First off, the overall documentation is excellent. Everything is clearly explained, and your illustrations and document formatting are excellent. There might be a few places where the main text wraps around an illustration where it might be better for it not to.
The Annex / Appendix section is great too, I find it adds a level of completeness and good balance of code and illustration.
Now, I, with some work, can probably figure out what's going on with the mask vs color map in the pattern, but just casually reading the documentation, it's not as clear as it could be. Maybe think about how to visually explain it, and the rest will follow.
The 100 cm scale is nice, but maybe either rotate the text around -x a bit more (it looks like "100 om") put the numbers atop the scale divisions (0, 10, … 50 … 100), or use smaller text and write out "100 centimeters".
Color "vectors" might be a confusing terminology. rgb and srgb color triplets? tuples?

Other than the little nit-picks, and probably some spelling typos that I missed, it seems "rock solid". :D

Next should be the POV-Ray 3.8 beta granite scene contest.

Granite_21 macro - Documentation - version #2
Granite_21 macro : How does it work?
by
Thomas de Groot & Bill "Bald Eagle" Walker
General introduction to granites
Granites are classified as intrusive, or
plutonic, igneous rocks 1 .
So, I would just suggest that either it is mentioned that a short glossary of terms is appended to the main text, or at least a minor parenthetical definition is provided for technical terms (plutonic, intrusive) that you're coming right out of the gate with. I think it's just a style thing, that makes for friendlier reading.
Slow cooling of
plutonic magma beneath the surface of
the Earth results in macroscopic as-
semblages of juxtaposed and closely
packed minerals that show different
forms, colours, sizes, and compositions.
In contrast, volcanic glasses such as ob-
sidian, are the amorphous product of
rapidly cooling volcanic igneous rocks
which solidify before crystallization can
occur.
The overal colour of granites (white,
pink, or grey) is controlled by the relat-
ive proportion of each mineral, which
facilitates the optical classification of a
given rock sample. Sometimes, particu-
larly large crystals (phenocrysts 2 , often
plagioclase 3) are present and can help Fig. 1: QAPF diagram with granite field highlighted in yellow (after
Kent G. Budge).

with the identification.
Figure 1 shows a QAPF diagram (Quartz, Alkali feldspar, Plagioclase, Feldspathoids, also known as a Streckeisen diagram) which is used by the scientific community for the classification of igneous rocks. More information on this can be found here 4 and for granites in general, here 5 .
The modelling of granites: maps and masks
To simulate a real world granite in POV-Ray, we make use of a colour map (representing the different minerals/colours of the granite as basis for its pigment) and a colour mask (i.e. a colour_map-based pigment_pattern used within the granite texture) which controls the distribution of those same minerals/colours. Necessarily, there is a close relationship between maps and masks as mineral/colour boundaries within a particular granite must correspond to their mask boundaries. The
(1)
(2)
(3)
(4)
(5)
https://www.usgs.gov/faqs/what-are-igneous-rocks?qt-news_science_products=0#qt-news_science_products
https://en.wikipedia.org/wiki/Phenocryst
https://en.wikipedia.org/wiki/Plagioclase
https://en.wikipedia.org/wiki/QAPF_diagram
https://en.wikipedia.org/wiki/Granite

final texture is pretty complex as additional differential scaling perturbes the final aspect of the texture. In the following paragraphs we shall explain how this is achieved by the macro, illustrated by comprehensive examples and diagrams. To make things easier to understand, the different parts of the macro are described separately.
Granite pigment creation
Sections 1 through 3 of the macro concerns (concern) the creation of granite pigments (Fig. 2). The input to
this part of the macro - independently from the different parameters which will be described later - consists of three different colour map arrays (prefixed with A_) for each granite type file:
A_Granite_map1: describing the different minerals/colours;
A_Granite_map2: describing the veins crossing the granites (discussed separately below);
A_Granite_mask: describing the (spatial) distribution of the different minerals/colours.
Examples are from the (default) Dakota Red Granite data (Table 1). Note that "not_0" used in the arrays represents a small value (1/265) which is small enough to render a completely black pixel, but which retains the ability to contribute to the multiplicative result of colour and intensity calculations resulting from strong illumination, radiosity, etc.).
Since granites consist of close-packed, discrete assemblages of minerals, this can be simulated by sharply-bounded groups of colours, with each group representing a different mineral (Table 1).

The first array (A_Granite_map1) is read
into the macro's C_Granite_map1 col-
Fig. 2: Pigment generation (sections 1 to 3).
our map. The second array
(A_Granite_mask) is read into the macro's C_Granite_mask colour map. This last colour_map controls one of the granite pigment patterns: cells or step noise (SN) while crackle uses its own colour_map (Fig. 2). A pigment is then generated by the combination of one of the pigment_patterns controlling the colour_map.
It might make some of this slightly easier to follow, and to jump back and forth, if you used some keyword/syntax highlighting with colors, quotes, bold, italics to denote POV-Ray's in-built patterns, user-written macros, variable names, etc. (cells, step noise, Blend, etc.)
Note that the mask map does not necessarily have the same number of index values as the colour map, but the index values representing the boundaries between each mineral necessarily have identical values (Table 1).
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Blend, the other internal pattern provided by the macro (blend_mask, Fig. 2) and developed originally by Tekno Frannansa (aka Tek) makes use of the generated pigments to provide a blended version of them. This can be very useful to simulate a weathered aspect of the granite for example.
I really like the illustrations of the texture features on the bunny. However to more clearly illustrate and explain the point made in the text, it might be worth rendering a wide bar for something like Blend to show two pure patterns on either side and then in the center how they are blended. The actual granite color maps might or might not be the best for this. Sometimes black and white or a garish mix of primary colors shows off the underlying pattern best.

```
#declare Map1_entries = 18;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <not_0, not_0, not_0>},
{0.25, <0.059, 0.059, 0.059>}, #declare Mask_entries = 14;
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <not_0, not_0, not_0>},
{0.25, <not_0, not_0, not_0>},
{0.25, <0.086, 0.027, 0.059>},
{0.35, <0.086, 0.027, 0.059>}, {0.25, <0.100, 0.100, 0.100>},
{0.35, <0.100, 0.100, 0.100>},
{0.35, <0.118, 0.118, 0.078>},
{0.45, <0.118, 0.118, 0.078>}, {0.35, <0.250, 0.250, 0.250>},
{0.45, <0.250, 0.250, 0.250>},
{0.45, <0.200, 0.137, 0.110>},
{0.50, <0.150, 0.087, 0.060>},
{0.57, <0.200, 0.137, 0.110>}, {0.45, <0.500, 0.500, 0.500>},
{0.57, <0.500, 0.500, 0.500>},
{0.57, <0.600, 0.600, 0.600>},
{0.63, <0.600, 0.600, 0.600>},
{0.57, <0.400, 0.337, 0.310>},
{0.60, <0.350, 0.287, 0.260>},
{0.63, <0.400, 0.337, 0.310>},
{0.63, <0.700, 0.700, 0.700>},
```

{0.75, <0.700, 0.700, 0.700>},
{0.63, <0.769, 0.329, 0.298>},
{0.70, <0.669, 0.229, 0.198>},
{0.75, <0.769, 0.329, 0.298>},
}
{0.75, <0.600, 0.600, 0.600>},
{0.85, <0.550, 0.550, 0.550>},
{1.00, <0.650, 0.650, 0.650>}
{0.75, <0.900, 0.900, 0.900>},
{1.00, <0.900, 0.900, 0.900>}
}

Table 1: Correspondance between the colour_map (column 1) and pigment_pattern (column 3) arrays. Visualisation of
both arrays is shown in column 2.

As the granite mask is used as a pigment_pattern, changing the rgb-values of its colour_map changes the aspect of the granite pigment and, as explained later, the aspect of the granite texture. How pigment patterns work exactly is explained in the POV-Ray documentation 6 . The user is invited to experiment by making changes to the mask's colour_map when choosing the cells or the step noise pigment pattern (remember: the crackle pattern uses its own map!), for instance by reversing the rgb values in the list, and compare the rendered texture with the original one (Fig. 3).

I would suggest saying “mapping” rather than “rgb values”, as the values stay the same, it is only their placement in the color map that gets changed.

A very large number of different granites can thus be generated from a single basic concept. Do not change the colour_map entries in the A_Granite_mask array however, without also changing the corresponding entries in the A_Granite_mask1 array!

(6) https://wiki.povray.org/content/Reference:Pigment_Pattern

Fig. 3: Reversing the rgb colour map values of the A_Granite_mask array, changes the visual aspect of the final granite
texture. (a) is the original array; (b) has the rgb values inverted.

Also here (above), I would say reversing the rgb color map entries and the rgb entry mapping is inverted. Just avoid confusion with an actual rgb color inversion which might imply that rgb 0 gets inverted to rgb 1.

A_Granite_map2, which controls the appearance of the (quartz) veins intersecting a given granite, is a mixed array with the following format:

#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][3] {
{0.000, <0.800, 0.800, 0.800>, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.150},
{0.011, <1.000, 1.000, 1.000>, 1.000},
{1.000, <1.000, 1.000, 1.000>, 1.000}
}

This array describes the colour map of the quartz. It is a bit different from the minerals colour map in that it also contains filter and transmit information. Especially the filter information is highly experimental at this stage and may substantially change in the future. When enabled, a veins texture will be layered over the main granite texture. As this feature is still in an experimental phase, it is advised to not change anything to this array and copy it verbatim from one granite include file to

the next. Things may change in the future though.
In section 4 of the macro, the data from this array are fed into the internal C_Granite_map2 colour map, which in turn is the core of the P_Granite_veins pigment that employs a marble pattern.
Granite texture creation
In section 5 of the macro (Fig. 4), the texture generation, we employ the same pigment patterns used in section 3 (Fig. 2). However, they are implemented for a different reason, and in a different way. This time they control the distribution of the granite pigments at different scales throughout the granite texture . An array (A_Granite_var) serves as input for additional variations. It has the following format:
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#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.15},
{0.25, 1.00, 0.18},
{0.35, 1.00, 0.18},
{0.40, 0.50, 0.15},
{0.60, 1.00, 0.15},
{0.65, 0.50, 0.18},
{0.75, 1.00, 0.18},
{0.80, 0.50, 0.15}
}
Like in the arrays discussed previously, the first elements are the pigment or normal map entries. The second ele-
Fig 4: Texture generation (section 5).
ments control the strength of the normal pattern (only frosted version of the granite) in the normal map. The third elements scale both the pigments in the pigment map, and the normal patterns in the normal map. The purpose of these last elements is to provide a visual size variation of the granite minerals in the texture. When experimenting with these scale values, be careful to keep the variations relatively small and close to each other. A larger variation rapidly becomes 'artificial' (fig. 5).
In figures intended for comparison, especially when there is no dynamic scaling of the image (hyperlink to a larger, higher resolution) I would either make the change much greater and therefore unmistakable, label the feature of interest with a call-out, or both. I would probably make the veins in the pattern a bit wider simply to clearly show them in the “Type” illustration.
Fig. 5: Changing the scale value in the A_Granite_var array. (a) is the original array; (b) uses more extreme scale val-
ues.
Also in this section, different finish blocks are generated, corresponding to either the polished or the frosted versions of the granite, and whether or not the granite contains veins (layered texture). Finally, the normal block for the frosted version of the granite is generated.
The veins texture (Fig. 4) has its own finish blocks (polished or frosted) and a normal block where the normal map is controlled by the same pigment (P_Granite_veins) used in the pigment pattern. Still experimental is the use of subsurface light transmission. The macro parameter SubS switches this on in this section's finish blocks. [to be developed further]
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The granite textures have been structured and scaled in such a way that they correspond to a fairly fine-grained real-world granite. This means that applying this texture to an arbitrarily-sized object

without any further scaling will show a real-world-scale granite texture. One POV-unit corresponds to 100 cm (fig. 3 and 5).
To state this more clearly and accurately, I'd probably say something like, "Using a scene scale of One POV-unit to 100 cm, this texture, when applied to any object without any post-texture scaling will show a real-world-scale granite texture."
Maybe show an example of [object, scale, texture] vs [object, texture, scale]
Granite material creation
In section 6 of the macro, everything is pulled together into the final material. An interior block is added with an ior value choosen (chosen) as a good compromise for feldspars and quartz.
An interior block is added with an ior value (N) chosen as a good compromise between feldspars (N) and quartz (N).
Further develop-
ment of the interior may include media to be combined with the subsurface light transport.
Still within the macro structure, the user can apply internal transformations to the texture. He may for instance want to rotate the texture (can be useful when using veins), translate it (also useful with veins enabled), or scale the complete texture up or down for particular reasons. The parameters M_scale (defaults to <1,1,1>), M_rotat (defaults to <0,0,0>), and M_trans (defaults to <0,0,0>) are provided as input parameters (see below).
Macro parameters and their use
Required parameters
Granite_file
The include file that describes the granite through (user-defined) arrays and read into the macro.
default: "DakotaRedGranite.inc"
CSC
Colour Space Conversion: Assuming that the input colour vectors are defined as rgb, conversion to srgb is possible by using value 1 to convert directly to a "raw" srgb vector (middle on image), or 2 by using a conversion macro (right on image). Any other value just keeps the rgb vectors (left on image).
default: 2;
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Pol
Switch to turn 'on' the polished version of the granite (left half of image). When 'off', the frosted version is rendered (right half of image).
default: off;
Type
Type switches the veins crossing the granite on/off (image is 'on'). Warning! This parameter is still in an experimental stage.
default: off;
Pat1
Pat1 (pigment pattern at the pigment level) and Pat2 (pigment pattern at the texture level) are described here together. Three patterns are proposed: (1) cells; (2) step noise; (3) crackle solid. The Pat1 patterns are the fundamental building blocks of the granite at the pigment level,

simulating the mineral assemblages.
default: 2;
Pat2
At the texture level, tthe (the) Pat2 patterns are used to modulate the aspect of the granite.
An interior block is
The concept of “the aspect of the granite” is a bit – vague.
As such, they can be different from the Pat1 patterns (increasing the number of different possible granites). In the image, only three options are shown: Pat1=Pat2=1 (left); Pat1=Pat2=2 (centre); and Pat1=Pat2=3 (right).
default: 3;
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Blend
By switching Blend 'on', the granite pigments are 'blended' using the internal blended cells pattern macro by Tekno Frannansa. This simulates a weathered granite. See also the BC_Blur parameter below.
default: off;
Optional parameters
SN_Start; SN_End; SN_Turb
The step noise pattern can be controlled by these three parameters. When The two first are set to the same value (0-1) the pattern corresponds exactly to the cells pattern. With SN_Start = 0 and SN_End = 1, the pattern comes as close as it can get to f_noise3d().
I would probably show cells, f_noise3d, and SN to more clearly illustrate this. And IIRC, I experienced some issues with this pattern looking good unless the values were centered around 0.5. Maybe just make a note that the values can be shifted anywhere bewteen 0 and 1, and so that range of transition can therefore be shifted within the 0 to 1 envelope, if things don’t look good.
SN_Turb controls the warp turbulence of the pattern. It is best to leave these parameters alone. An example is given here with default SN_Start and SN_End at left, SN_Start=SN_End=0.2 in the middle, and SN_Start=0 and SN_End=1 at right.
SN_Start default: 0.2;
SN_End default: 0.8;
SN_Turb default: 0.325;
BC_Blur
This parameter controls the amount of blurring used in the blended cells macro. The example uses a value of 0.5; compare with the default 'Blend' example above.
default: 2;
Optional transformations of the material
M_scale; M_rotat; M_trans
The end material can be scaled, rotated, and translated, at will. Scaling in particular will break the relationship with real world granite dimensions however. Rotation and translation

can be of help when veins are enabled.
M_scale default: <1.0, 1.0, 1.0>;
M_rotat default: <0.0, 0.0, 0.0>;
M_trans default: <0.0, 0.0, 0.0>;
8Granite_21 macro - Documentation - version #2
Subsurface light transport (experimental parameters)
SubS
This feature is still experimental and may change in the fu-
ture. The default translucency value is based on the Dakota
Red granite.
default: off;
Translucency
default: <0.669, 0.229, 0.198>*1;
You can certainly keep the present illustration, as it shows what can be done with the texture, but I would probably like to see a version with the quartz veins as a prominent feature. I would imagine the prmary application of SSLT would be not to the granite proper, but the translucent veins.
This is also likely to be a feature that warrants a more extensive tutorial-scale explanation in Version 3 or 4.
Colophon
In January 1996, Daniel Mecklenburg Jr., aka Code Warrior, posted in https://groups.google.com/g/comp.graphics.rendering.raytracing/c/OH1eY_l2WxI the first known version of the original set of code for POV-Ray that lies at the basis of the present macro. Somehow, this set of code found its way into early include files developed at the time by different users. It is probable that one of us (TdeG) found the set late in the nineteen nineties or early in the twenty first century. Nothing really important happened after then until the early months of 2021. The Granite_21 macro is the result.
July 2021
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Annex 1: Dakota Red Granite
#declare Map1_entries = 18;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <not_0, not_0, not_0>},
{0.25, <0.059, 0.059, 0.059>},
{0.25, <0.086, 0.027, 0.059>},
{0.35, <0.086, 0.027, 0.059>},
{0.35, <0.118, 0.118, 0.078>},
{0.45, <0.118, 0.118, 0.078>},
{0.45, <0.200, 0.137, 0.110>},
{0.50, <0.150, 0.087, 0.060>},
{0.57, <0.200, 0.137, 0.110>},
{0.57, <0.400, 0.337, 0.310>},
{0.60, <0.350, 0.287, 0.260>},
{0.63, <0.400, 0.337, 0.310>},
{0.63, <0.769, 0.329, 0.298>},
{0.70, <0.669, 0.229, 0.198>},
{0.75, <0.769, 0.329, 0.298>},
{0.75, <0.600, 0.600, 0.600>},
{0.85, <0.550, 0.550, 0.550>},

{1.00, <0.650, 0.650, 0.650>}
}
#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][4] {
{0.000, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.001, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.011, <1.000, 1.000, 1.000>, 0.000, 1.000},
{1.000, <1.000, 1.000, 1.000>, 0.000, 1.000}
}
#declare Mask_entries = 14;
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <not_0, not_0, not_0>},
{0.25, <not_0, not_0, not_0>},
{0.25, <0.100, 0.100, 0.100>},
{0.35, <0.100, 0.100, 0.100>},
{0.35, <0.250, 0.250, 0.250>},
{0.45, <0.250, 0.250, 0.250>},
{0.45, <0.500, 0.500, 0.500>},
{0.57, <0.500, 0.500, 0.500>},
{0.57, <0.600, 0.600, 0.600>},
{0.63, <0.600, 0.600, 0.600>},
{0.63, <0.700, 0.700, 0.700>},
{0.75, <0.700, 0.700, 0.700>},
{0.75, <0.900, 0.900, 0.900>},
{1.00, <0.900, 0.900, 0.900>}
}
#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.15},
{0.25, 1.00, 0.18},
{0.35, 1.00, 0.18},
{0.40, 0.50, 0.15},
{0.60, 1.00, 0.15},
{0.65, 0.50, 0.18},
{0.75, 1.00, 0.18},
{0.80, 0.50, 0.15}
}
10
#declare Translucency =
<0.669, 0.229, 0.198>*1;Granite_21 macro - Documentation - version #2
Annex 2: North American Pink Granite
#declare Map1_entries = 14;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <not_0, not_0, not_0>},

```
{0.15, <not_0, not_0, not_0>},
{0.15, <0.576, 0.435*0.50, 0.482*0.50>},
{0.35, <0.576, 0.435*0.50, 0.482*0.50>},
{0.35, <0.635, 0.506*0.25, 0.455*0.25>},
{0.45, <0.635, 0.506*0.25, 0.455*0.25>},
{0.45, <0.675, 0.506*0.75, 0.455*0.75>},
{0.57, <0.675, 0.506*0.75, 0.455*0.75>},
{0.57, <0.961, 0.863, 0.843>},
{0.63, <0.961, 0.863, 0.843>},
{0.63, <0.275, 0.275, 0.275>},
{0.72, <0.275, 0.275, 0.275>},
{0.72, <0.196, 0.196, 0.196>},
{1.00, <0.196, 0.196, 0.196>}
}
#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][4] {
{0.000, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.001, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.011, <1.000, 1.000, 1.000>, 0.000, 1.000},
{1.000, <1.000, 1.000, 1.000>, 0.000, 1.000}
}
#declare Mask_entries = 14;
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <0.010, 0.010, 0.010>},
{0.15, <0.010, 0.010, 0.0510>},
{0.15, <0.100, 0.100, 0.100>},
{0.35, <0.100, 0.100, 0.100>},
{0.35, <0.250, 0.250, 0.250>},
{0.45, <0.250, 0.250, 0.250>},
{0.45, <0.500, 0.500, 0.500>},
{0.57, <0.500, 0.500, 0.500>},
{0.57, <0.600, 0.600, 0.600>},
{0.63, <0.600, 0.600, 0.600>},
{0.63, <0.700, 0.700, 0.700>},
{0.72, <0.700, 0.700, 0.700>},
{0.72, <0.900, 0.900, 0.900>},
{1.00, <0.900, 0.900, 0.900>}
}
#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.15},
{0.25, 1.00, 0.18},
{0.35, 1.00, 0.18},
{0.40, 0.50, 0.10},
{0.60, 1.00, 0.15},
```

{0.65, 0.50, 0.18},
{0.75, 1.00, 0.18},
{0.80, 0.50, 0.15}
}
11
#declare Translucency =
<0.669, 0.229, 0.198>*1;Granite_21 macro - Documentation - version #2
Annex 3: Southern Gray Granite
#declare Map1_entries = 17;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <0.880, 0.880, 0.880>},
{0.07, <0.745, 0.745, 0.745>},
{0.10, <0.880, 0.880, 0.880>},
{0.10, <not_0, not_0, not_0>},
{0.15, <not_0, not_0, not_0>},
{0.15, <0.980, 0.980, 0.980>},
{0.22, <0.745, 0.745, 0.745>},
{0.30, <0.980, 0.980, 0.980>},
{0.30, <0.745, 0.745, 0.745>},
{0.42, <0.845, 0.845, 0.845>},
{0.60, <0.745, 0.745, 0.745>},
{0.60, <0.345, 0.345, 0.345>},
{0.80, <0.345, 0.345, 0.345>},
{0.80, <0.549, 0.549, 0.549>},
{0.90, <0.549, 0.549, 0.549>},
{0.90, <0.149, 0.149, 0.149>},
{1.00, <0.149, 0.149, 0.149>}
}
#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][4] {
{0.000, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.001, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.011, <1.000, 1.000, 1.000>, 0.000, 1.000},
{1.000, <1.000, 1.000, 1.000>, 0.000, 1.000}
}
#declare Mask_entries = 14;
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <0.001, 0.001, 0.001>},
{0.10, <0.001, 0.001, 0.001>},
{0.10, <0.100, 0.100, 0.100>},
{0.15, <0.100, 0.100, 0.100>},
{0.15, <0.001, 0.001, 0.001>},
{0.30, <0.001, 0.001, 0.001>},
{0.30, <0.300, 0.300, 0.300>},
{0.60, <0.300, 0.300, 0.300>},

{0.60, <0.700, 0.700, 0.700>},
{0.80, <0.700, 0.700, 0.700>},
{0.80, <0.500, 0.500, 0.500>},
{0.90, <0.500, 0.500, 0.500>},
{0.90, <0.900, 0.900, 0.900>},
{1.00, <0.900, 0.900, 0.900>}
}
#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.15},
{0.25, 1.00, 0.20},
{0.35, 1.00, 0.20},
{0.40, 0.50, 0.18},
{0.60, 1.00, 0.18},
{0.65, 0.50, 0.20},
{0.75, 1.00, 0.20},
{0.80, 0.50, 0.15}
}
12
#declare Translucency =
<0.745, 0.745, 0.745>*1;Granite_21 macro - Documentation - version #2
Annex 4: Medium Barre Gray Granite
#declare Map1_entries = 12;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <not_0, not_0, not_0>},
{0.15, <not_0, not_0, not_0>},
{0.15, <0.356, 0.356, 0.356>},
{0.22, <0.271, 0.271, 0.271>},
{0.40, <0.356, 0.356, 0.356>},
{0.40, <0.863, 0.863, 0.863>},
{0.52, <0.745, 0.745, 0.745>},
{0.60, <0.863, 0.863, 0.863>},
{0.60, <0.267, 0.306, 0.267>},
{0.70, <0.267, 0.306, 0.267>},
{0.70, <0.471, 0.529, 0.471>},
{1.00, <0.471, 0.529, 0.471>}
}
#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][4] {
{0.000, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.001, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.011, <1.000, 1.000, 1.000>, 0.000, 1.000},
{1.000, <1.000, 1.000, 1.000>, 0.000, 1.000}
}
#declare Mask_entries = 10;

```
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <0.001, 0.001, 0.001>},
{0.15, <0.001, 0.001, 0.001>},
{0.15, <0.100, 0.100, 0.100>},
{0.40, <0.100, 0.100, 0.100>},
{0.40, <0.300, 0.300, 0.300>},
{0.60, <0.300, 0.300, 0.300>},
{0.60, <0.700, 0.700, 0.700>},
{0.70, <0.700, 0.700, 0.700>},
{0.70, <0.900, 0.900, 0.900>},
{1.00, <0.900, 0.900, 0.900>}
}
#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.10},
{0.25, 1.00, 0.18},
{0.35, 1.00, 0.18},
{0.40, 0.50, 0.15},
{0.60, 1.00, 0.15},
{0.65, 0.50, 0.12},
{0.75, 1.00, 0.12},
{0.80, 0.50, 0.10}
}
13
#declare Translucency =
<0.471, 0.529, 0.471>*1;Granite_21 macro - Documentation - version #2
Annex 5: Saint-André Green Granite
#declare Map1_entries = 16;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <0.098, 0.098, 0.098>},
{0.15, <0.128, 0.148, 0.128>},
{0.25, <0.128, 0.148, 0.128>},
{0.30, <0.098, 0.098, 0.098>},
{0.30, <0.259, 0.259, 0.259>},
{0.40, <0.289, 0.359, 0.289>},
{0.55, <0.259, 0.259, 0.259>},
{0.55, <0.329, 0.388, 0.357>},
{0.70, <0.369, 0.488, 0.387>},
{0.80, <0.329, 0.388, 0.357>},
{0.80, <0.420, 0.420, 0.376>},
{0.85, <0.420, 0.420, 0.376>},
{0.85, <0.376, 0.337, 0.310>},
{0.95, <0.376, 0.337, 0.310>},
{0.95, <0.518, 0.529, 0.498>},
{1.00, <0.518, 0.529, 0.498>}
}
```

```
#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][4] {
{0.000, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.001, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.011, <1.000, 1.000, 1.000>, 0.000, 1.000},
{1.000, <1.000, 1.000, 1.000>, 0.000, 1.000}
}
#declare Mask_entries = 12;
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <0.001, 0.001, 0.001>},
{0.30, <0.001, 0.001, 0.001>},
{0.30, <0.300, 0.300, 0.300>},
{0.55, <0.300, 0.300, 0.300>},
{0.55, <0.700, 0.700, 0.700>},
{0.80, <0.700, 0.700, 0.700>},
{0.80, <0.500, 0.500, 0.500>},
{0.85, <0.500, 0.500, 0.500>},
{0.85, <0.700, 0.700, 0.700>},
{0.95, <0.700, 0.700, 0.700>},
{0.95, <0.900, 0.900, 0.900>},
{1.00, <0.900, 0.900, 0.900>}
}
#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.15},
{0.25, 1.00, 0.18},
{0.35, 1.00, 0.18},
{0.40, 0.50, 0.15},
{0.60, 1.00, 0.15},
{0.65, 0.50, 0.18},
{0.75, 1.00, 0.18},
{0.80, 0.50, 0.15}
}
14
#declare Translucency =
<0.518, 0.529, 0.498>*1;Granite_21 macro - Documentation - version #2
Annex 6: Impala Black Granite
#declare Map1_entries = 10;
#declare A_Granite_map1 =
array mixed [Map1_entries][2] {
{0.00, <0.298, 0.298, 0.298>*0.1},
{0.15, <0.298, 0.298, 0.298>*0.1},
{0.15, <0.376, 0.337, 0.369>*0.1},
{0.45, <0.376, 0.337, 0.369>*0.1},
{0.45, <0.486, 0.529, 0.557>*0.1},
```

```
{0.55, <0.486, 0.529, 0.557>*0.1},
{0.55, <0.486, 0.529, 0.557>*0.8},
{0.60, <0.486, 0.529, 0.557>*0.8},
{0.60, <0.357, 0.318, 0.329>*0.1},
{1.00, <0.357, 0.318, 0.329>*0.1}
}
#declare Map2_entries = 5;
#declare A_Granite_map2 =
array mixed [Map2_entries][4] {
{0.000, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.005, <0.800, 0.800, 0.800>, 0.001, 0.000},
{0.010, <0.800, 0.800, 0.800>, 0.050, 0.150},
{0.011, <1.000, 1.000, 1.000>, 0.000, 1.000},
{1.000, <1.000, 1.000, 1.000>, 0.000, 1.000}
}
#declare Mask_entries = 10;
#declare A_Granite_mask =
array mixed [Mask_entries][2] {
{0.00, <0.100, 0.100, 0.100>},
{0.15, <0.100, 0.100, 0.100>},
{0.15, <0.001, 0.001, 0.001>},
{0.45, <0.001, 0.001, 0.001>},
{0.45, <0.300, 0.300, 0.300>},
{0.55, <0.300, 0.300, 0.300>},
{0.55, <0.300, 0.300, 0.300>},
{0.60, <0.300, 0.300, 0.300>},
{0.60, <0.700, 0.700, 0.700>},
{1.00, <0.900, 0.900, 0.900>}
}
#declare Var_entries = 8;
#declare A_Granite_var =
array [Var_entries][3] {
{0.20, 0.50, 0.15},
{0.25, 1.00, 0.16},
{0.35, 1.00, 0.16},
{0.40, 0.50, 0.15},
{0.60, 1.00, 0.15},
{0.65, 0.50, 0.16},
{0.75, 1.00, 0.16},
{0.80, 0.50, 0.15}
}
15
#declare Translucency =
<0.486, 0.529, 0.557>*0.8
```