

SHUTTER BUG ACADEMY / JOHN WHITEHEAD

THE ZONE SYSTEM

See the tones. Place the shadows.
Develop for the photograph you want.



A PRACTICAL BLACK-AND-WHITE FILM GUIDE

HP5 PLUS + ID-11 | Exposure examples, development tests,
roll-film workflow, and a printable field worksheet.

01 / UNDERSTAND THE SCALE

Eleven zones. One language.

Developed by Ansel Adams and Fred Archer, the system connects visualization, exposure, development, and the final print.



Conceptual print-tone scale, not calibrated RGB values. Adjacent exposure zones differ by one stop; printing and scanning determine their final appearance.

Zone	Intended print tone	Useful visual reference
0-I	Black to almost black	No useful texture
II	Very dark	First hint of texture
III	Dark, textured	Shaded wood; dark bark
IV	Dark middle tone	Shaded stone
V	Middle tone	Middle-gray reference
VI	Light middle tone	Pale material in soft light
VII	Bright, textured	White linen with clear folds
VIII	Very bright	Delicate cloud or snow detail
IX-X	Near white to paper white	Minimal detail to none

Placement is a choice. White cloth is not always Zone VII, and every face does not belong on the same zone. Judge illumination, subject reflectance, and the photograph you intend.

02 / ESTABLISH EXPOSURE

Place a shadow on Zone III.

Choose the darkest area that needs texture. A tiny black crack does not need to control the exposure.

1. Set the meter to EI 400.

For this first exercise, use HP5 PLUS at EI 400. Use a reflected-light spot reading that isolates the chosen dark material. Keep bright edges outside the metering area.

2. Read the shaded wooden boards.

Suppose the meter recommends **1/125 second at f/4**. That recommendation would place the boards near Zone V in a normal, calibrated workflow.

3. Give two stops less than that spot reading.

Close the aperture from **f/4 to f/5.6 to f/8**. Your exposure becomes **1/125 second at f/8**. The wood is now placed on III rather than V.

Shadow reading	Adjustment	Camera exposure
1/125 at f/4	-2 stops: V to III	1/125 at f/8

Why less light? The meter would make the shadow a middle tone. You reduce that reading to keep it dark. This is not a rule to subtract two stops from a whole-scene reading.

4. Recompose and keep the chosen exposure.

Use manual exposure or a reliable exposure lock. A new automatic reading after recomposing can undo the placement. You may change shutter and aperture together for an equivalent exposure.

Exposure determines the information recorded in dark areas. All scene values move when camera exposure changes; you cannot move only the shadow.

03 / READ THE REST OF THE SCENE

Where will the linen fall?

Example readings at EI 400 and 1/125 second. These values are assigned for instruction, not measured from the image.



A: meter dark boards with texture. B: meter a bright fold that needs detail, not the smallest glint.

Spot	Meter recommendation	Interpretation
A / wood	1/125 at f/4	Place on III using f/8
B / linen	1/125 at f/16	4 stops above wood: predicts VII

III + 4 stops = VII. The camera stays at 1/125 at f/8. Metering the linen checks its placement; it does not replace the shadow exposure.

Use N if this relationship suits your print. The prediction assumes a normal calibrated mapping; the negative curve, flare, paper, and scan settings affect the final tones.

04 / SEE THE EXPOSURE DIFFERENCE

Shadow detail starts in-camera.

A bright-looking scan cannot restore texture the negative never recorded.

INSUFFICIENT SHADOW EXPOSURE



INTENDED DARK TEXTURE



Compare the large door on the left of each frame. In the insufficient-exposure simulation, its boards merge; in the intended rendering, the door remains dark but the grain survives.

Exposure at 1/125	Relative to the shadow reading	Placement
f/16	4 stops less than f/4	I: little useful texture
f/8	2 stops less than f/4	III: dark texture
f/4	Use the reading unchanged	V: middle tone

Exposure is not the same as print brightness.

You can darken a well-exposed negative in printing. A thin, underexposed negative may print dark too, but the missing shadow separation is a different problem.

Think in negative densities.

Dark subjects make relatively clear negative areas; bright subjects make denser areas. Adequate shadow exposure creates useful separation above the film base and fog.

05 / HIGH SCENE CONTRAST

Keep the shadow. Restrain the high value.

Use development contraction when the intended highlight is too high for the output you want.

DIFFICULT STRAIGHT PRINT



INTENDED CONTRAST CONTROL



AI simulations: compare plaster relief while the door remains textured. The left models a difficult straight print from dense highlights. The right illustrates the intended result of contrast control, not a measured N-1 test.

Example readings at 1/125	Placement and decision
Wood f/4; plaster f/22	5 stops apart
Expose at f/8	Wood III; plaster predicts VIII with N
Want the plaster near VII?	Use tested N-1, retaining adequate shadow exposure

N-1 describes a calibrated contraction, not one minute less. It means bringing a chosen high value about one zone lower than normal development would produce, while preserving useful low values.

A five-stop range does not automatically require N-1. If a delicate Zone VIII highlight is your intention, N may be the right choice.

06 / LOW SCENE CONTRAST

Let the atmosphere decide.

A misty photograph does not need black shadows and brilliant whites to succeed.



The quiet rendering is intentional.

Example at EI 400 / 1/125	Result
Bark f/4; important mist f/11	3 stops apart
Expose at f/8	Bark III; mist predicts VI
Want a brighter, more separated high value?	Test N+1 to move it toward VII

Expansion is optional.

Use N to retain softness, or test longer development for more separation. A harder paper grade or a later scan adjustment may be sufficient, especially on a mixed-contrast roll.

N+1 is not automatically a push. Here, exposure still protects the shadow. Development changes contrast. Pushing generally starts with a higher EI and reduced exposure.

07 / A REPEATABLE STARTING PROCESS

HP5 PLUS + ID-11 1+1

For 35mm or 120 in an intermittent-agitation tank. Establish your own N before naming N-1 or N+1 times.

Published baseline [2]
EI 400 / 20°C (68°F) / 13:00
This is a starting time, not a universal personal N.

Prepare one consistent process.

Mix equal parts ID-11 stock and water just before use; discard the diluted working solution after use [3]. Check solution capacity and tank coverage. Keep temperature, timing, filling, and draining consistent.

Use the stated agitation.

Four inversions in the first 10 seconds, then four in the first 10 seconds of each further minute. ILFORD advises no pre-rinse for this film [2]. Do not use these times unchanged for rotary processing.

Trial from 13:00	Time	Meaning
0.80 x baseline	10:24	Reduced-development test
1.00 x baseline	13:00	Baseline test
1.20 x baseline	15:36	Extended-development test

The ±20% brackets above are exploratory choices for this guide. They are not ILFORD N-1 or N+1 specifications and do not guarantee a one-zone change. Recalculate from your tested N; do not transplant these times to another dilution or temperature.

Complete the normal finishing process.

Stop, fix, wash, and use wetting agent according to the products in use. Do not shorten fixing or washing to match reduced development. Load film in complete darkness.

Handle chemistry according to the product labels and safety data. Keep chemical containers separate from food and drink.

08 / CALIBRATE YOUR RESULTS

Find your EI. Then find your N.

One variable at a time. The finished print or scan is the test that matters.

A / Test shadow exposure first.

Photograph a stable scene containing dark texture, a middle tone, and pale texture. At EI 400, place the important shadow on III. Repeat with +1/3 stop and +1 stop exposure: roughly EI 320 and EI 200 equivalents. Develop these frames together at the baseline.

B / Compare useful dark detail.

Choose the least exposure that consistently gives the shadow texture you need, allowing a practical margin. More exposure is not always better; changing EI also changes the exposure received by the highlights.

C / Test development separately.

At the chosen EI, repeat identical exposures on separate rolls, backs, or sheets. Process matched samples at N and the shorter and longer trial times. One intact roll cannot receive three different development times.

D / Standardize the output.

For prints, hold paper grade constant and adjust print exposure to a consistent low-value reference. Then compare the high values. For scans, disable automatic tonal correction and use the same capture settings, inversion, and tone curve.

Only after testing: call a time N-1 or N+1 when it moves the selected high value by about one zone in your workflow. Recheck shadow performance after major development changes.

Advanced option: use a densitometer.

A traditional Zone I speed-test reference is about 0.10 density above base plus fog. Confirm practical Zone III texture too. A density target alone cannot tell you whether you like the final photograph.

09 / USE IT ON A WHOLE ROLL

Individual exposures. Shared development.

35mm and 120 benefit from careful placement even when every frame cannot receive a separate process.

Working situation	Practical approach
First mixed-lighting roll	Place important shadows; develop normally. Adjust individual images in printing or scanning.
Several scenes with similar contrast	Dedicate a roll to one development plan. Label it clearly.
Interchangeable backs or separate bodies	Group exposures by planned N, N-, or N+ process.
Sheet film	Process sheets or compatible groups independently.
Lab development	Agree on a specific tested process; “pull one stop” may not mean your N-1.

Use the system to see better.

You learn which dark shapes must separate, which high values carry attention, and which details can disappear. More predictable negatives reduce corrective work later.

Keep the creative decisions.

A silhouette can be black. A glint can be white. A misty image can stay gentle. You do not need every zone in every photograph, and technical control does not replace light, timing, or composition.

Start simply: one film, one developer, one dilution, normal processing, and reliable shadow placement. Add development control after the exposure decisions become familiar.

10 / PRINT AND TAKE WITH YOU

Field notes & processing record

Complete this before development. Keep it with the negatives and a reference print or scan.

Date / location:

Camera / lens / filter:

Film / roll or holder number:

Meter / selected EI:

Dark texture to preserve / chosen zone:

Shadow reading (shutter + aperture):

Highlight reading (same shutter or same aperture):

Stop difference / predicted highlight zone:

Final camera exposure:

Desired highlight rendering / planned process:

Developer / dilution / temperature / time:

Agitation / process notes:

Print grade or scan settings / result:

Change to test next time:

11 / REVIEW AND REFINE

Read the result, then change one thing.

Use evidence from the negative and a consistent output before blaming the film or the meter.

What you see	What to check next
Weak or absent shadow texture	Meter aim, shutter accuracy, EI, and exposure. Extra development cannot reliably restore unrecorded detail.
Good shadows; difficult dense highlights	Try a softer print grade or better scan first. Test shorter development for future similar scenes.
Good shadows; insufficient separation	Check scan auto-correction and print grade. If the scene needs expansion, test longer development.
Different frames need different contrast	This is normal on mixed rolls. Use individual print or scan controls.

Sources & further study

- [1] ILFORD HP5 PLUS: current product and formats
- [2] HP5 PLUS technical data: baseline time and agitation
- [3] ILFORD powder developers: ID-11 preparation
- [4] Reveni Labs: spot metering and zone assignment
- [5] John Finch: exposure and development contrast control

Further reading: Ansel Adams, The Negative. Sources checked October 13, 2026. The manufacturer PDFs may carry earlier publication dates.