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Poetic Daylight / Poetisk Daglys - a book

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Poetisk dagslys

Dagslyset giver os en forståelse for det sted, vi er i verden og for de rum, vi befinder os i hver dag.

Dagslys er godt for vores helbred. Vi lærer og trives bedre i rum med dagslys.

Poetisk Dagslys

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DREYERSFOND



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I N T R O

Pavillonen 'Poetisk Dagslys' udfolder dagslysets rumlige egenskaber og dets sanselige, æstetiske og poetiske potentiale.

Pavillonen består af tre hovedrum, der repræsenterer tre forskellige former for dagslys: sollys, himmellys og reflekslys. Alle tre typer af dagslys kan være til stede samtidig eller i par, henholdsvis sollys og reflekslys eller himmellys og reflekslys.

De tre hovedrum formidler konceptuelt én af de tre typer af dagslys, henholdsvis det rettede sollys, det diffuse himmellys og reflekslyset. De tre hovedrum er forbundet af en mørkere gang, som danner et mellemrum mellem de tre lyse rum.

Besøget i pavillonen skærper opmærksomheden på dagslysets kvaliteter i arkitekturen. Måske opstår der i forlængelse af besøget overvejelser om vigtigheden af dagslys og rum i vores hverdag. For eksempel: *Hvordan virker dagslyset i et hvidt rum – i forhold til et mørkt rum? Hvordan oplever vi et ovenlysvindue i forhold til et sidevindue? Hvilket rum har vi mest lyst til at være i og hvornår?*



Vandringen

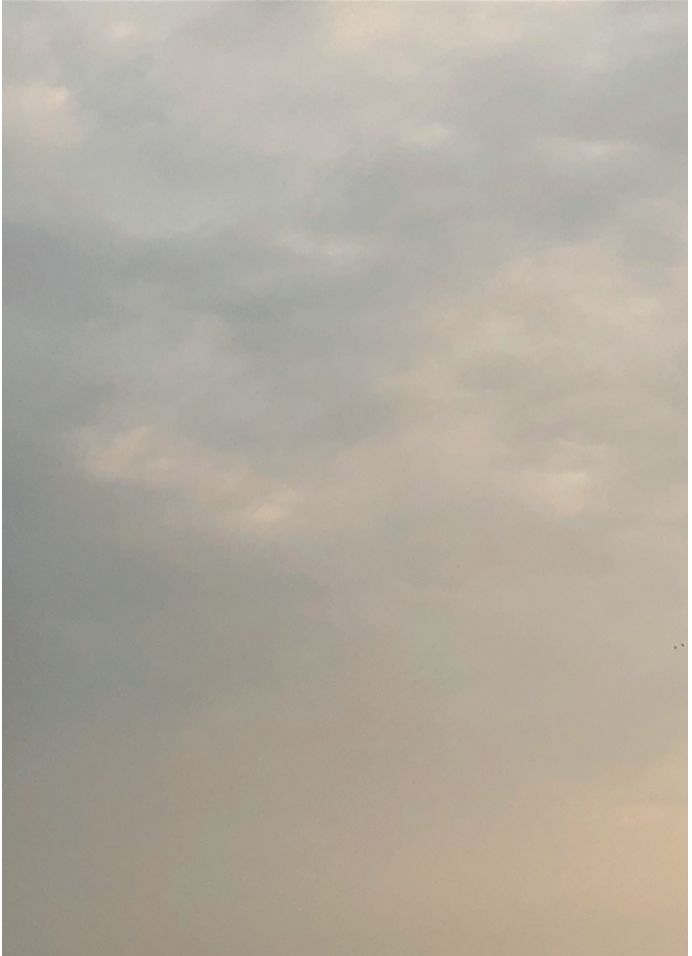
V A N D R I N G E N

Forløbet gennem pavillonen er en forlængelse af vandringsrummet gennem torvets forskellige rum. Vandringsrummet i pavillonen begynder i et tæt og mørkt gangareal. Et køligt lys viser sig for enden af gangen og vækker nysgerrigheden. Om hjørnet åbnes himmellysrummet, hvor et præcist defineret rum strækker sig op mod himlen.

Tilbage i gangens mørke opstår en strøm af varmt indirekte lys. Om hjørnet, inde i det næste lysrum ses en stor åbning med direkte blik ud på torvet. Det stærke sollys fra syd rammer rummets overflader. Den store lysning kan vi indtage, og virkningen af det direkte sollys kan vi tydeligt mærke.

Tilbage i gangens mørke oplever vi rummets fortoninger, gradueringer og nuancer af dagslys og mørke, der giver et pauserum, før vi når det sidste rum. Det sidste rum er åbent mod himlen så vi kan se op gennem platantræets lette krone, hvor sollyset filtreres gennem træets grene og blade. Lys og skygge danser på de blanke hvide flader, der reflekterer dagslyset og træets spejling rundt i rummet.

Pavillonens sidste vandring leder os gennem det mørke tætte mellemrum, og vi møder en dør, der åbner sig mod torvet, her fortsætter vores vandring ud og gennem byen med tanker på det poetiske dagslys.



Nordisk lys

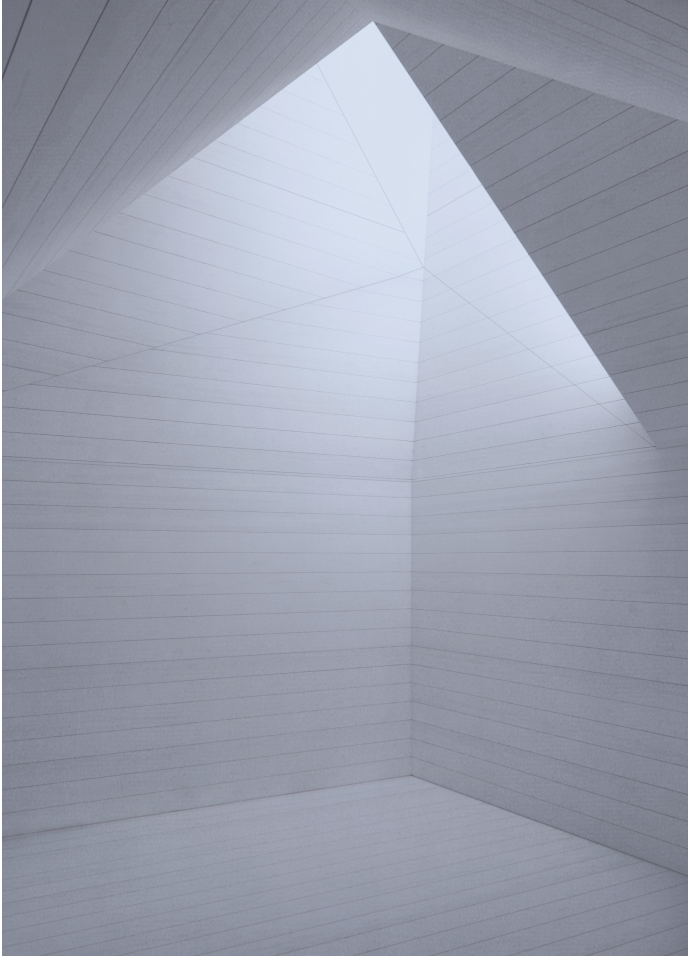
N O R D I S K L Y S

Pavillonen 'Poetisk Dagslys' er beliggende på 55.679913 nordlig bredde og 12.575885 østlig længde. Det er derfor det nordiske dagslys, vi oplever i pavillonen.

Det nordiske dagslys bliver ofte fremhævet som ét af Nordens karakteristika og beskrives som noget særligt.

Dagslyset varierer på tværs af breddegraderne, da det er relationen mellem placeringen på jorden og solen, der giver de forskellige årstiders solhøjder. Jo længere mod nord, jo lavere solhøjder. Derfor er det lave sollys et af de karaktertræk, der er typisk for det nordiske dagslys.

Himlen kan være blå, som på en klar solskinsdag, eller hvidgrå på en overskyet dag. Da der er langt flere overskyede dage mod nord, er den overskyede himmel karakteristisk for det nordiske dagslys.



Himmellys

H I M M E L L Y S

Himmellyset kommer til os fra hele det store himmelhvælv. Som en stor lysende flade oplyser det omgivelser og genstande fra alle retninger og får dem til at fremstå med en blødhed. Himmellyset er det stabile og jævnt fordelte lys, der skaber en diffus skyggetegning.

Alt efter en lysåbnings udformning og placering indrammer den en del af himlen. På solskinsdage er det den blå himmel, der oplyser rummet, og på overskyede dage er det den hvidgrå himmel. Karakteren af dagslyset og den måde det fordeler sig jævnt i rummet, er den samme, det er blot farverne, der er forskellige.

I pavillonens himmellysrum oplever vi en ovenlysåbning, som trækker det diffuse himmellys ned i rummet. Lysningen er udformet efter solens gang, så solen viser sig i den øverste del af lysningen, men kommer ikke ned i selve rummet.

Rummets overflader er ru og matte og malet med en kold hvid kalkmaling der fremhæver karakteren af det diffuse himmellys.



Sollys

S O L L Y S

Fra solen oprinder al dagslys. Sollyset er den mest intense lyskilde, der bevæger sig hen over himlen og indikerer tid på dagen og året. Sollyset kan sammenlignes med en punktformet lyskilde der giver et rettet, varmt lys med en præcis og skarp skyggetegning.

Hvis en lysåbning er orienteret mod solen, får sollyset mulighed for at vandre gennem rummet i løbet af en dag. Sollys er dynamisk og varierende og skaber kontraster imellem lys- og skyggesider. Det kan bidrage til, at vi oplever rummet i forandring og med store forskelle i løbet af en dag.

En lysåbnings orientering, størrelse og formgivning afgør, hvordan sollyset har mulighed for at skabe rum.

Pavillonens sollysrum viser, hvordan en lavt placeret sydvendt lysåbning virker sammen med de gyldne overflader i rummet. Den rillede overflade på fyrretræsbrædderne i rummet viser tydeligt skyggen, og vil ændre sig i takt med solens gang over dagen.



Reflekeret lys

REFLEKTERET LYS

Materialer kan absorbere, transmittere og reflektere lys. Det betyder, at det ikke er lyset alene, men i lige så høj grad samspillet mellem lyset og materialerne, der skaber lyset i vores omgivelser. De materialer lyset møder, reflekterer lyset, og jo lysere materialet er, jo mere lys reflekteres.

Pavillonens reflekslys rum er helt åbent mod himlen og er placeret under torvets store gamle platantræ. Træets grene og blade danner et filter for dagslyset.

Rummets overflader er hvidmalede og blanke. Karakteristisk for den blanke overflade er, at den reflekterer lyset i en specifik retning og sender lysstrålerne videre, da en lysstråle altid har samme indfaldsvinkel som udfaldsvinkel.

De blanke overflader vil stå skinnende og glimtende og variere i intensitet, alt afhængig af hvorfra vi står og ser på dem. Det betyder, at overfladerne på omgivelserne omkring os udgør en væsentlig del af vores oplevelse af dagslys og dermed af skabelsen af vores lysverden.



Gråbrødretorv

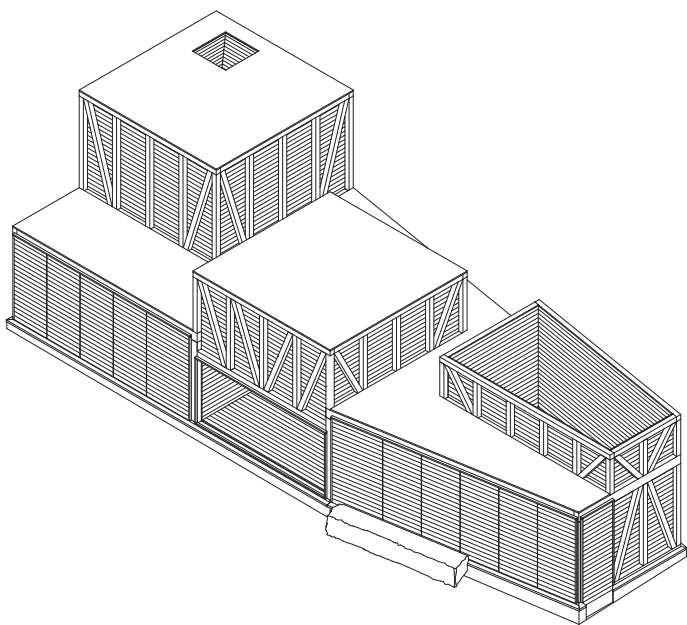
K O N T E K S T E N

I indre København ligger Gråbrødretorv, et brostensbelagt torv. Det har gennem tiden haft forskellige funktioner, herunder kloster, handelsboder, bunkeranlæg og markedshal. I dag ligger pavillonen 'Poetisk Dagslys' på torvet. Den refererer til aftrykket af den tidligere markedshal fra 1852.

Pavillonens arkitektur tager udgangspunkt i både fortiden og nutiden, og den er specifikt tilpasset og tegnet til Gråbrødretorv. Pavillonens overordnede geometri er formet af torvets tragt-lignende form. Fra vest til øst bliver pavillonens facadehøjde lavere, ligesom torvets omkringliggende bygninger.

Pavillonens facader er malet i farven 'Slotshavegrøn'. Den er inspireret af torvets historiske vinduer og porte, der alle er udført i samme mørkegrønne nuance.

Som en invitation til at tage plads omkring pavillonen er der langs dens facader mod vest og syd placeret to store granitbænke, der også fungerer som ankerpunkter for pavillonen.



Pavillonon

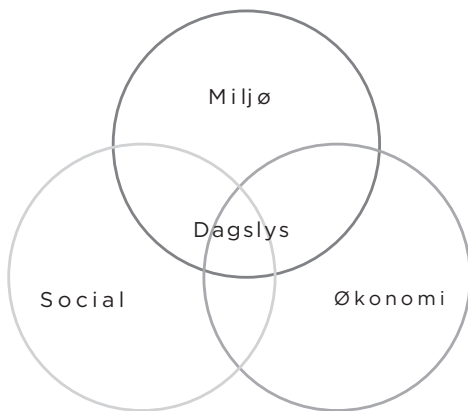
PAVILLONEN

Pavillonen er bygget som en bindingsværkskonstruktion i douglastømmer og beklædt med brædder i gran. For at spare på materialerne er der kun beklædning på den ene side af konstruktionen. Dette skaber en reliefvirkning i samspil med dagslyset både inde og ude, hvorfor forskellige gradueringer, skyggetyper og fortoninger af mørke og lys opstår.

De tre lysrum er beklædt på indersiden, som en foring af rummene, hvorfor reliefvirkningen opstår på facaden. I det mørke mellemrum sidder beklædningen på ydersiden af konstruktionen og skaber reliefvirkningen inde i rummet. Den skiftende beklædning afslører derved pavillonens struktur og fortæller om dens tilblivelse.

Indgangen til pavillonen byder velkommen fra vest, og vandringen gennem pavillonen slutter i øst under platantræets krone. Det ikoniske platantræ, der har stået på torvet siden 1907, har haft afgørende betydning for pavillonens udtryk og skaber en specifik oplevelse af dagslyset under træets krone.

Bæredygtighed



Studerende lærer

20-26 %
hurtigere

og opnår

5-14 %

bedre eksamensresultater

Medarbejdere er

18 %

mere produktive



Dagslys og trivsel

D A G S L Y S I E N B Æ R E D Y G T I G K O N T E K S T

Dagslys er et arkitektonisk element, der skaber værdi på tværs af de tre bæredygtighedsaspekter, som indebærer *sociale, økonomiske og miljømæssige aspekter*.

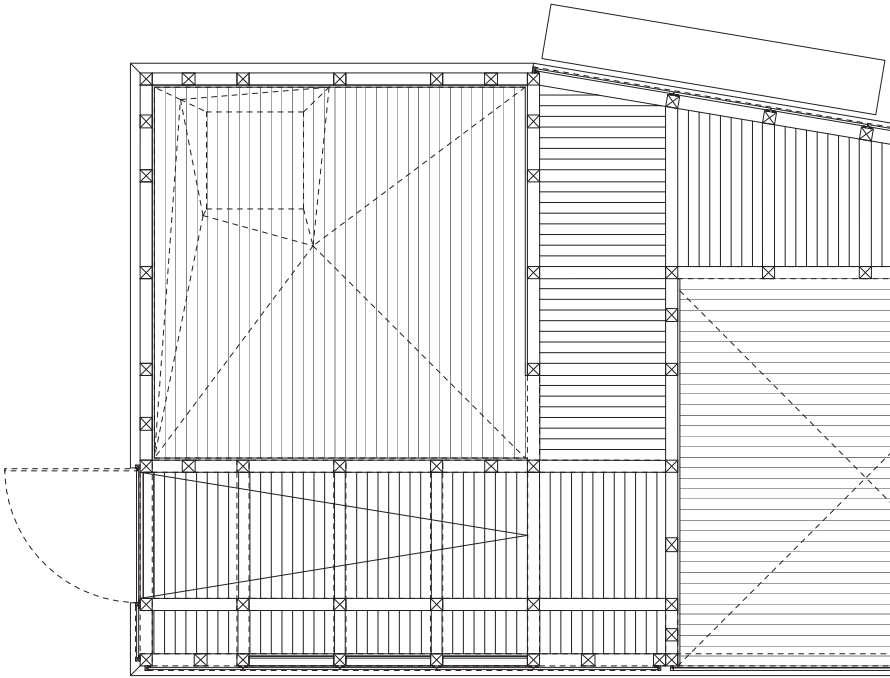
Dagslys bidrager til sundhed og velvære. Menneskets eksponering for dagslys spiller eksempelvis en rolle i forhold til vinterdepressioner. Studier viser at strategisk adgang og udsigt til omgivelserne samt dagslys øger menneskers produktivitet med 18%. Ligeledes viser studier, at børn lærer 20-26% hurtigere i skoler med optimalt dagslys.

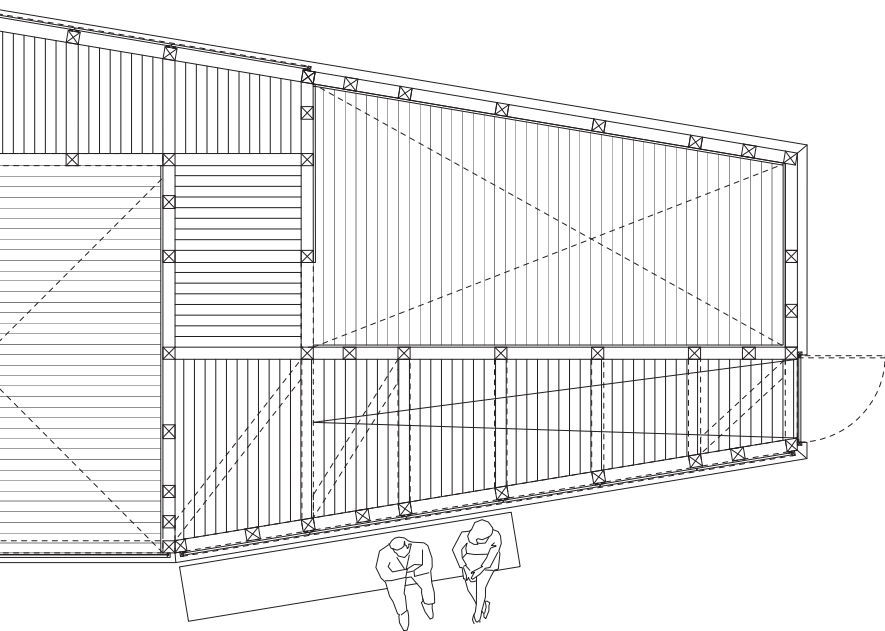
Intelligent udnyttelse af dagslys kan medføre en energibesparelse på 50-75% i dagtimerne grundet mindre brug af kunstig belysning, som har betydning for den økonomiske bæredygtighed.

Placering, orientering og udnyttelse af vinduer har betydning for en bygnings energiforbrug i drift. Selve mængden og kvaliteten af glasarealet har betydning for bygningens indlejrede CO₂, idet 1 m² glasareal har et markant højere CO₂-aftryk end 1 m² ydervæg i træ. Fra et klimaperspektiv kan det derfor betale sig at højne kvaliteten frem for kvantiteten af dagslys.



Plandraving of the pavilion





Plantegning af pavillonen



DAYLIGHT IN A SUSTAINABLE CONTEXT

Daylight is an important architectural element that adds value across the three aspects of sustainability, which include *social, economic, and environmental*.

Daylight significantly contributes to our health and well-being. For example, exposure to daylight is crucial for people struggling with winter depressions. Studies show that strategic access to natural light and view of our surroundings, enhance human productivity by 18%. Studies also show that children learn 20-26% faster in schools with optimal daylight conditions.

Intelligent utilization of daylight can result in energy savings of 50-75% during daylight hours by reducing the need for artificial lighting. This is highly significant for achieving economic sustainability.

The placement, orientation, and utilization of windows play an important role regarding a building's energy consumption. The quantity and quality of glass area also impact the building's embedded CO2 footprint. Notably, one square meter of glass area has a considerably higher CO2 footprint than compared to one square meter of wood in an exterior wall. Considering this, prioritizing the quality of daylight over its quantity becomes essential from a climate perspective.

Daylight and well-being



More productive when
exposed to daylight.

18%
Employees is

better results at exams

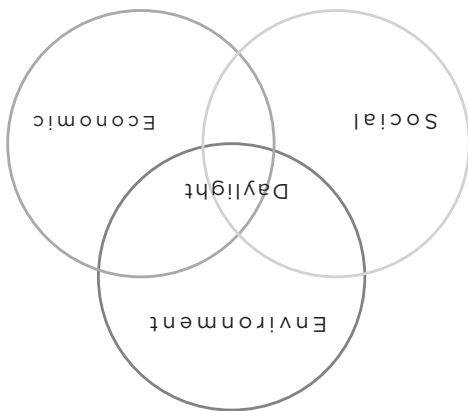
5-14%

and achieve

faster

20-26%

students learn



Sustainability

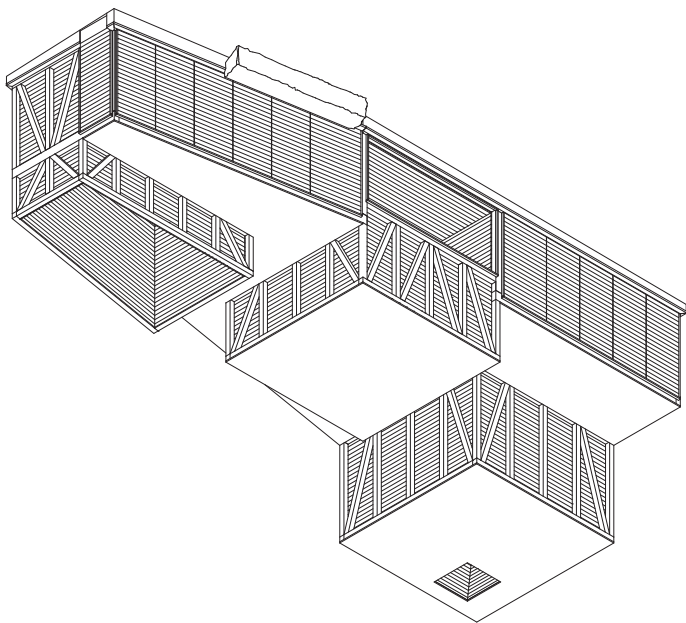
THE PAVILION

The pavilion is constructed as a timber-framed structure using douglas timber and covered with boards made of spruce. In order to reduce material usage, the cladding is applied only to one side of the structure. This creates a relief effect that interacts with the daylight both inside and outside, resulting in various gradations, shadow types, and interplay between darkness and light.

The three light-filled spaces are lined on the inside, which creates a relief effect on the facade. In the dark corridor, the cladding is positioned on the outside of the structure creating the relief effect within the space. The alternating cladding reveals the pavilion's structure and tells the system of its creation.

The entrance to the pavilion welcomes visitors from the west, and the walk through the pavilion ends in the east under the canopy of the sycamore tree. The iconic sycamore tree which has stood in the square since 1907, has played a crucial role in shaping the pavilion and creates a unique experience of daylight beneath its branches.

The pavilion



T H E C O N T E X T

In the heart of Copenhagen's city centre, you will find Gråbrødretorv. Throughout history, the cobblestone square has served various purposes, including a monastery, trading stalls, bunker facilities, and a market hall. Today, the pavilion 'Poetic Daylight' is located on the square which refers to the footprint of the former market hall from 1852.

The architecture of the pavilion draws inspiration from both the past and the present, specifically tailored and crafted for Gråbrødretorv. The overall shape of the pavilion follows the funnel-like contours of the square. From west to east, the height of the pavilion's facade decreases gradually, mirroring the surrounding buildings on the square.

The pavilion's facades are painted in the colour 'Slotshavegrøn'. This choice of colour draws inspiration from the historical windows and doors found throughout the square which are all painted in the same dark green shade.

To invite visitors to gather around the pavilion, two large granite benches have been carefully placed along the facades facing towards west and south. These benches serve as both resting spots and as anchor points for the pavilion.



Gråbrødretorv

REFLECTED LIGHT

Materials have the ability to absorb, transmit, and reflect light. This means that it is not just the light itself, but also the interaction between light and materials that creates the light that surrounds us. Light interacts with materials which causes reflection, and the brighter the material is, the greater amount of light is reflected.

The third space of the pavilion is dedicated to reflected light and is fully exposed to the sky, located within the square beneath the large, old sycamore tree. The tree's branches and leaves create a filter for the daylight.

The surfaces within this space are white and glossy. Glossy surfaces have the ability to reflect light in a specific direction and redirect the rays of light, as they always have the same angle of incidence and reflection. The glossy surfaces will appear shiny and shimmering, varying in intensity depending on our perspective. This means, that the surfaces in the environment that surrounds us play a significant role in shaping our perception of daylight and contribute to the creation of our luminous world.

Reflected light



S U N L I G H T

All daylight originates from the sun. Sunlight is the most intense source of light. As the Sun moves across the sky, it serves as an indicator of time and season. Sunlight can be compared to a point shaped light source that provides directed and warm light, casting precise and distinct shadow patterns.

If a light opening is positioned towards the sun, sunlight has the opportunity to move through the space over the course of the day. Sunlight is dynamic and varies by creating contrasts between light and shadowed areas. It contributes to our perception of a space in motion and allows us to experience significant variations throughout the day.

The orientation, size, and design of an opening determine how sunlight enters a space.

The sunlight space within the pavilion demonstrates the interaction between a south-facing light opening and the golden surfaces of the space. The ribbed texture of the pine boards clearly displays the shadow in the space and will change as the sun moves throughout the day.

Sunlight



The surfaces of the space have a rough and matte texture and are painted with a cool white lime paint that accentuates the effect of the diffused skylight.

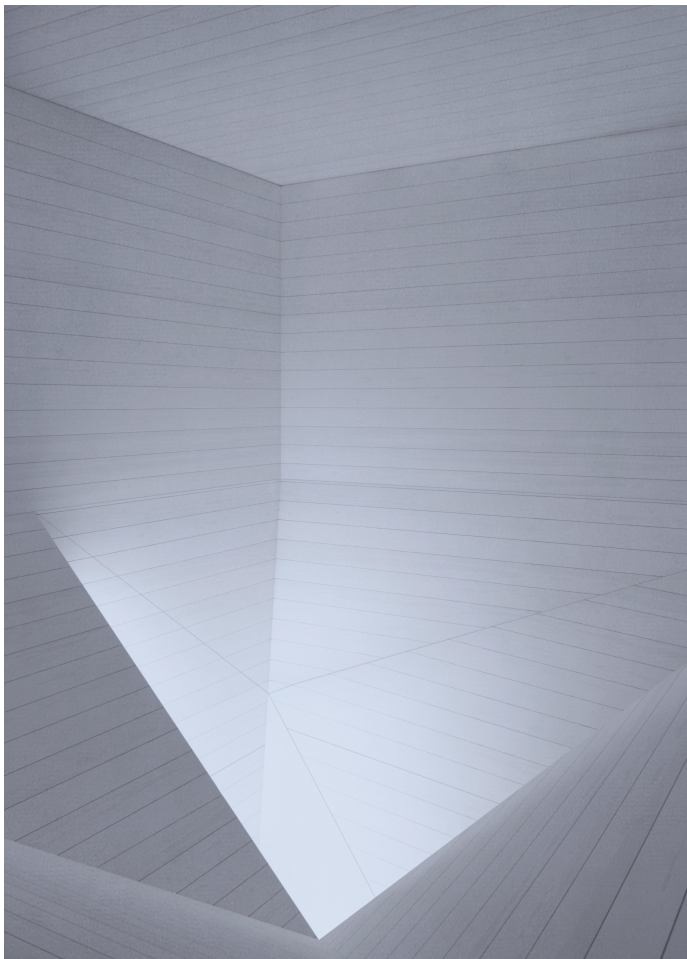
Within the skylit space of the pavilion, we encounter a carefully positioned skylight that draws the diffuse light from the sky into the space. This opening is carefully designed to align with the sun's path, allowing the sunlight to enter the upper part of the opening without fully entering the space.

Depending on the design and placement of the skylight, it frames a specific part of the sky. On sunny days, the blue sky illuminates the space, while on cloudy days it is lit by the white-grey sky. The character of the daylight and its even distribution within the space remain constant – only the colours differ.

The light from the sky reaches us from the vast firmament of the sky above. Resembling a large luminous surface, it lights up the surroundings and objects in a soft glow from all directions creating a diffuse light. The light from the sky is a stable and evenly distributed light that creates a gentle shading.

L I G H T F R O M T H E S K Y

Light from the sky



N O R D I C L I G H T

The pavilion 'Poetic Daylight' is located at 55.679913 degrees north latitude and 12.575885 degrees east longitude, allowing visitors to experience Nordic daylight in the pavilion.

Nordic daylight is often highlighted as a characteristic of the Nordic region and is described as something truly special.

Daylight varies with latitude due to the relationship between the location on Earth and the sun, resulting in varying altitude of the sun throughout the seasons. The further north you go, the lower is the sun's height. Therefore, low sunlight is a typical feature of Nordic daylight. The sky can appear blue on bright sunny days, or white-grey on cloudy days.

As the overcast sky is far more dominant in northern latitudes, a cloudy sky is characteristic for Nordic daylight.

Nordic light



THE WALK THROUGH THE PAVILION

When we walk through the pavilion the corridors work as an extension of the walk through the various spaces on the square. The transition begins in a narrow and darker corridor. At the end of the corridor, a cool light emerges and captivates our curiosity. As we turn the corner, the sky-lit space unveils itself, where a light opening reaches towards the sky.

Returning to the darker corridor, a gentle stream of warm light emerges. Around the corner, in the second space of the pavilion, a large opening reveals a direct view of the square. Here, the powerful southern sunlight lights up the surfaces.

Once again returning to the corridor, we experience the special variations, gradations, and nuances of daylight, providing a moment of darkness. The third space is oriented towards the sky fully exposed to the sky and features surfaces which are warm, glossy, and white. Here, we stand and look upwards through the canopy of the sycamore tree, as sunlight filters through its branches and leaves.

The last walk in the pavilion leads us through the narrow corridor to a door at the end which opens to the square. Here the walk continues throughout the city, with thoughts on poetic daylight.



The walk through the pavilion

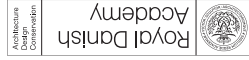
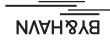
I N T R O D U C T I O N

The pavilion 'Poetic Daylight' unfolds the unique qualities of daylight and its perceptual, aesthetic, and poetic potential.

The pavilion consists of three main spaces which explore three different types of daylight: diffuse light from the sky, directional sunlight, and reflected light. All three types of daylight can be present at once or in pairs of two, respectively sunlight and reflected light or light from the sky and reflected light.

The three main spaces can on a conceptual level be characterised by the three types of daylight: the diffuse light from the sky, directional sunlight and reflected light. The three spaces are connected by a darker corridor, which creates a transition between the three experiences of daylight.

A visit to the pavilion will unfold the potential of daylight's architectural qualities. Perhaps, a visit will arise thoughts on the importance of daylight and space in our everyday life. For instance: *What distinguishes the qualities of daylight in a white space - compared to a dark space? How do we perceive skylight compared to a window on the side of a building? Which space - or perhaps which spaces, do we want to be in - and when?*



DREYERSFOND



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Poetic Daylight

Poetic daylight

Daylight provides us with an understanding of where we are on Earth and of the spaces, we find ourselves in every day.

Daylight has a positive impact on our well-being, and we learn and live better in spaces filled with natural light.