Calumet’s Digital Guide
To
View Camera Movements

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What you can expect to find inside

- Types of view cameras
- Necessary accessories
- An overview of view camera lens requirements
- Basic view camera movements
- The Scheimpflug Rule
- View camera movements demonstrated
- Creative options
There are two Basic types of View Cameras

- **Standard “Rail” type view camera advantages:**
  - Maximum flexibility for final image control
  - Largest selection of accessories

- **Field or press camera advantages:**
  - Portability while maintaining final image control
  - Weight
Useful and necessary Accessories

✓ An off camera meter, either an ambient or spot meter.

✓ A loupe to focus the image on the ground glass.

✓ A cable release to activate the shutter on the lens.

✓ Film holders for traditional image capture.

✓ A Polaroid back for traditional test exposures, to check focus or final art.
VIEW CAMERA LENSES ARE DIVIDED INTO THREE GROUPS, WIDE ANGLE, NORMAL AND TELEPHOTO

WIDE ANGLES LENSES WOULD BE FROM 38MM-120MM

FOCAL LENGTHS FROM 135-240 WOULD BE CONSIDERED NORMAL

TELEPHOTOS COULD RANGE FROM 270MM-720MM

FOR PRACTICAL PURPOSES THE FOCAL LENGTHS DISCUSSED ARE FOR 4X5" FORMAT
It's important to understand the “covering power” of a particular lens to be used on a view camera. View camera lenses produce a circle which is called the image circle. For a lens to cover the piece of film entirely the image circle must be a certain size. Here are the sizes for the various formats:

- 161mm for 4x5 film
- 219mm for 5x7 film
- 323 for 8x10 film

These numbers are the “minimum” image circle requirements for the appropriate film sizes. That means that no camera movements can be applied!

Wide angles lenses are used to include much more information on the film, (usually swings, tilts or rise/fall are applied to the camera when using wide angle lenses). When ever a “move” is used with the camera, the image circle needed to “cover” the film surface needs to be equal to the film size format plus the movement applied to the camera, remembering that the lens works on a axis.

**Image circle** - The black lines are the lens with no tilt and the red lines show the change in lens coverage with the lens tilted. If you look at the film plane, you can see that the tilted lens does not cover the film plane, the image circle of the lens is too small with a tilt applied to the camera.
View cameras have 3 basic movements to affect the final image.

Horizontal and vertical movements of the lens-board or the camera back control the image placement on the ground glass.

The swing or tilt of the camera back is used to correct the shape of the image, or to control perspective.

The swing or tilt of the lens-board helps to obtain sharp focus of the image when the principle plane of the subject and the camera back are not parallel.
These are the parts of a view camera

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<th>Part</th>
<th>Description</th>
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<td>The front standard</td>
<td>The lens attaches. The basic movements are rise, fall, swing, tilt and shift.</td>
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<tr>
<td>The back standard</td>
<td>Where the film or digital back goes. The movements are rise, fall, swing, tilt and shift.</td>
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View cameras have several “movements”

Front and back rise
These are the front shifts and swings

Shift Right
Swing Right

Shift Left
Swing Left

Camera centered
These are the tilt movements of the front and rear standards.

- Front tilt forward
- Front tilt back
- Back tilt forward
- Back tilt back
- Camera centered
These are the **swing** and **shift** movements of the camera back.
The Scheimpflug Rule

The Scheimpflug rule summarizes the principles of corrective camera movements. The rule states that a subject will be rendered with the greatest sharpness when lines drawn from the plane of the subject, the plane of the film and the plane of the lens all meet at a common point.

The practical application of this helps the photographer use the movements of the view camera to achieve greater sharpness in the final image without being restricted by using small apertures. By rotating the front and back of the view camera, the planes all meet at a common point.
Here’s the camera set up with no movements, the camera is tilted down.
For this illustration no corrections were used on the camera. You can see that only the center of the box is in focus, with the top and the bottom of the box being out of focus.
This is a full screen example with no corrections applied to the camera.

This is the focus point.
Here’s the camera set up with the lens tilted
This is an example of controlling focus by tilting the lens on the camera.
This full screen example shows the result of tilting the camera lens forward to control focus.
Crafting an image in camera is not simple a matter of pointing the camera.

To create an image that appears to be centered and correct in the final product, camera movements are applied.

This image has the camera back raised.
Using the **rise** and **fall** on the front and back standards, helps the photographer position the image correctly in the camera.

This is the image with no camera movements applied.

This is the effect with back rise.

This is what front rise does to the image.
By using the shift on the front or back of the camera, the photographer can control the image in the camera, without moving the camera.

- **Front shift Left**
- **Front shift right**
- **Image centered in camera**
- **Camera front shifted left**
- **Rear shift right**
No corrections are applied with the responding results
With the box standing up and the camera pointed down the box looks bigger on the top.

No camera movements
Tilting the back makes the box equal on the top and the bottom, the focus still needs work.

Back tilt applied
Box is now equal at the top and the bottom with the camera back and the lens board tilted to parallel with the box.

Front and back tilt
The box is in proper perspective with the correct back and front tilts, and both the lens and back swung to be on the same plane as the box.

The Scheimpflug rule in effect!
One creative advantage of using a view camera is when you want to take a close-up there is no need to change lenses. Simply move the camera closer and extend the bellows (you will also increase the exposure).

The resulting close up.
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