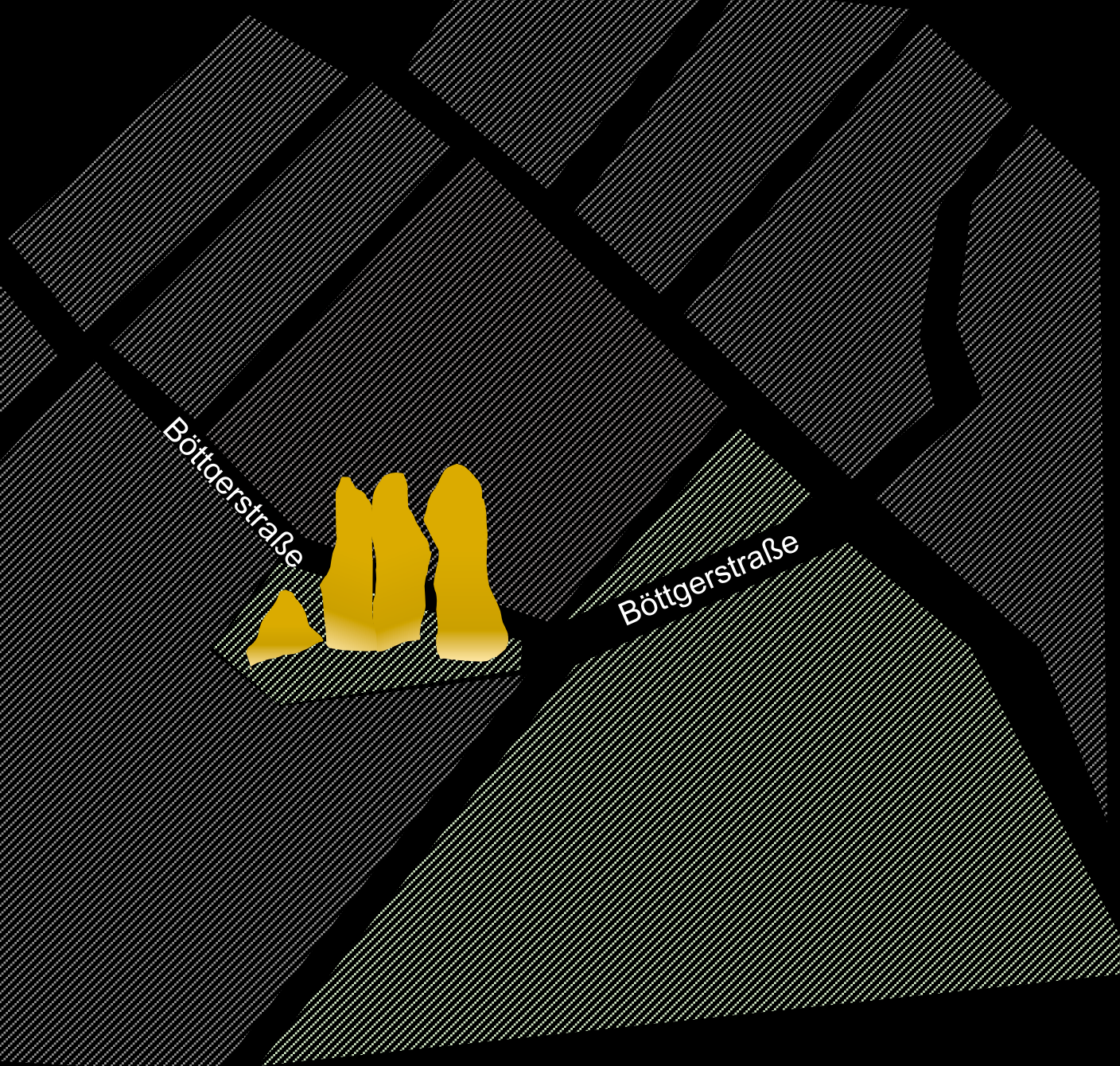


Magic Mountain



Alexandra Lazar . Ana Santos . Marcel Neberich . Thalia Velegraki . Katerina Skalkou

Lighting Design . Berlin, Germany . Oct 5-10 . 2015



Böttgerstraße, Berlin

History

1964 _ The advent of the first artificial climbing wall by Dan Robinson

1987 _ First commercial climbing gym

Advantages

Possibility to climb at night

THE MAGIC MOUNTAIN



Lack of atmosphere



Over illuminated



Shadows



Glare



Light pollution

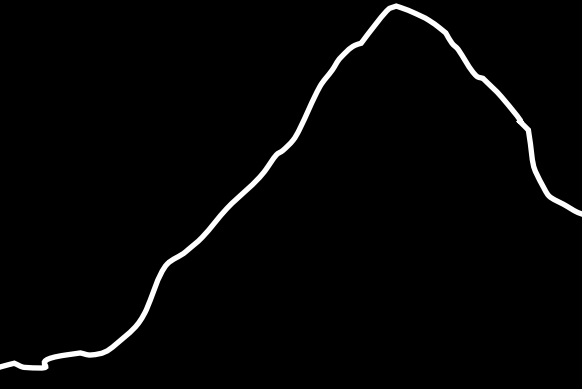


Insufficient lighting design



Huge disturbance of the surroundings

CURRENT SITUATION





Climbers



Children



Visitors



Staff

USERS

FUNCTIONAL AIM

Safe use of the wall and the surroundings

Orientation of the user

Recognizable from the outside

Not to interfere with the existing architectural elements

AIMS



FUNCTIONAL AIM

Safe use of the wall and the surroundings
Orientation of the user
Recognizable from the outside
Not to interfere with the existing architectural elements

TECHNOLOGICAL AIM

Compliance with EU standards_[appropriate illuminance levels]
Avoid glare
Avoid light pollution
Good CRI for recognizing the different paths
Choosing the appropriate fixtures _ high-efficient luminaires + appropriate optics

FUNCTIONAL AIM

Safe use of the wall and the surroundings
Orientation of the user
Recognizable from the outside
Not to interfere with the existing architectural elements

TECHNOLOGICAL AIM

Compliance with EU standards _ [appropriate illuminance levels]
Avoid glare
Avoid light pollution
Good CRI for recognizing the different paths
Choosing the appropriate fixtures _ high-efficient
appropriate optics

AESTHETICAL AIM

Provide the feeling of night climbing
Enhance the sense of the height
Creating a pattern on the wall
modern +



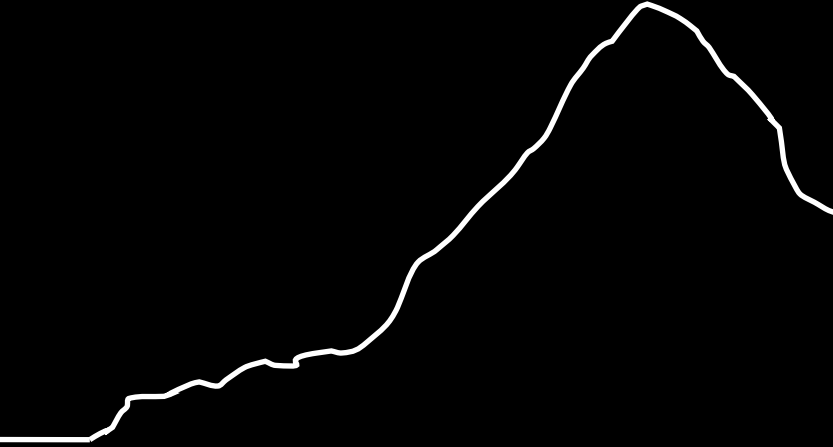
CLIMBING BY NIGHT _ HEIGHT PERCEPTION



CLIMBING BY NIGHT _ HEIGHT PERCEPTION



**ARTIFICIAL vs
NATURAL**

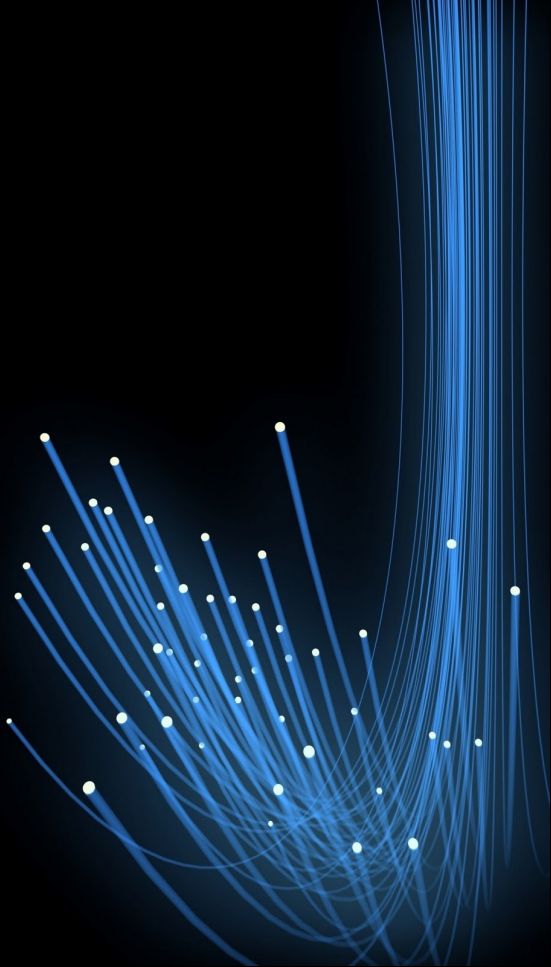




THE “ LUMINATED ” PATH



TASK LIGHTING

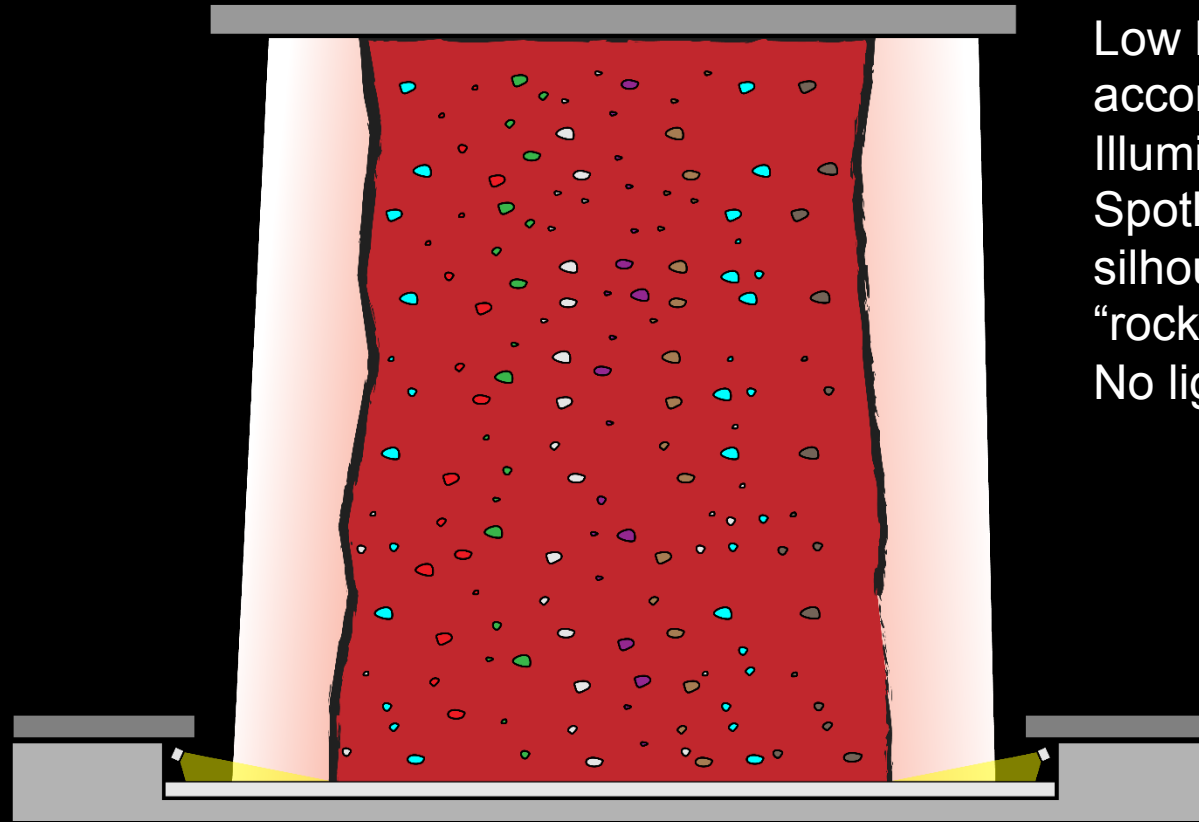


Pof optical fibers

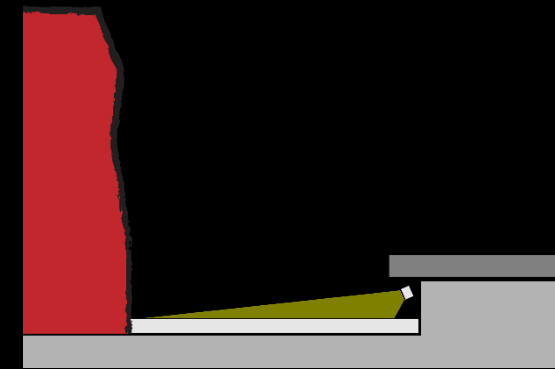


Coryphella polaris

ARTIFICIAL + NATURAL

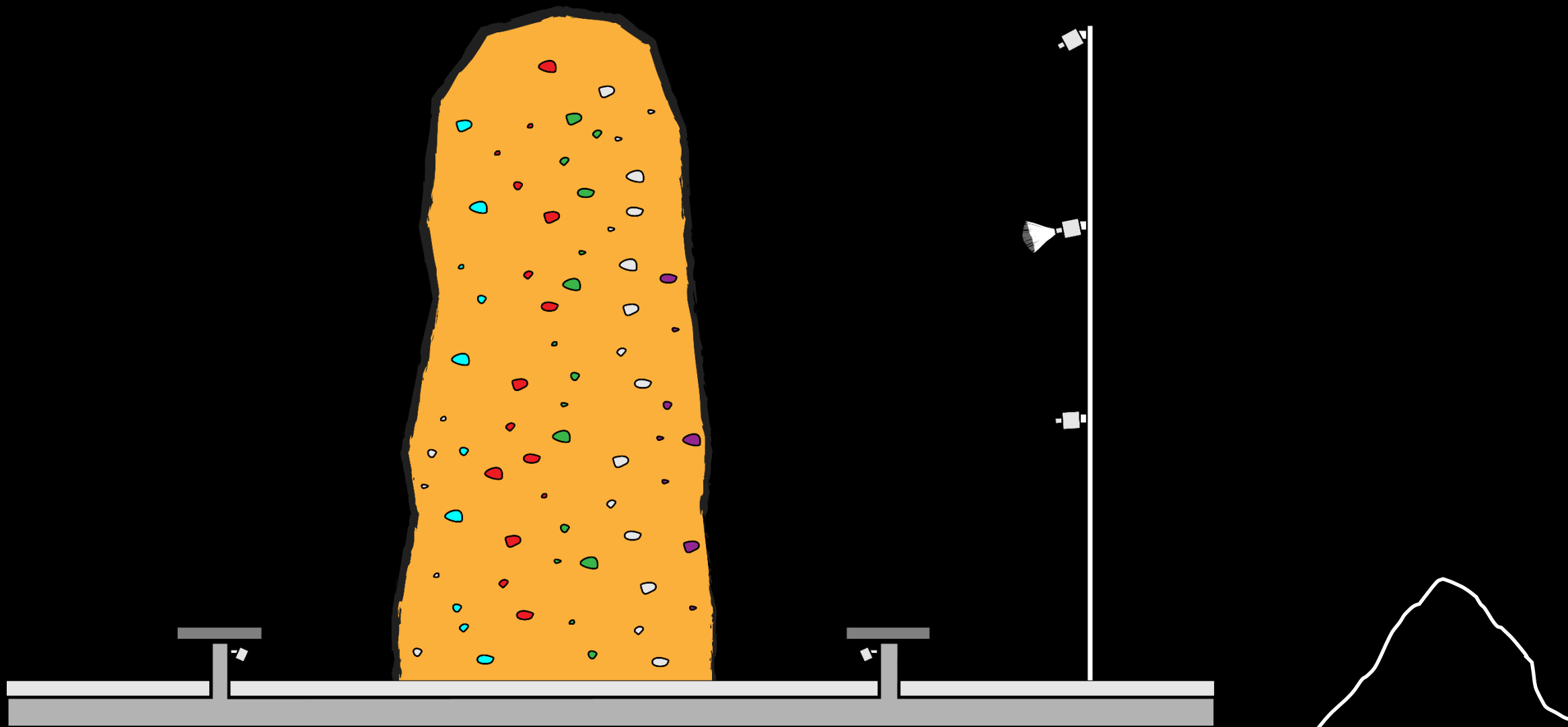


Low level general illumination : ~30% of the required
according to EU standards
Illuminating the base _ “footprint”
Spotlighting the holds
silhouette lighting for the main façade _ emphasize the
“rock”
No light pollution + sustainable solution

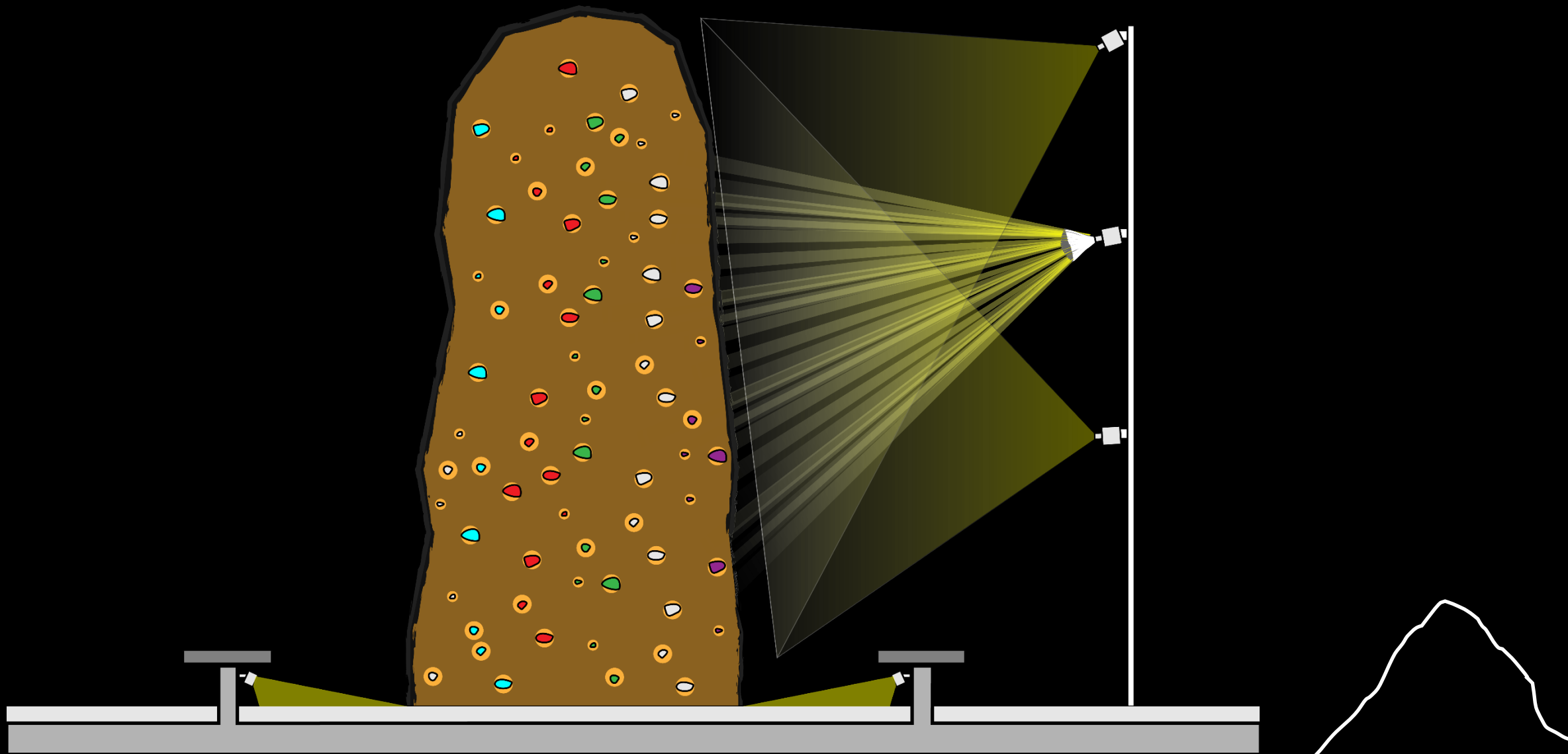


Detail of the luminous footprint

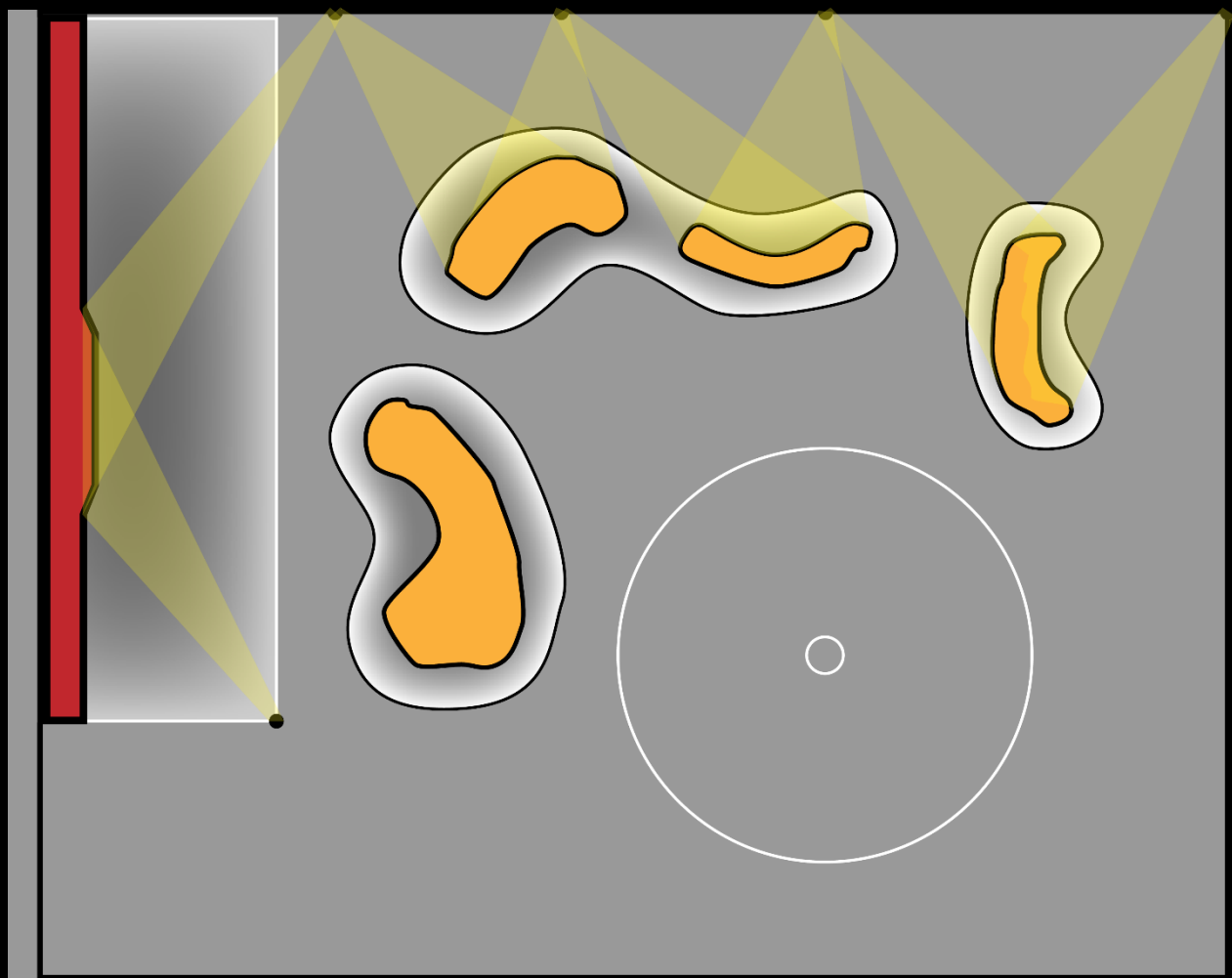
CONCEPT THE WALL



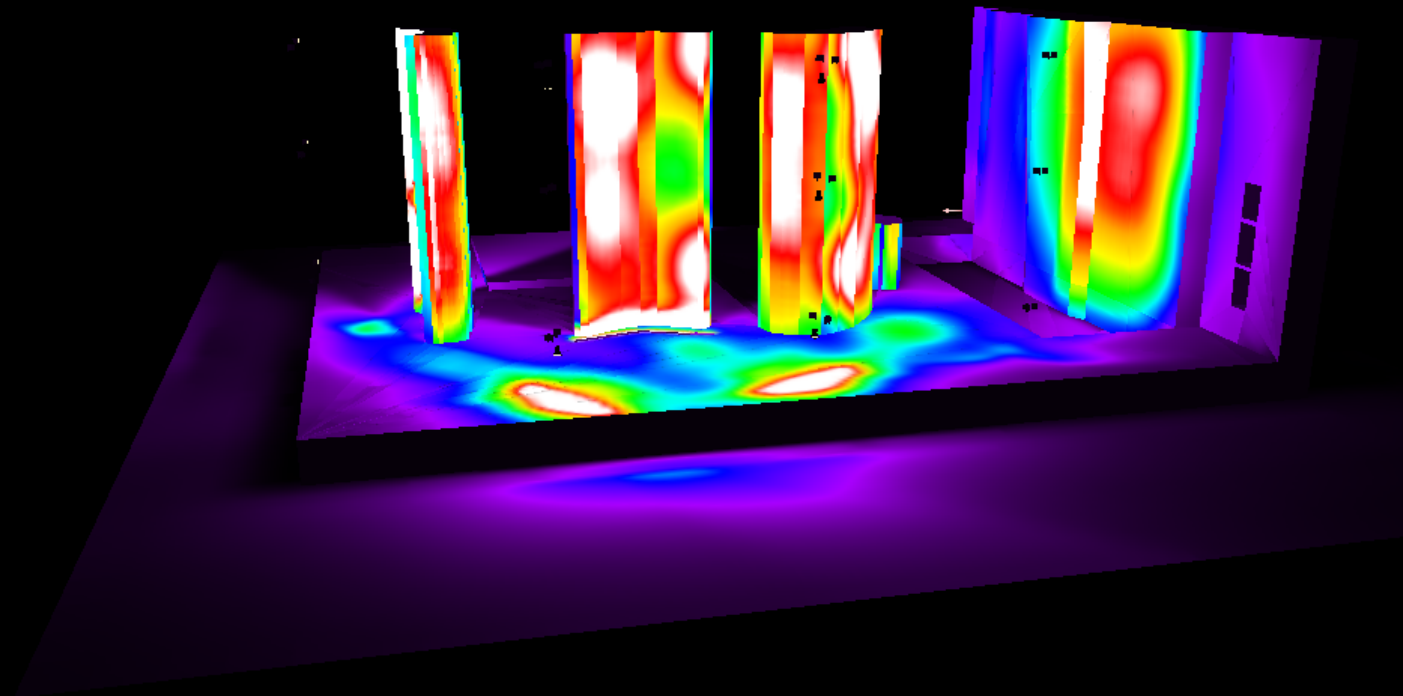
CONCEPT THE ROCKS



CONCEPT THE ROCKS

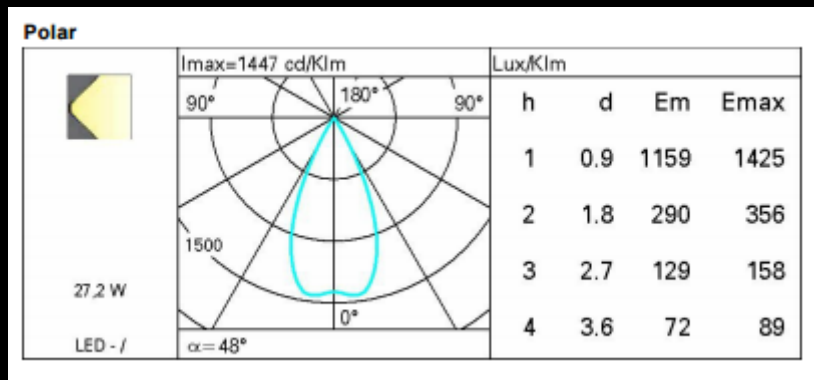


CONCEPT LANDSCAPE

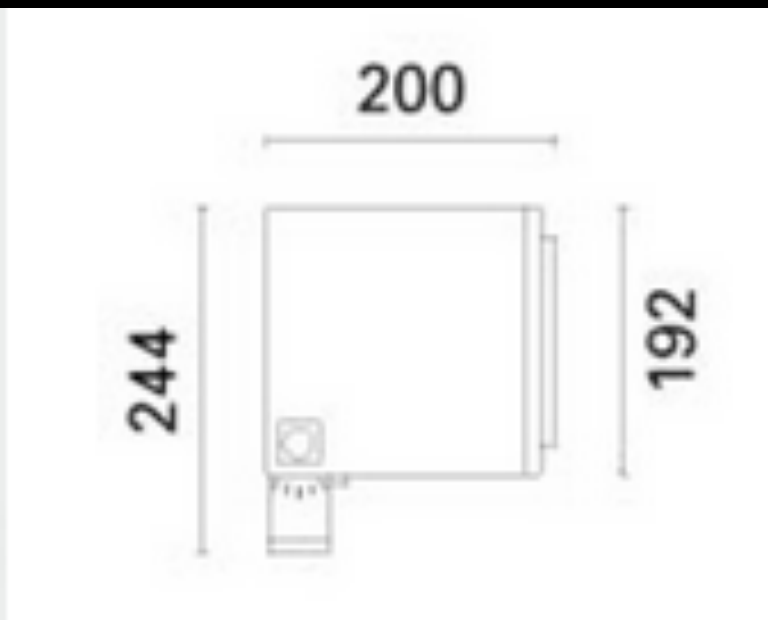


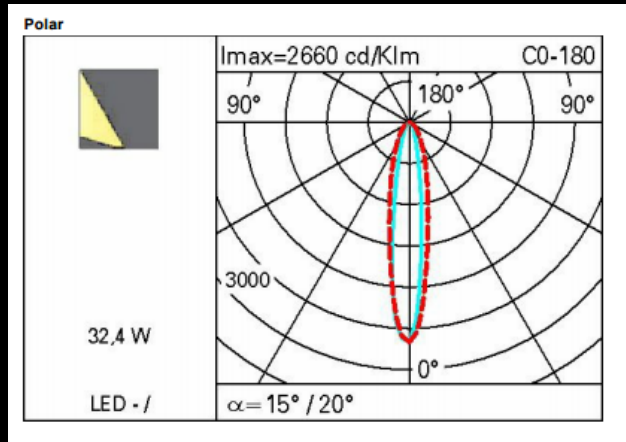
E_m [lx]	E_{min} [lx]	E_{max} [lx]	u_0	E_{min}/E_{max}
233	150	317	0.643	0.473

LIGHT CALCULATION



Outdoor floodlight
ipro by iguzzini_ BD61
Metal halide HIT-CE G12
150W
4000K
CRI80
IK07 _ IP66
optic: wide flood 36°





Outdoor ground & floor recessed luminaire
linealuce by iguzzini _ BI70

LED

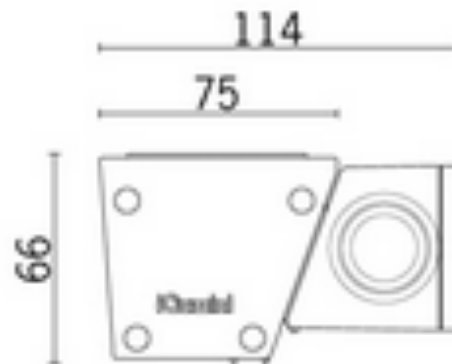
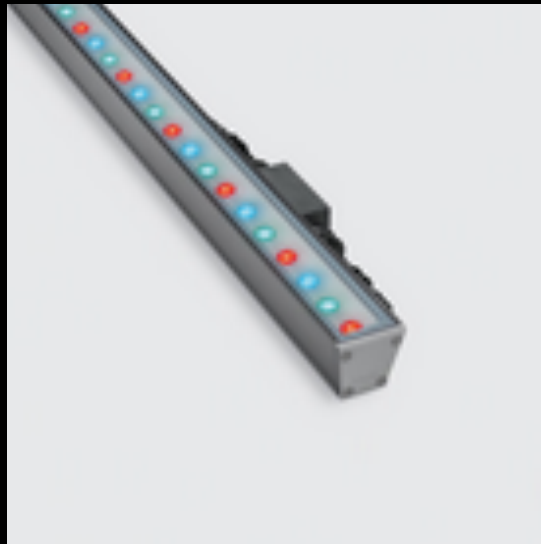
27W, 1530lm

RGB

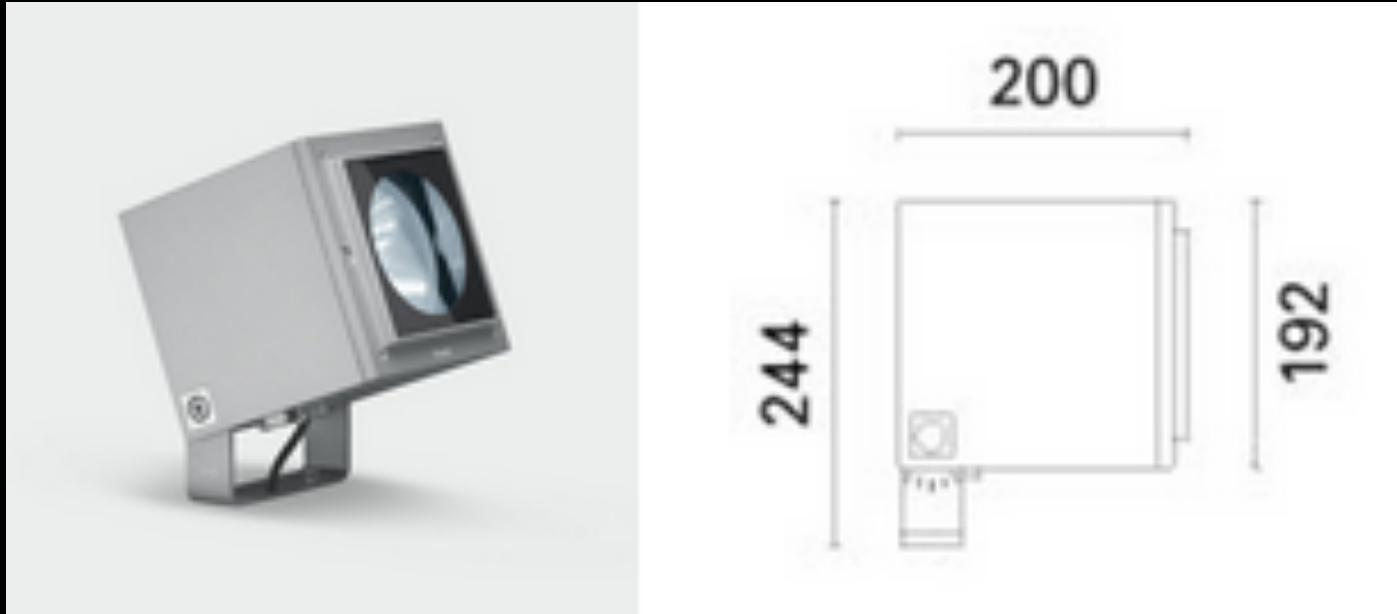
CRI80

IK05 _ IP66

optic: wall grazing



LUMINAIRES BASE + SILHOUETTE
LIGHTING



Custom made luminaire _ adjustment of fiber optics
outdoor floodlight
ipro by iguzzini_ BX22
LED
35W, 4700lm
4000K
CRI80

CALCULATIONS

- Fiber efficiency loss: 0.6%
- Illuminance _ $E = 99.40 \times I/d^2 \rightarrow I = (E \times d^2) / 99.40$ (a)
- From general illumination we have: 100lux + need extra 100lux
- (a) \rightarrow (where $d=4m$, $E=100lux$) $I = 1609cd \rightarrow 4.827lm$



PROPOSAL MAIN FACADE



PROPOSAL MAIN FACADE

„Wo viel Licht ist, ist starker Schatten.“
Johann Wolfgang von Goethe



Alternative proposal