display that uses liquid crystal "shutters" to modulated the light passing through the imaging chips. Also referred to as "Transmissive LCD technology".

**Lens Speed:** The ability of a lens to pass light. Expressed in a ratio, it is the focal length of the lens divided by the effective diameter of the lens. A fast lens passes more light and gets a lower rating.

**Lumen:** The quantity of visible light falling on a 1 square foot surface of a sphere 1 foot in radius as radiated by a source of 1 standard candle. This specification is often used to rate the light output of video projectors. Look for ANSI lumen ratings, it is a standardized measurement.

**Luminance:** The brightness of a light source measured in foot-lamberts.

**Pixel:** A picture element. On digital devices, images are usually constructed of pixels fields divided into rows and columns.

**Resolution:** The limit of a display's ability to present fine detail. "Optical resolution" is usually the number of lines seen, "video resolution" is usually the number of "line pairs" seen.

**Scan Lines:** A CRT-based video display creates images by rapidly sweeping electron beam across a phosphor target. As these lines are swept from top to bottom they create scan lines.

**Throw Distance:** The distance from the screen surface to a video display device. This is an important number used in the installation of a video display.

**Viewing Angle:** An angle that specifies a particular viewing location measured from a perpendicular from the screen surface.



NOTES: