

window photography notes

v3 21.7.22

v4 16.8.22

v5 20.9.22

This document describes the kind of photos we want:

- Take the specified number of high resolution photos of a wide variety of windows
- Provide location information for each photo
- Capture JPG and RAW images.
- Avoid obstructions in front of the windows; although we understand sometimes these are unavoidable.
- Photos should be technically good; this includes resolution of the window, focus, noise etc...
- Comply with local privacy laws; avoid taking photos of people where privacy is expected
- We expect most window pictures to be quite boring. A smaller number of more unusual windows are acceptable.
- Do not photograph the same window twice
- Do not capture more than 2 or 3 similar windows of the same design
- Do not take an excessive number of windows from a single building

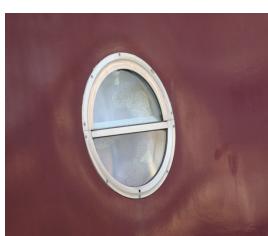
There are more details and examples of each of these below.

If the façade has many **repeated/similar windows**, photo 2 or 3 which have some variety (light, content, wall-colour) e.g.: (rows are similar windows from same façade).





We aim to balance collecting "normal" windows and "interesting" (abnormal, unusual) windows. We expect most photos to be of "normal windows". "**Interesting windows**" should make up less than 20% of the photos, for example the following are interesting:



houseboat



strange signage



historic windows



blind window



arrow-slits in a castle



glass-brick walls



aftermath of protest



garden shed

A variety of viewing angles are expected

- near-perpendicular images should make up about 30% of the dataset



- a variety of real-world viewing angles should make up the other 70%.

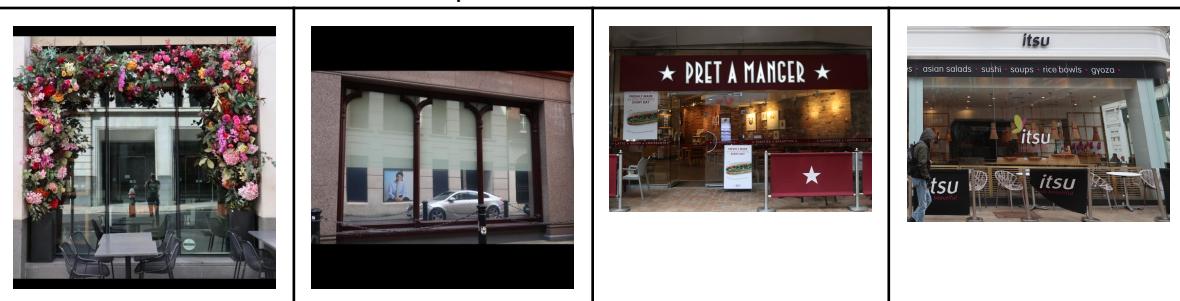


We aim to have the window and the surrounding section of wall in the frame. We aim to have a **resolution of at least 2048x2048** pixels over the window itself. But the preferred resolution is much higher - ideally the camera's maximum.

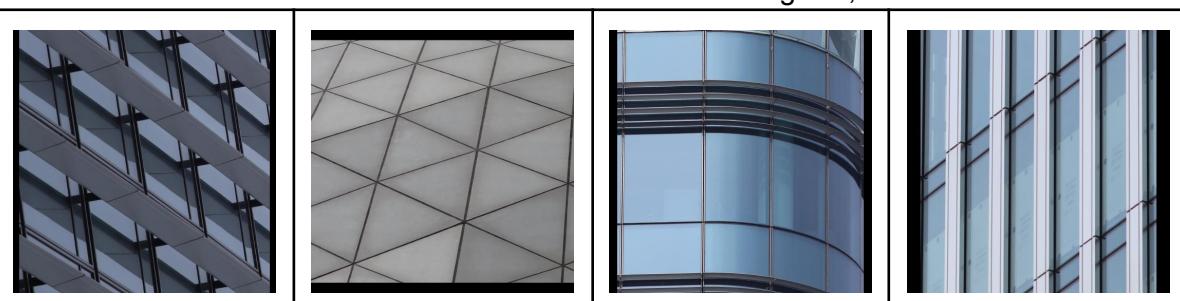


There are two **common special cases** - shops and glass-facades

- shops
 - you may need to use a wide-angle lens to avoid foreground objects...
 - ...getting shots without foreground occlusions is usually impossible, so we are more tolerant here
 - self-reflections are a problem



- glass-facades (e.g., on skyscrapers)
 - photos should show 2-3 repetitions in each direction
 - take extra care that the focus is on frame and glass, and not the reflections



Privacy is an important consideration to the legality and morality of the dataset.

- be aware of your local laws on public photography
- **avoid photos of people where there is a reasonable expectation of privacy** (e.g., people in a restaurant/street are probably fine, but not in their homes)

- **avoid photographing "private" objects** (drying underwear, security sensors...)
- no people/identifiable information at all in "sensitive" areas:
 - schools/daycare
 - hospitals
 - university accommodation
 - etc...

Store the **JPG and RAW** files. Depending on your camera type, the raw file format will vary (CR2, NEF, ARW, or other).

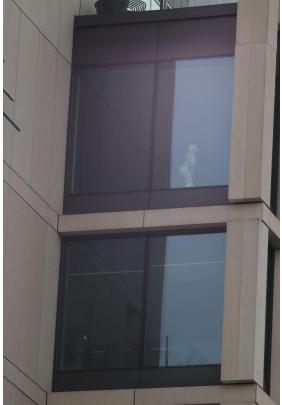
Keep a track of your location as you take the photos. If the camera does not embed the GPS location in the photo file, use an app (such as Strava, then download the *.fit* file from the website) on your phone to record a track. Ensure the time on your camera is accurate so we can extract the images' locations from the track. Remember that this information may be made public, so turn it off before you go home.

Copyright assignment. As per the service contract, upon payment, the rights to all images will belong to us (the clients).

Do not post-process or crop any of the images. The JPG and RAW files from the camera are all that are required.

Image Quality. We expect good technical image quality for the images. The following table shows some examples of mediocre image quality, which should be avoided.

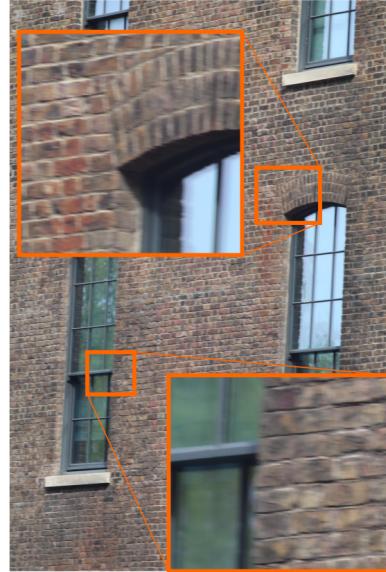
Suggestions for improved image quality:	Bad examples:
<p>Framing. Attempt to capture the whole of the feature and any interactions with the façade (e.g., some wall on each side).</p>	 <p>With more care, all of the arch and sill could have been captured.</p>

	 <p>By moving backwards, or using a wider lens, all of the frame and wall could have been captured.</p>
Rotation. <ul style="list-style-type: none"> • A vertical line on the façade should be vertical in your photograph. • Perspective makes this impossible sometimes. A larger zoom will help. 	 <p>This photo is rotated, and could be improved by rotating the camera.</p>
<p>Avoid images with the photographer in the reflection.</p>	 <p>Taking the photo from a slight angle would avoid this</p>

Motion blur is caused by having a too long exposure, or moving the camera while taking the photograph.

- Using a high zoom causes more motion blur.
- Using a tripod reduces motion blur, but slows you down (perhaps essential at night though)

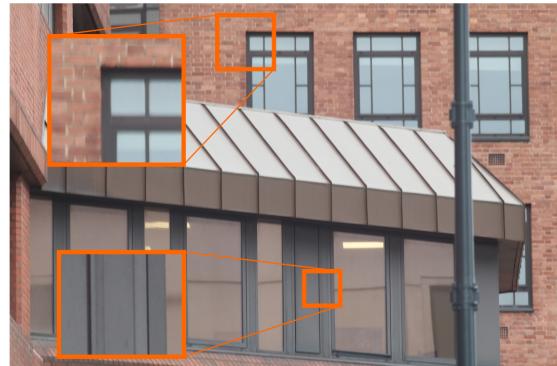
In the image on the right, we note the blur is anisotropic - it is different in different directions. It is also the same over different depths - this means it is probably motion blur.



Holding the camera still and using a faster shutter speed would have solved this

Focus. Ensure that the camera focuses on the window being captured

- the aperture/depth of field should ensure that the whole window is sharp at the resolution desired
- sometimes the camera will focus on things in front of the façade (railings, lamp-posts)
- sometimes the camera will focus on reflections - I avoid this by using a [single focus point](#) which is set on the window frame (by half-pressing the shutter), before framing the window.
- learn to tell the difference between blur caused by bad focus and motion blur



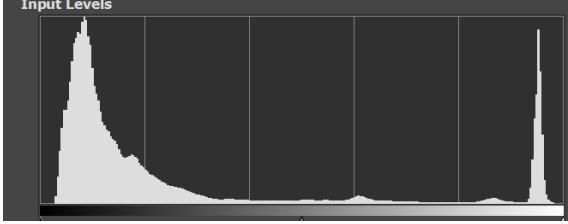
The camera focused on the front/bottom window (sharp), but not the top/back windows (blurry).

Glare. Taking photos into the sun (even when the sun is out of the frame) will reduce the contrast of your image.

- A lens hood may help, but does not remove this entirely.
- Lens flare (when the sun or bright light source is in the image) should also be avoided at all costs.



The grey color and low contrast of the photo is caused by a low sun above the house

	being imaged.
<p>Exposure. Images should not be too dark or light.</p> <ul style="list-style-type: none"> use the "histogram" function on your camera to understand how this works. avoid shadows over part of the image ensure the camera adjusts its exposure for the façade, and not, e.g., the background. The <i>single focus point</i> trick usually helps here too - the camera adjusts its exposure from the single point, and you can place this on the façade. 	 <p>Above image is under-exposed (too dark). The histogram looks like this</p>  <p>Note the big spike to the left - most of the façade is almost black. The little spike to the right is the sky.</p>
<p>Artistic shots. Dataset collection can be monotonous. It can be tempting to take more "artistic" shots, but please avoid.</p>	 <p>This image adds very little value to the dataset.</p>
<p>Lens/sensor dirt. If there is dust on the sensor or back of the lens, you will get dots in the same place on all your images. This is especially visible at small apertures.</p>	 <p>All images with this lens at this focal length have a black dot at the same position in the picture (orange circles). The dot changes</p>

size with different aperture/focus. We don't want these. It's time to clean the camera's sensor and lens!

Examples. Here are some example thumbnails.



When complete, upload the following to a file-sharing service (such as Google Drive, OneDrive etc...) and send us the link:

- JPG images
- RAW images
- Geolocation information (if not embedded in the images)