DESIGN THINKING FOR BANKNOTE DESIGNERS

THE SUCCESSFUL INTEGRATION OF KINEGRAM® SECURITY FEATURES

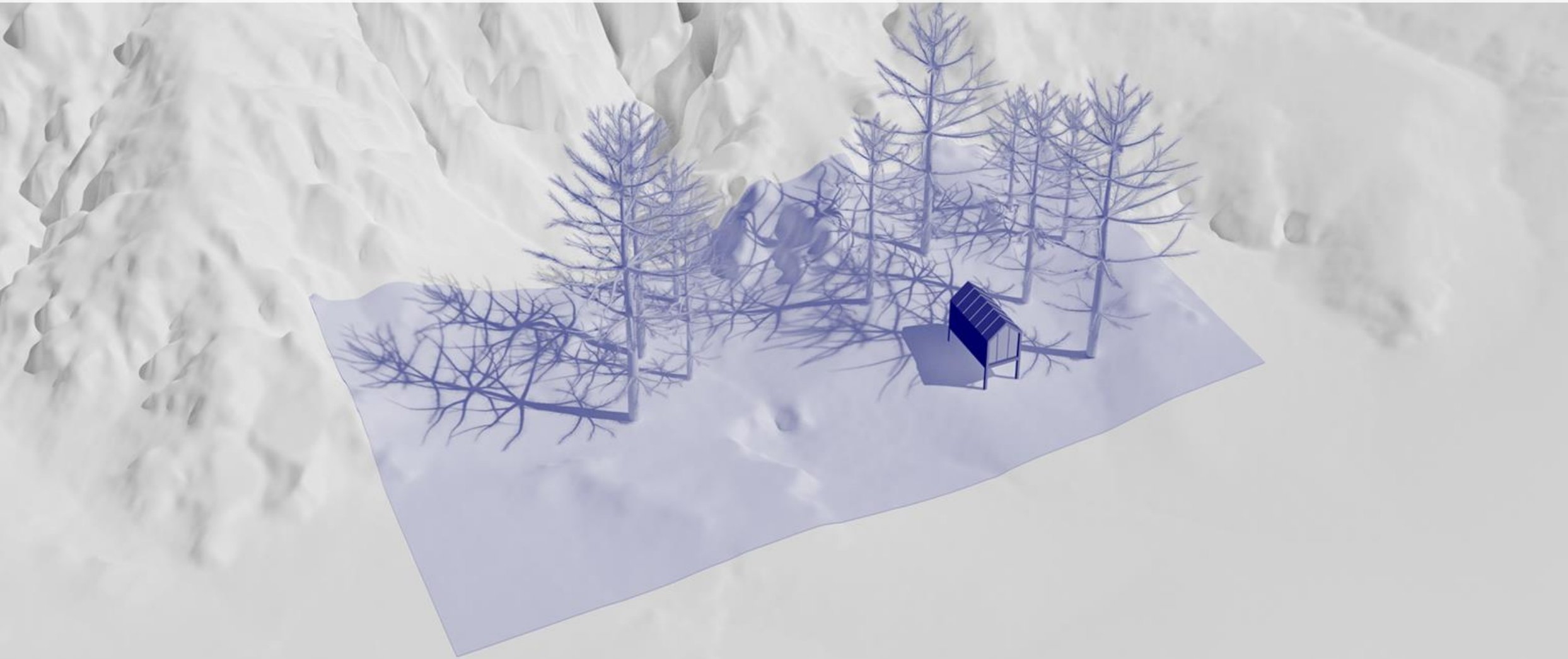
September 29, 2021

Welcome to KURZ

- **Family run business since 1899**
  (5th generation)
- **Global leader in thin-film technology**
- **Supplies products for surface finishing, decoration, labelling and counterfeit protection**
- **Over 5,500 employees**
- **Global presence in more than 30 locations**
- **Manufactures in Europe, Asia and the USA**

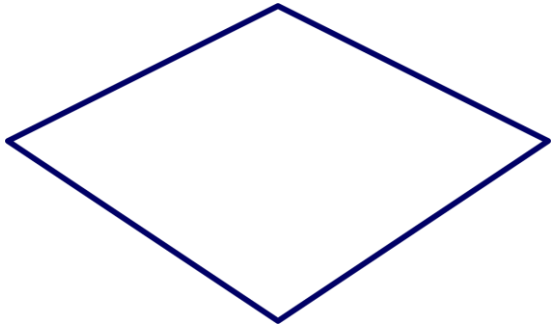

Interaction with our design professionals
Overview of the KINEGRAM® technology platform
Helpful skills for security feature integration into your overall banknote designs
Your Webinar Benefits
Best practices for banknotes with KINEGRAM®
Information about main products and types of application

Imagine a Banknote as an Area of Land



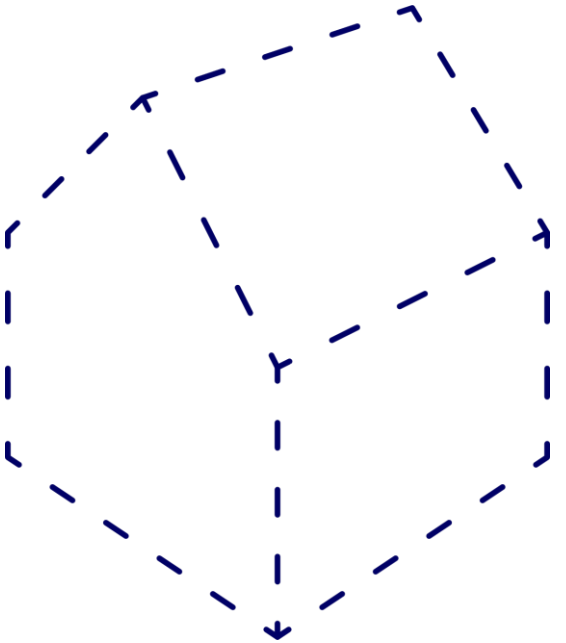
Integration **Banknote - KINEGRAM®**

Integration **Overview**



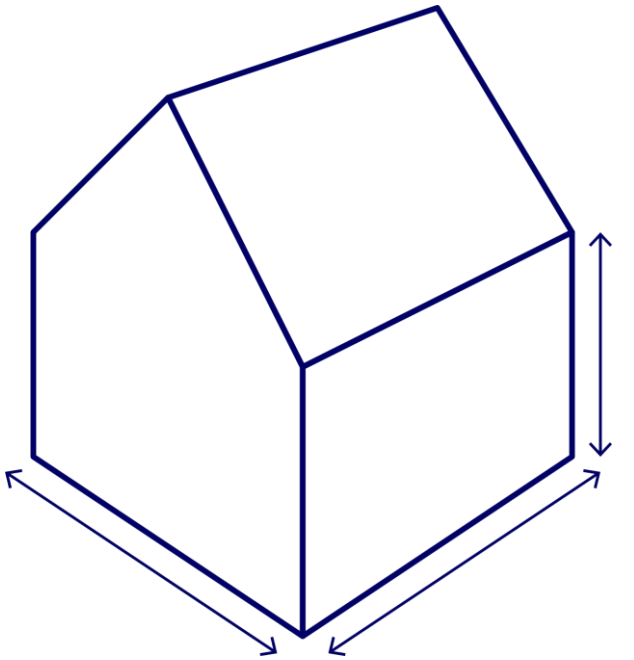
SITE

Application Types



VISION

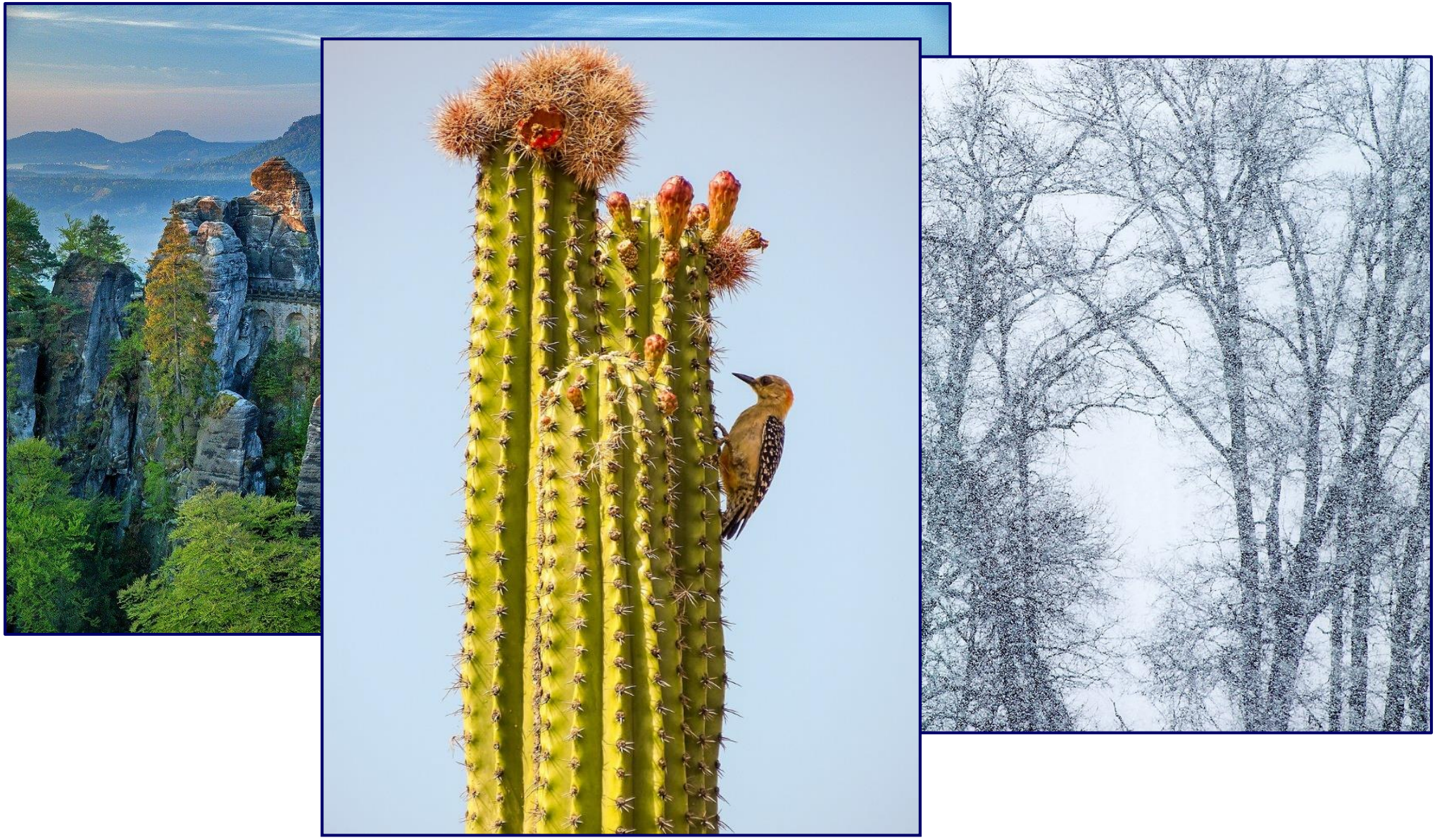
Technologies

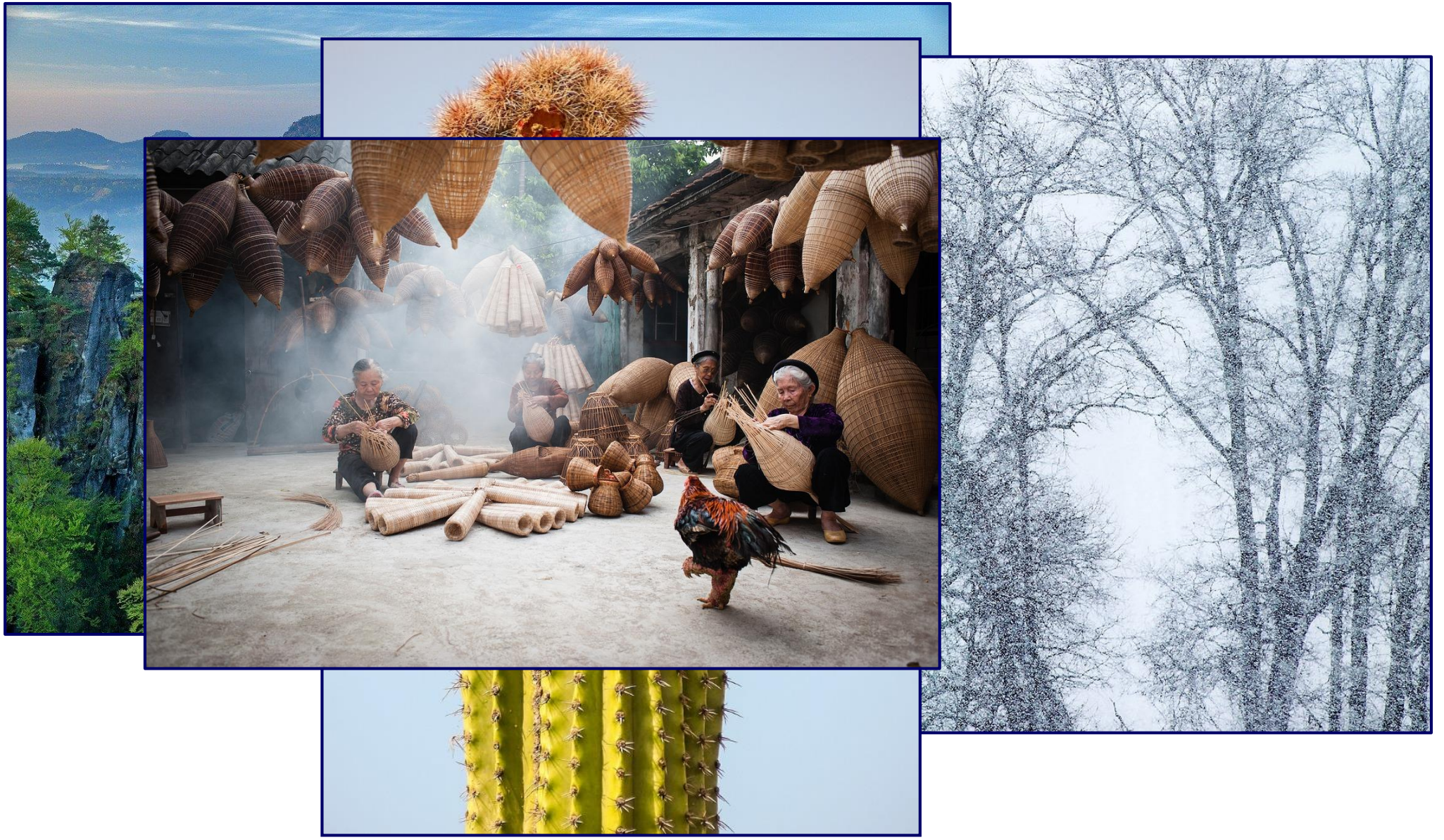


PLAN

Security Features / Effects

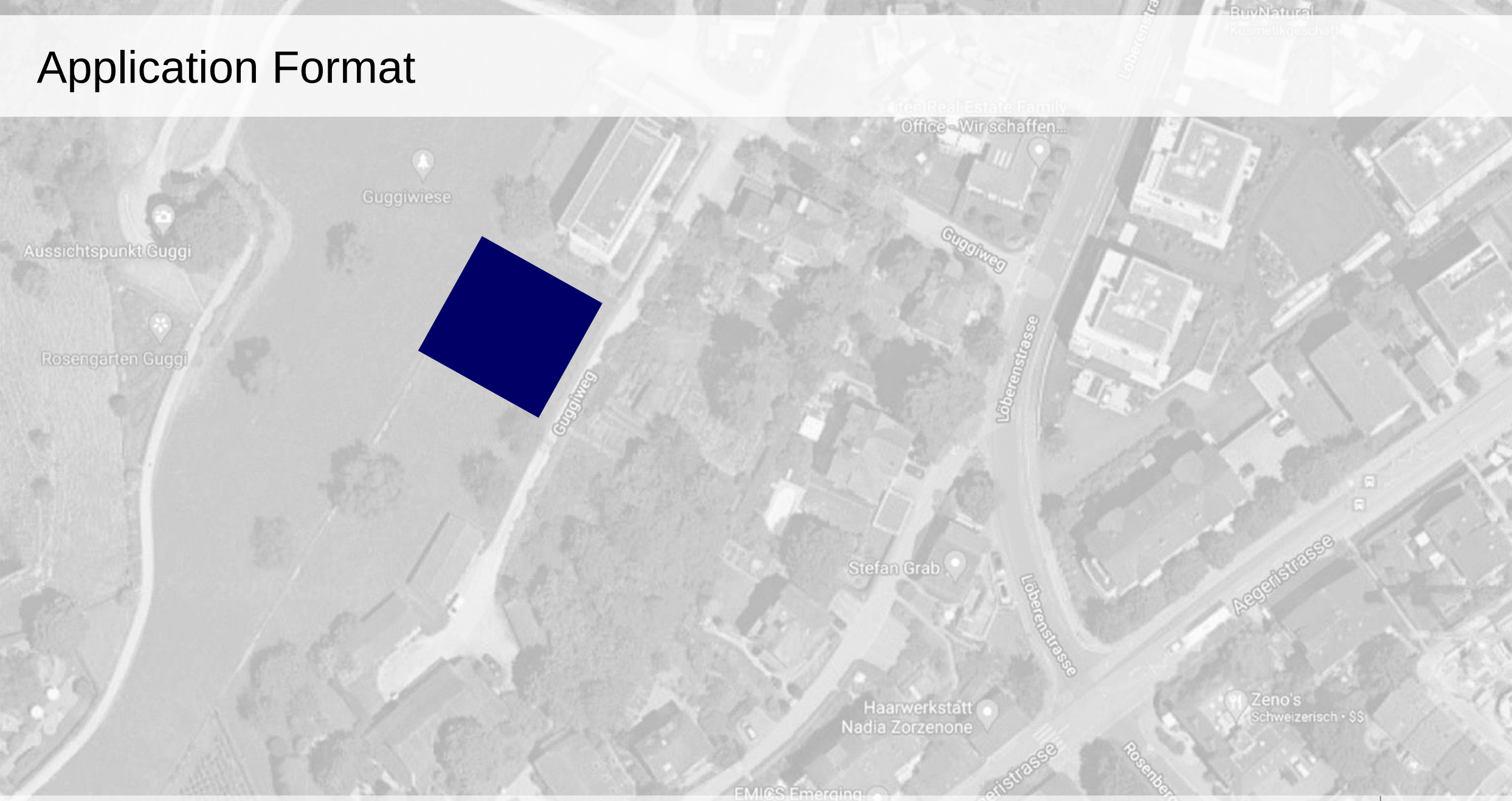
SITE



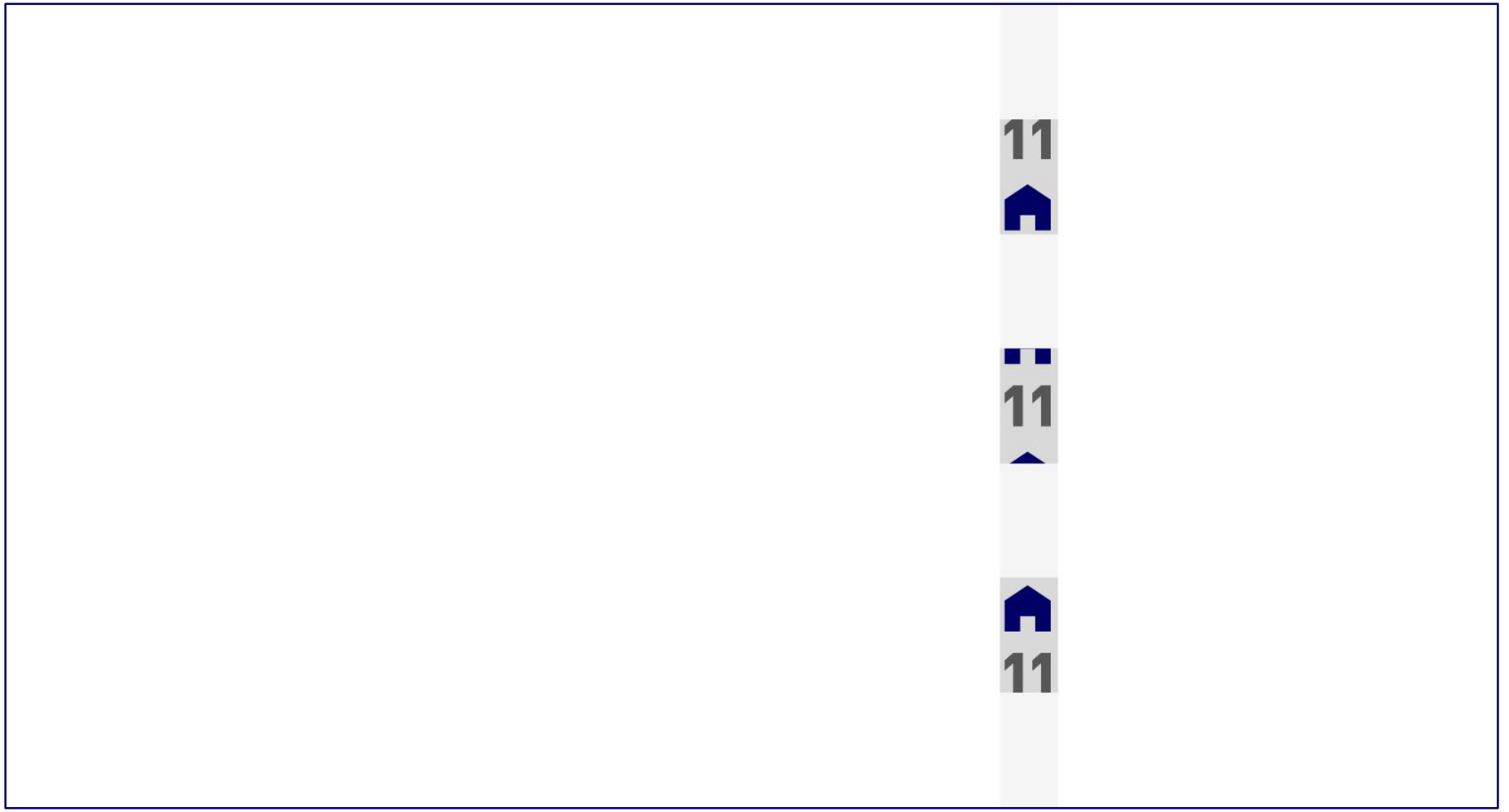


Good **integration** starts with early and close **collaboration**!

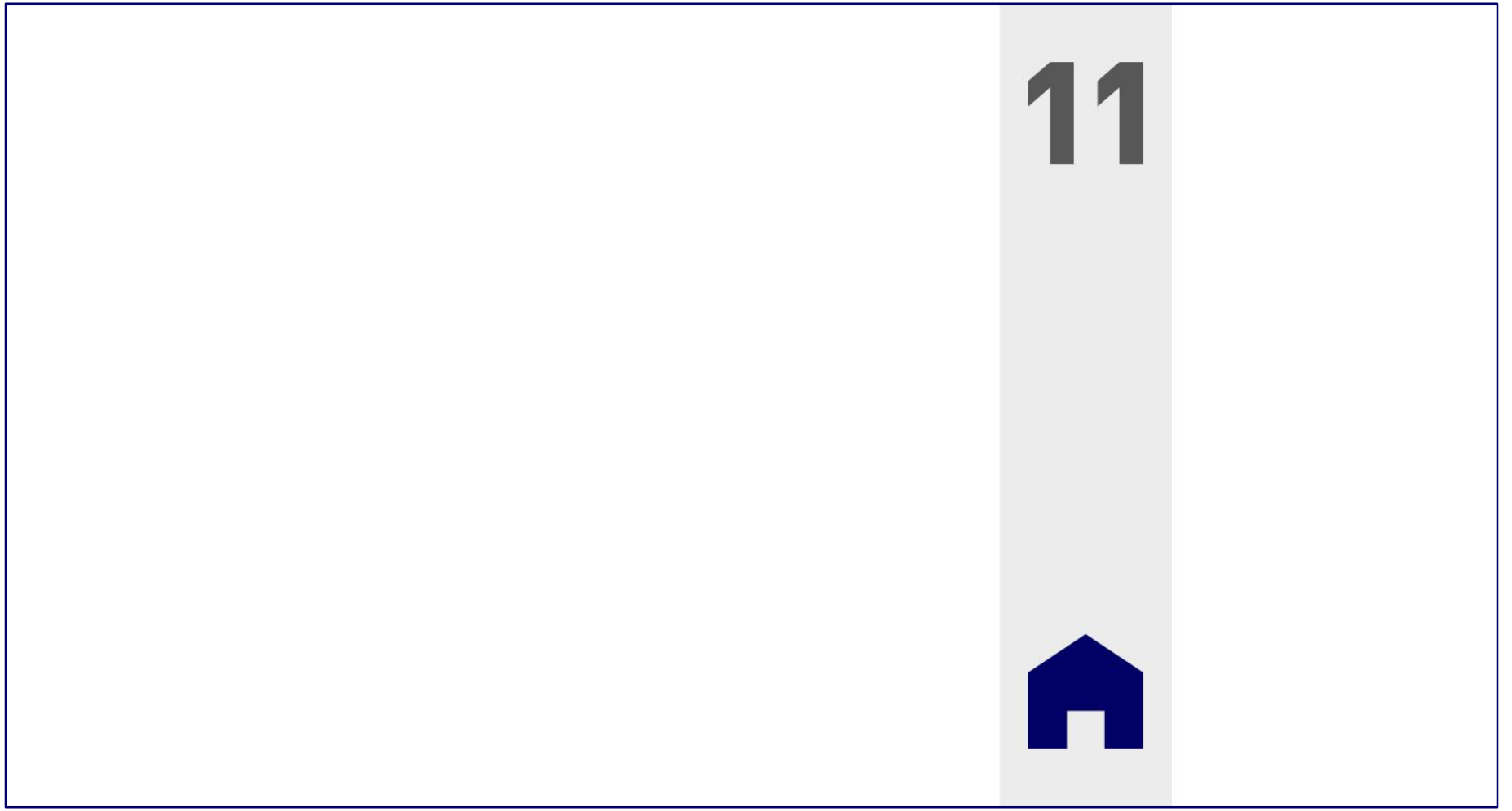
Application Format



Security Thread

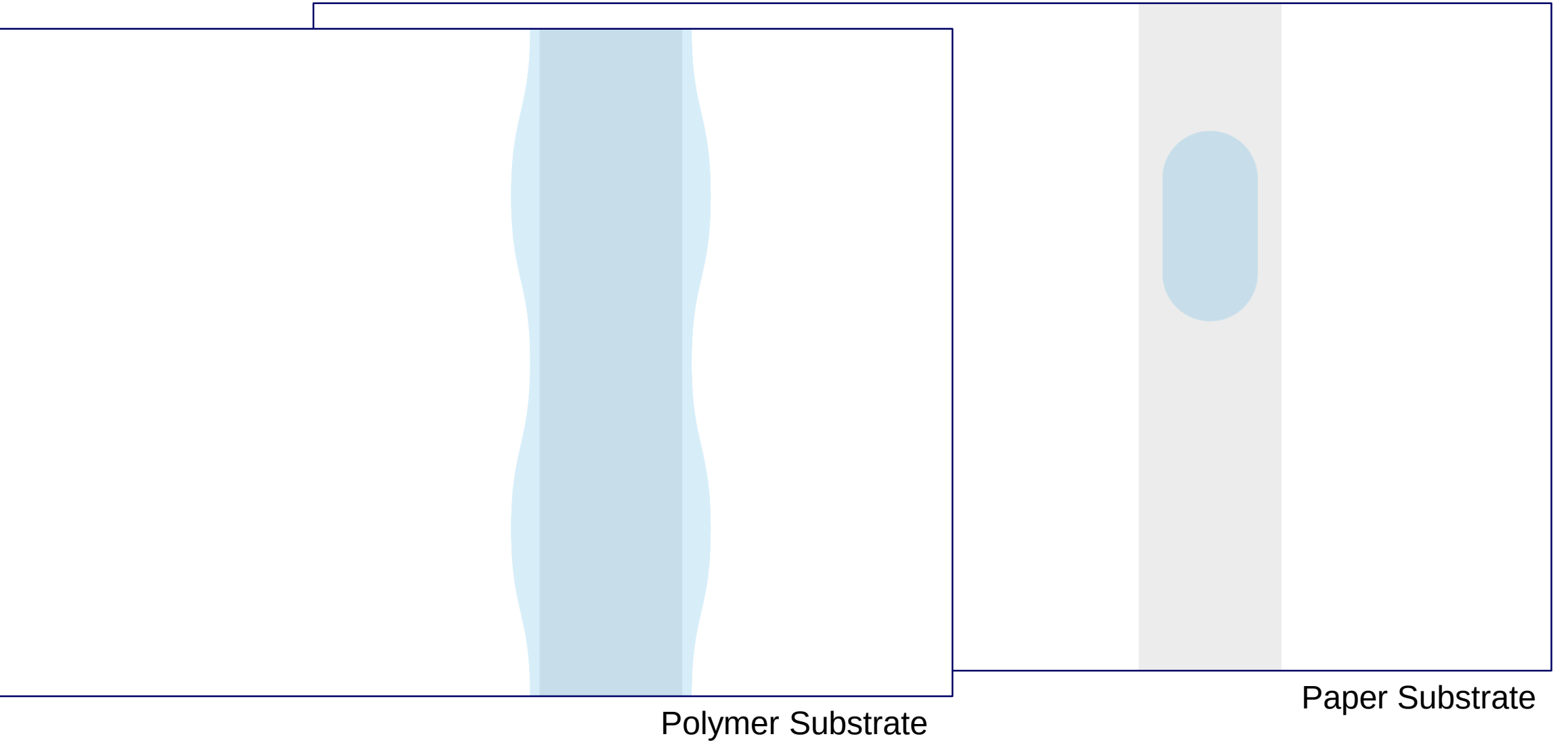


Registered Foil Stripe

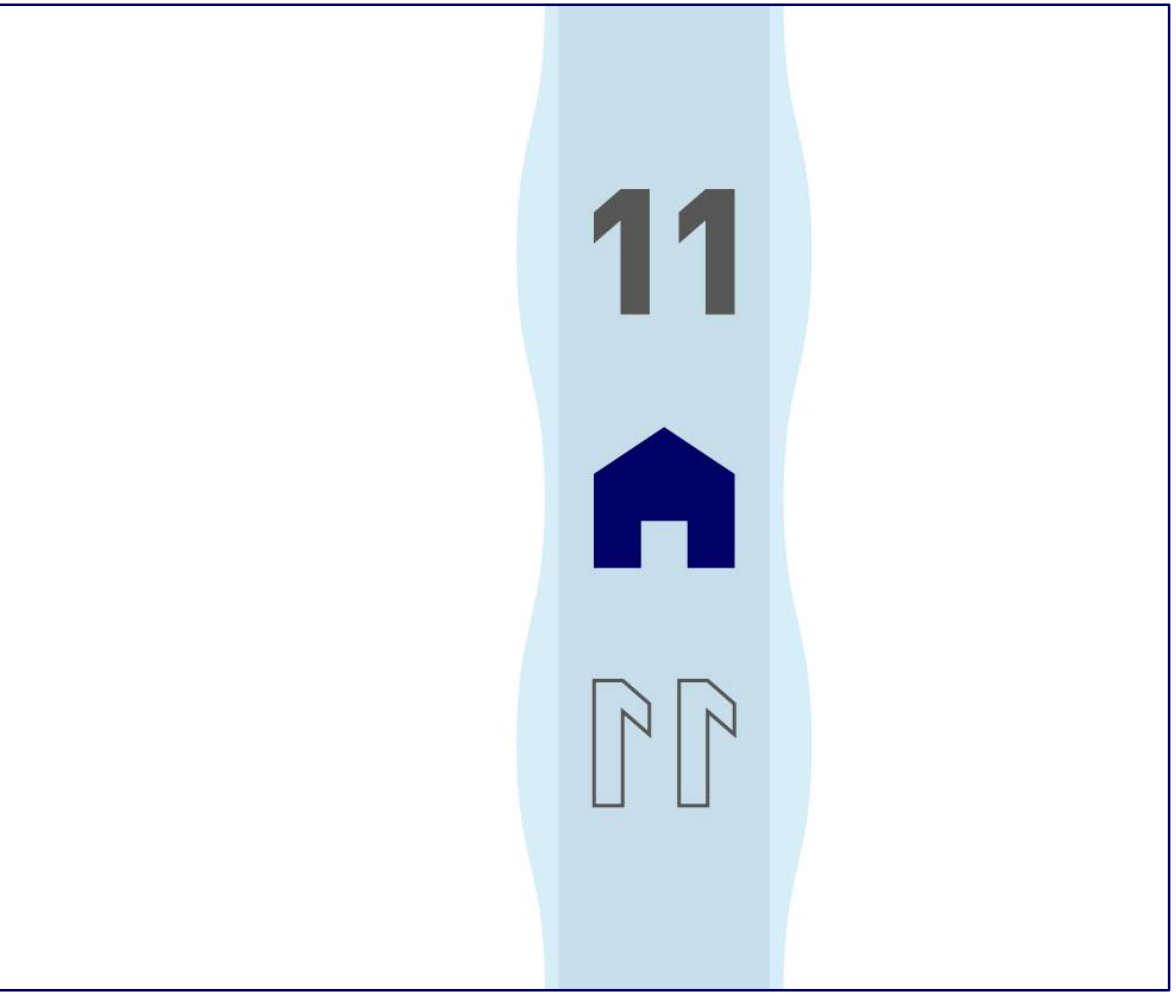


Foil Patch

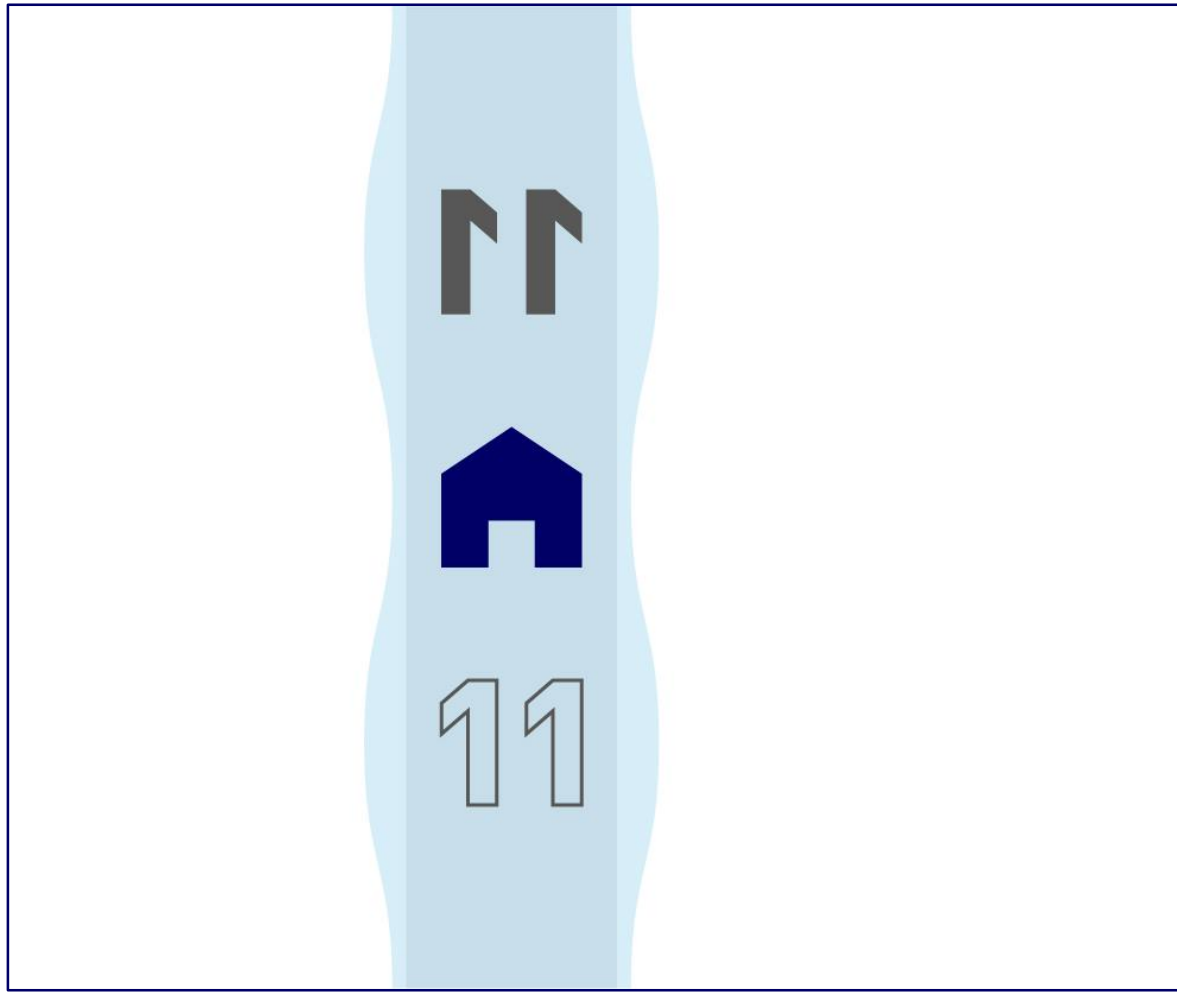
Window



Window in Polymer Substrate

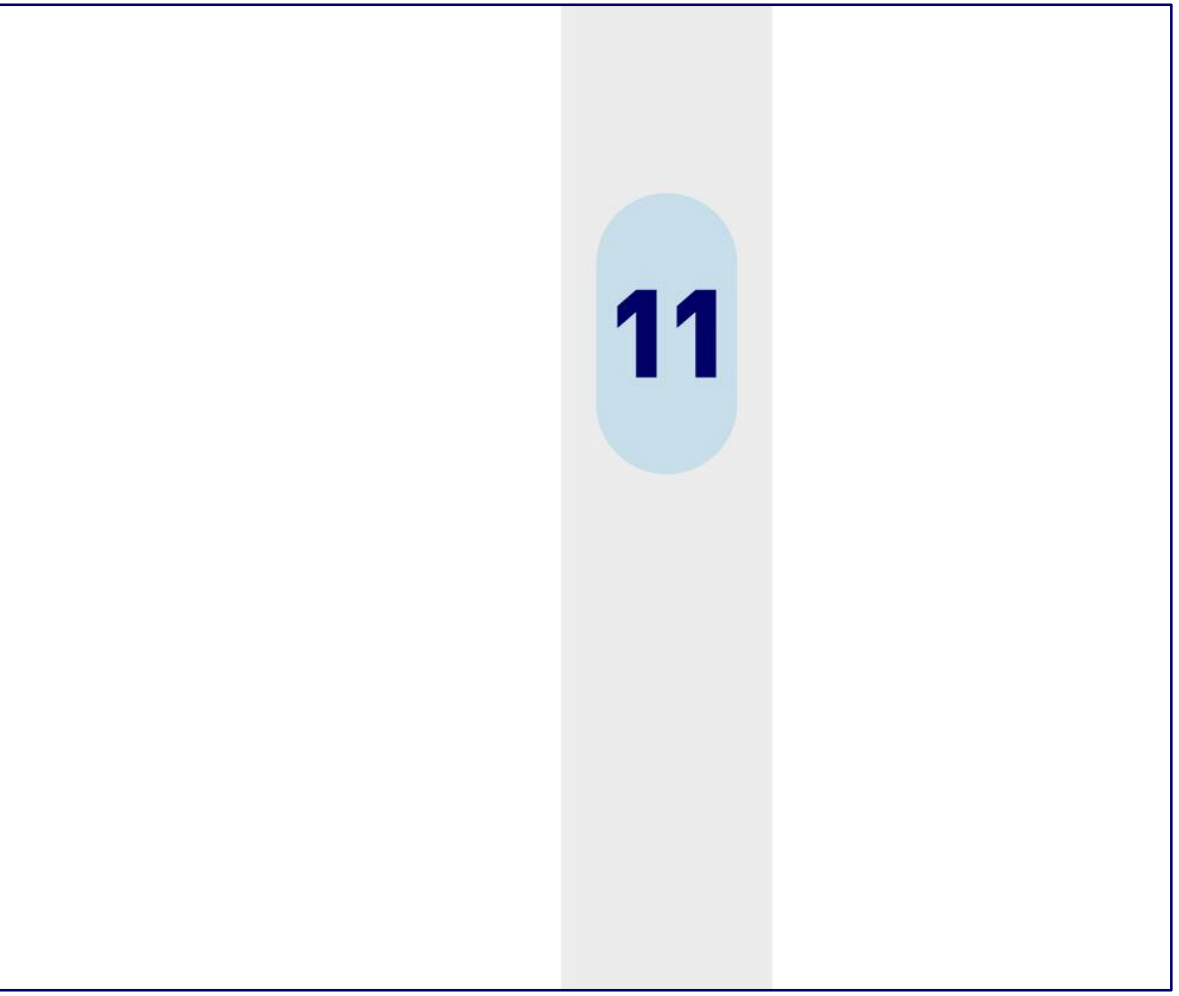


Front Side

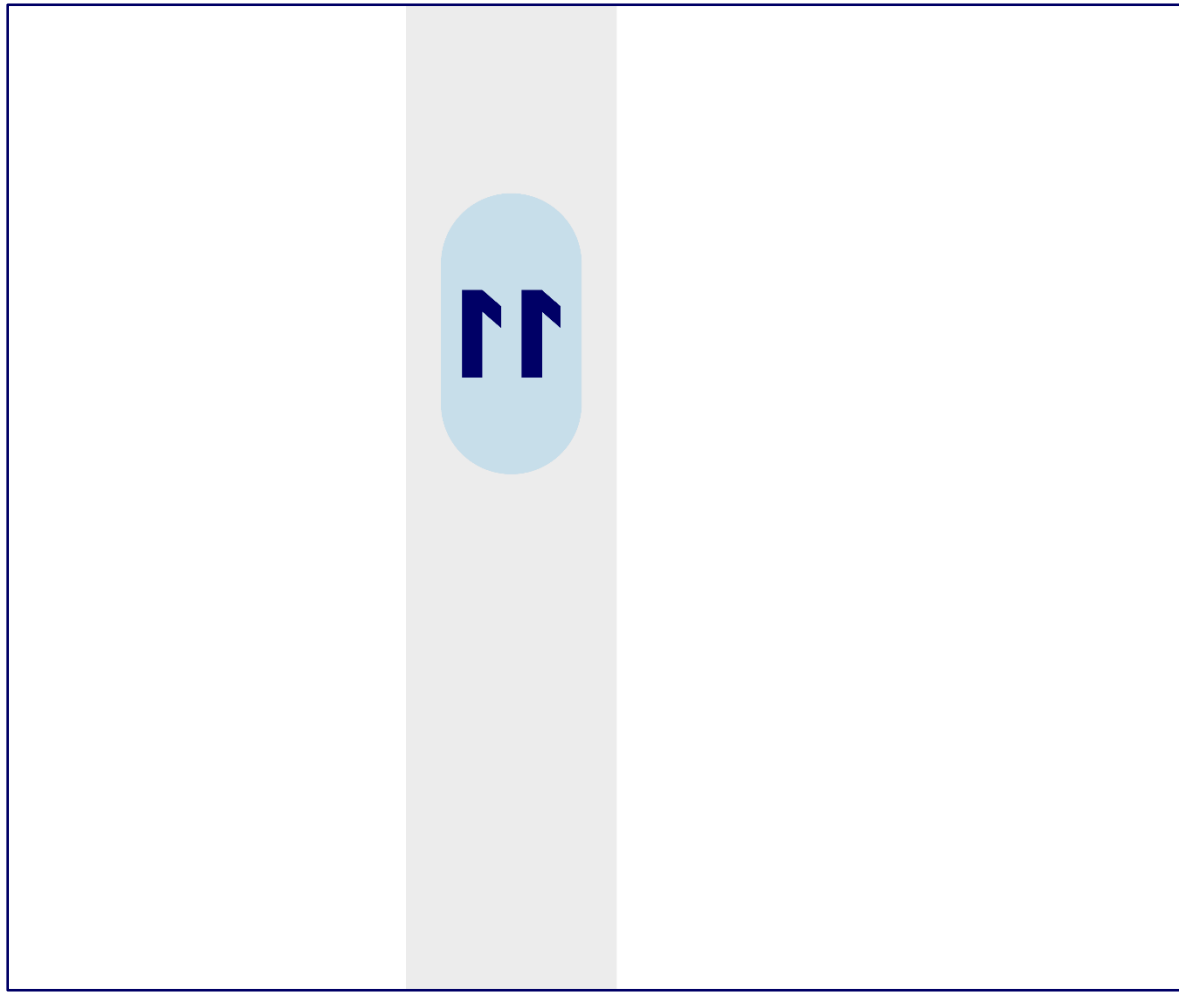


Reverse Side

Window in Paper Substrate



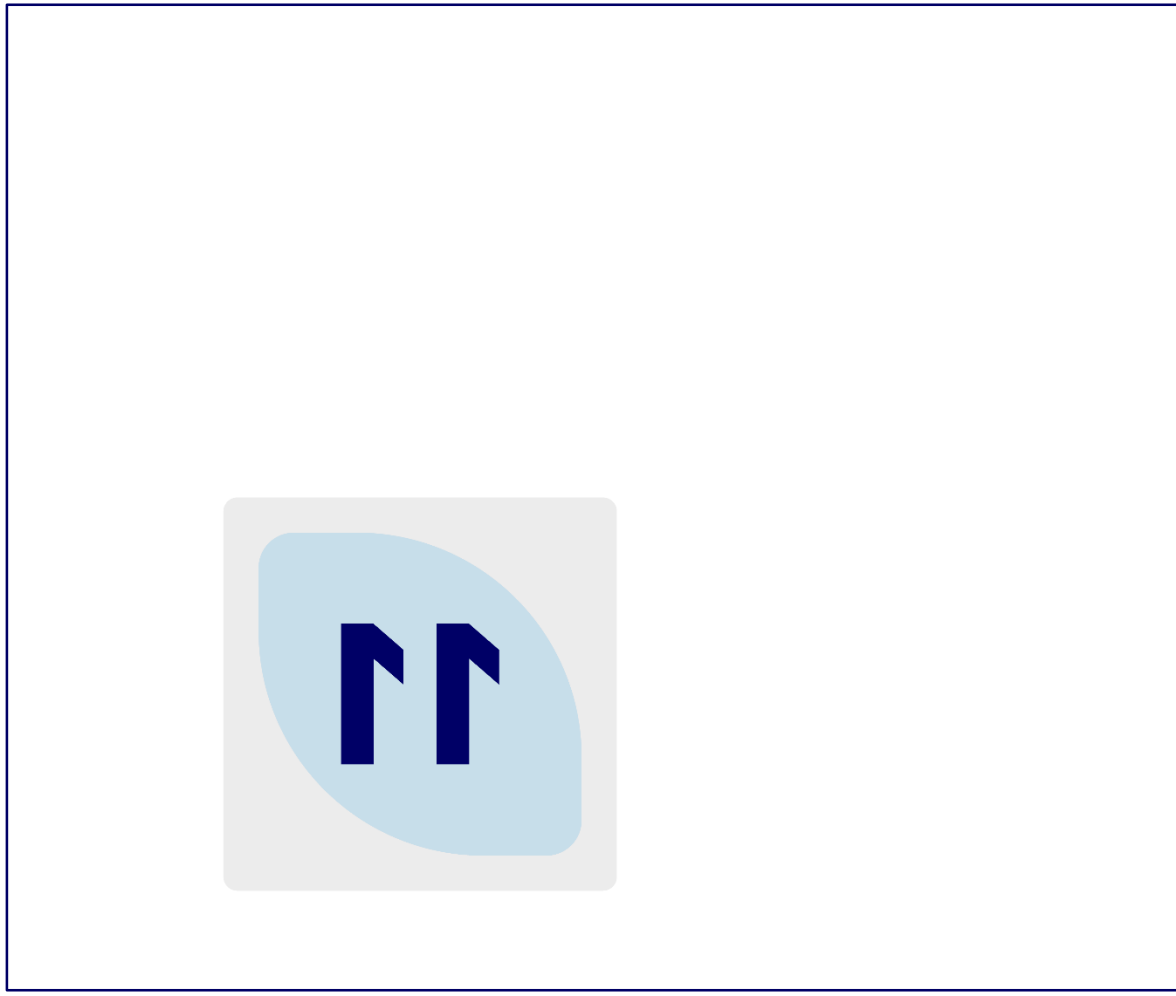
Front Side



Reverse Side

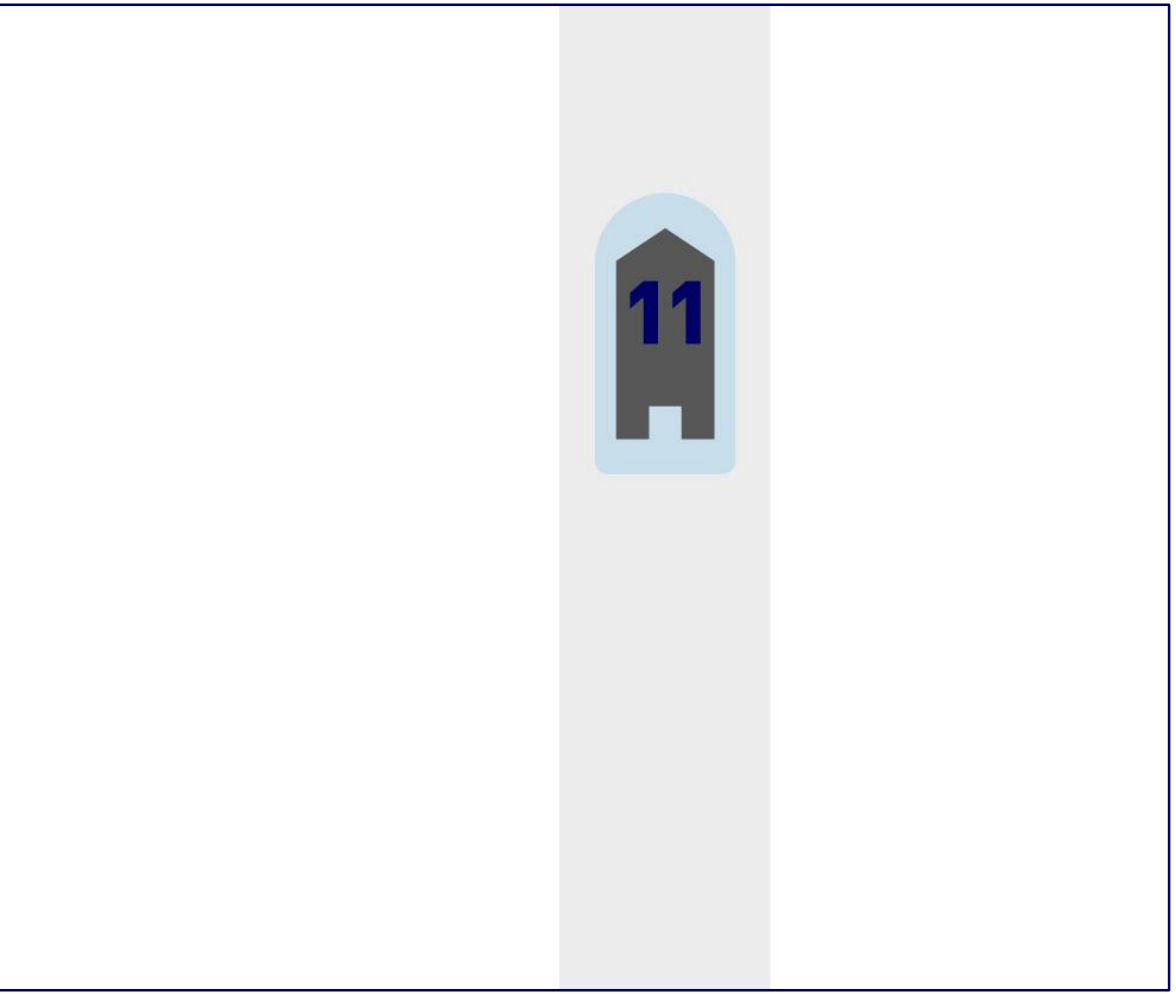
Window APL (Applied Patch Label)

Front Side

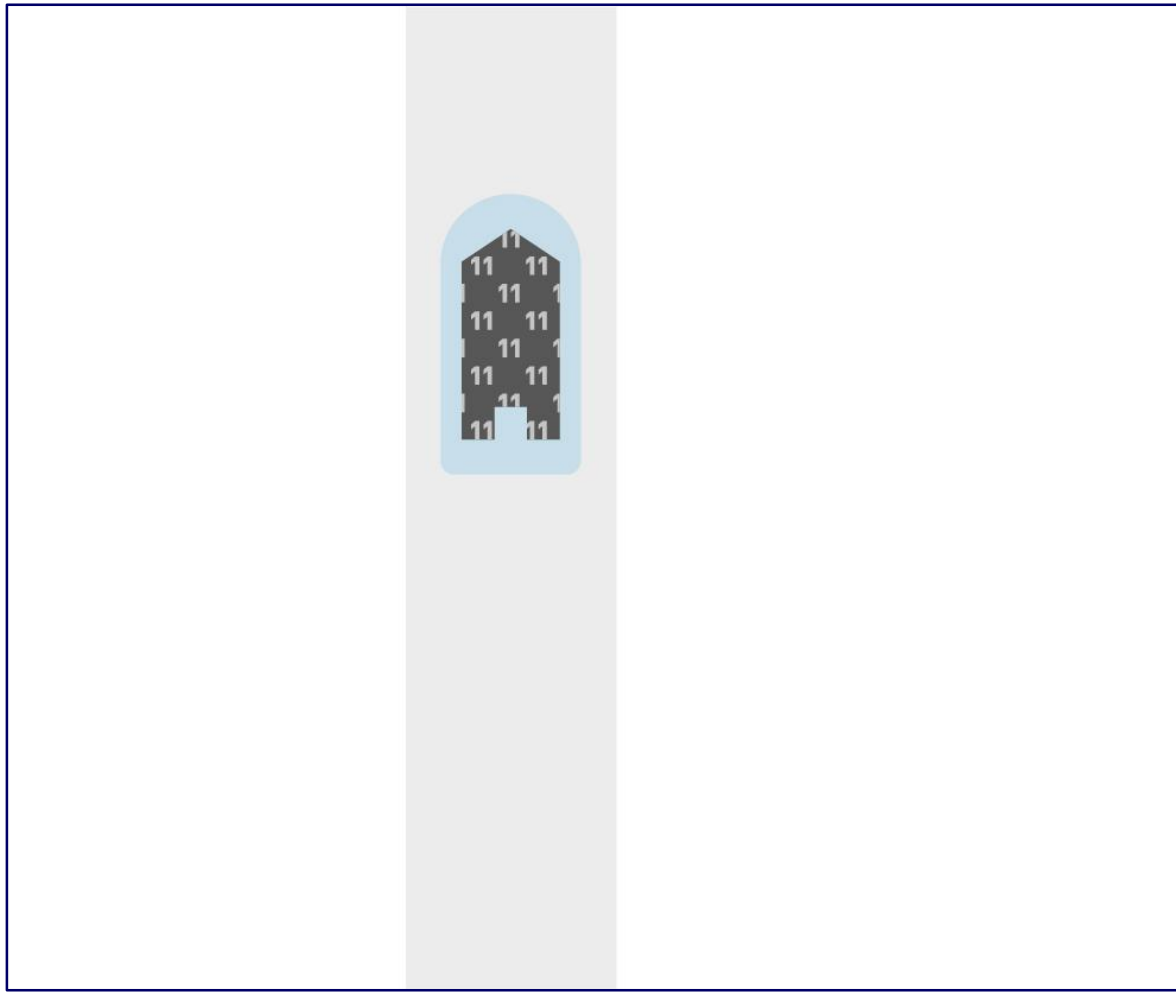


Reverse Side

Window-Specific Technology: KINEGRAM REVIEW®

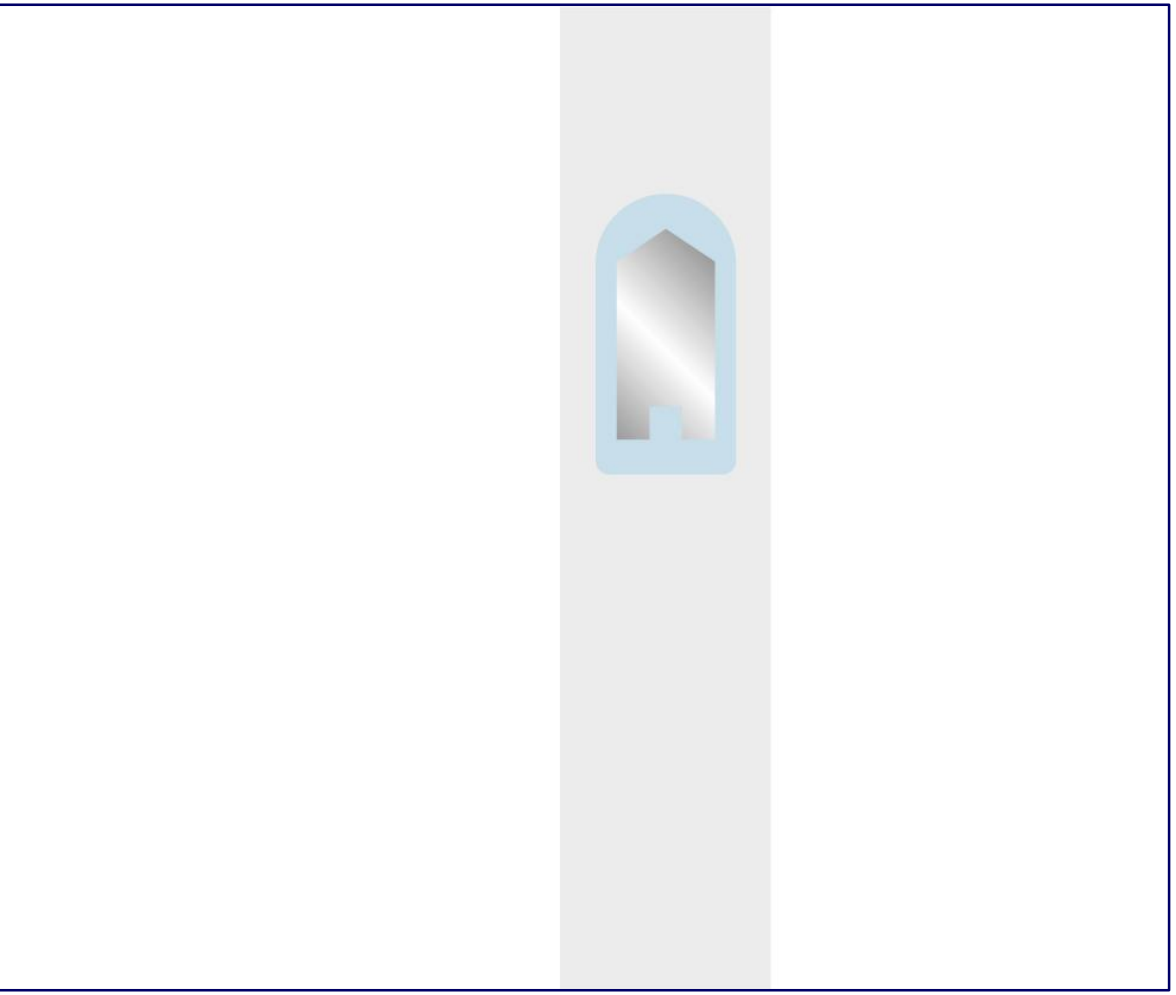


Front Side

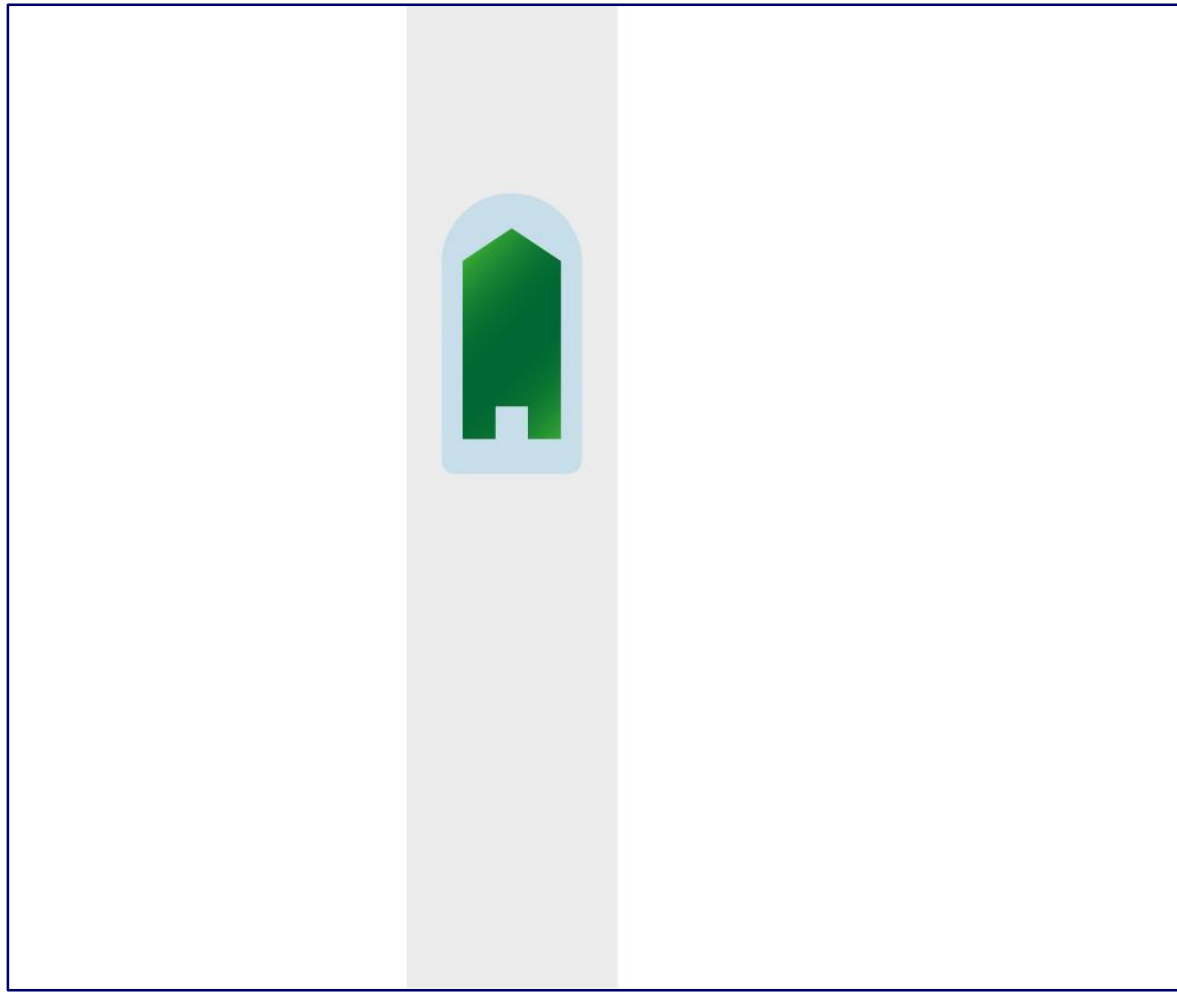


Reverse Side

Window-Specific Technology KINEGRAM REVIEW®

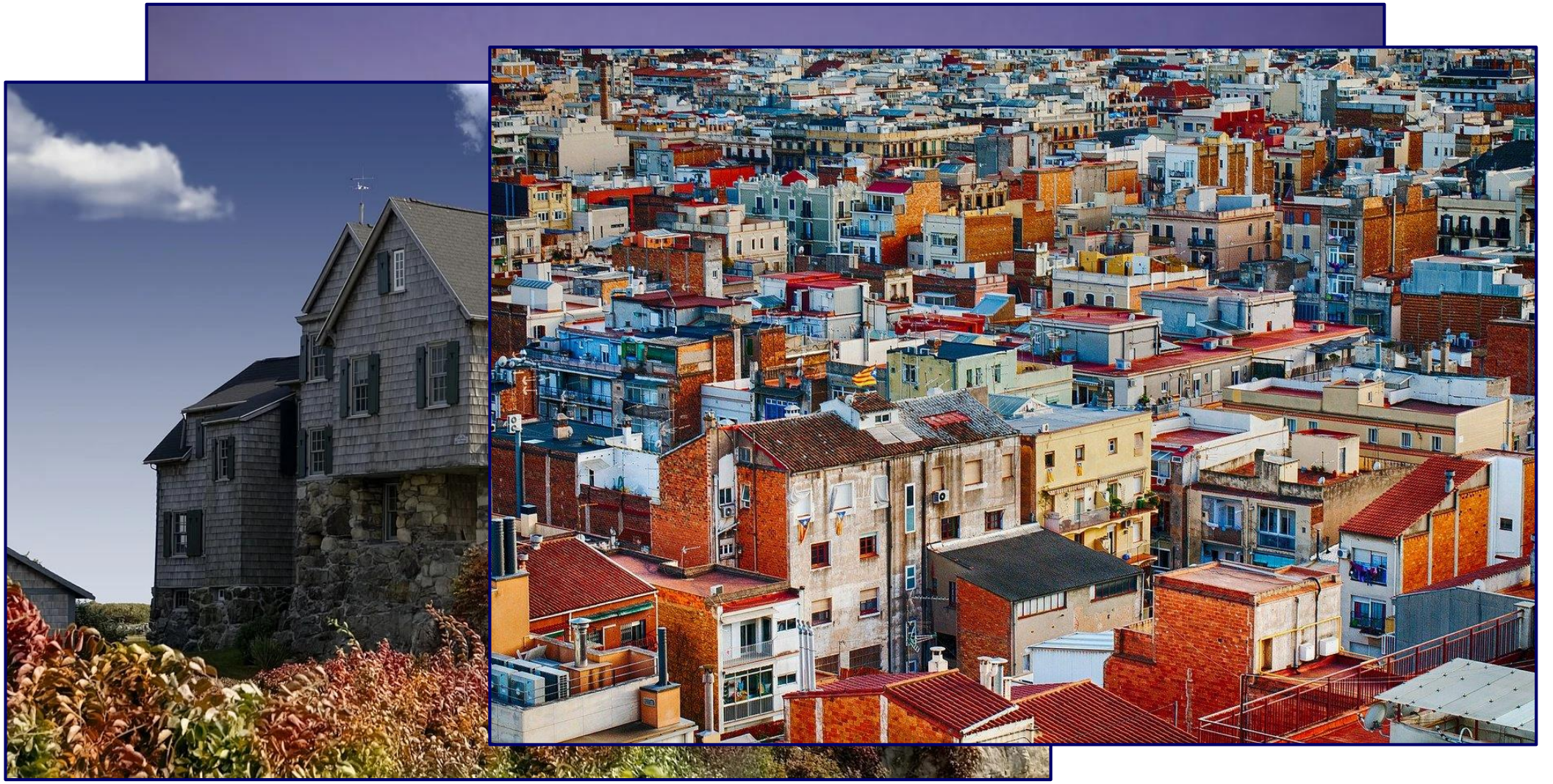


Front Side



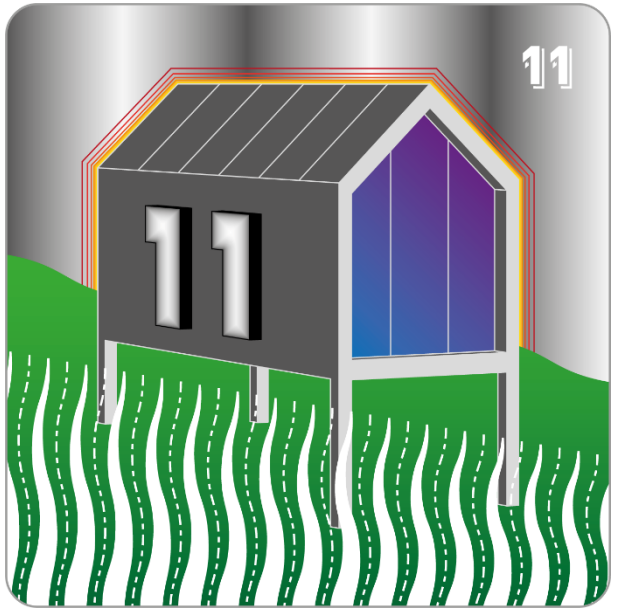
Reverse Side

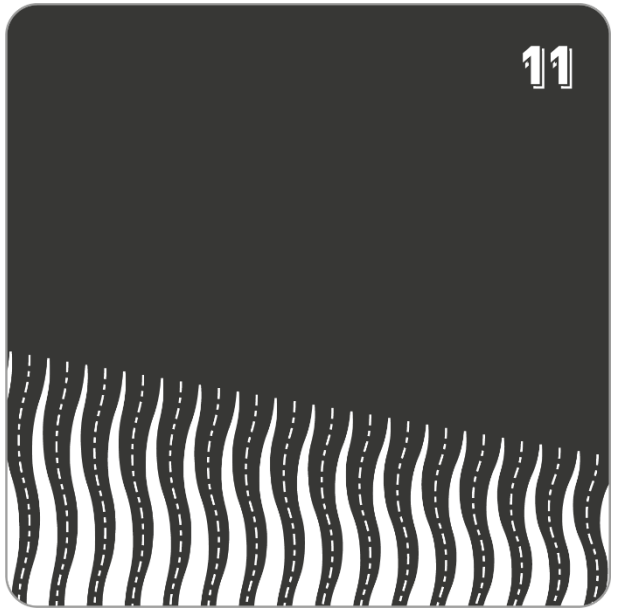
VISION



KURZ Technology

KURZ Technology **Partial Metallization**



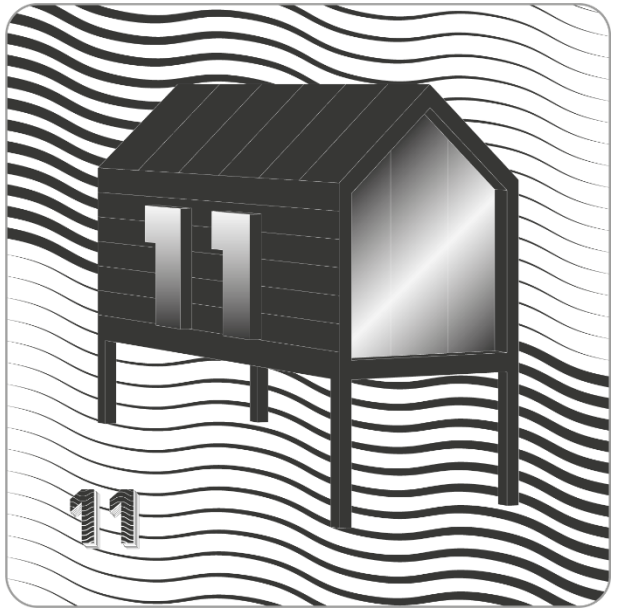


black is metal
white is transparent

- Higher level of security through combination of metallized and transparent areas
- 100 µm (0.1 mm) min. line width
- ± 0.6 mm tolerance of metal to diffraction in all directions

KURZ Technology: **Partial Metallization**

KURZ Technology: **KINEGRAM® High Definition Metallization**



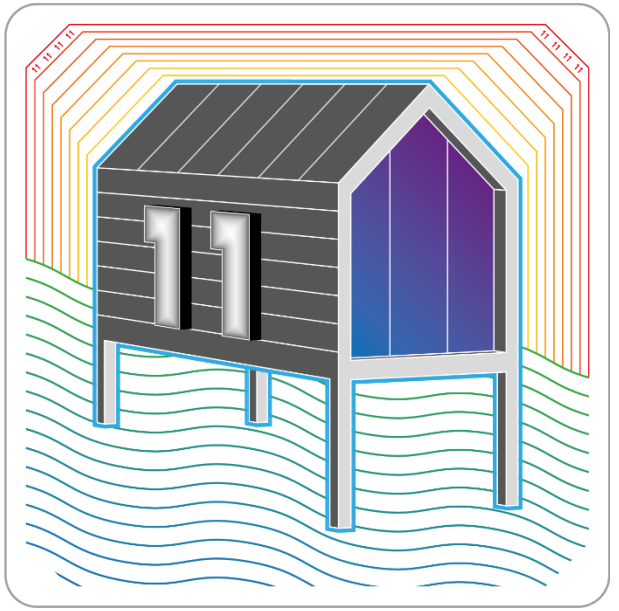
black is metal
white is transparent

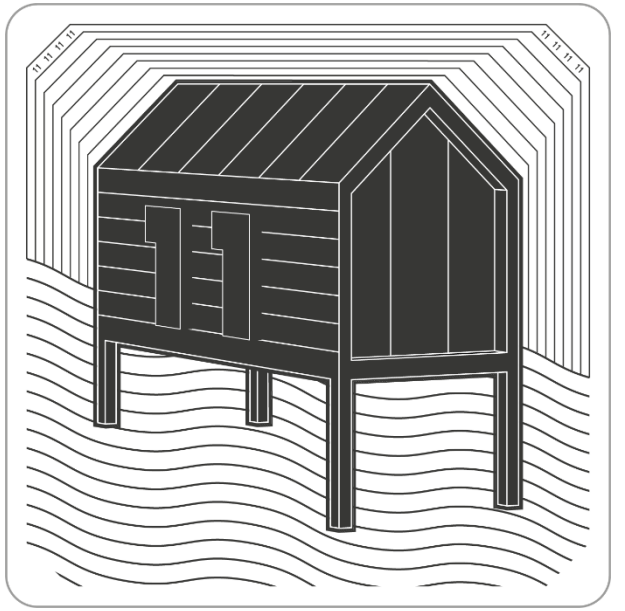
- Very difficult to counterfeit
- Use of very fine details, line modulations and halftone images
- 10 µm (0.01 mm) min. line width
- ± 0.6 mm tolerance of metallization to diffraction in all directions

KURZ Technology: **KINEGRAM® High Definition Metallization**

KURZ Technology: **KINEGRAM® High Definition Metallization**

KURZ Technology: **KINEGRAM ZERO.ZERO®**





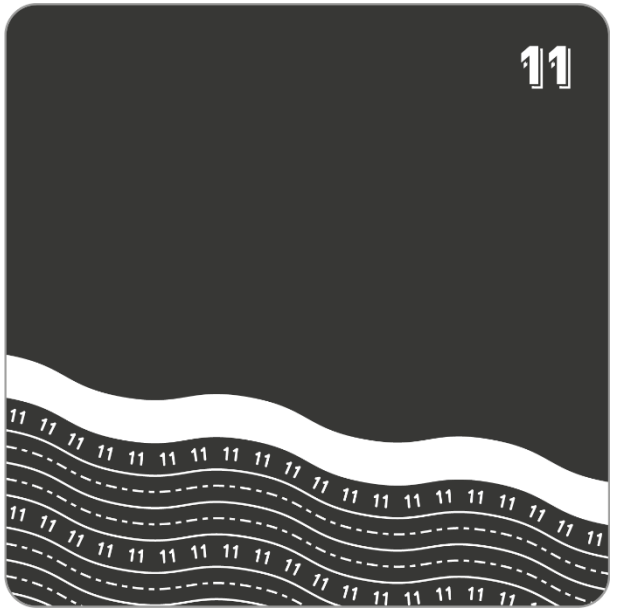
black is metal
white is transparent

- Perfect alignment of optical effects with metallized areas
- Exact placement of design elements
- 35 µm (0.035 mm) min. line width
- ± 0.0 mm tolerance of metallization to diffraction

KURZ Technology: **KINEGRAM ZERO.ZERO®**

KURZ Technology: **KINEGRAM ZERO.ZERO®**

KURZ Technology: **KINEGRAM COLORS®**



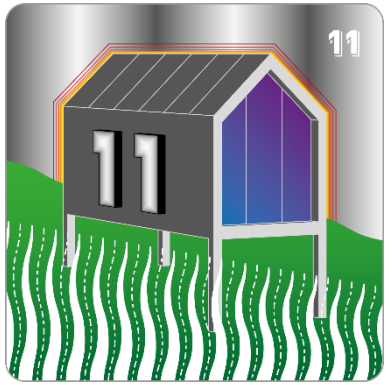
black is metal
white is transparent

- Large color palette
- Color is in perfect register to partial metallization
- 0.1 mm (100 µm) min. line width
- Tolerance of color to diffraction

KURZ Technology: **KINEGRAM COLORS®**

KURZ Technology **KINEGRAM COLORS®**

KURZ Technologies

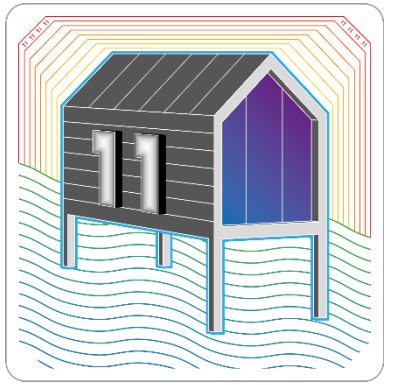


Partial Metallization

- 100 µm (0.1 mm) min. line width
- ± 0.6 mm tolerance of metallization to diffraction

KINEGRAM® HDM

- 10 µm (0.01 mm) min. line width
- ± 0.6 mm tolerance of metallization to diffraction



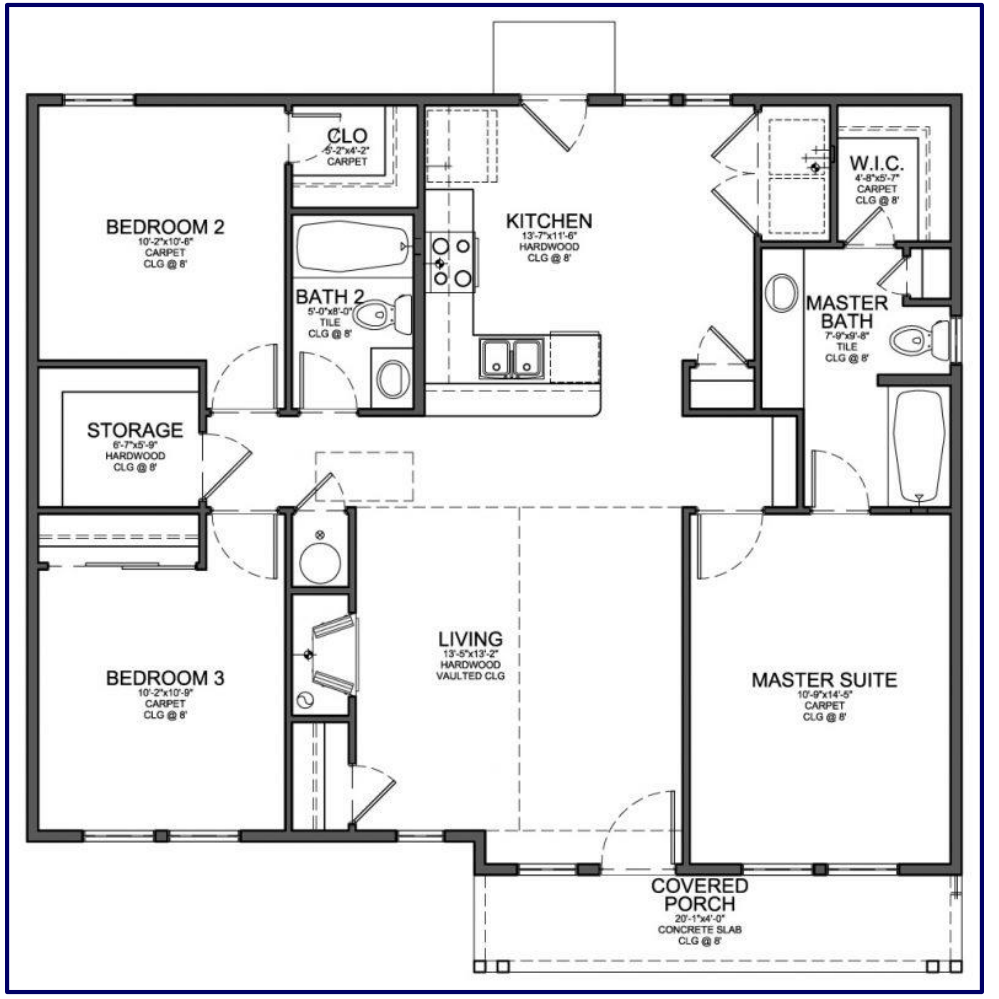
KINEGRAM ZERO.ZERO®

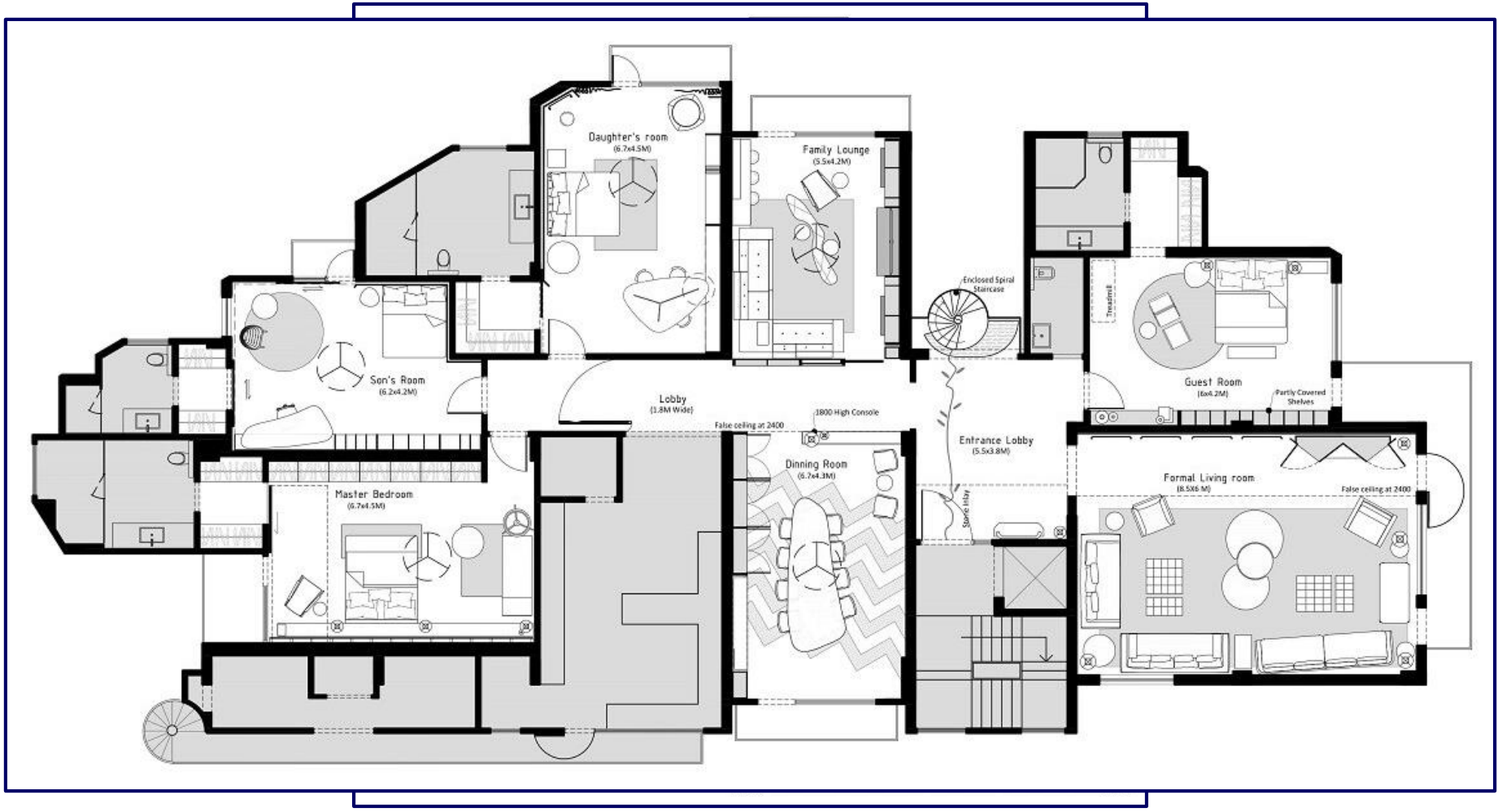
- 35 µm (0.035 mm) min. line width
- ± 0.0 mm tolerance of metallization to diffraction

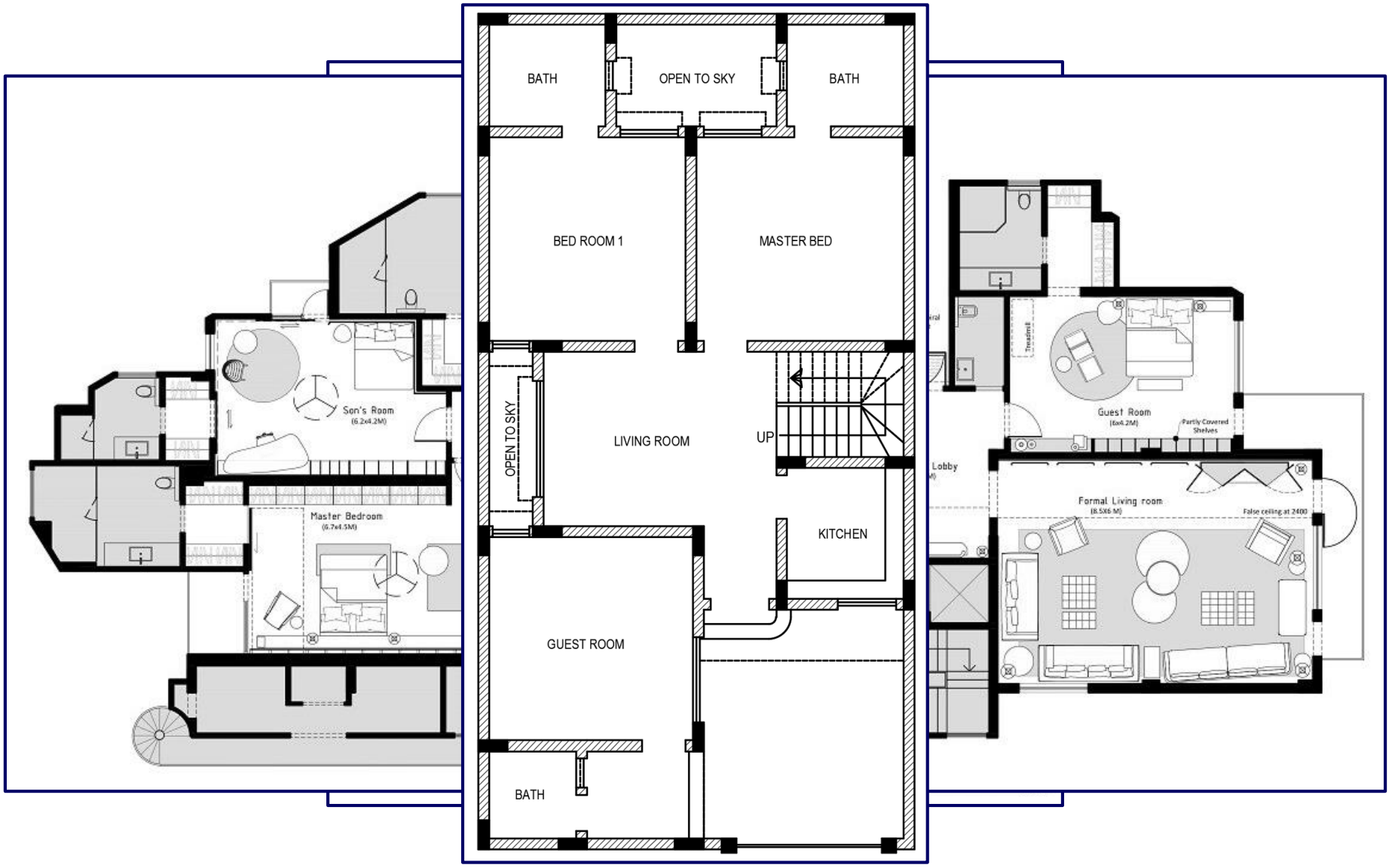
KINEGRAM COLORS®

- 100 µm (0.1 mm) min. line width

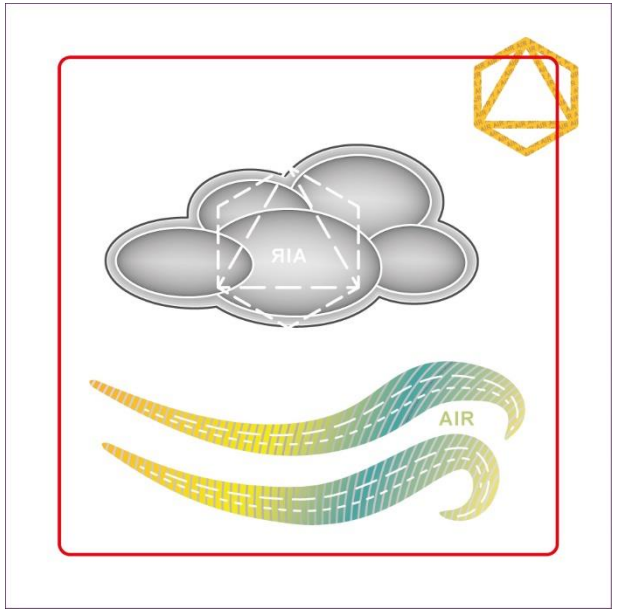
PLAN


CLO
5'-2"x4'-2"
CARPET
BEDROOM 2
10'-2"x10'-6"
CARPET
CLG @ 8'
BATH 2
5'-0"x8'-0"
TILE
CLG @ 8'
KITCHEN
13'-7"x11'-6"
HARDWOOD
CLG @ 8'
W.I.C.
4'-8"x5'-7"
CARPET
CLG @ 8'
MASTER
BATH
7'-9"x9'-6"
TILE
CLG @ 8'
STORAGE
6'-7"x5'-9"
HARDWOOD
CLG @ 8'
BEDROOM 3
10'-2"x10'-9"
CARPET
CLG @ 8'
LIVING
13'-5"x13'-2"
HARDWOOD
VAULTED CLG
MASTER SUITE
10'-9"x14'-5"
CARPET
CLG @ 8'
COVERED
PORCH
20'-1"x4'-0"
CONCRETE SLAB
CLG @ 8'


Daughter's room
(6.7x4.5M)
Family Lounge
(5.5x4.2M)
Enclosed Spiral Staircase
Treadmill
Guest Room
(6x4.2M)
Partly Covered Shelves
Son's Room
(6.2x4.2M)
Lobby
(1.8M Wide)
False ceiling at 2400
1800 High Console
Dinning Room
(6.7x4.3M)
Entrance Lobby
(5.5x3.8M)
Stone Inlay
Formal Living room
(8.5X6 M)
False ceiling at 2400
Master Bedroom
(6.7x4.5M)


BATH
OPEN TO SKY
BATH
BED ROOM 1
MASTER BED
OPEN TO SKY
LIVING ROOM
UP
KITCHEN
GUEST ROOM
BATH
Son's Room
(6.2x4.2M)
Master Bedroom
(6.7x4.5M)
Guest Room
(6x4.2M)
Partly Covered Shelves
Lobby
Formal Living room
(8.5X6 M)
False ceiling at 2400

Iterations



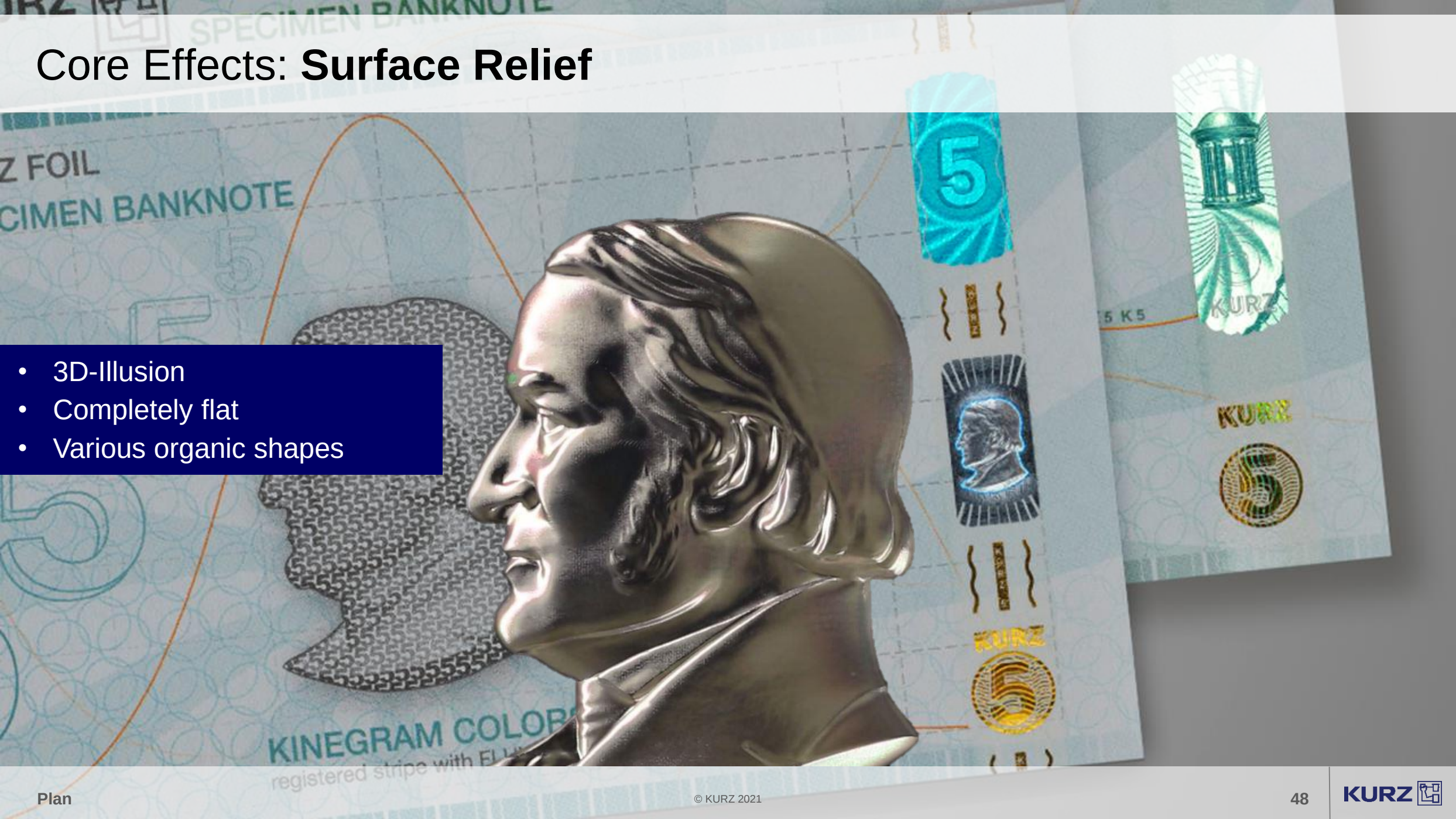
Partial Metallization

KINEGRAM ZERO.ZERO®

Core Effects: **Surface Relief**

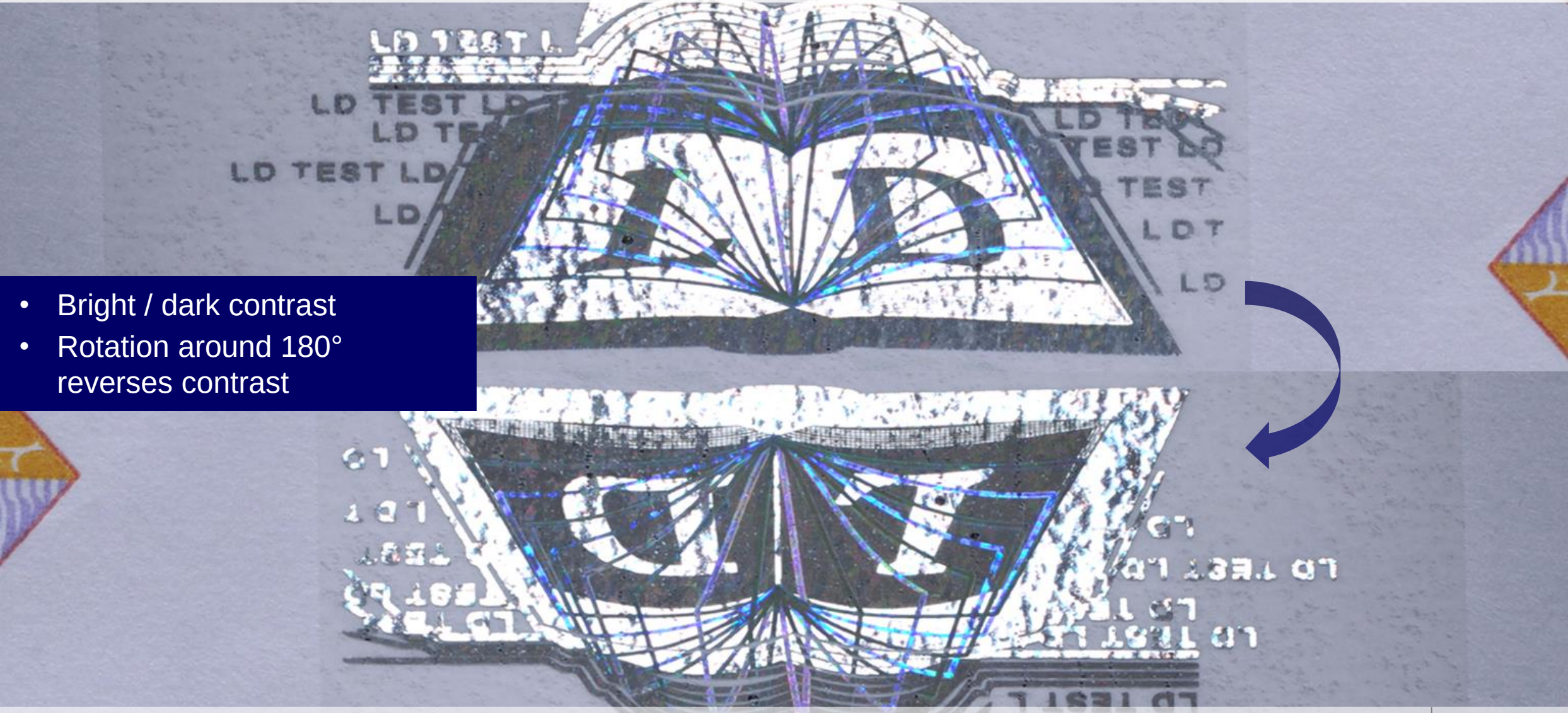
- 3D-Illusion
- Completely flat
- Various graphical shapes

Core Effects: **Surface Relief**



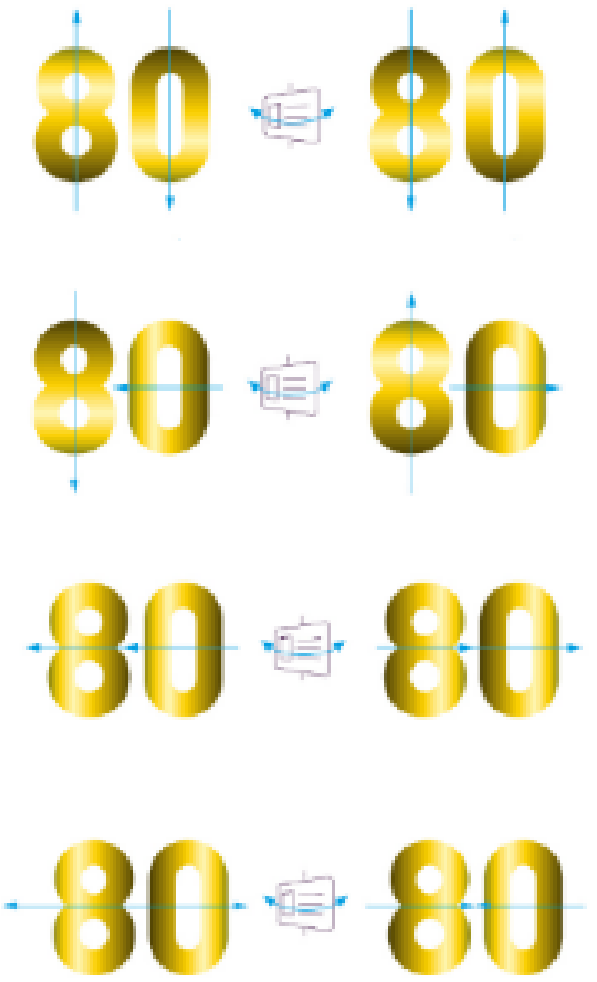
- 3D-Illusion
- Completely flat
- Various organic shapes

Core Effects: **Diffractive Watermark**



- Bright / dark contrast
- Rotation around 180° reverses contrast

Core Effects: **FLUX**



- Strong and striking movement effects
- Multiple options: vertical, horizontal, diagonal, crosswise, circular, rotating, …
- Can be combined with color for even more visibility and security

Core Effects: **Colorful and Colorless**

- Diffractive structures use entire light color spectrum
- Combination of Colorful and Colorless diffractive Sturctures → differentiation between design elements

Core Effects: **Fine-Line Transformation and Movement**

- Fine lines move one after the other in a defined order upon tilting
- Transform one shape into another
- Creates vivid foil designs

Core Effects: **Image Flip**

- Two clear images change between each other upon tilting

Core Effects **Image Flip**

- Two clear images change between each other upon tilting

SUMMARY

New Zealand Dollar

- KINEGRAM ZERO.ZERO®
- Patch over Window
- Polymer

European Monetary Union

- Partial Metallization with KINEGRAM REVIEW®
- Stripe over window
- Paper

South Korea Winter Olympics

- KINEGRAM COLORS®
- Patch
- Paper

Australian Dollar

- KINEGRAM ZERO.ZERO®
- Stripe over Window
- Polymer

Integration

Integration

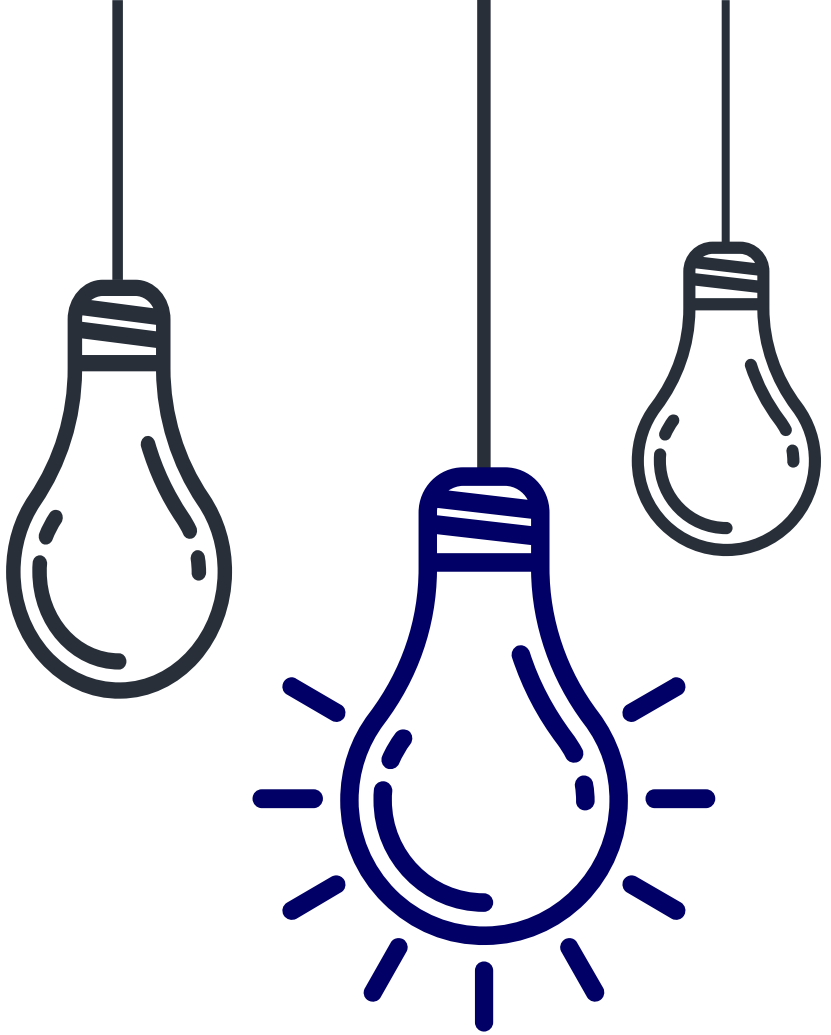
COLLABORATION

=

INTEGRATION

The slides of Bank of England are not included in this file due to confidentiality agreements

The new polymer £50 note



What‘s Next?

Designing Banknotes **Together!**

We will be happy to support you during every design step!

Contact Information

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KURZ Technology – The Essential Element

… for additional information please visit www.kurz-banknotes.com

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