



# **RECOM FARMHOUSE** HIGH END CGI PRODUCTION WITH VRED

**RICHARD LEVENE** . MANAGING DIRECTOR . RECOM FARMHOUSE

RECOM FARMHOUSE @ AU 2014 . LAS VEGAS

Richard Levene and I am the managing director of Recom Farmhouse in NY

## CLASS SUMMARY

HOW VRED IS APPLIED FOR BEST IN CLASS CGI PRODUCTION FOR  
CONSUMER PRODUCTS AND BEYOND

Going to be talking to you about how we use vred for our high end cgi productions, not only with automotive renderings but also architectural, cosmetics and more



## LEARNING OUTCOMES

- WHO WE ARE
- WHY WE CHOSE VRED
- HOW WE USE VRED
- TIPS AND TRICKS FOR VRED IN PRODUCTION



## WHO WE ARE



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So we are RECOM. Consist of two entities but we all fall under the Recom Group Umbrella. (Nowhere near as corporate as that sounds)  
We specialise in high end CGI and Retouching for the advertising market.



Fashion Retouching - This is where we began



Advertising Photo Retouching



Automotive Photo Retouching





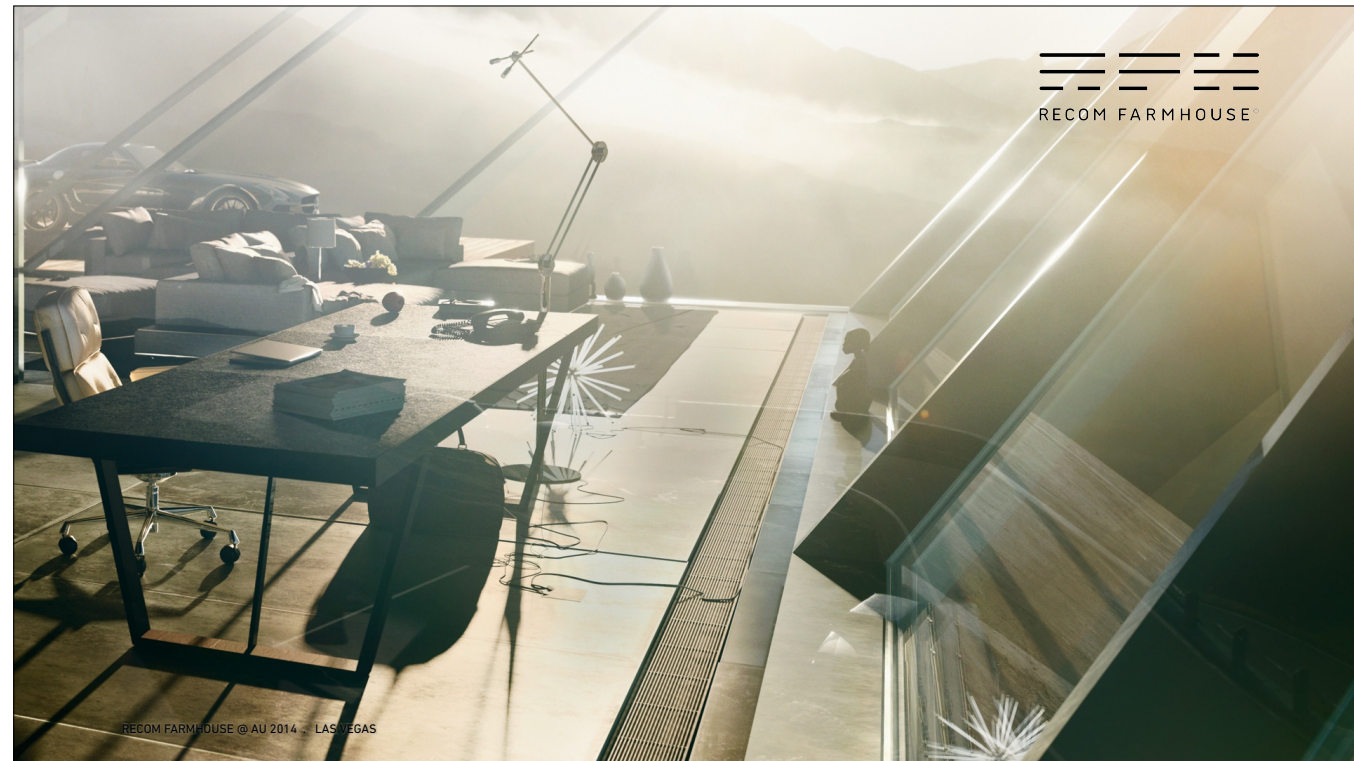
Automotive CGI

Ford - Nissan - Infiniti - Lincoln - Audi - Porsche - Mercedes - BMW - Hyundai - Renault and more



Automotive CGI





Architectural CGI





Products CGI



RnD CGI  
Playing with liquids, volume effects like clouds & smoke



General CGI for advertising.  
This was for Healthcare company. CGI elevator up a mountain.

## WHO WE ARE

- FOUNDED IN STUTTGART IN 1986 AS A PHOTOLAB
- STARTED IN 90TIES WITH SCANNING AND DIGITAL IMAGING ON SYSTEMS LIKE QUANTEL PAINTBOX & SHIMA SEIKI
- CGI DEPT ESTABLISHED IN 2006
- BERLIN: 2009   LONDON: 2007   NEW YORK: 2012

## WHO WE ARE

- STUTTGART FORMED A TECHNICAL PARTNERSHIP WITH SPHERON WHO PROVIDED A REALLY GOOD RENDER-WORKFLOW WITH MAYA / MENTAL RAY / SPHERON IBL / SPHERON BRDF
- IN 2009 AFTER A LONG TESTING PERIOD WE DECIDED TO CHANGE FROM OUR GOOD WORKING OLD RENDER-WORKFLOW TO VRED
- IN 2010 WE WON THE VRED COMPETITION AND GOT A FURTHER VRED LICENCE
- TODAY VRED IS OUR MAIN RENDER TOOL FOR CAR EXTERIOR AND INTERIOR RENDERINGS

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Due to close links with Mercedes and Porsche already from Retouching projects and close proximity with the factories being in Stuttgart. Those two were the first companies to openly share the cad data to third party vendors.

Link with spheron meant we were using cutting edge technology.

The spheron camera was one of the first to provide full 360 degree capture in full dynamic range and stitch for you.

The mental ray package they provided was using an importance based light shader which was not available out of the box with any other renderer. Solutions at the time were sampling light dome with GI based methods and using a light. The importance based light shader made image based lighting a lot more accurate and faster.

Spheron's chief developer was one of the people that wrote the paper on importance light sampling and he helped develop the lighting solution for Benjamin Button

We were also using measured brdf car paint shaders which at the time was pretty unheard of and delivered great consistent results from scene to scene and changing lighting setups.

But in 2009/10 we were introduced to Vred and from that point you could say we never looked back.

The guys in germany were doing a lot of car work at the time. They had very big projects that were perfect for vred.

They won a competition in 2010 and got a further license.

Now we have licenses in all offices (except Berlin as no CG dept yet) as our main tool for rendering car exteriors and interior renderings.

## WHY VRED



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But why did we move to vred. What were the reasons.

We had a really reliable and solid workflow with maya and our mental ray spheron setup.

## WHY VRED

- **INTERACTIVITY** - PROGRESSIVE RAYTRACING - DOWN SAMPLING
- **SPEED** - RENDER TIME/SETTINGS - SEE CHANGES FASTER - PRODUCE MORE ITERATIONS
- **QUALITY** - SAMPLING METHODS - MATERIALS - FINAL RENDER
- **LARGE DATA SETS** - MANY UNIQUE CARS IN A SCENE

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### Interactivity:

Ability to move the around the scene while raytracing in real time thanks to the progressive raytracing.

At the time mental ray in maya had its IPR (interactive rendering process), but it was slow because it was always trying to render final quality in the render buckets. You would have to set a lower quality for previewing and it would always take a long time to translate the geometry into the renderer. IPR would crash and creating and duplicating lights would never work all the time. Very unstable.

Mental ray did have a progressive rendering option in 2010 but it was not supported properly in maya. Even to this day autodesk have still not properly implemented the correct progressive API into maya. (I believe that is a limitation with the Render View)

With vred this is all avoided as you are live in the renderer so to speak.

With Vred you can have a client next to you and you can work out camera angles really quick with full lighting if you wanted in full raytracing.

Test lots of other renderers.

Vray had RT but it was limited at the time and we never found it to be very stable. Again you had scene translation times. It has improved and we do use Vray for all our non car cgi work.

Maxwell didn't have Fire at the time and when it did first come out it was not useable for our needs.

Bunkspeed did not have advanced enough features. It still doesn't.

Keyshot worse than Bunkspeed.

GPU renderers offer a lot but limited by the fact we do not have many workstations with large memory gpu cards and we did not want to make that investment. Also memory on the gpu is still limited and expensive at this time. We need cards with at least 24GB of memory to consider it.

### Speed:

This ties in with interactivity but also the fact that render times were more than twice the speed in some cases than our mental ray workflow

Global render settings with less variables to change.

Rendering progressively means you can see results of things quicker. Light changes, materials, angles.

Therefore you can make choice quicker and create more iterations

Doing lighting session became enjoyable rather than a chore and you felt less as if you were a slave to the software.

## HOW WE USE VRED

### CASE STUDIES:

- FORD 2016 EXPLORER
- PORSCHE CAYMAN
- MERCEDES BENZ SPRINTER
- VERSACE PERFUME
- VIRTUAL ARCHITECTURE

Going to be talking to you about how we use vred for our high end cgi productions, not only with automotive renderings but also architectural, cosmetics and more



## HOW WE USE VRED

### CASE STUDY #1: FORD 2016 EXPLORER

**CLIENT :** FORD

**AGENCY :** TEAM DETROIT

**PHOTOGRAPHER :** DAVID WESTPHAL

## CASE STUDY #1



RECOM FARMHOUSE © JUL 2017 LAS VEGAS



## CASE STUDY #1



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## CASE STUDY #1



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## CASE STUDY #1

RECOM FARMHOUSE



RECOM FARMHOUSE © AUGUST 2014 LAS VEGAS

## CASE STUDY #1



RECOM FARMHOUSE © AU 2014 - LAS VEGAS

## CASE STUDY #1



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behind the scenes.

The shoot took place in Oregon. Quite a few county parks. Amazing scenery.

Whalen Island in Cloverdale



## CASE STUDY #1



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behind the scenes.

In the forests. This is Davide our Creative Director who was on set.

You get a sense of scale for the trees.

## CASE STUDY #1



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behind the scenes.

Davide was On set. Capturing HDRs. Long since moved on from the spheron cam. LizardQ cam capture in fraction of the time and better quality.

As we were doing cg we had a stand in car, an old model of the explorer to help line up and work out angles.

## CASE STUDY #1

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Previs the car on set once photographer takes the photo.

## CASE STUDY #1



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In places where we where we could not get the standin car into position we used a reference cube to act as our marker and then on set in vred we can quickly put the car into place for the photographer and client to see.

Vred allows for us to do this really quick and give instant feedback to the clients and allows us to try several alternatives right there on the spot so decisions can be made earlier in the process.

## CASE STUDY #1



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In places where we where we could not get the standin car into position we used a reference object to act as our marker and then on set in vred we can quickly put the car into place for the photographer and client to see.

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CASE STUDY #1



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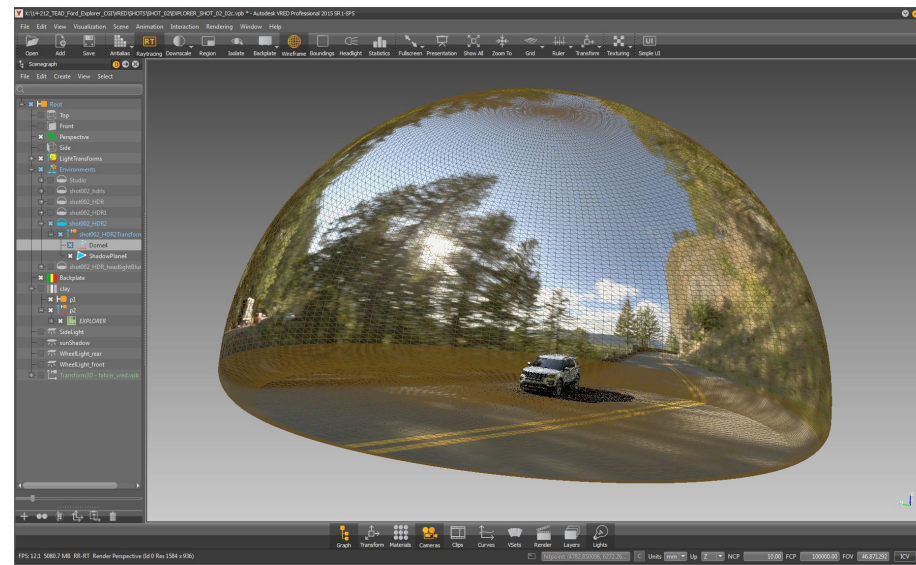
Can adjust angles for the client

CASE STUDY #1



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## CASE STUDY #1

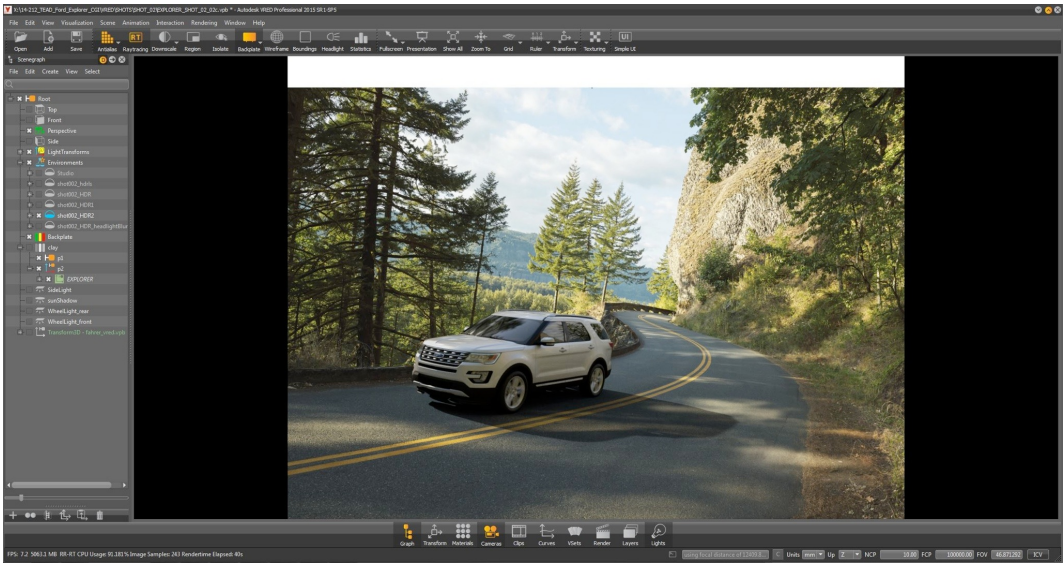


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Once angle agreed we apply the lighting



CASE STUDY #1



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## CASE STUDY #1



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## HOW WE USE VRED

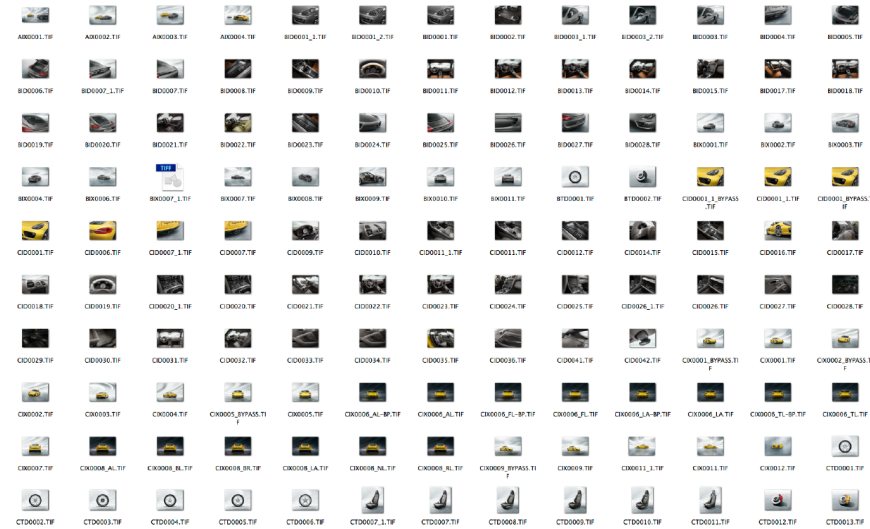
### CASE STUDY #2: PORSCHE CAYMAN

**CLIENT :** PORSCHE

**AGENCY :** KEKO

**SUPERVISION & LIGHTING CONSULT :** ANDREAS BURZ

## CASE STUDY #2



130 FULL CGI IMAGES  
INTERIOR + EXTERIOR

PRODUCED WITH  
SELF SCRIPTED  
FULL AUTOMATIC  
VRED PRODUCTION  
PIPELINE  
INCL. SCRIPT FOR  
AUTOMATIC PHOTOSHOP  
LAYERING OF UP TO  
50 RENDER PASSES FOR  
EACH SHOT.

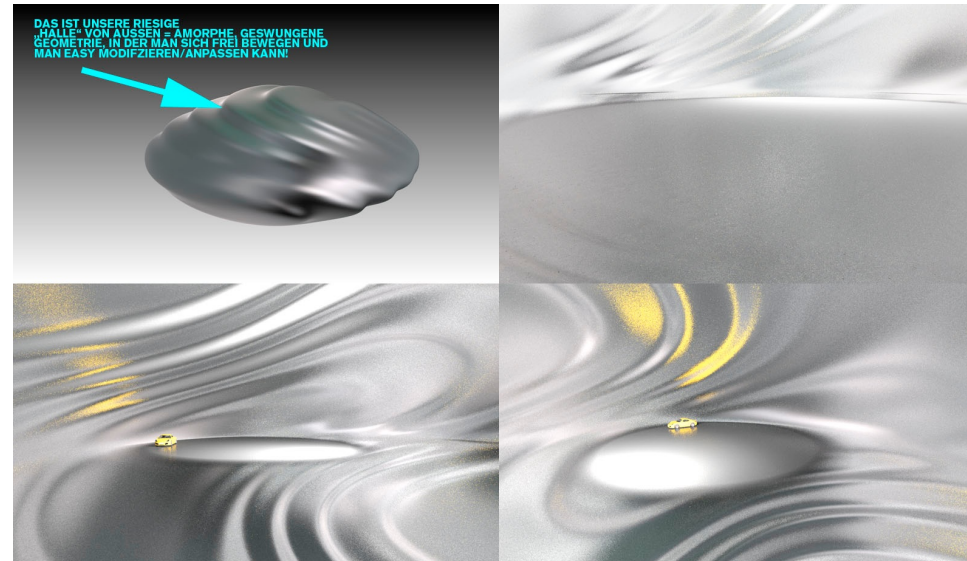
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Total of 4 artists. 2 cgi – 2 retouchers completed over the space of 3 months.

To embark on this we set about creating a script pipeline to help automate the render process. Back before Vred 2015, rendering setup was very cumbersome. You could set things up with sequences but it was a real pain to have them all in one scene. What we would do is save out a vred file per pass(hdr or area light), set one sequence to just render snapshot and send to VRender. So you could line up a few files to render one after the other. It was not ideal. Therefore the scripts helped automate this whole process and bring huge time saves and make us more efficient.

## CASE STUDY #2

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The project was brought to us by Andreas the photographer and together with Thorsten our creative director in Stuttgart they came up with this “shell” concept to pitch to the client.



## CASE STUDY #2



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## CASE STUDY #2

RECOM FARMHOUSE®



RECOM FARMHOUSE © AU 2014 . LAS VEGAS

The project was brought to us by Andreas the photographer and together with Thorsten our creative director in Stuttgart they came up with this “shell” concept.

## CASE STUDY #2



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These two refined concept images were sent to the agency for the pitch which won us the job



These two refined concept images were sent to the agency for the pitch which won us the job



## CASE STUDY #2

RECOM FARMHOUSE



RECOM FARMHOUSE © AU 2014 . LAS VEGAS

Some of the final images.

## CASE STUDY #2



RECOM FARMHOUSE © AU 2014 : LAS VEGAS

Some of the final images.



Some of the final images.



## CASE STUDY #2



RECOM FARMHOUSE © AU 2014 . LAS VEGAS

Some of the final images.



Some of the final images.





Some of the final images.



Some of the final images.



Some of the final images.





Some of the final images.



Some of the final images.



## CASE STUDY #2

RECOM FARMHOUSE



Some of the final images.

## HOW WE USE VRED

### CASE STUDY #3: MERCEDES-BENZ SPRINTER

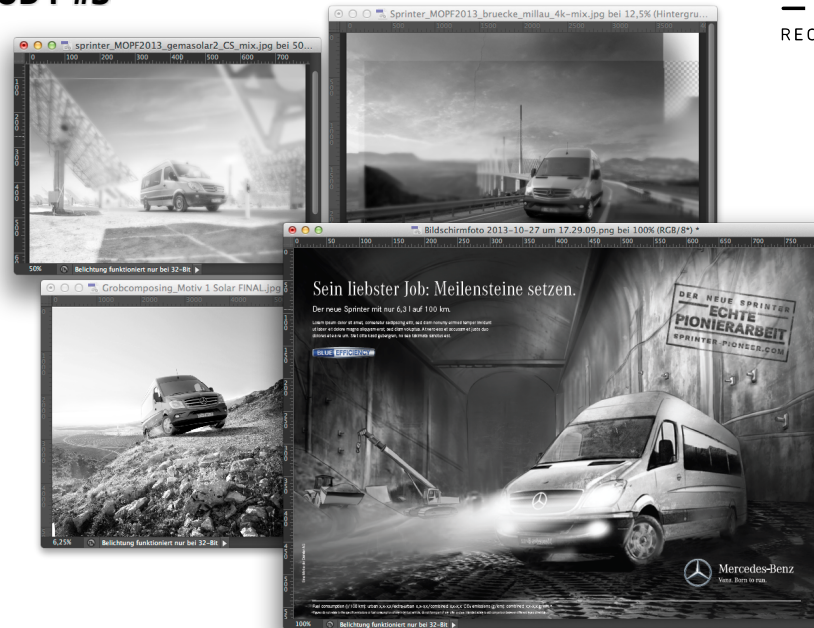
**CLIENT :** MERCEDES-BENZ VANS

**AGENCY :** LUKAS LINDEMANN ROSINSKI

**PHOTOGRAPHER :** MARTIJN OORT

Now this case study is the first to show more than just automotive rendering in Vred.

### CASE STUDY #3



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Campaign to create 4 images for the agency. Going to focus on the big one at the front.

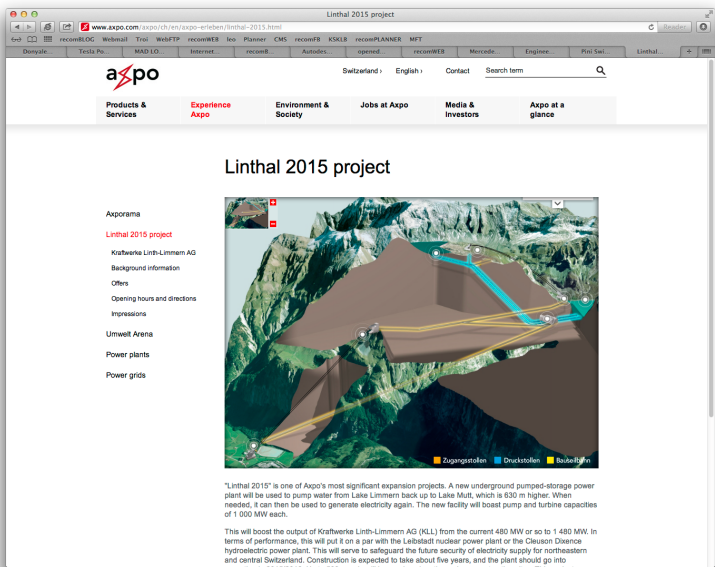
CASE STUDY #3



LAYOUT

„LINTHAL“  
HUGE UNDERGROUND PUMPED  
STORAGE POWER PLANT IN THE  
SWISS ALPS

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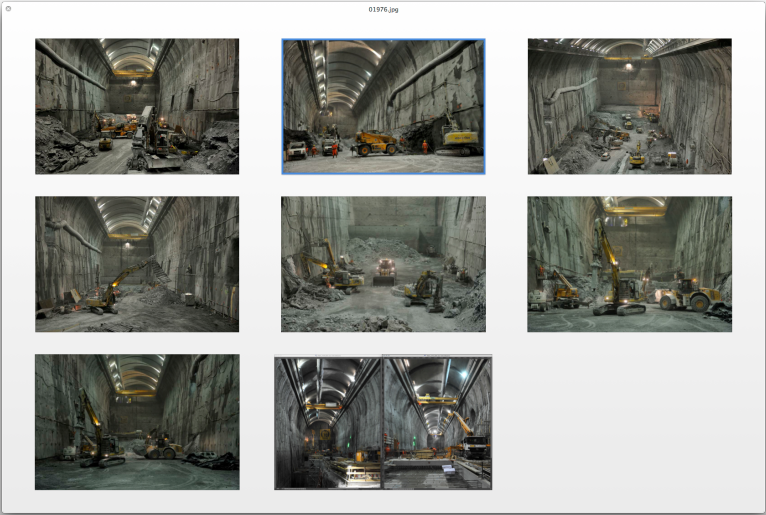


CASE STUDY #3



LAYOUT

REFERENCE SHOTS OF THE  
CAVERNE CONSTRUCTION





## CASE STUDY #3



WE TRIED TO ARRANGE A PHOTO SHOOT  
FOR THE CAVERNE BACKGROUND,

BUT...

## CASE STUDY #3



...THEY DIDN'T ALLOW US TO SHOOT THERE

AND THE EXISTING PHOTOS WERE LOWRES ONLY!!!

(THEY SAID, IT'S TOO DANGEROUS AND THAT WE COULD DISTURB THE CONSTRUCTION PROCESS,  
WITH EACH CONSTRUCTION DAY COSTING AROUND ONE MILLION EURO)

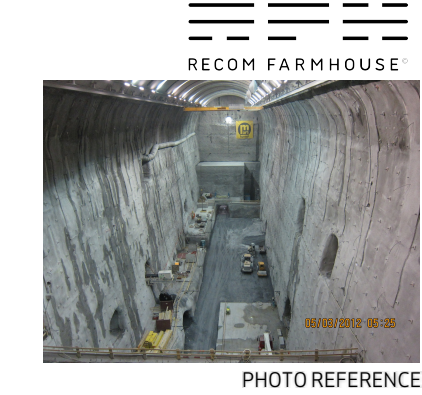
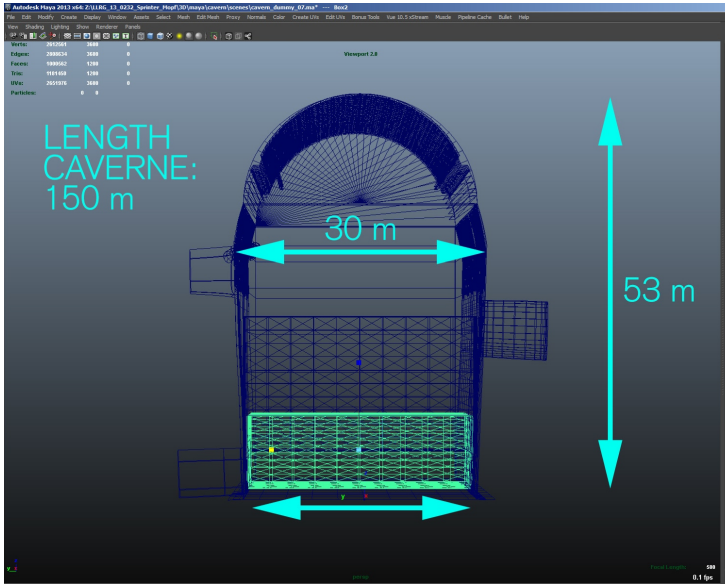
SO...

## CASE STUDY #3



...WE HAD TO BUILD UP IN CG AN EXACT COPY OF THE REAL CAVERN  
TO PUT THE CG SPRINTER IN!

CASE STUDY #3



BASE MODELLING OF THE CAVERN IN MAYA

## CASE STUDY #3



MUDBOX MODELLING OF THE WALLS  
AND FIRST RENDER TESTS OF  
HIGHRES SPRAYED CONCRETE  
FOR FINAL RESOLUTION IN 12K

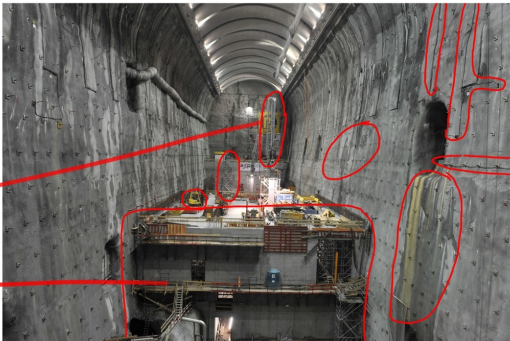
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CASE STUDY #3

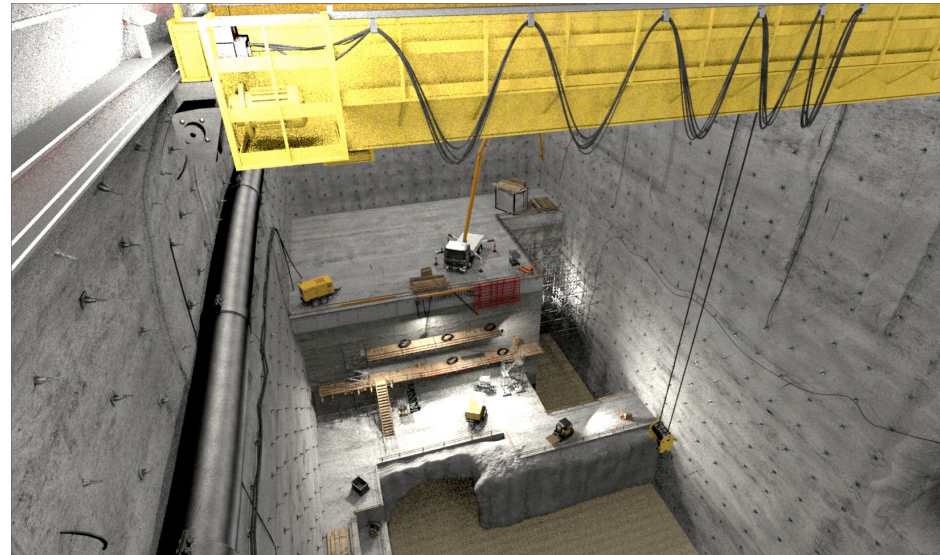


VOLUMENMODELL "LINTHAL - KAVERNE"  
GESPIEGELTE KAMERA  
(TEXTUREN SIND NUR PLATZHALTER)



ROUGH PRE-RENDERS TO GET POSITION APPROVALS AND  
TO TALK ABOUT DETAILS ETC...

## CASE STUDY #3



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screenshots just taken from within vred

## CASE STUDY #3



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## CASE STUDY #3



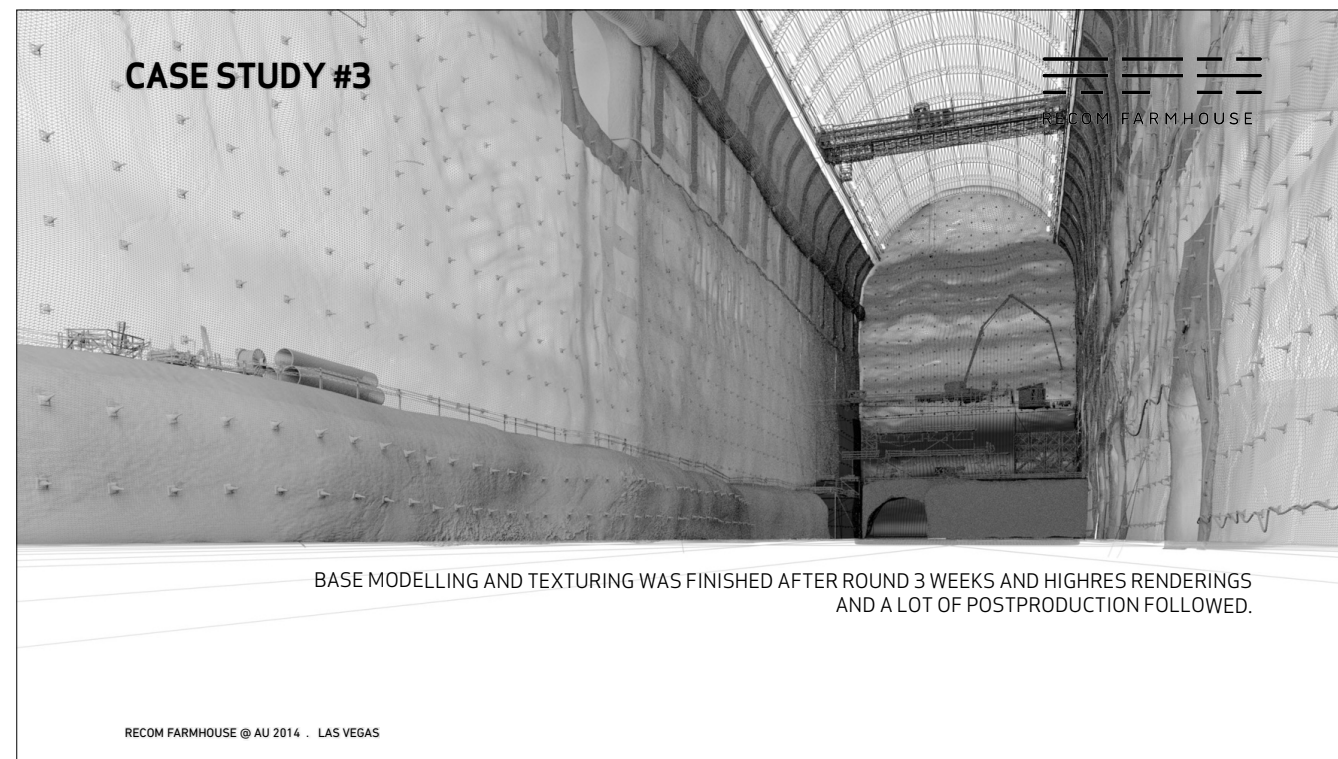
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## CASE STUDY #3



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50 MIL + UNIQUE POLYGONS  
TRIPLANAR MATERIAL USED for a lot of the concrete. High res textures from Arroway concrete catalogue.

CASE STUDY #3



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Final piece

CASE STUDY #3



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Here are the other 3 images from the campaign. They did not need any cg backgrounds. They were all photographic and cgi car.



CASE STUDY #3



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CASE STUDY #3

It's taking the world by storm.

Der beste Sprinter aller Zeiten mit serienmäßigem Seitenwind-Assistent.

Sudden gusts of wind aren't a problem for the new Sprinter. It's the best Sprinter ever, and the first van with Crosswind Assist as standard – so pioneering bridges like the Viaduc de Millau\* are a breeze.

BLUE EFFICIENCY

EXPERIENCE THE NEW SPRINTER  
PIONEER AT WORK  
SPRINTER-PIONEER.COM



\*1. Classe 2014

Fuel consumption urban/extra-urban/combined: 13.5 / 7.1/10.2, 8.5/5.9/6.2 l/100 km, combined CO<sub>2</sub> emissions: 206-165 g/km, Efficiency class: D-A.\*\*

\*\*1. Phase 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## HOW WE USE VRED

### CASE STUDY #4: VERSACE PERFUME

CLIENT : PORTFOLIO IMAGE

This was a test piece of ours to expand our portfolio for cosmetic image work.

There is a lot of this type of work in New york and it is not something we have been asked to do much of before opening there.

## CASE STUDY #4

RECOM FARMHOUSE®



INITIAL CONCEPT

RECOM FARMHOUSE © AU 2014 . LAS VEGAS

This was our initial concept. The bottle was purchased from Evermotion which is a really great website for online models.

The idea for this personal project was to have the perfume against a white background with some splashes of color. In the form of ladybugs.

Vred allowed us to create layout variations very quickly. Move and place ladybugs around and see the rendered visual representation at the same time.

## CASE STUDY #4

RECOM FARMHOUSE®



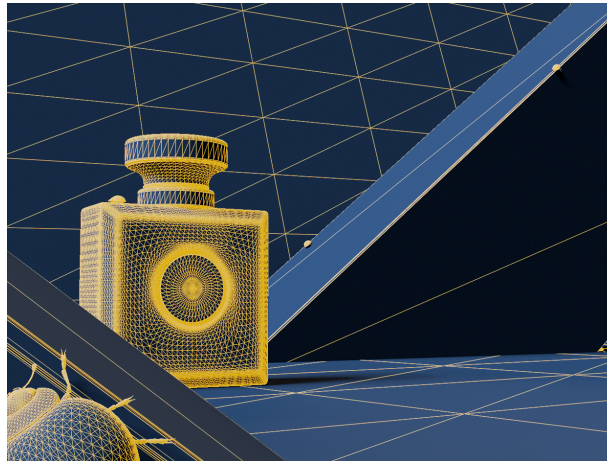
RECOM FARMHOUSE @ AU 2014 . LAS VEGAS

Then whilst researching, we decided to go to the opposite direction. The whole perfume bottle concept rotates around the mythology of Greek gods and we thought to bring this element into the shot. We used marble as a background because it is a material highly used in the Mediterranean countries. We also decided to go from a clean white background to a moody blue after seeing the combination of colours in this fashion image.



## CASE STUDY #4

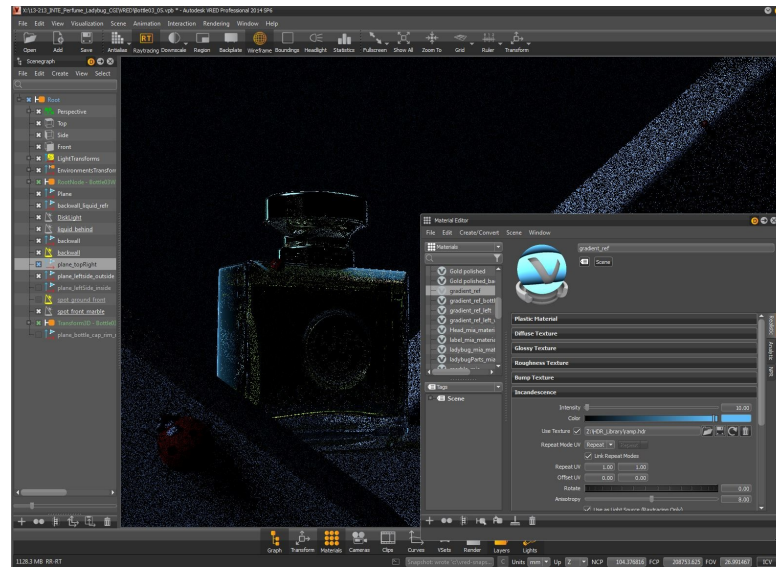
RECOM FARMHOUSE®



RECOM FARMHOUSE © AU 2014 . LAS VEGAS

Depth of field was rendered in vred as it is harder to fake when dealing with refractive objects in post.

## CASE STUDY #4



RECOM FARMHOUSE @ AU 2014 . LAS VEGAS

We used a combination of HDR light studio to place reflectors for the various parts along with our own light cards in vred – just planes with ramps mapped to the incandescent of the shader.

Vred is not perfect yet for that as ramps have to be textures so you do not have great control over the ramp. Hopefully this will be something that the vred developers add.



And this is the final piece

We rendered caustics and extra highlights close up to make it more natural.

The light leaks over the image are added in post.

For the marble we used subsurface scattering. It is very subtle effect and the texture of the marble is hard to see given the depth of field but it does add that slight natural quality.

## HOW WE USE VRED

### CASE STUDY #5: VIRTUAL ARCHITECTURE

**CLIENT :** PORTFOLIO IMAGE  
**ARCHITECT :** FABIAN EVERS  
**PHOTOGRAPHER :** MICHAEL SCHNABEL

This shows a architectural rendering in Vred. A portfolio project in combination with Architect Fabian Evers and photographer Michael Schnabel.



[SHOW PDF](#)

Rough Model From Architect

Imported it into Max and started remodeling, refining, adding details, uv-laying and texturing

Exported the geo and imported into Vred to start working on materials.

Worked out camera views with the photographer

This workflow is ok. There is just the problem that's a real pain when you need to change something in the geometry or in the UVs. Then you need to go back to Max and do the export-import steps again... This is complicated and takes a lot of time.



## CASE STUDY #5

RECOM FARMHOUSE®



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screenshots just taken from within vred

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## CASE STUDY #5

RECOM FARMHOUSE®



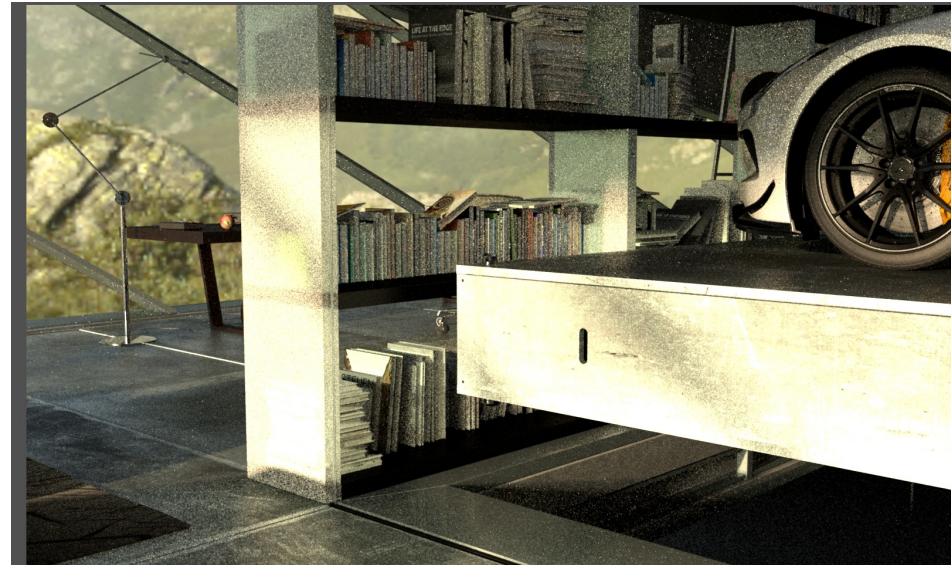
RECOM FARMHOUSE® @ AU 2014 . LAS VEGAS

screenshots just taken from within vred



## CASE STUDY #5

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screenshots just taken from within vred

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screenshots just taken from within vred





Pros:

- Cars already prepped for VRED
- Realtime interaction with millions of polygons which is great for the photographer to find perspectives. Especially on location in the Swiss Alps. It wouldn't be possible that way in 3ds Max or Maya.
- Fast Feedback in your viewport

Cons:

- Noisy renderings in Full GI mode
- Final renders take very long and are still a bit noisy
- Layering and Combining of textures are only available to a limited extend. There are no procedural textures and just rudimentary ways to mix textures/shaders...

## PROS & CONS OF VRED FOR THESE TYPE OF IMAGES

### PROS

- CARS ALREADY PREPPED IN VRED
- REALTIME INTERACTION WITH MILLIONS OF POLYGONS
- FAST FEEDBACK IN VIEWPORT

### CONS

- NOISY RENDERS IN FULL GI MODE
- LONG RENDER TIMES AND STILL A BIT NOISY
- LIMITED LAYERING AND COMBINING OF TEXTURES
- NO PROCEDURAL TEXTURES

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#### Pros:

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## TIPS AND TRICKS OF VRED IN PRODUCTION

- START IN RAYTRACING
- TURN OFF INLINE TEXTURES
- BOOST LIGHT
- FLOATING RENDER WINDOW

## START IN RAYTRACING

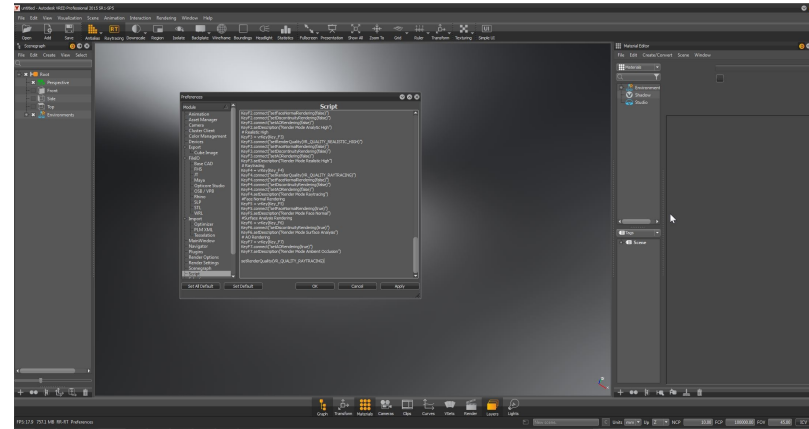


EDIT - PREFERENCES - SCRIPT

```
setRenderQuality(VR_QUALITY_RAYTRACING)
```

WE ALWAYS RENDER WITH  
RAYTRACING

LOADS SCENES FASTER AS NOT  
LOADING TO THE GPU FOR  
DISPLAY AND RENDER



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This means every time you start vred, it will load with raytracing already on. We only ever use raytracing mode in vred.

Helps loading file times. If you have a shot with several cars or lots of geometry, with raytracing off it will take a lot of time to load and display the scene on the graphics card. Being in raytracing mode means the cpu does all of the loading.

## TURN OFF IN LINE TEXTURES

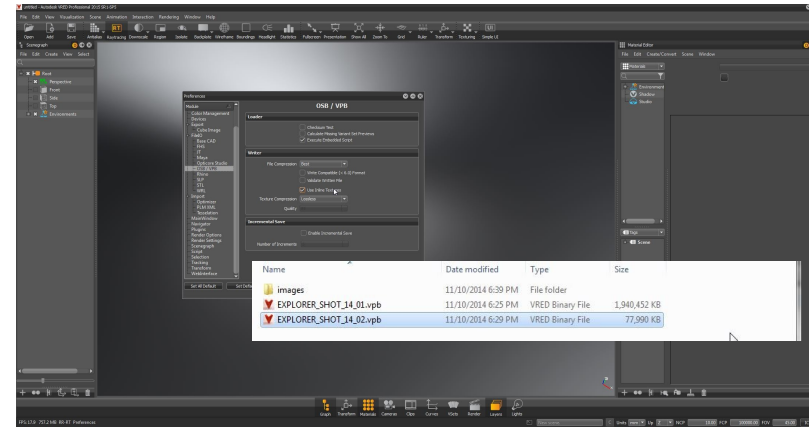


EDIT - PREFERENCES - FILE IO - OSB / VPB

UNCHECK 'Use Inline Textures'

THIS CAN DRASTICALLY REDUCE  
YOUR VRED SCENE SIZES

ON A PRODUCTION OUR SCENE  
FILES WENT FROM 2GB DOWN TO  
78MB



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In our scenes you saw with Ford Explorer we might have more than one rotation of the HDR or use different HDRs for different reflections.

The hdr's we capture a 14k in resolution and are around 250MB in size. So a few of those in a scene quickly add up. Then scenes that are texture heavy like the architectural interiors save lots of space.

Can always turn it back on and save to send to someone. And then they can unpack the scene and it will save all the textures to a folder called "images"



# BOOST LIGHT

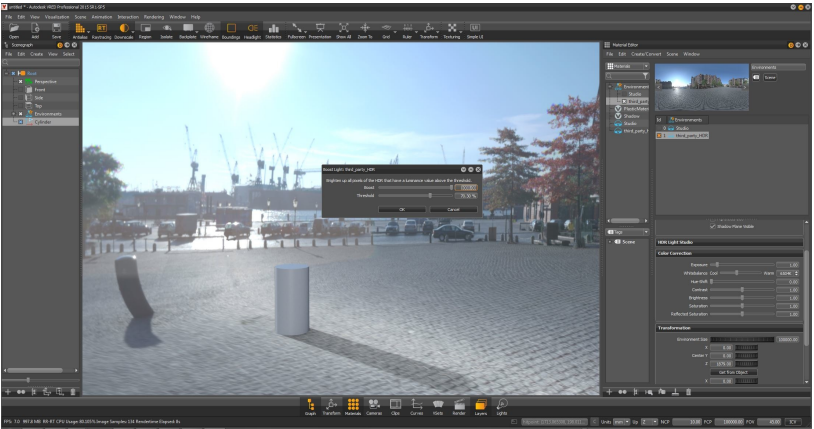


RIGHT CLICK ON YOUR ENVIRONMENT - BOOST LIGHT

HIDDEN GEM

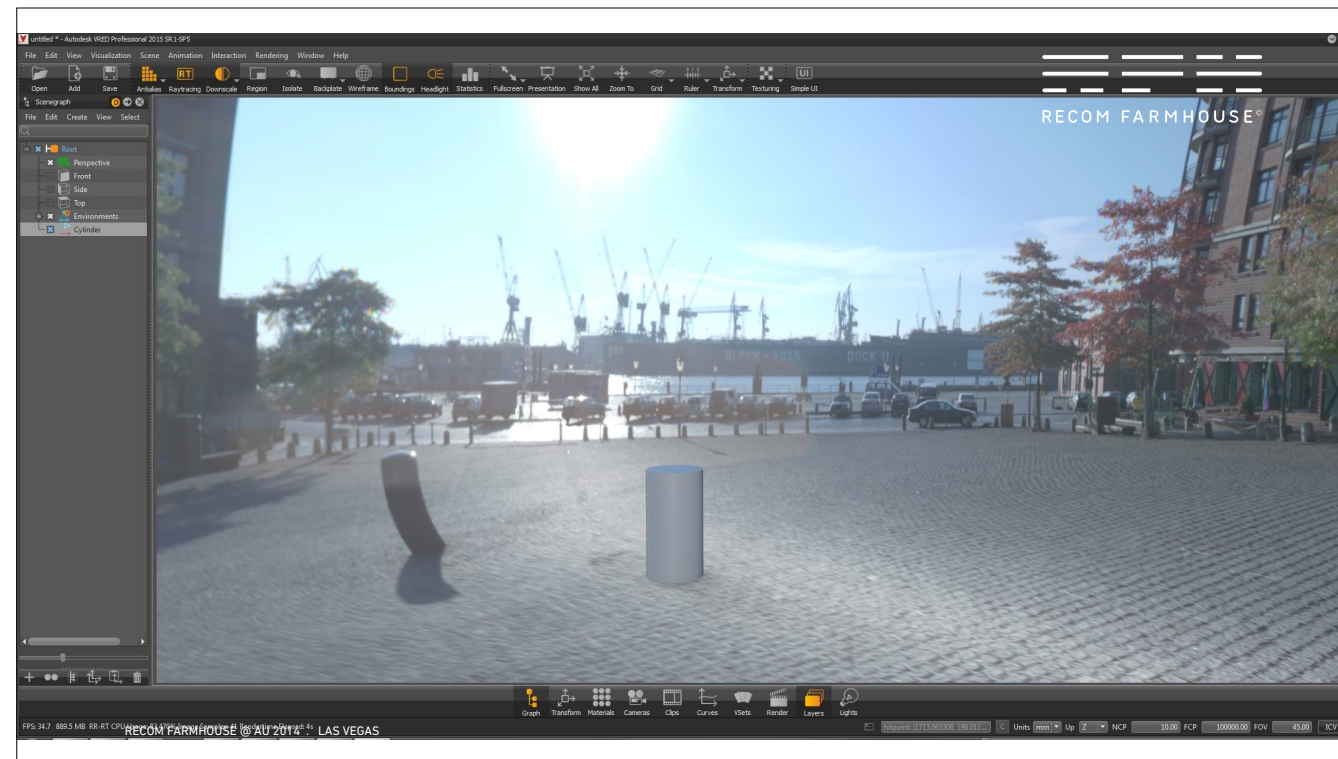
FIX HDR'S WITH NOT ENOUGH RANGE VERY QUICKLY WITHOUT HAVING TO GO BACK AND FORTH BETWEEN YOUR IMAGE EDITING APP

INCREASES INTENSITY OF PIXELS IN AN IMAGE THAT ARE OVER A CERTAIN THRESHOLD

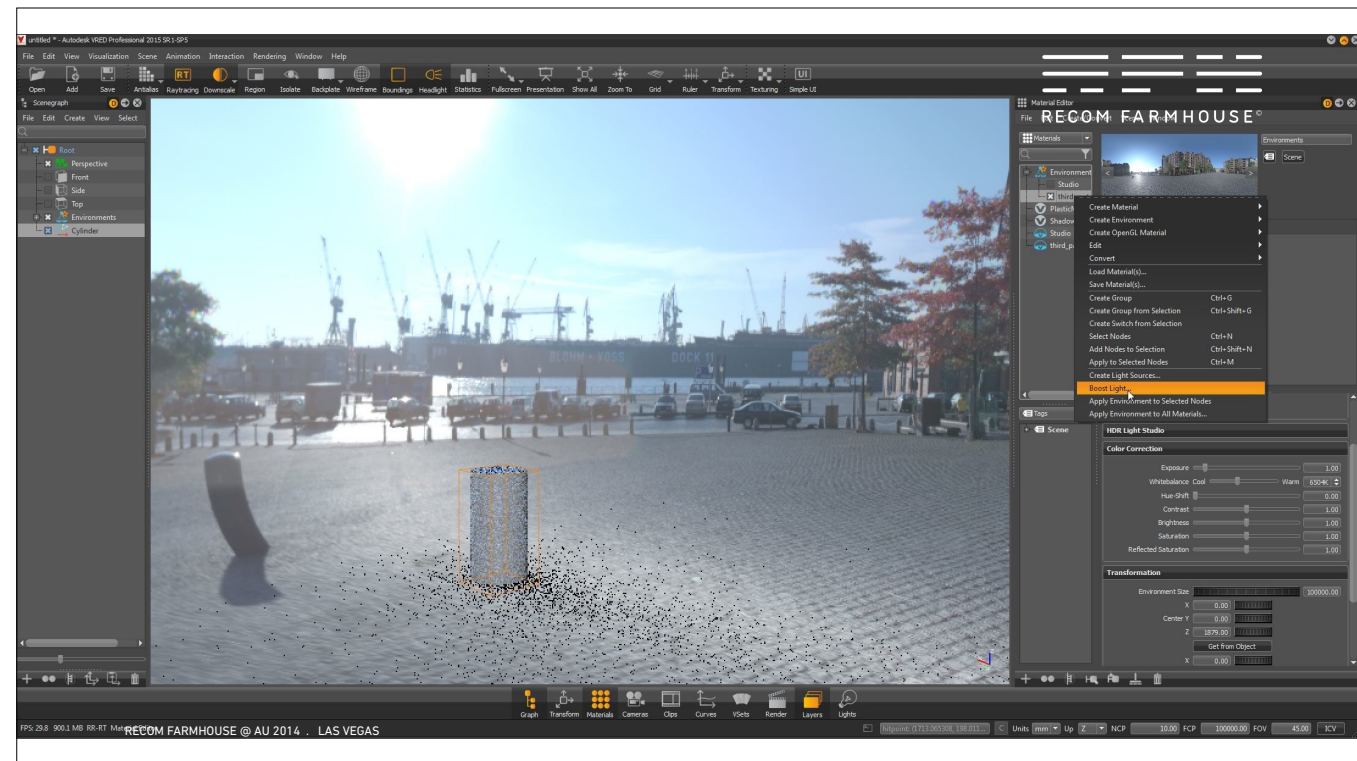


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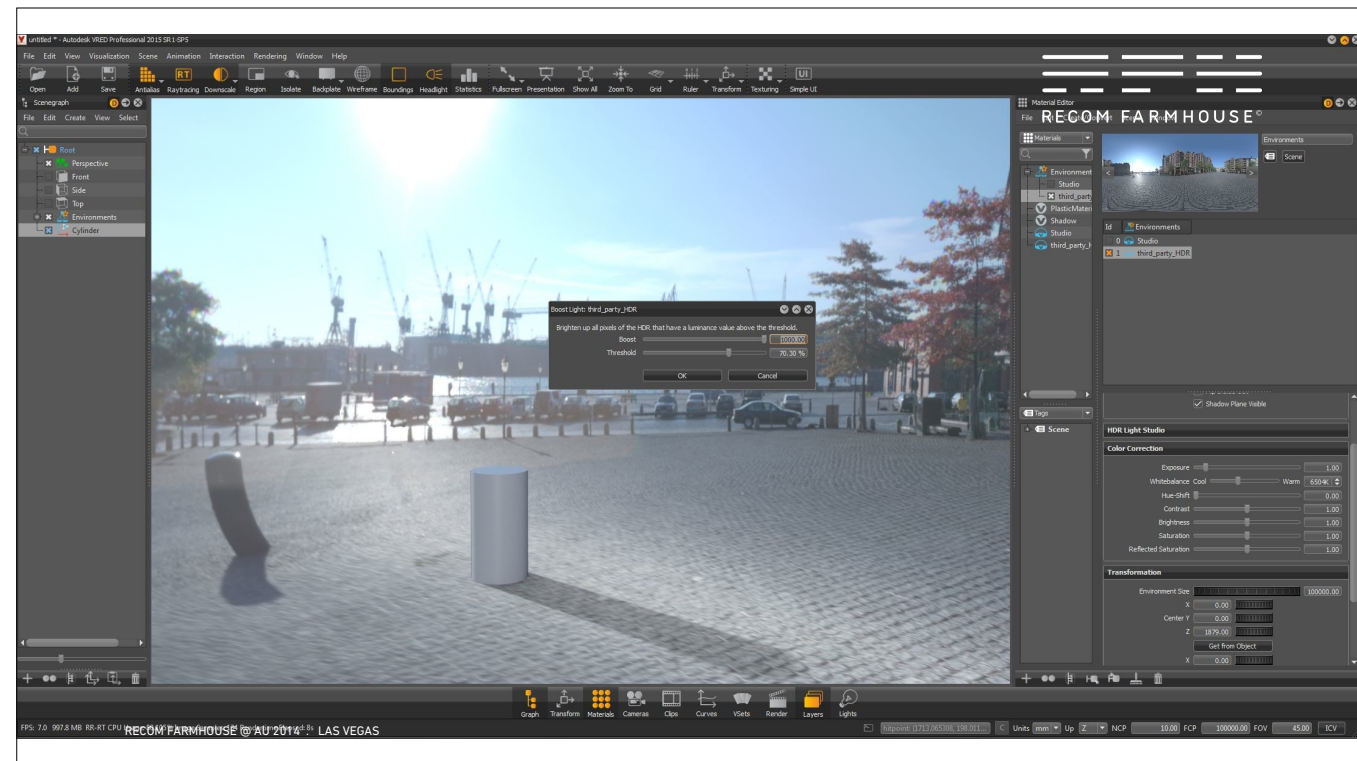
Not a common known feature. Really useful to fix hdr's captured by third parties where not enough range has been captured.



Third party hdrs can contain not enough range and you can tell this by the soft shadows cast on the 3d geo (on the right) in comparison to the hard strong shadows you see in the pillar (on the left) and its shadow in the HDR itself



Go to your Environment Material. Right click and press Boost Light.



Select the threshold and increase the intensity. You will see a live preview of the effects before you press OK.

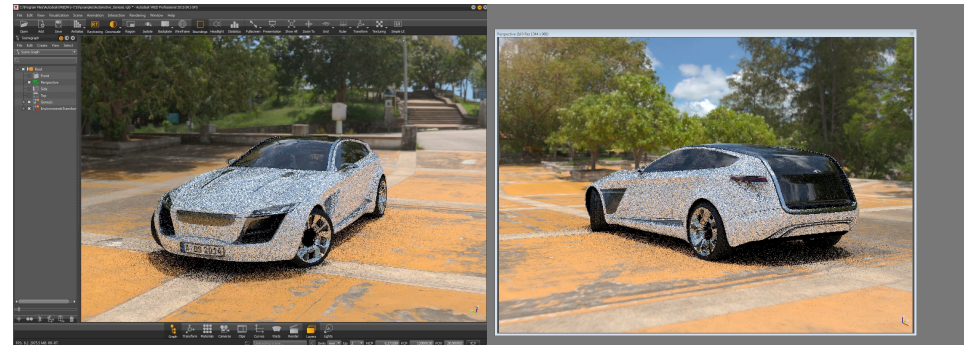
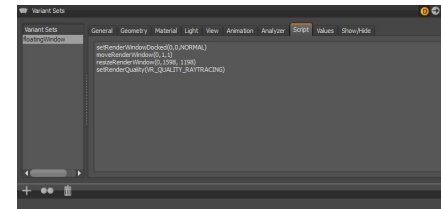
## FLOATING WINDOW



CUSTOM SCRIPT - CAN ONLY BE RUN IN VRED PRO

ADDED VIA VSETS - SCRIPT

```
setRenderWindowDocked(0,0,NORMAL)
moveRenderWindow(0,1,1)
resizeRenderWindow(0,1280,800)
setRenderQuality(VR_QUALITY_RAYTRACING)
```



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For us this is very useful and I find it weird that it is not possible out of the box in the UI.

90% of our artists have two monitors.

One for render window and one for the viewport (when talking about other apps Maya with MR/Vray)

It allows us to move around the scene yet still see on the other screen our render camera viewpoint.

So we can move lights around a lot easier in one window and see the effects in the other window.

It is not perfect as the Anti aliasing will always kick in on the window that is 'active'. So if you are moving a light around in your main window, it will anti alias in that. You have to click on the other window for it to start aliasing down.

Normally we will make the render window smaller as it is not trying to render two windows. So to get a good interactive frame rate we will use downsampling on high in one window (or normal/vertex mode) and no downsampling in the other. So still a clear representation



## LEARNING RESOURCES

- [Vred Autodesk Support & Learning Product Page](#)
- [Vred Online Tutorials](#)
- [Vred Autodesk Community Forums](#)
- [Vred LinkedIn Discussion Group](#)

## THANK YOU!!

- [www.recomfarmhouse.com](http://www.recomfarmhouse.com)
- [www.madlove.net](http://www.madlove.net)
- Twitter - [@recomfarmhouse](https://twitter.com/recomfarmhouse)
- Twitter - [@chuckie7413](https://twitter.com/chuckie7413)

Going to be posting more vred information. I think I will start a personal blog with vred tips and tips and do some autodesk screencasts.

Can show you some more tips.

Vred camera measurements to tell a photographer.