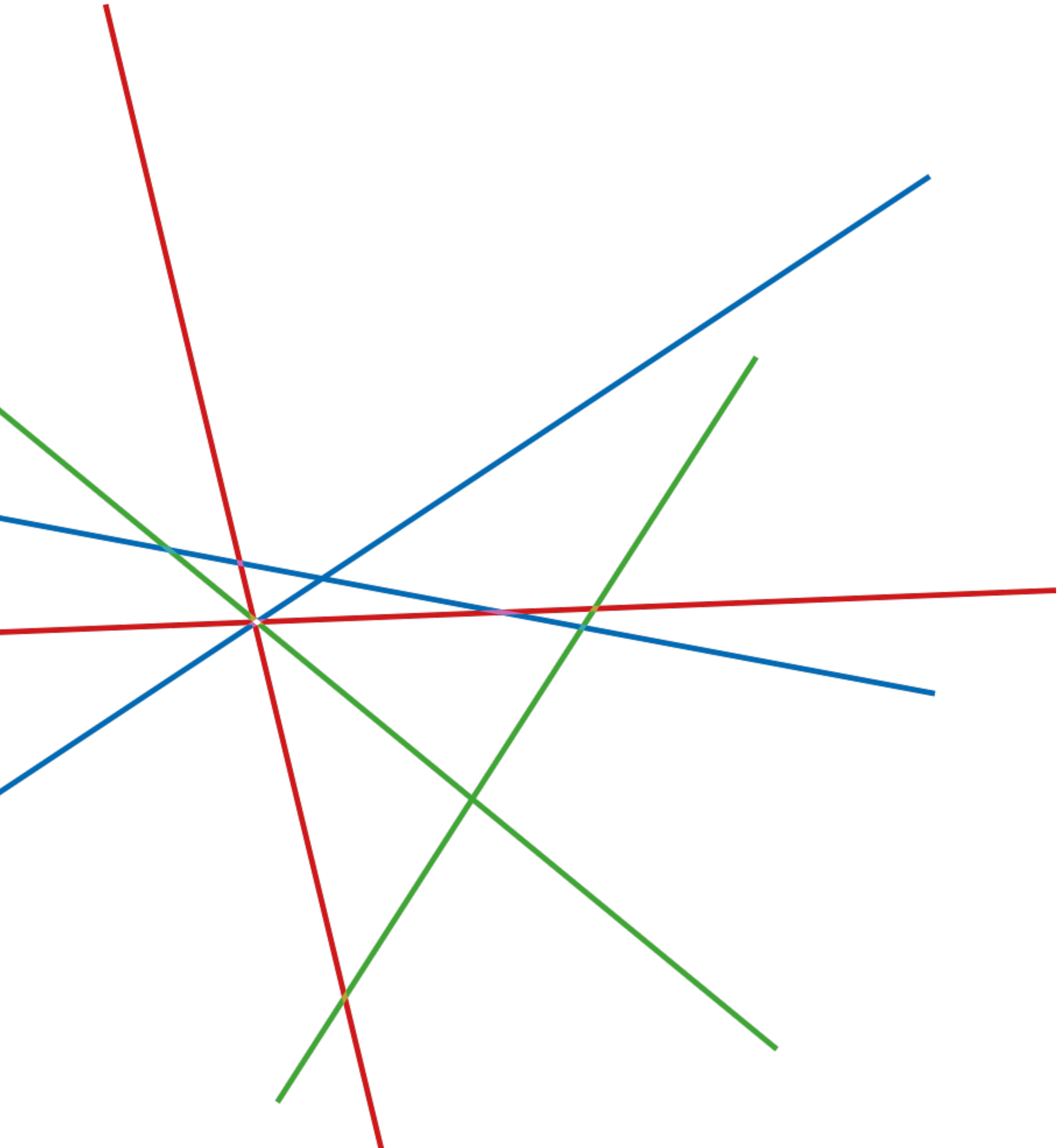
Metropolis: *by* ***LIGHT***

Biological Lighting

Åsa Moum



Dynamic lighting design for The Neonatal Care Unit at Helsingborg Hospital

Åsa Moum & Moa Pauhlson

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Digital transformation of healthcare

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photo: BrainLit

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The Challenge

Parents

Premature babies

Staff

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Radically different needs of light

Parents

Parents need light, just like staff, to feel healthy.

Premature babies

Before W28, premature babies doesn’t need any light.

Staff

Staff need a lot of light to carry out their work and to feel healthy.

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The Light Lab

Cooperation

Prototype lab

Calibrating light

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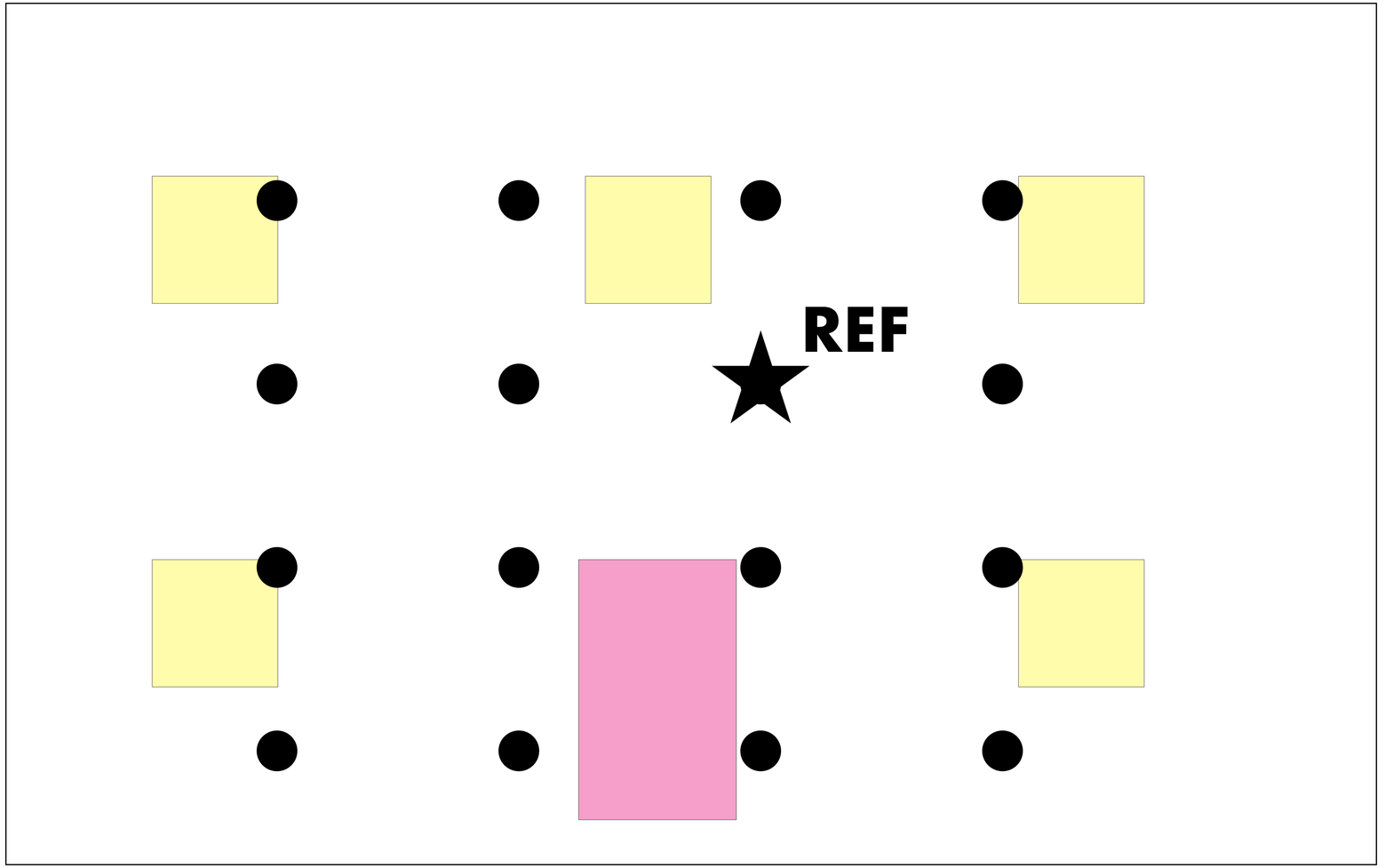
The Light Lab



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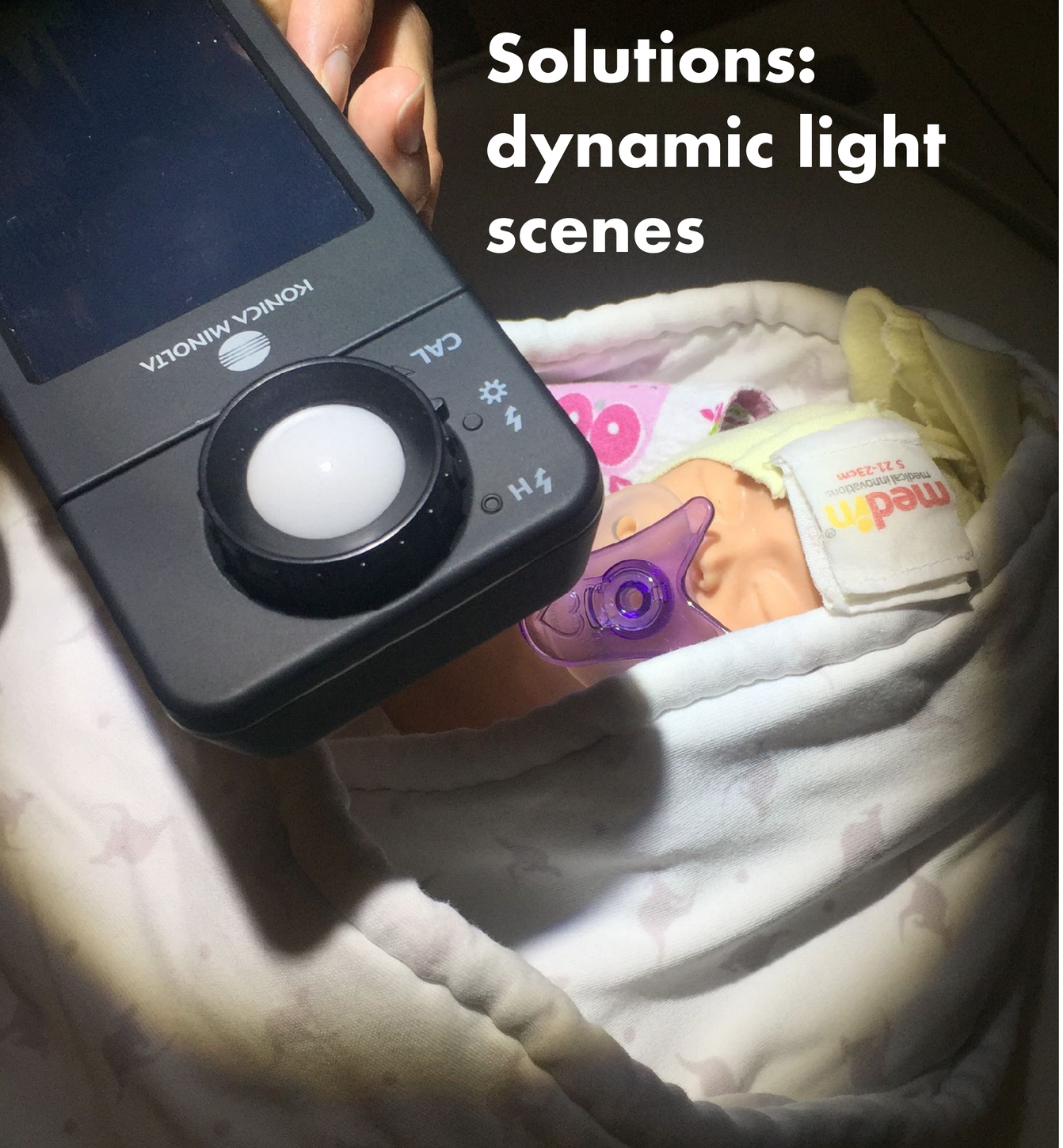
Solutions: dynamic light scenes



General light

Created by Vectors Market
from Noun Project

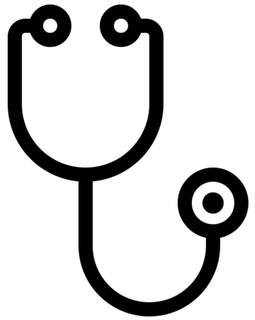
Night light

Created by Aybige
from Noun Project

Ambient light

Created by Andrew Doane
from Noun Project

Focus light



Created by Rockicon
from Noun Project

Precision light

Created by LAFS
from Noun Project

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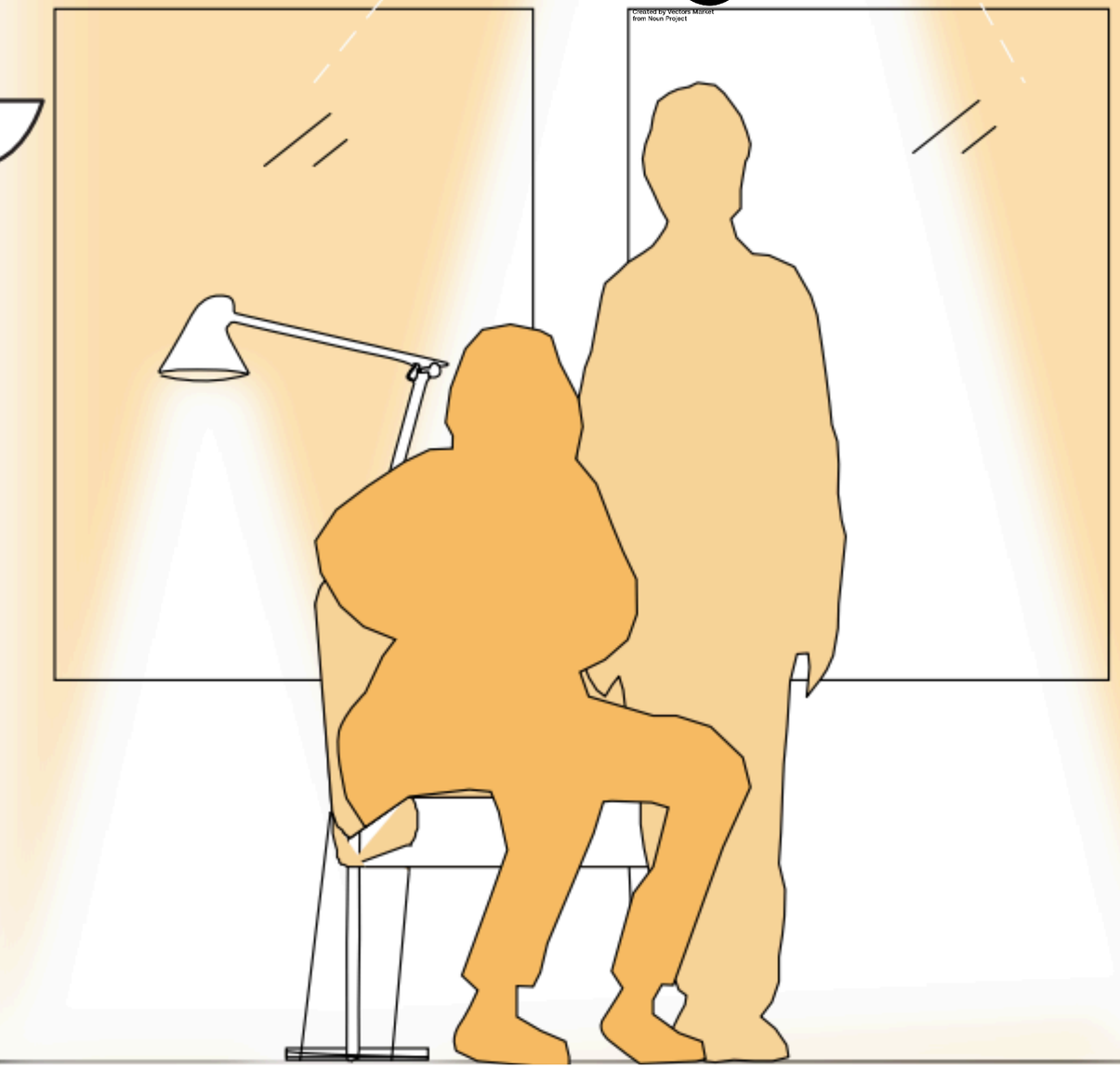
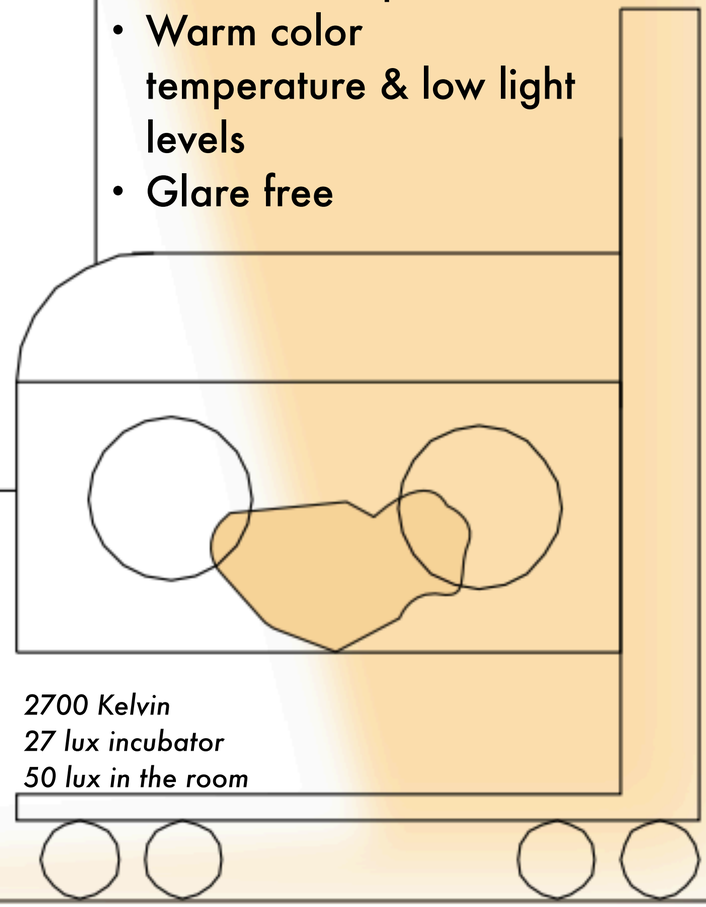
General Light



- Protect the infants from harmful light exposure
- As bright as possible for staff and parents
- Warm color temperature & low light levels
- Glare free



2700 Kelvin
27 lux incubator
50 lux in the room

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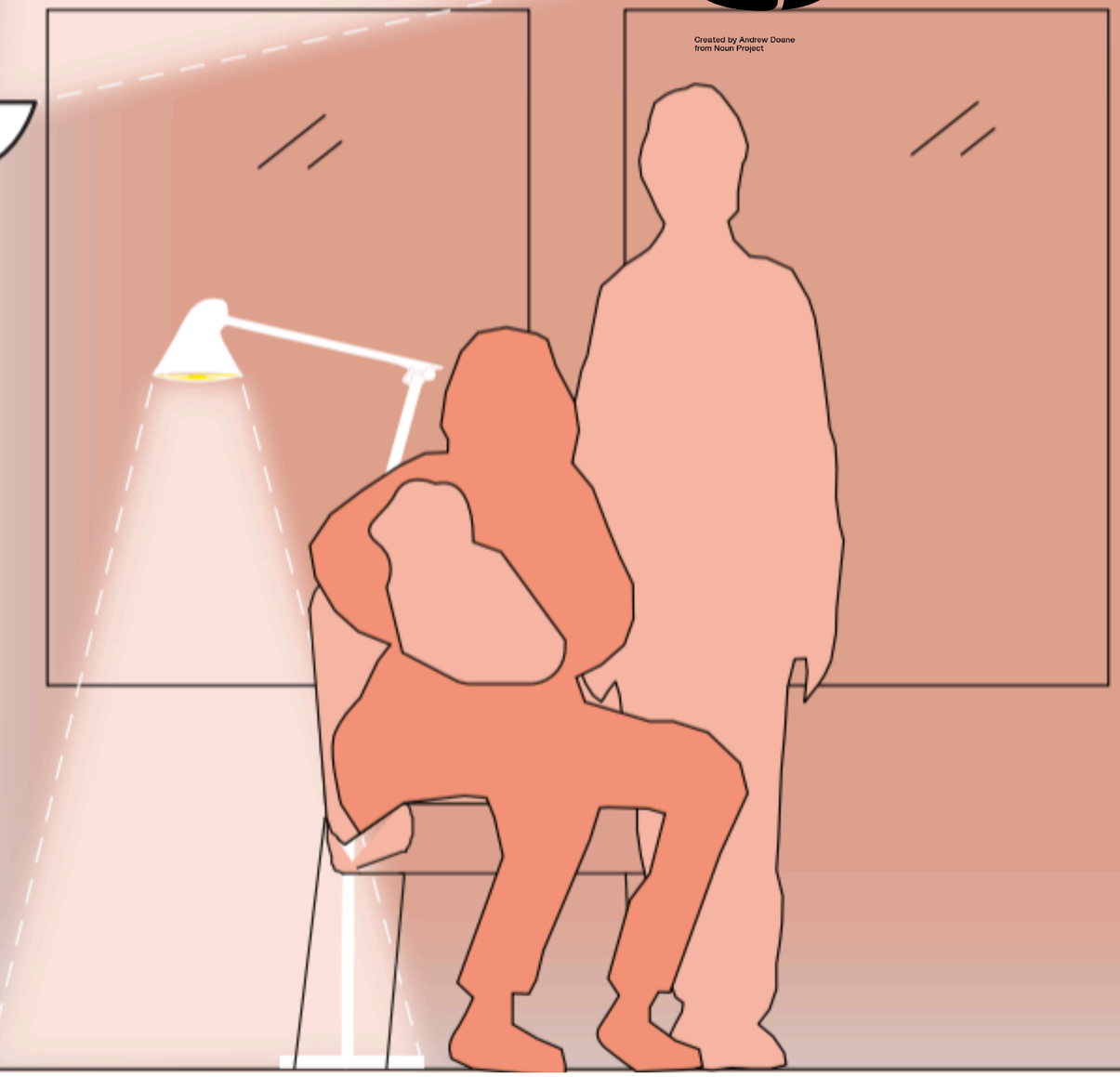
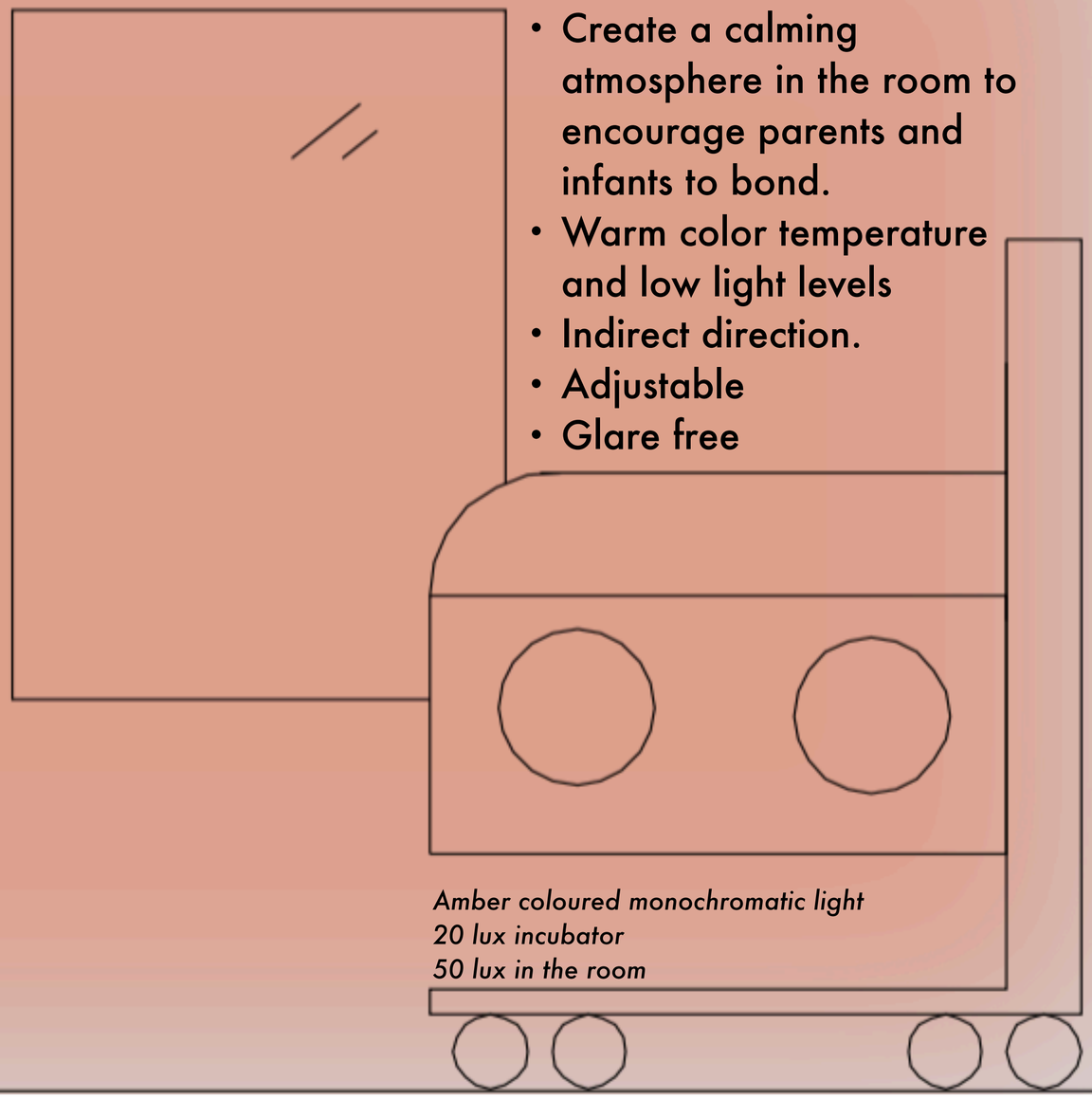
Ambient Light

Created by Andrew Doane
from Noun Project



- Create a calming atmosphere in the room to encourage parents and infants to bond.
- Warm color temperature and low light levels
- Indirect direction.
- Adjustable
- Glare free



Amber coloured monochromatic light
20 lux incubator
50 lux in the room

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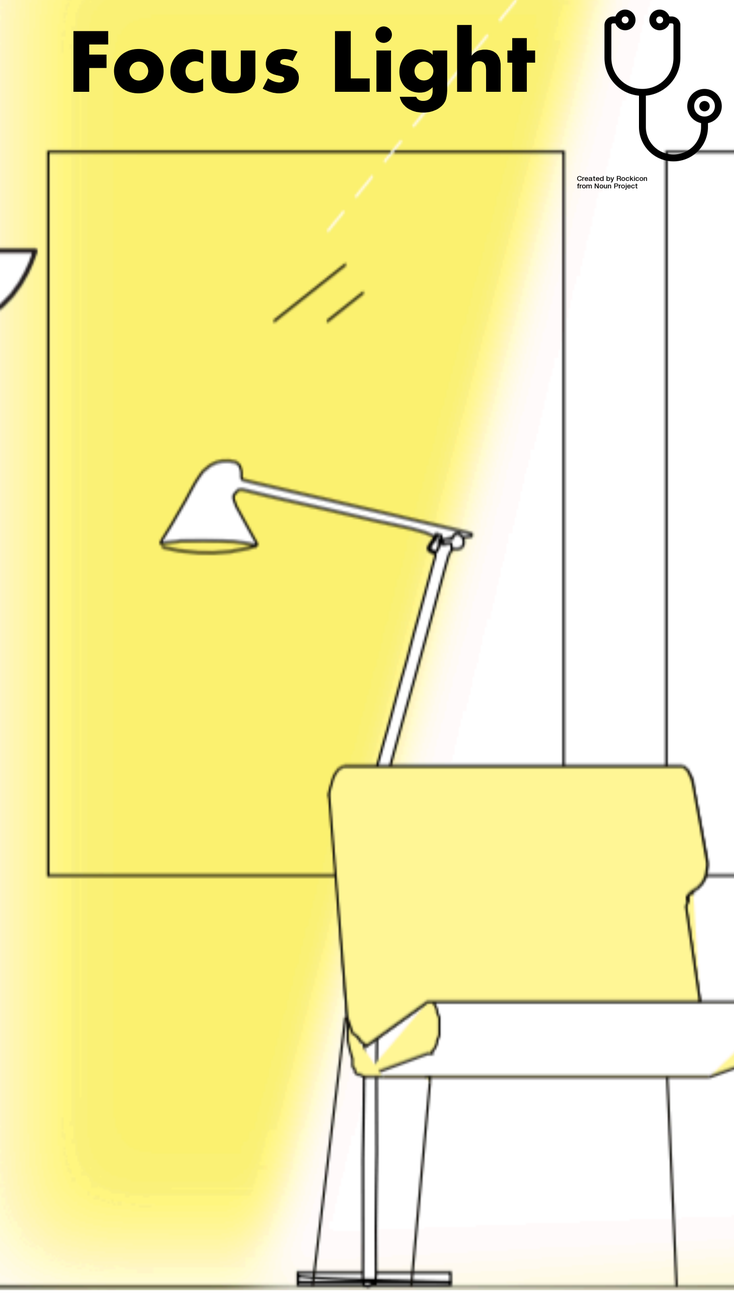
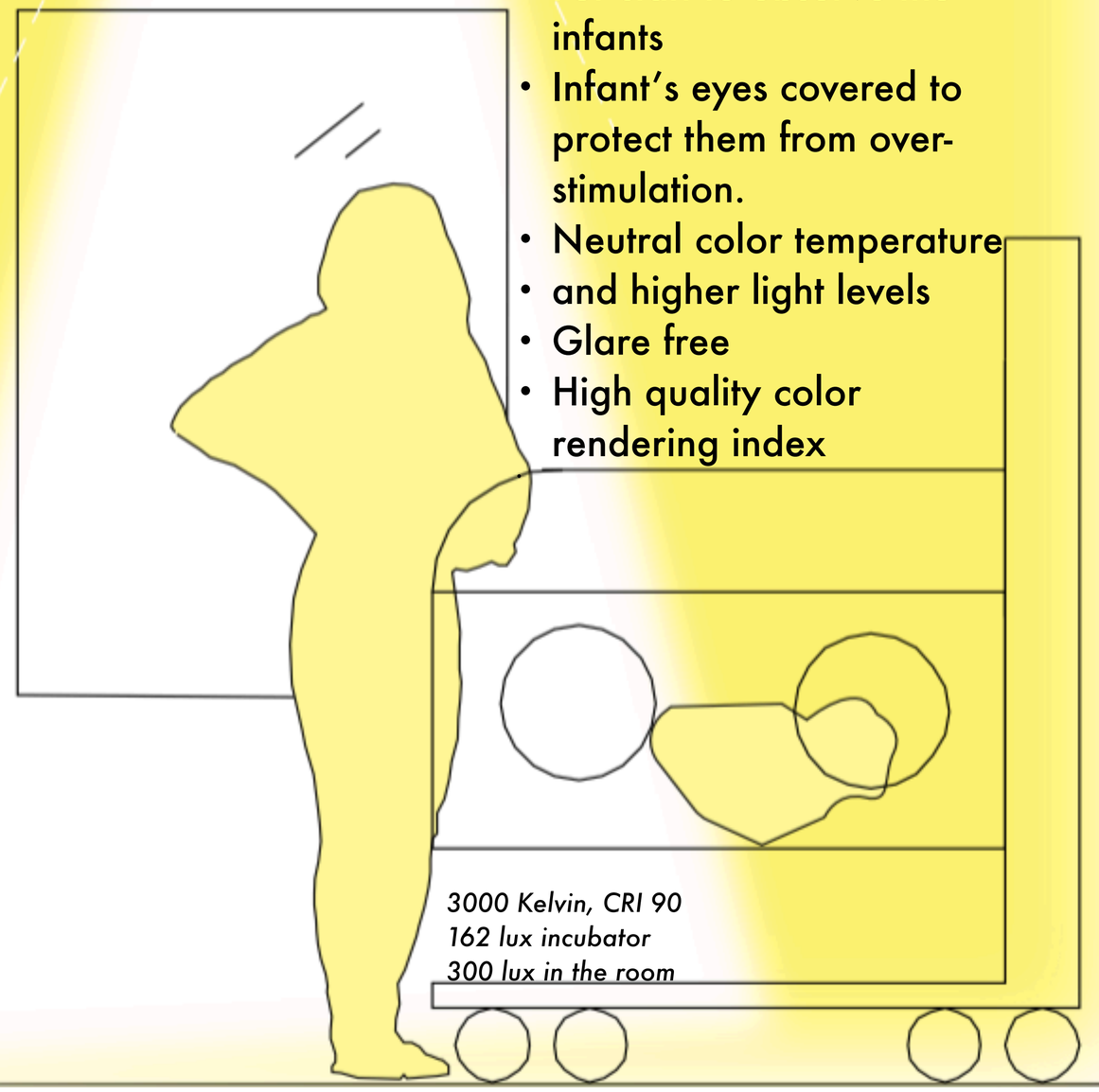
Focus Light





- For staff to observe the infants
- Infant's eyes covered to protect them from over-stimulation.
- Neutral color temperature
- and higher light levels
- Glare free
- High quality color rendering index

3000 Kelvin, CRI 90
162 lux incubator
300 lux in the room

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Precision Light

- For staff to perform precision work and treatments.
- Infant's eyes protected at all times.
- Cold white color temperature
- and high light intensity.
- Glare free
- High quality color rendering index

4000 Kelvin, CRI 90
162 lux incubator
500 lux in the room

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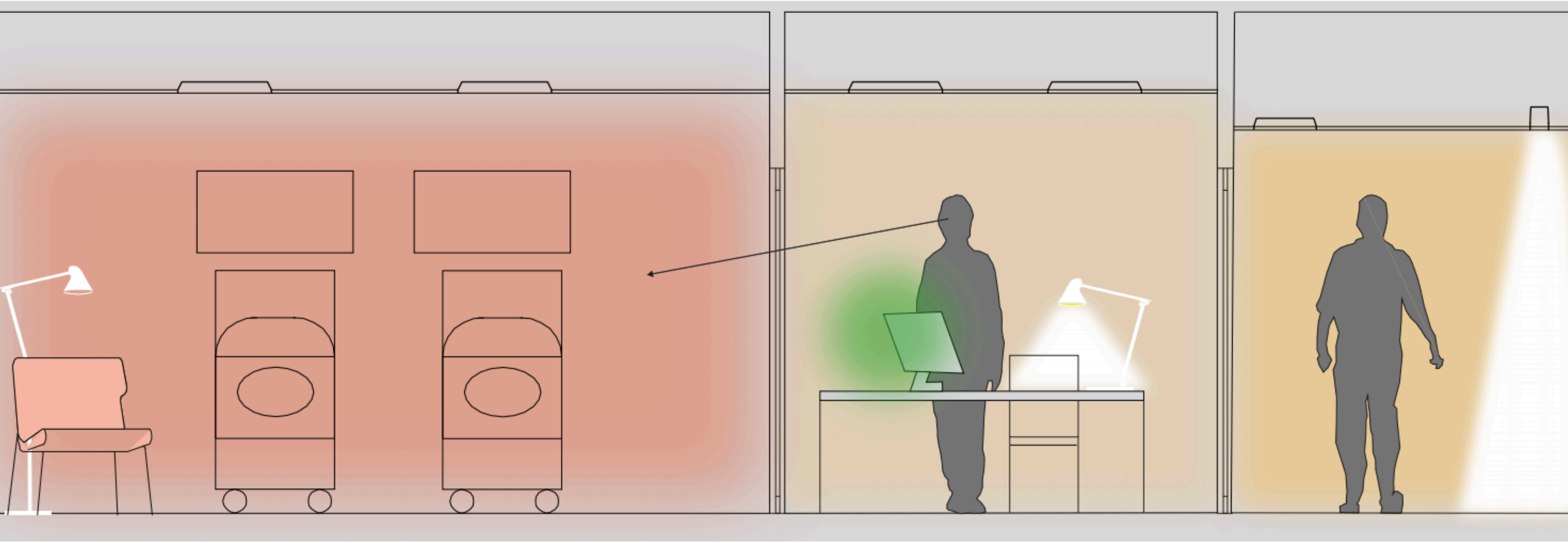
Night Light



Almost completely dark in the incubators.

2700 Kelvin
2–3 lux incubator
5 lux in the room

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Dynamic Light Scenes

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Key takeaways

Work even closer to your users than you would have dreamed of in the design process,

Iterate the design with the users multiple times,

Simplify and automate together with the users to create trust.

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Metropolis: *by* ***LIGHT***

Thanks from

Åsa Moum

+46708275078

hello@moum.co