

MASS, LIGHT, SILENCE

A CASE STUDY IN PHENOMENAL TYPOLOGY

AC PIERCE



Taxonomizing Atmospheres

There has been a growing awareness over the last half century of the immense role that raw perception plays in humans' understanding of the spaces they inhabit, architecture being a small part of that immensity of experience but a crucial one. Architecture, or more widely design, is that part of space that we, as thinking beings have shaped. It is the end-result of the union of mind and hand that defines us as a species. And yet, we still have very little control over the design of atmospheres, of the total feeling of a space as it strikes our senses. Credit for nearly all that overcomes us about designed spaces falls to accident or time-honed instinct.

Science and mathematics have given us the tools to create immensely complex machines of buildings. We can now consistently control measured light levels, air temperature and humidity. We can harness much of the energy that we need to sustain ourselves from the sun and the wind and the warm underbelly of the earth.

We can design forms that, upon reflection appeal immensely to our intellects, rational worlds that obey rules upon rules, and we are pleased with our cleverness; with our consistency. Still – it is rare that a space really strikes us.

Few designers are capable of consistently producing rich experiences – of drawing and modeling an atmosphere before it ever comes into being. Most fumble for it – offering beautiful works in other media that attempt to capture a feeling only to see it go unrealized as it takes architectural form. The lucky minority of designers who find success in phenomena-crafting are often described as “inspired”, as “talents”, as “in touch” with something that others are not. It is as though the field has resigned itself to the unteachability of the art. It is as though we truly believe that a lucky few – Peter Zumthor, Alvar Aalto, Enric Miralles, Carlo Scarpa – are to be the poets and the rest of us, mere essayists. I, for one, decline to accept this. Perhaps,

COMBINAISONS HORIZONTALES,
de Colonnes, de Pilastres, de Murs, de Portes et de Croisées

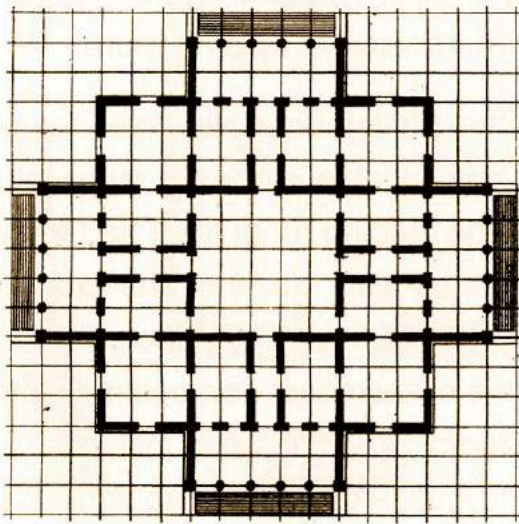
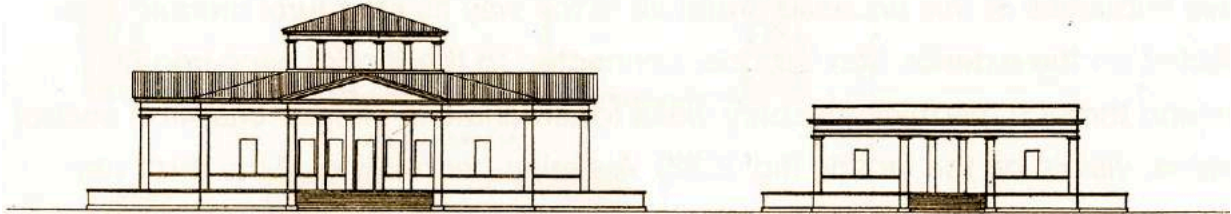


Fig. 1.

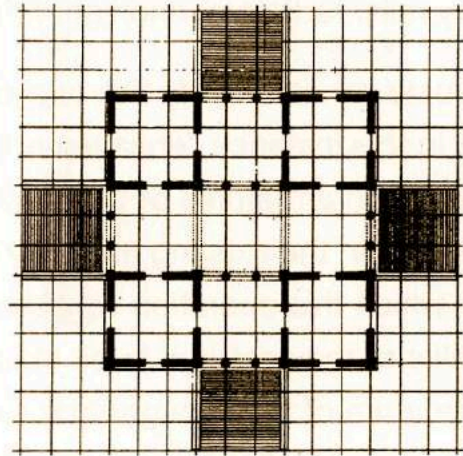
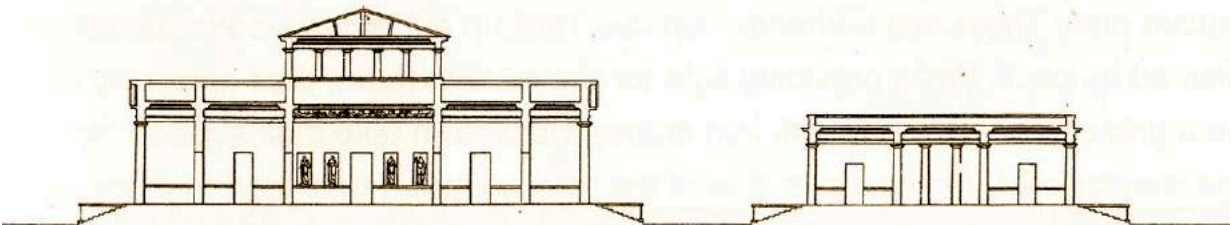


Fig. 2.



I would counter, there is a way to understand architectural phenomenology, to teach atmosphere to any designer by the application of that which seems to stand against it -- analytic, categorical thinking. To be clear, I do not propose to create meaningful phenomena by overtly logical means; rather, logic is to be deployed as a framework by which to organize and analyze families of sensation. Once a group of like sensations can be placed side-by-side, we might come to see their commonalities both in atmosphere and in construction that we might better understand how to consistently create, and more importantly manipulate architectural experience. What I am discussing, of course, is a theory of phenomenal types.

We owe much of our contemporary understanding of typological categorization in architecture to the work of the early 19th c. French theorist and educator J.N.L. Durand who first proposed the simultaneous presentation of drawings of like buildings at scale so that their correspondences and divergences would be made more visible for study. The pedagogical goal of such an assembly goes beyond merely exposing students to a wide array of projects – it seeks to point out what defines each project by demonstrating

the same features in a variety of projects that often appear quite dissimilar on the surface.

Even then, Durand's theory of types is quite different from a Platonic understanding of "forms". It makes no claim to any single set of conditions necessary for a project's membership in a type. Rather, types are united by families of apparent similarities. In Greek temples, for instance, we might find that nine out of ten buildings share a common diagram in plan; six of ten, a mutual rule set for pediment and frieze carving; seven of ten, a set calculus for column height and entasis. Even though all ten do not agree on any given rule, we may still say they form a type and profit by examining them together.

Just so, we might adopt a Durandian theory of type for phenomena. Though each unique experience of place we have differs from the next (all would be cheapened should they not), we can say that there are elements that many different atmospheres share. If we step back and look at these groups of atmospheres and make note of what they share, would we not come to see in greater detail those physical commonalties that correspond to the phenomena in question? Just as we



might typologize by form or program -- temples -- Greek temples -- ionic temples -- archaic ionic temples -- could we not also look to a type -- "light washing a wall -- from above -- over brick -- laid off-plumb -- with raked joints"?

Of course, this is not what we would call it, at first; it is not the physical objects or how they arrived at their forms that strike us. Any process aimed at assembling a taxonomy of phenomena would of course have to begin with feeling, with perceptions about the environment in the moment. If it is sensation that we hope to control and to give back to all who enter our spaces, then we must begin by understanding sensation.

Still, perception is not all of it. As designers, we do not merely witness spatial atmosphere; we hope to create it. It is therefore necessary to go beyond seeing that a type has this or that in common; we must see why; we must move past the sensation, past the subjective and on to the physical, on to the concrete that we may return to the former informed. Even if it sometimes deprives us of some of the magic we hope to make for others, we must place equal if not greater weight on the happenings beyond the curtain than we do the great Oz before us.

In *Thinking Architecture*, Zumthor says this of his own process:

"After a certain time, the object I am designing takes on some of the qualities of the images [remembered atmospheres] I use as models. If I can find a meaningful way of interlocking and superimposing these qualities, the object will assume a depth and richness. If I am to achieve this effect, the qualities I am giving the design must merge and blend with the constructional and formal structure of the finished building. Form and construction, appearance and function are no longer separate. They belong together and form a whole."

The second and larger part of our experiments in type must take as its subject the physical aspects of the design, observable or not, and the working drawings that produced them. The quality of natural light that falls upon the altar at Aalto's Church of the Three Crosses depends entirely on the plasterer's hand and the instructions he was given. Construction details form the very backbone of moving spaces. The consideration of every brick-joint, every mullion, every knob and pull and fastener shapes the atmosphere of a place.



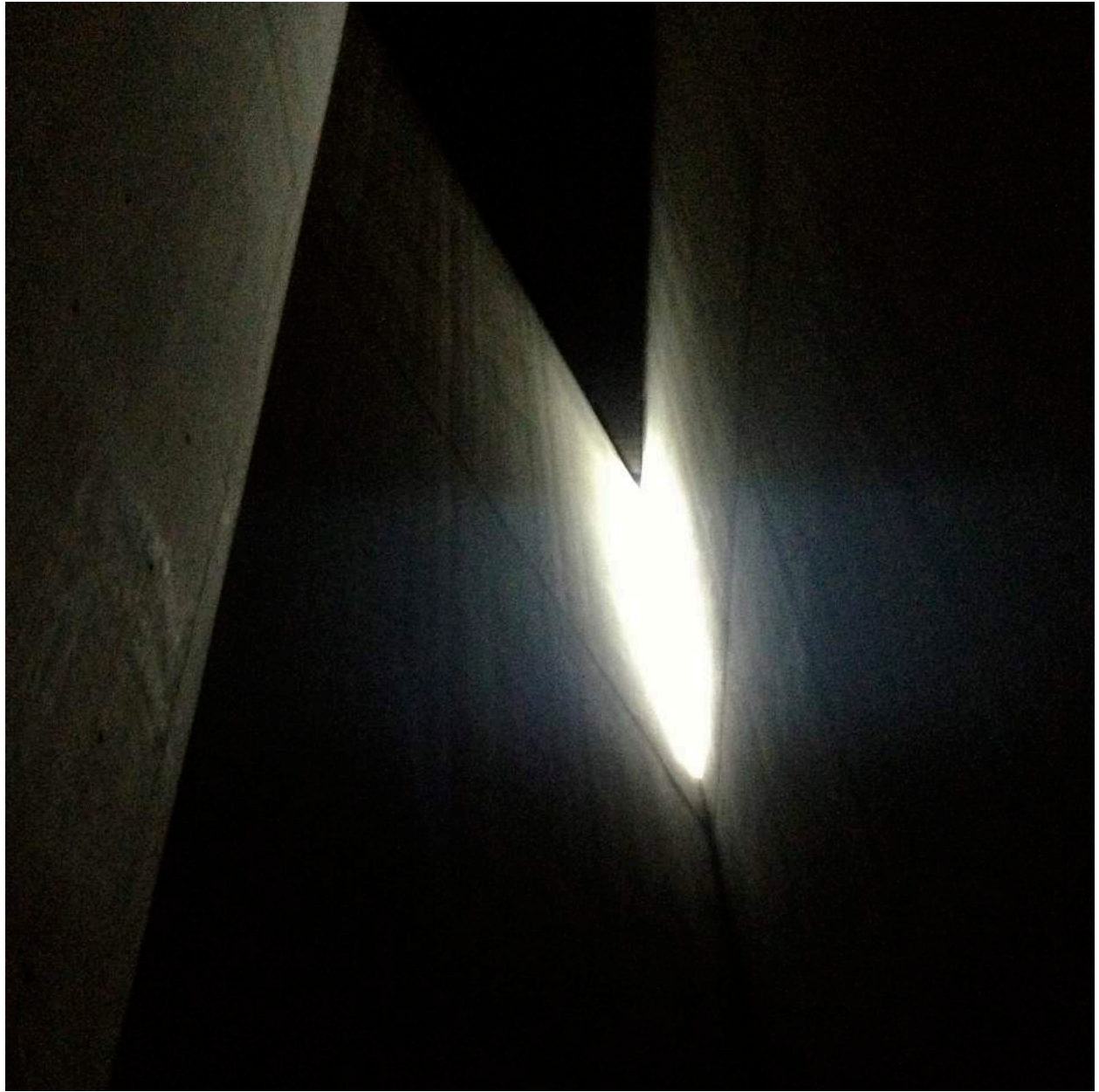
Material is significant, too; the smell of the pine planking, the dull sheen of the plasterwork, the coldness of the travertine panel felt even at a distance. The working drawing is often our only reference for this information and can reveal the secrets that allow an architect to accurately, consistently shape experience. More even than grand spatial gestures, every little decision about the construction of a space shapes its final feeling. The making of the thing means the world to its result.

And yet, upon returning again to reflect upon sensation, the making means nothing at all. Zumthor, again, bears insight,

“When we look at the finished building, our eyes, guided by our analytical mind, tend to stray and look for details to hold on to. But the synthesis of the whole does not become comprehensible through isolated details. ...the initial images fade into the background. The models, words, and comparisons that were necessary for the creation of the whole disappear like steps that have been left behind. The new building assumes the focal position and is itself.”

Finally, the details understood and executed, we are left only with the magic

of a controlled atmosphere without any sign of its constraints. In coming to fully understand and use the tools of atmospheric, we erase them from notice entirely, but do so only by careful study of being and appearance; of the made and the perceived.



Mass, Light, Silence

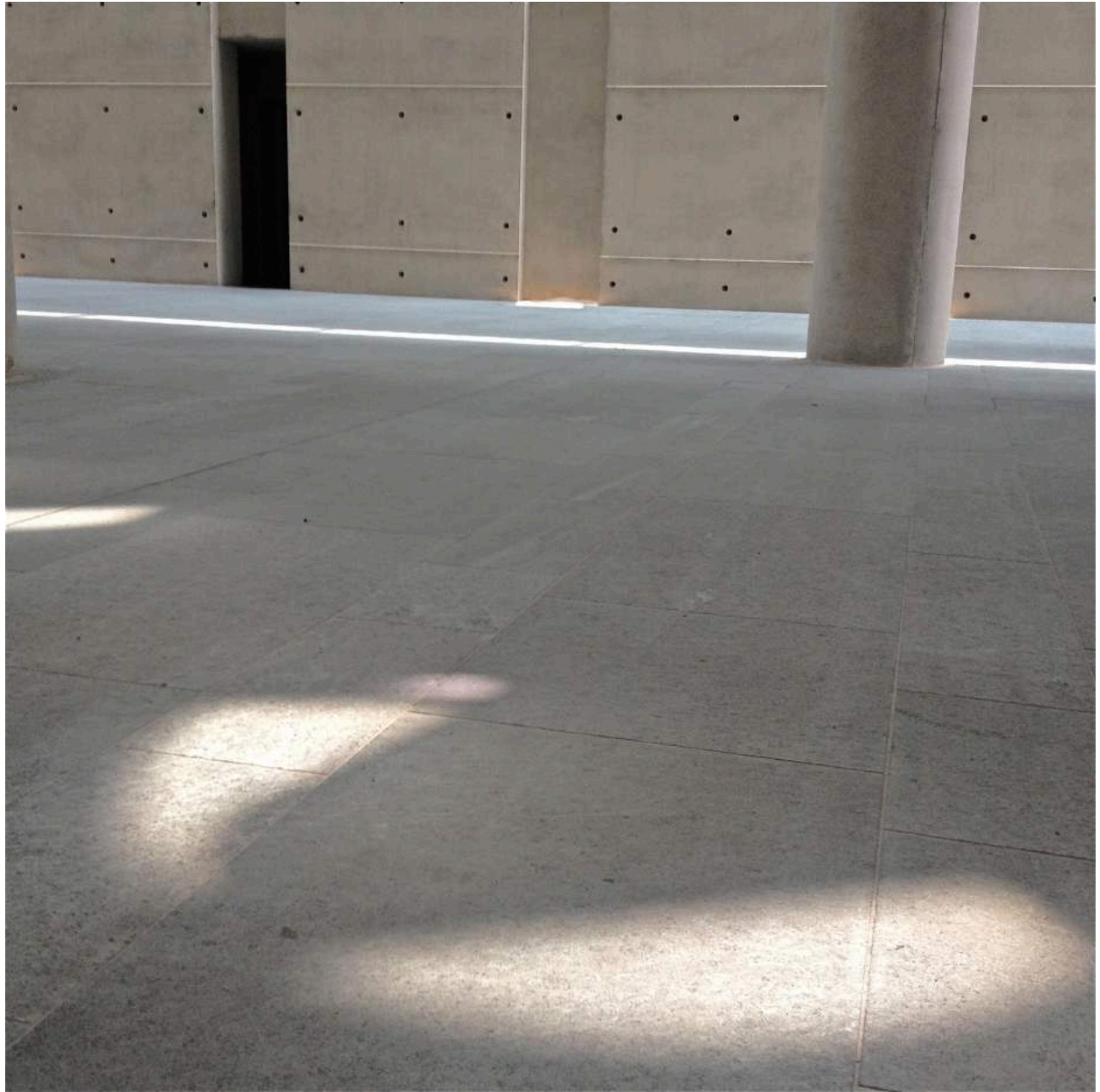
Over the course of my travels in Western Europe in the Summer of 2013, I became aware of a particular phenomenal type, if I may go ahead and call it that, which struck me with some force. It was not just a single atmosphere, but rather a family of atmospheres to be found in a variety of spaces with some sympathy between them. It corresponded closely with program types that are due some gravitas – churches, banks, monuments, civic structures, places of burial – or perhaps it lent the gravitas to them. I would like to call this type “mass, light, silence”.

I do so in part because of the feeling of the places – heavy, dense, massive, but not dark. In fact, each space brought light to the forefront of my perception, heightening my sense of its presence, its malleability, and its intercourse with the weight it cut through and fell upon. Likewise, each space carried a significant silence – not the dead silence of the acoustic-tiled waiting room but a living silence that reflected

again upon the mass, its volume and the light that filled it. Each of the three though not explicitly material was treated as such, each shaping the other. It was as though there could be no feeling of one without the others.

I also choose those three words, that one name, “mass, light, silence” because of the commonalities between the spaces as built objects. Each makes heavy use of expressed stone, brick or concrete; each shapes, cuts, rakes light in a similar way as though it, too were material; each makes special provision for silence, building for that living absence rather than leaving it to chance.

Having identified this phenomenal type and made initial insights into its significant commonalities, physical and perceptual, I find it uniquely poised for exploration. My purpose in the pages that follow is to attempt to taxonomize this type, “mass, light, silence” and thereby understand



and deploy it. I hope to illustrate and catalogue this type by reference to five projects which belong to it, presented side-by-side just as Durand's drawings have been. Each project is understood both through personal observations of its atmosphere made during my journey and through a critical examination of drawings left to us by the designers and subsequent students of the project. Interspersed amongst the project analyses are notes on the type as a whole; comments on those design elements that all five hold in common. In this way, the phenomena and the physical state that generates them can be understood together.



Heterotopia

Perhaps the defining experience of mass, light, silence is that of having been made other, albeit temporarily; of having been removed from the normal expanse and expansion of time and space, from the nominal body of humanity and its activities and proclivities. Each of the five exemplar spaces was possessed of a strong sense of reflection. Each is a place – one could “indicate [its] location in reality” – and yet not a place. Each, by means of entry sequence and of atmosphere divorces itself from the world that surrounds it. Yet, in so doing it primes us to reflect back on the beings, the doings, the happenings of the world we have left.

Mass, light, silence become the building blocks for an atmosphere which hovers between some place and no place. Like Michel Foucault’s mirror, projecting a non-space beyond its plane and reflecting a real space outside itself, these spaces become heterotopias. This is true regardless of

their given programs. Some are churches, others memorials, and one the lobby of a national bank. Many of them do not fulfill their programs as well as other buildings before and after them have; many of the religious spaces actively subvert their apparent ritual roles in the service of an atmospheric experience.

Mass, silence — these are places of stillness, as removed from time as from space. What little movement there is plays out slowly: the gradual washing of a wall in light, the crecinding echoes of footsteps. As Foucault reminds us, “the stability of a thing is only its movement indefinitely slowed down”. Perhaps no other atmosphere bears such stability as this one.



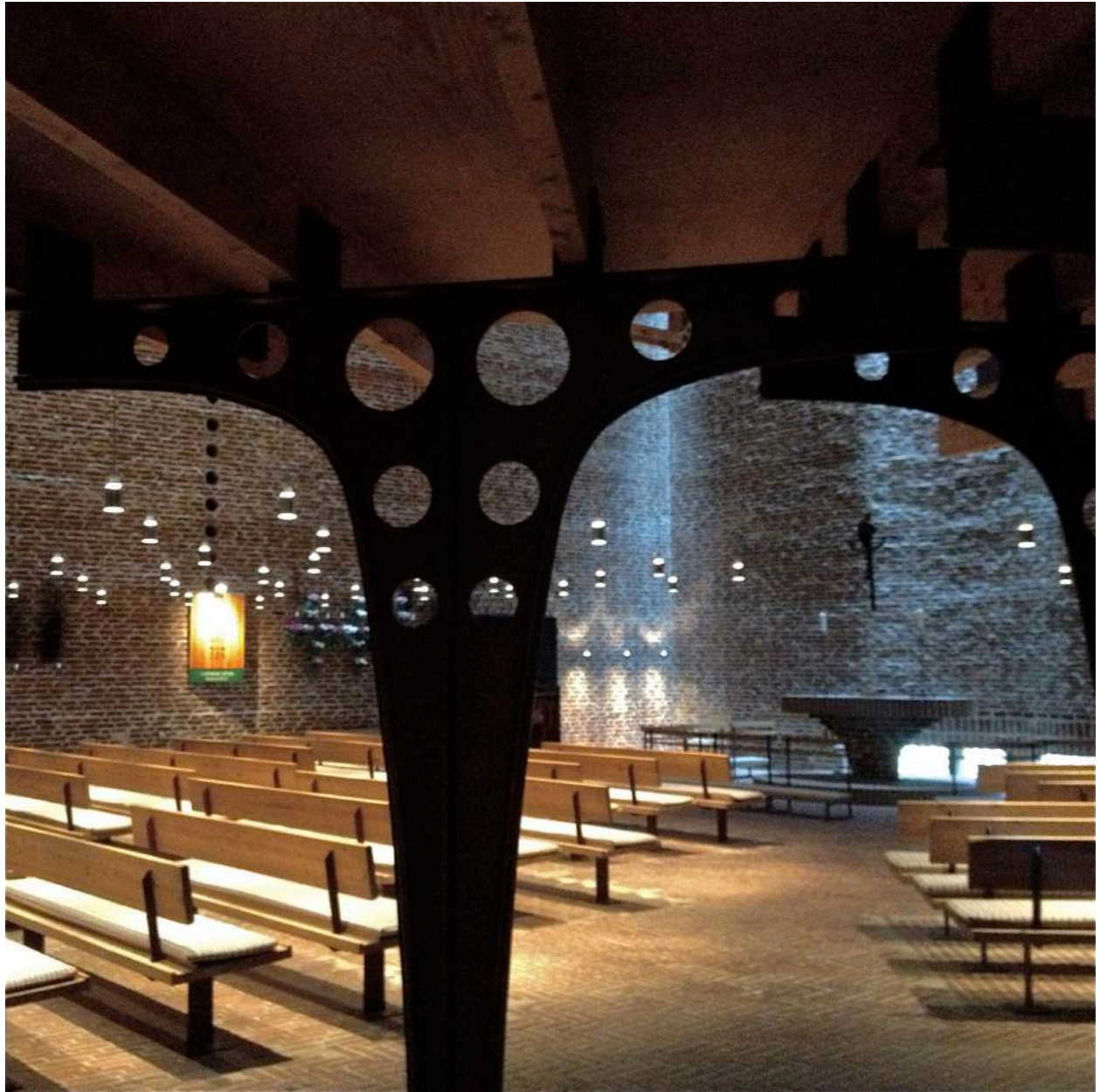
Brick

Stones exhibit a prototypical stability. As a species, we remain enamoured with the mind-boggling stillness and presence of the great monoliths of the late stone age. Their constancy represents something outside of the flux that defines our own existence. This sense of rootedness in the face of ever-shifting cultural winds lends structures made by human hands both a sense of singular placed-ness and that of universality, a recurring tension shared with our experience of large natural phenomena. Mounds of stone or brick or cementitious mud belong to all cultures and all times. Their mass can be carved out to create some of the most intensely interior spaces, cool, thick, dense, heavy enclosures that vacillate between the comfortingly secure and the sublimely threatening.

Brick perfectly embodies mass at a variety of scales. A single brick is dense, weighty, strong. Its squat rectangular form speaks of the pressing forces that made it and

those it was made to bear. Brick is of the earth; neutral in color; rough in texture; imperfect in composition. The endless aggregation possibilities of brick make it a surprisingly flexible and extendable material. Its use in human architecture wonderfully illustrates Semper's origin story, the slow subjugation of wall- and roof-craft by the mound-maker, the lifting and surrounding of space by the earth.

In a great many world cultures, constructions of brick, of mass, are reserved for higher purposes while the mundane, terrestrial activities of the average man are conducted in more temporary shelters. With brick we elevate our gods, ennoble our institutions and memorialize our dead. Brick foundations form the groundwork for emerging civilizations, while masonry towers, smokestacks, and end-walls remain when all else has eroded away.



Islev Kirke

Inger and Johannes Exner

Brick is the key material in Islev Kirke by Johannes and Inger Exner. Throughout the Danish couple's opus, brick is allowed to waver ambiguously between qualities of surface and of depth, allowing for the entry of bodies and of light and shaping light's transition from mere energy to its own kind of materiality. The Exners' use of brick at Islev takes full advantage of both material possibilities.

The space of the sanctuary is roughly cubic with four walls of rough-laid, coursed brick, a floor of herringboned brick and a wood truss ceiling. One's initial impression of the space from the corner entry, below the choir loft is of darkness and weight. The door is set in the exterior plane of the thick bearing wall, creating a small vestibule within the brick mass' depth whose tight corporeal proportions contrast significantly with the feeling of volume as one moves out into the larger room along its diagonal.

Here, the brick begins to come alive in the narrow band of vision between the loft and the floor – its surface ruffled like a sheet of paper that has been balled-up and then pulled taught once more. Light from above washes over it, decaying before it reaches the floor like a small sheet of water over rock, catching here and there on the projecting edges of the rough-laid brickwork, mottling its compound surface with patches of intense light and darkness.

Proceeding further into the room, the source of the light seems to present itself – the seam between the now-visible ceiling and the heavy bearing walls on all four sides. Though one is conscious of the thickness and weight of the walls, the introduction of light suddenly seems to remove any load from them, allowing the ceiling to float.

A swath of wall just behind the altar, slightly to the right of the diagonal path that divides the space is washed with more light than the rest of the face, though no change in



its surface is immediately perceptible. This brighter zone marks the precinct of the altar, a floating cross outlined against it but casting no shadow. It appears as a textile, draped from the ceiling, its comparatively great luminosity pulling the lit brickwork forward and intensifying its shimmer.

The corners of the room are likewise significantly brighter than the planes of the walls. This begins to diminish the clarity of the wall to wall joint and the four planes begin to stand on their own as mere surfaces in direct contradiction of the initial impression of mass. Their relative darkness and surface materiality is further highlighted by great black streaks of soot which extend up from white pin-pricks, shoulder high -- ritual candles that have been allowed to scorch the wall with time. More light sources float out across the open space just above the level of the soot-streaks -- points of light which do not illuminate any surface but rather seem to exist as distinct entities, ostensibly material and yet intangible, floating together as a point-grid in the now-weightless, freed space of the sanctuary.

Approaching a wall once more as one arrives at the other side of the room, one has only to reach out and touch the

brickwork to be reminded again of the incredible mass, the thick enclosure that is the reality of the construction. It is cold and rough. Not a surface at all, it is made up of distinct units bound by mortar, interlocked with one another in regular patterns. Its joints, alternately flush, weeping or roughly raked imply depth, thickness. Turning and sitting in a pew, the tension arises again -- mass and plane, unit and whole, brilliance and lightlessness, echo and silence, levity and weight, dissolution and enclosure.

This tension is created and successfully held in check by the masterful use of brick and light as architectural materials by the designers.

The roof is made to look like a floating mass by deemphasizing its actual support structure. The wooden trusses below the roof plane actually support it, but their connection to columns within the bulk of the brick wall is nearly erased in the bright light that pours over and around them through glazed gaps left on all four sides of the roof plane. Rain water is carried over these gaps and through the low parapets on small bridges through the gaps which pinwheel clockwise off of the shrunken roof plane's corners, leaving the corners of the true volume open to the light from above.







These bridges also cast a slight shade over the wall surface below them, making the corner light seem that much brighter by contrast.

The architects asked the project's masons to be rough in laying the bricks. Joints are thick and little-dressed (being indoors, there is no worry about their weathering). Some bricks are laid not quite level. Their colors and geometries vary just slightly, bringing life to the walls. As they jut out or sink in to the surface, they are allowed to interact with the light falling from above. The effect is furthered on the back wall, where small cracks have been left unmortared between many of the bricks creating deep shadow lines. The cracks also work to absorb sound by increased surface area, contributing significantly to the characteristic hush of the hard-surfaced space.

Behind the altar, the section of wall that appears particularly bright takes advantage of brick's flexibility to stretch from in-plane at its base to a twenty degree arc at its top. This cupping into the mass of the wall allows significantly more light in here than elsewhere along the gap without disturbing the exterior plane of the wall. The effect is furthered by openings along the base of the wall which spread side light across the

floor and around the base of the altar – the only source of natural light besides the gap, above.

These carefully selected moments of light are brought alive by a controlled darkness. Coming into the space from the bright hallway, the comparative lack of light in the sanctuary is jarring, but as one becomes used to the darkness, the small moments of light within it are made all the brighter. The use of small points of electric light spread across the space like a carpet of stars mimics this strategy, lighting little but shining brightly against the dark walls and ceiling. The simple steel candle sconces along the walls play counterpoint to this, contributing little in the way of light but blackening the wall surfaces gently with their continued use in ceremony, their placement carefully considered so as to draw close to but not interfere with the bright corners and altar niche.

This careful selection and deployment of material finally comes across as something quite primitive – encouraging sensory understandings that relate more closely to early human building and natural phenomena than contemporary architecture. The handling of light, sound and mass as materials unto themselves allows the architects to build contradictions that enliven the experience of the space and reward return visits with further depth.



Bagsværd Kirke

Jørn Utzon

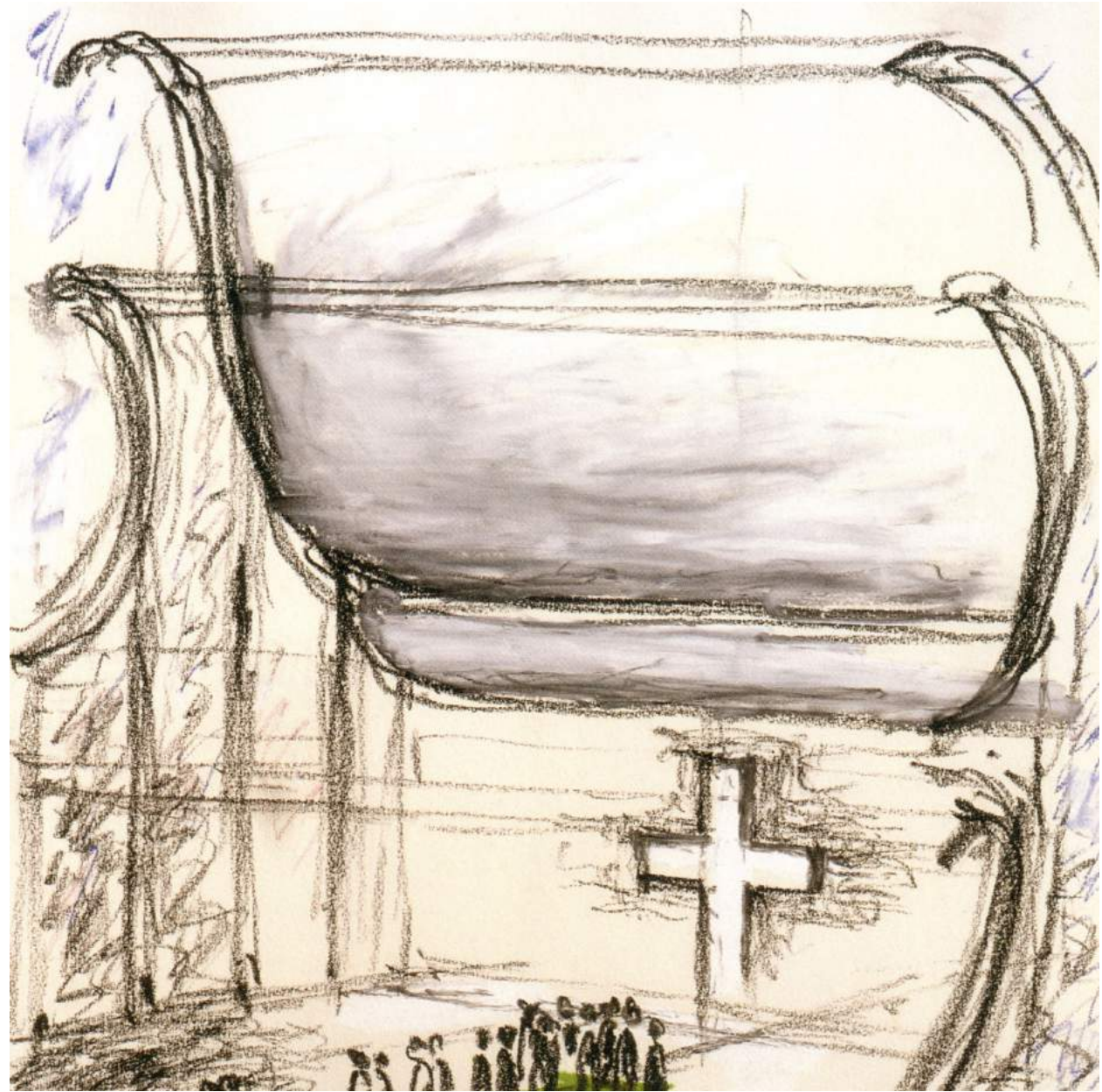
Arriving at the sanctuary of Jørn Utzon's Bagsværd Church is a slow journey from the profane secular world to the pensive inner chamber. One either enters from the west via a small garden and through a low, broad narthex (an antechamber reserved for the uninitiated in the early church where penitents could experience some but not all of the mysteries of the sanctum, beyond) or one is drawn along the two lengthy, high, toplit halls that frame the building's eastern innards through many banks of weighty double doors and then finally into the lower space of the side aisles. In either case, views to the sides are first denied, turning visitors' views upward through courtyard or skylight, then a compressive space forces the viewer's gaze on into the sanctuary. As at Islev with its choir loft, this view is cut off from above – the sanctuary appears as a roughly square space with intense light from above but the source of this light is, as of yet, a mystery.

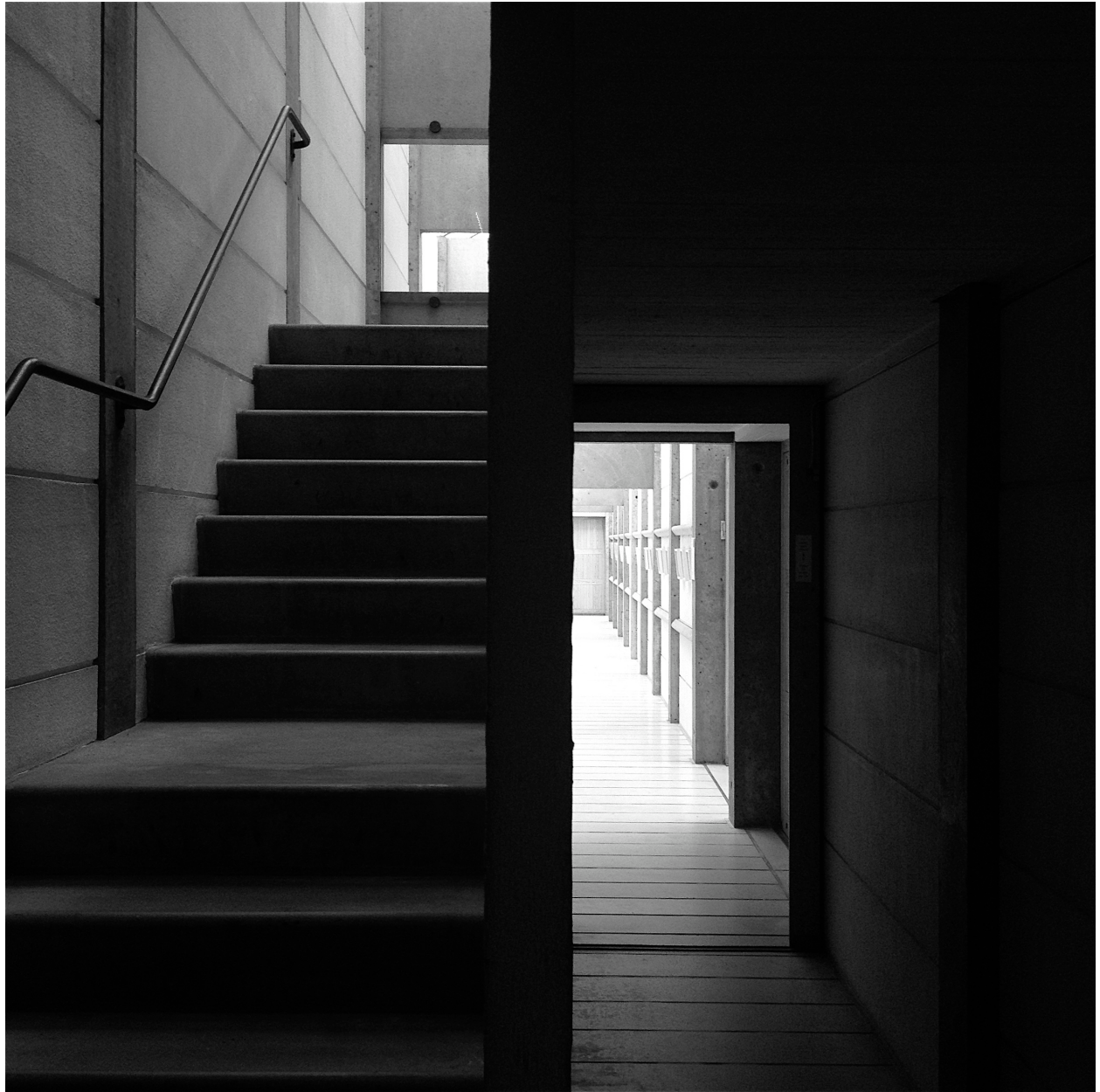
Moving in to the central space of the

sanctuary, the space explodes upwards, shaped by unexpected white cloud-forms rippling along the east-west axis. Light from high above washes down over the curves whose rough surfaces flicker gently. Deep concavities form dark striations along the lower parts of the ceiling above the rear pews. On the north and south walls, smooth gray columns interject a regularity into the organic drama of the ceiling. Between these lie open bright bays of varying size, corresponding to the varied height of the ceiling. The north bays house an organ and the south, a balcony through which further toplight enters the central space.

On the east side of the sanctuary, a free-standing white screen made up of equilateral triangles separates the large space from a smaller, darker one behind. It is dense; the light from above just sneaks through it into the dusky vestry it shields. Before it stands an altar, a lectern and a series of kneelers all raised on a plinth and all of similar weight and porosity to the







screen. The curving ceiling plunges above the altar and nearly meets the top of the screen-wall, leaving less than a foot of the dark beyond in between.

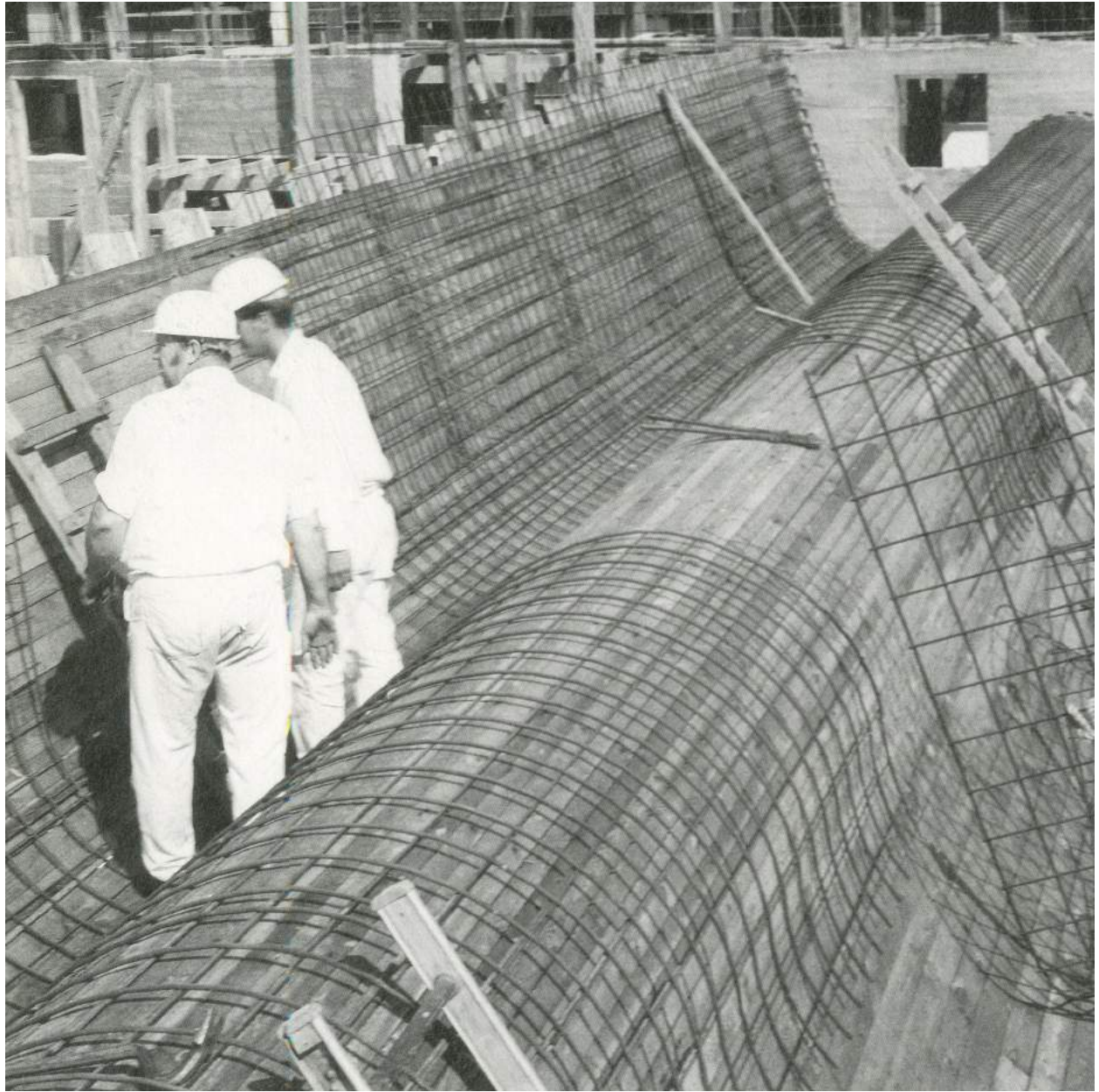
Despite the jubilant curvature of the ceiling and the variation of the light as it meets the dips and rises, everything feels measured. As with the rhythm of the column bays, there is a slow, regular roughness to the ceiling – a standardized striation that contributes to the flicker of the light. All of the furnishings, too, are made up of organic repetitions of simple forms: the triangles of the screen, the rectangles of the pews, the L's of the kneelers, the pin-pricks of the exposed electric light bulbs that trot out a line along the column-walls, marking the side-aisle soffit as they go. Like the bricks of Islev, these alternately appear as units upon units or as a graceful and gently varying whole.

The space is voluminous, the things within it are thick, massive, though their whiteness detracts from their visual weight. Even the thick-cut, simple wooden pews are cool to the touch. The space above, defined by the ceiling is sometimes light and cloud-like, draping like a cloth over the congregants, and sometimes ponderous, as though carved out of something massive which continues beyond its surface. The

frequent use of thick patterned textiles – a carpet down the aisle, the kneelers, the altar cloth -- make the space softer, but not warmer. The wooden window-screen, which separates the narthex from the sanctuary, and the pews themselves have been bleached, subduing the boldness of their grain.

The overall feeling is quiet, ordered and reflective. There is little sound beyond that of hard-surfaced emptiness as might belong to a shell or a great empty theater. And yet, the bold and ungoverned ceiling and its light cut through again to enliven the space and add mystery to its regularity.

Utzon was an acknowledged master of simplicity. As with all of the buildings examined here, he began with simple geometries and a simple structural idea. The columns are in fact precast frames – two columns with thick concrete spanning panels. They provide north-south stability on their own, and east-west structure when connected in series with rougher whitewashed precast panels. Their width defines the building's hallways; the sanctuary's side aisles. Their moment-frame spanning elements set floor and soffit heights for the balconies that surround the central space. With these elements lifted





into place, the high “vault” of the sanctuary has little to support but its own weight. Further capped with a sloping, planar roof, it is allowed the freedom to become the central, expressive element in the space.

Even as it is different, it is incorporated into the whole by its materiality. Utzon’s clear grasp of the potential of concrete as a building material pervades the project. The smooth, gray column-frames express no aggregate whatsoever, and are only finely textured with the small cracks and fissures inherent in the material. On the other hand, the rough board-formed site-cast concrete shell of the ceiling demonstrates an entirely different but concurrent expression of concrete. The column-frames on the one hand are cool, massive, and strong up close while the white ceiling floats in glints of white not unlike some delicate textile on the wind. And yet one would not be wrong to see each as entirely opposite – the thin glassy sticks of the frames as the delicate skeleton and the muscular mass of the ceiling as the weighty carved flesh of the whale-like church.

This shifting sensory understanding, so common to the type, owes much to Utzon’s handling of light. He introduces it in three ways. First he leaks it in from behind via the dense wooden narthex screen, emphasizing

the horizontal east-west volume, perhaps eight feet high, that is physically occupied by the parishoner coming to worship. Second, he allows light to fall from skylights down into the balconies of the side aisles, which do not bounce the light but rather glow with it, independent of the larger space. Third, he pulls eastern light into the unseen high window of the vaulted space and allows it to spill over and bounce around the many carefully planned arc-curves of the concrete shell as it descends to the congregants, below. Different sub-spaces within the sanctuary, then, take on qualities all their own based on these three lights – the filtered, the direct and the bounced.

Just so, these different spaces adopt variations on the acoustic attitude of silence. The main space is expansive – its upper reaches absorb and reverberate with singing from below. The ceiling pulls down to the back of the space, allowing a priest to be heard by the entire congregation, even at a moderate whisper. The acoustics of the side aisles have a dead quality to them, their openings into the congregation small and their ceilings high and isolated. The entire space enlivens the joyful sounds of united worship while hushing out disturbances, returning to a full, present, reflective silence.



Additive Architecture

Jorn Utzon is said to have thought of his architecture as fundamentally additive. He preferred to work from a few small units – material or geometric – which he developed slowly into a variety of larger forms across an entire project. This, he believed, was the way that the natural world was built. At Bagsvaerd, we can see this strategy played out in the precast elements of the column-frames, the exterior walls, the screens, kneelers, pews and altar. It is also present in the very idea of board-formed concrete as it pervades the sanctuary. In each case, something small, simple, regular (a concrete block, a board of the dimension x,y) is deployed in a simple pattern (triangles, arcs of a circle) and small differences are introduced in the workmanship and the materials, themselves (manufacturing variations, wood grain). These small things form a larger whole in which the individual variations are not immediately perceptible but rather contribute to a sense that the materials are living, changing things –

softer than the manufactured perfections of Miesian modernisms.

This idea of small variations in a regulated pattern is present in most if not all spaces where “mass, light, silence” can be felt. Small differences in bricks, stonework or formwork laid up in an otherwise regular fashion can create dramatic living surfaces, especially as light is brought to bear on them. This tension between the regular and the irregular generates exciting spaces without the chaos of rampant particularity common in many architectures of today. This tension also promotes a shifting sense of scale as visitors are alternately aware of the unit, the cluster and the whole, relating both to the human and the grandiose in what might otherwise be overwhelming, sublime spaces.



Danmarks Nationalbank

Arne Jacobsen

The lobby of Arne Jacobsen's Danmarks Nationalbank is perhaps the simplest of the five examples addressed here, at least on the surface. Unlike the other four, its program has no metaphysical bent. Moreover, it is not the building's central space; it is only the entry hall, an antechamber for what is to come. And yet, it may be the most poignant of the five, and the one that owes the greatest debt to construction details at play beyond the casual glance. Jacobsen's lobby successfully produces the feelings of gravitas and reflection common to the type but not as a telos. Rather, it establishes in the minds of visitors the gravity of the institution in a uniquely Nordic way which is not over-grand but still stands for permanence and heft.

The street façade is of tightly joined dark stone ashlar. It projects a sense of depth, weight, density before one ever crosses the squat square threshold. During operating hours, a pair of sliding glass doors bars the way in. They open before visitors

automatically, without a sound. Moving through, one finds oneself in a curving glass tube, twisting the right into the tall, narrow space of the lobby. A second set of glass doors remains shut before visitors until a dark-suited man in a niche in the room's high wall opens them. On display in this vitrine, one is compressed by a low ceiling which floats inexplicably above the glass. Stepping through the second doorway, the space explodes upwards five stories into darkness. This incredible height is marked by a delicate staircase at the far end of the long room which, like the vestibule's ceiling seems to float in the powdery dark.

At the center of the long wall to the left, more glass doors lead into a low tunnel, further into the building. This, however, is not the initial draw. Rather, the hanging stair and an inviting set of chairs near the bottom of it pull guests forward along the inside of the façade-wall. This side of the room is measured. At the lower level a series of niches are washed in a warm,



low light. Each shelters a large square tapestry of rust and ochre. As one passes one tapestry and then the next, the yellow grows as the red recedes, marking the movement through space. The bay lines that divide the niches become, in the four stories above, pairs of tall slits cut through the thickness of the granite-lined wall at a slight angle, relinquishing light into the murk of the room and projecting dark streaks onto the opposite wall.

At the far end of the space, the last set of slits washes light across the ashlar whose stone faces are as rough as its joints are perfect. The ensuing shadows and hot-spots cause the short wall to glimmer and become alive. Looking up, the high ceiling is defined only by a deep, open grid, parallel with the slotted wall. The off-parallel light from the tall, narrow façade openings dances across the open squares and they, too, lose their rigidity and begin to fluctuate. The formerly dense, dark, narrow room begins to move, to become light, to open up.

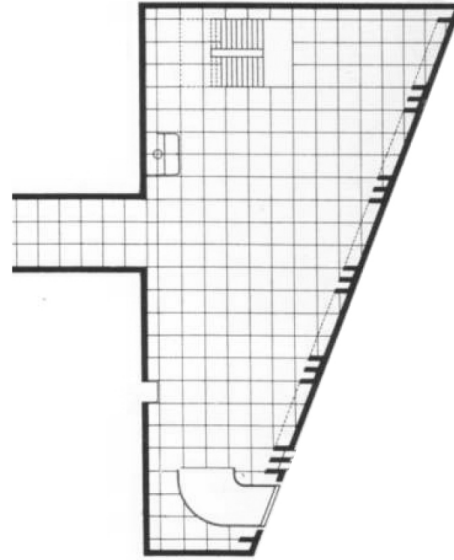
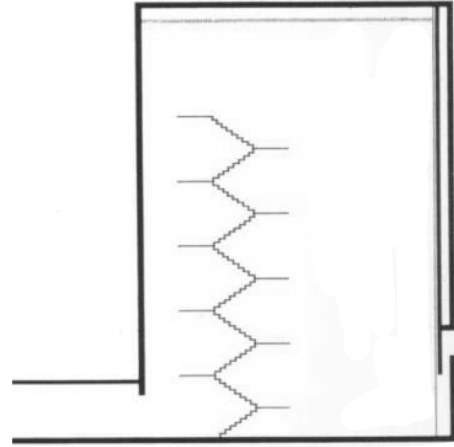
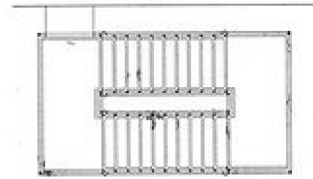
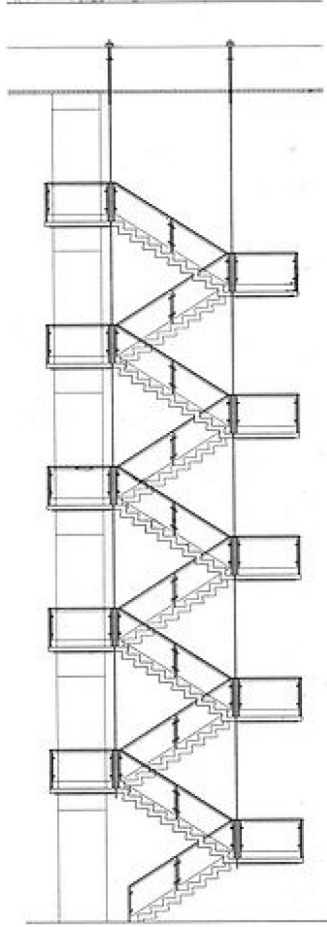
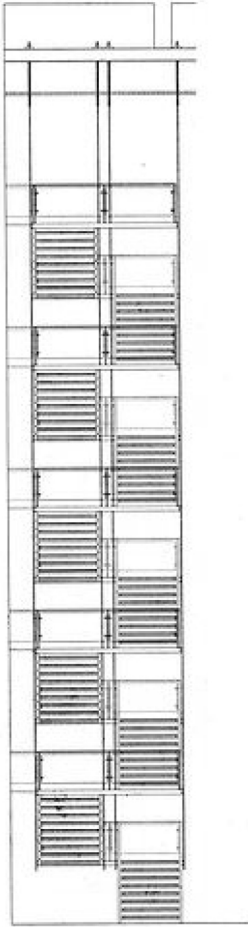
As with a great many mid-century buildings of this scale in Denmark, the Nationalbank is a steel stick structure. This is reflected in the east and west facades with their great steel and glass projections, but not

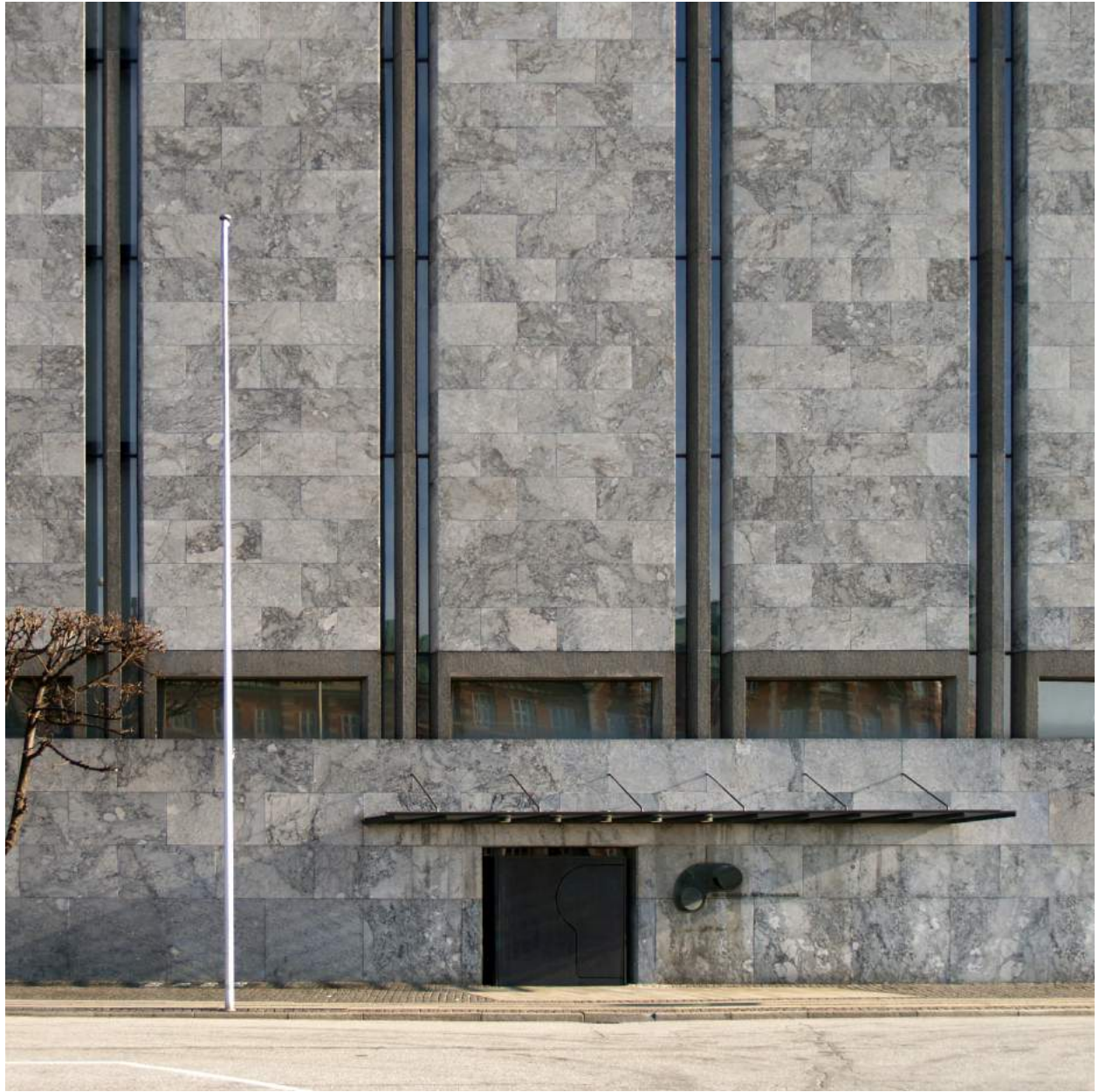
in the south façade or the lobby. Here, Jacobsen carefully cultivates an experience of thickness and weight, hanging the same stone inside and out. This sensation is furthered by the narrowness and frugality of the penetrations to the exterior. The architect is very careful to detail the thin stone at these cuts so as to hide their thickness.

At the same time, these openings were made possible by the steel-frame structure. The tall, narrow slits are framed by steel columns that allow for such a dramatic removal of mass without a relieving arch or lintel. Likewise, the thin material that divides every pair of slits is kept from buckling laterally by the steel within – a near impossibility in masonry.

The warm light of the tapestry niches represents the cleverest use of the compound wall section. Here, natural light through wide, squat windows on the façade just above the first story which share a sill-line with the tall slits and sit between them. Within the depth of the wall, light is bounced downwards into the niches to wash from in front and above over the tapestries. On grey days, this natural light is supplemented with electric lighting tucked up in this wall space, which adds



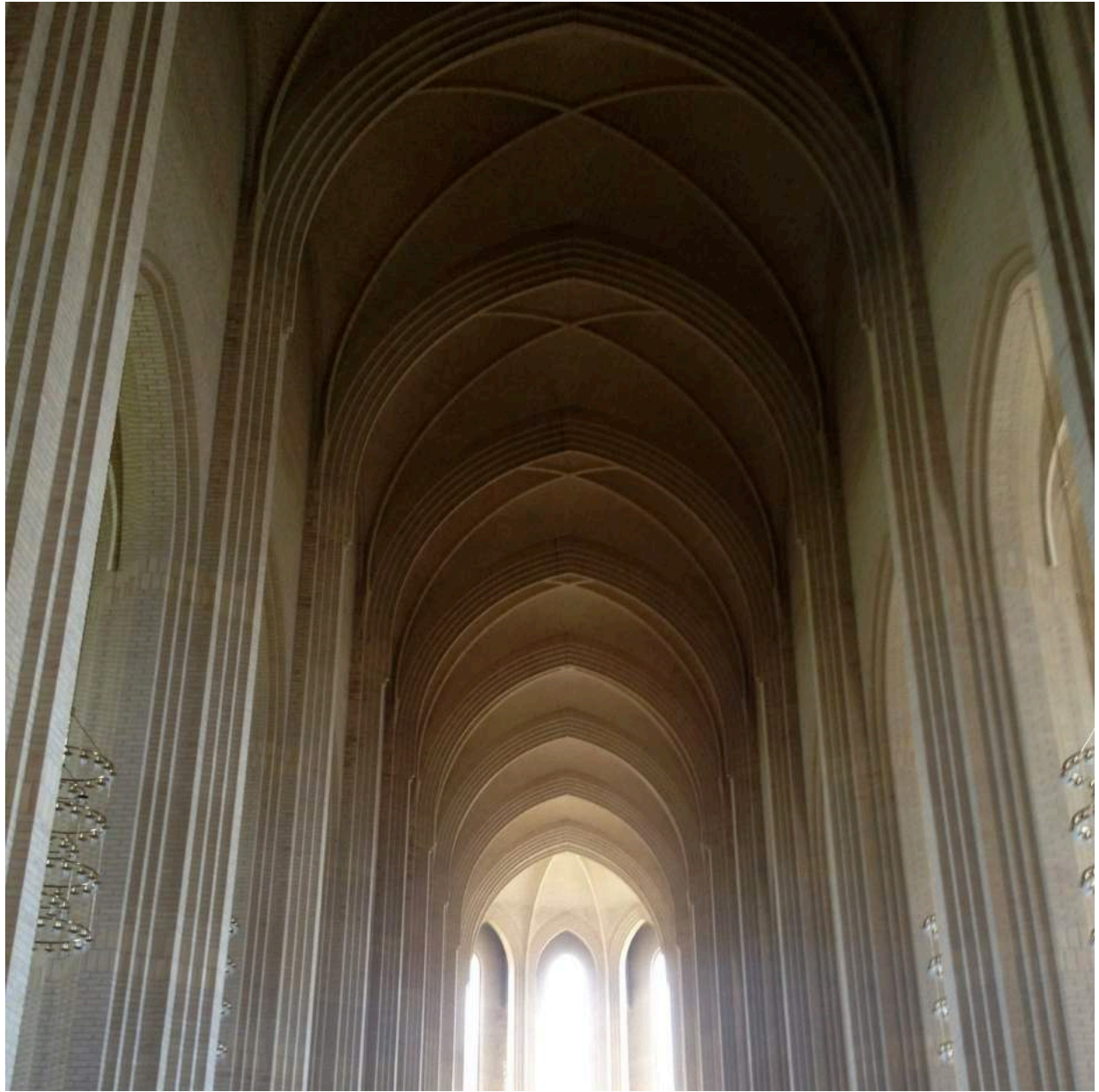




warmth and intensity to the daylight. Both sources of natural light, the slits and the alcoves give the impression of having been hewn from a mass when in fact they have been carefully constructed for by additive means.

Steel also makes possible the "floating" staircase and antechamber ceiling. Each is suspended from narrow threaded steel rods that carry their weight to the roof structure over five stories up. Here, in the darkness of the deep black ceiling grid, the attachment all but disappears. The rods, too, are lost in the darkness of the upper spaces, falling as they do between the light-admitting slits and receiving little direct light. Seen along the length of the room, perpendicular to the light sources, the rods receive almost no illumination.

The illusion of levity is furthered in the iconic staircase through the use of more steel. The steps lack risers and are carried on relatively thin steel stringers that zig-zag along the steps' path, dispelling any normal sense of structural geometry. The moment forces at bends in the stringer would be great but are easily supported by the monolithic steel-plate construction. The same strategy allows landings to dramatically cantilever beyond the rods' attachment points while remaining thin and appearing weightless.



Grundtvig's Kirke

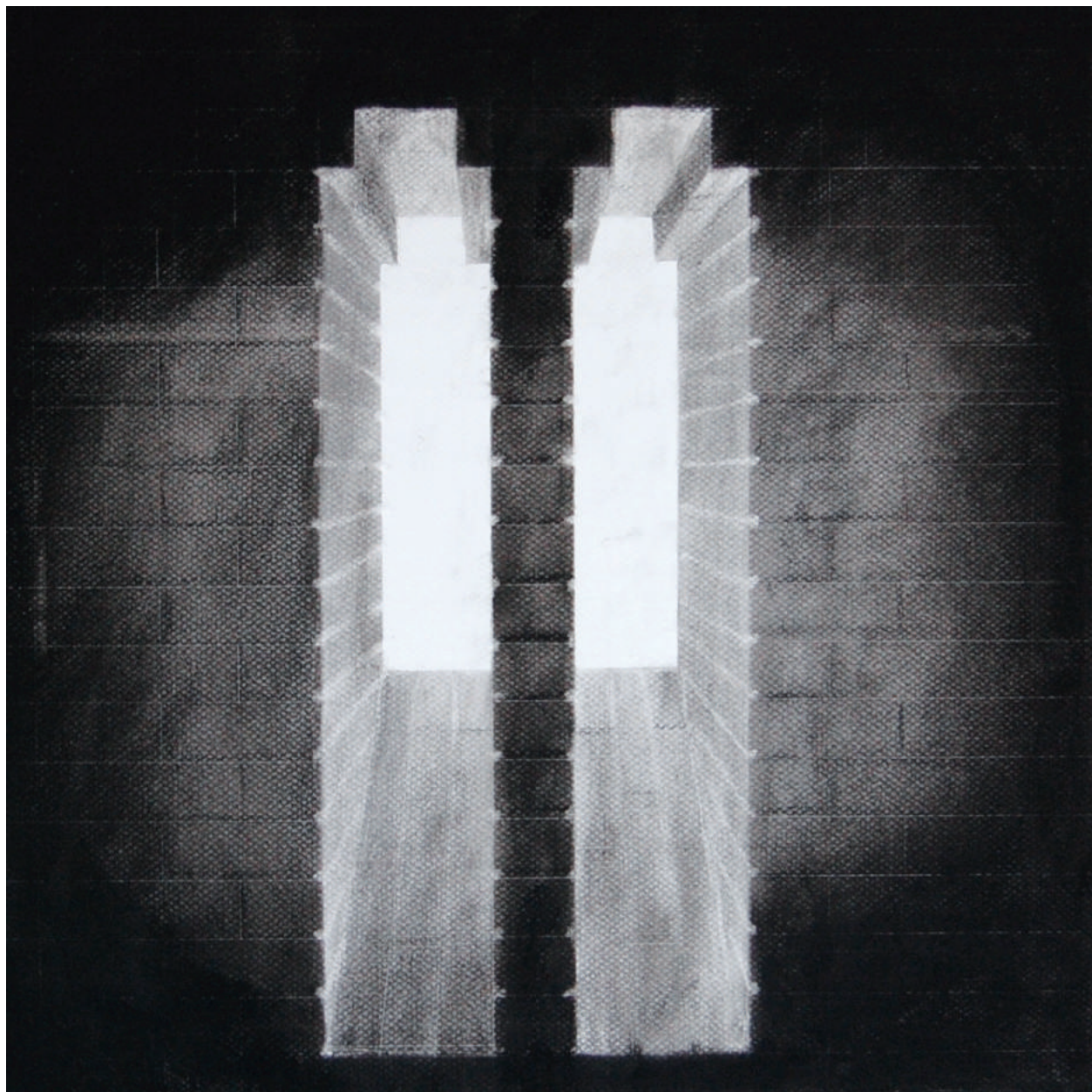
Peder Vilhelm Jensen-Klint

Grundtvig's Church by the early 20th century expressionist architect Peder Villhelm Jensen-Klint is a full two architectural generations behind the other examples, and in a certain way it's understanding and expression of phenomenal architecture reflects this. Its basic form is that of a two-aisle latin cross church, owing nearly everything about its layout and structure to the weightly early gothic and its 19th century imitators. Clearly present in the material an phenomenal design of the sanctuary space, however, are deeply modern concerns. The entire building is of the same cream-yellow brick from the vaults to the floors. Its surfaces are entirely stripped of decoration and applied color, finding expression instead in the muscular forms produced by load-bearing brick piers and walls. Likewise, light is not played with as the medieval and Pre-Raphaelite stained glass makers would advocate, but played up – allowed to be natural, white, but shaped by the mass through which it enters the space and by the surfaces it falls upon.

Standing before the great wooden doors of the church, one feels its tremendous mass – engaged buttresses, deep recesses, great towers – and its tremendous energy – a thrusting upwards and inwards. The portals, first as they push into the narthex and then as they redouble their pressure into the sanctuary, seem forced forward, towards the altar, each succeeding threshold erupting into the next space in a tremendous show of living mass.

Once in the nave of the sanctuary, the same force proceeds upwards; vaults spring from oak-thick brick piers and erupt 150 feet into the air. The great mass and great energy combine to give the impression of tremendous power, perhaps frozen or charting its inward and upward course at a speed best measured in lifetimes.

Playing counterpoint to this exuberant mass is the delicate natural light that creeps in through high windows from the north, south and east. It washes across



the creamy vaults smoothly. Down the nave, the highest vaults are only lit from the apse and so remain in a powdery dusk which grows darker as it moves westward, the placid, muted light decaying gradually with each new bay. The impression of this brilliant-then-receding effulgence from the dim, low narthex beyond the heavy western doors is of looking forward into the gleaming gates of heaven.

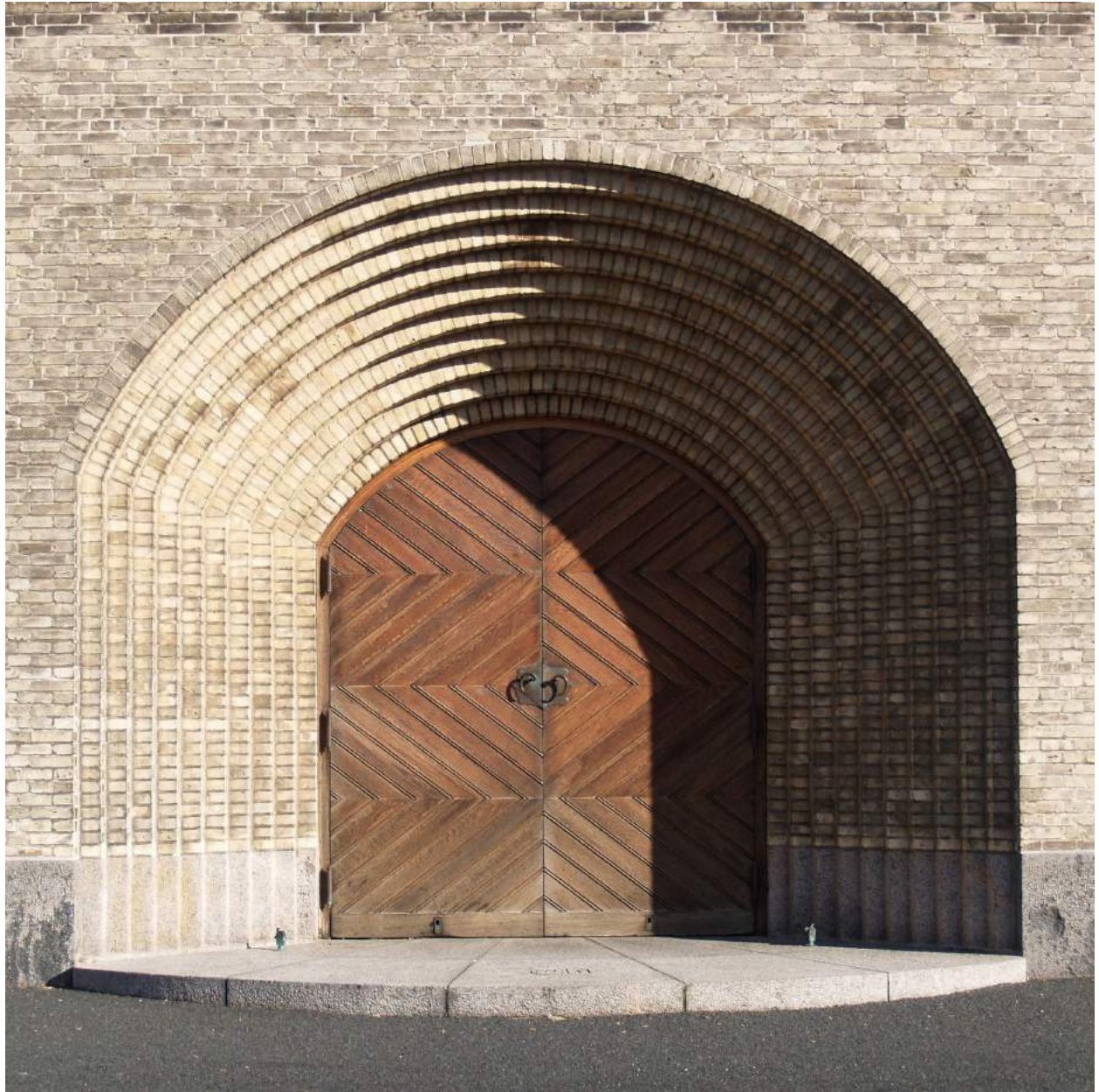
Despite their parallel beauties, the two, mass and light, do not yet dance as gracefully as they would come to in the later projects. The mass has a life to itself apart from any intercession by the light, and the light in turn depends more upon the volume than the material for expression. Still, the distinct living silence is present. Grundtvig's church inspires the same reflective awe as its grandchildren. Already it turns inside, blocking out all but the sunshine and casting visitors into a twilight simultaneously pregnant with presence and devoid of any named thing; a mirror-space entirely other which paradoxically turns all minds out to the world even as it envelops the flesh within its own.

Inasmuch as Jacobsen's Nationalbank takes advantage of contemporary

technology to create an apparently weighty space out of the thinnest, lightest material, Grundtvig's Church is exactly what it appears to be. Jensen-Klint had the church and its surrounding housing district built entirely of load-bearing brick. All bricks he felt too imperfect for the church itself went into the construction of its neighbors. When visitors feel the sheer mass of the sanctuary's piers, that it precisely what they see – well over a meter-and-a-half square of brick and mortar rising all the way up through the structural masonry vaults.

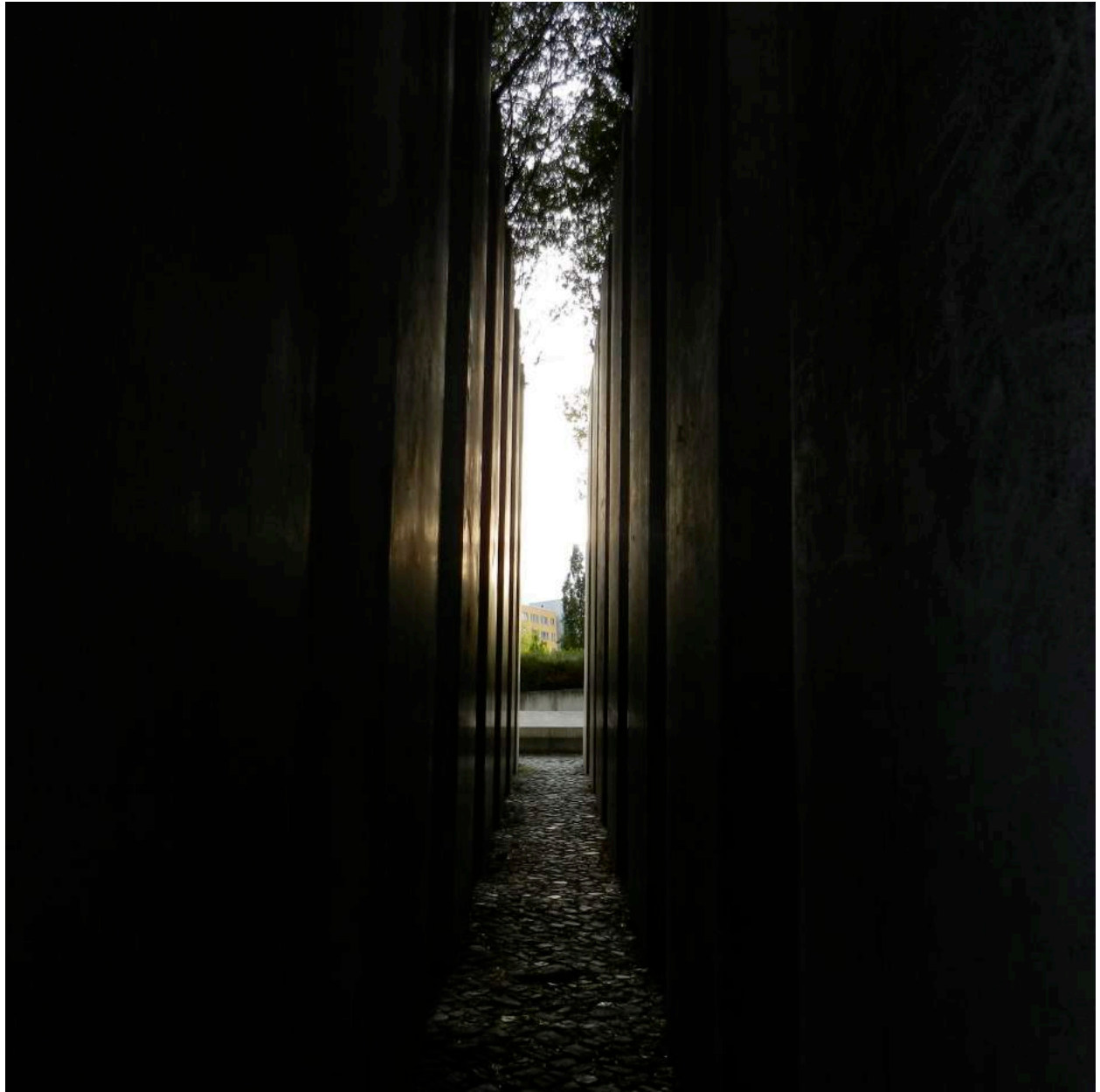
Jensen-Klint used this proliferation of brick as a means of creating energy and difference across the church, inside and out. Working on site with the masons, he developed a number of bonds beyond the standard structural sets that convey life and movement in their patterning. Furthermore, he took advantage of brick's natural propensity to corbel off of itself to create surging, waving forms that may owe something to his contemporaries in the Netherlands, Michel DeKlerk and Piet Kramer.

Blessed with an overabundance of mass, Jensen-Klint's efforts seem to have gone into lightening the space. He opens up



large windows in each bay of the sanctuary, taking advantage of improvements in glass technology to create a much brighter, cleaner space than was possible at the height of the gothic revival. He played up the relationship of this clean light with the brick as a surface, allowing its light color and obscuring porosity to at first draw the light in and then cause its dramatic, powdery decay.

Great drum-shaped electric chandeliers contribute a twinkling star-like element to the vaults. This serves, as it would in later Nordic churches, not as a major source of illumination but as a counterpoint to the washy darkness-natural light balance, forming points in space that contribute to the nave's overall feeling of weightlessness and height. Wood, carefully applied in the form of doors, hymn boards and the caned chairs designed by Jensen-Klint's designer son, Kaare, further counter the weight of the brick. Throughout, the balance is maintained by careful consideration of each architectural situation on site and a general regard for craft – a sentiment if not process that each of the five projects shares.



Decay, Diminution, Subtraction and Absence

Specter, spectral, spectrum. All of these concepts embody the tension of simultaneous opposites. The light that creeps slowly into the vaults of Grundvig's church, that pours down the bricks of Islev decays ever further into darkness. At the same time, the darkness presses forward from the black, ever to be overcome by greater and greater light. They form a continuum that terminates in oppositions. Each is, in its own way present and absent. As one comes into focus the other recedes.

In the same way, mass dissolves to surface, texture to material. These five spaces are ghost-like: at once evoking a presence and an absence. Just as one is overcome with the first, the second emerges, only to return again. In this mode those spaces most obviously given to presence, like churches, do not feel so very different from the purposefully voided: memorials, burial grounds.

Just as mass, light, silence is an additive

architecture, it is equally a subtractive one. Often there is a sense that mass has been hollowed out, spaces carved for bodies, for light, for silence. Often agglomerations of brick or stone or concrete block take on a wholly monolithic nature, not built up but pre-existing, cut by human presence into a habitable place. These oscillations, these contradictions define the unique experience that each of these projects offers.

As opposites rub together they do not rub each other out but substantiate one another's being. The master architects who have learned to control these phenomena know that one must often reach for precisely the opposite tool from the one logic demands in order to develop a feeling. Nothing makes a space feel brighter than the persistent presence of darkness beside light. Nothing makes it feel heavier than apparent levity. Sometimes, the emptiest rooms brim with life because they are empty.



Jewish Museum, Berlin

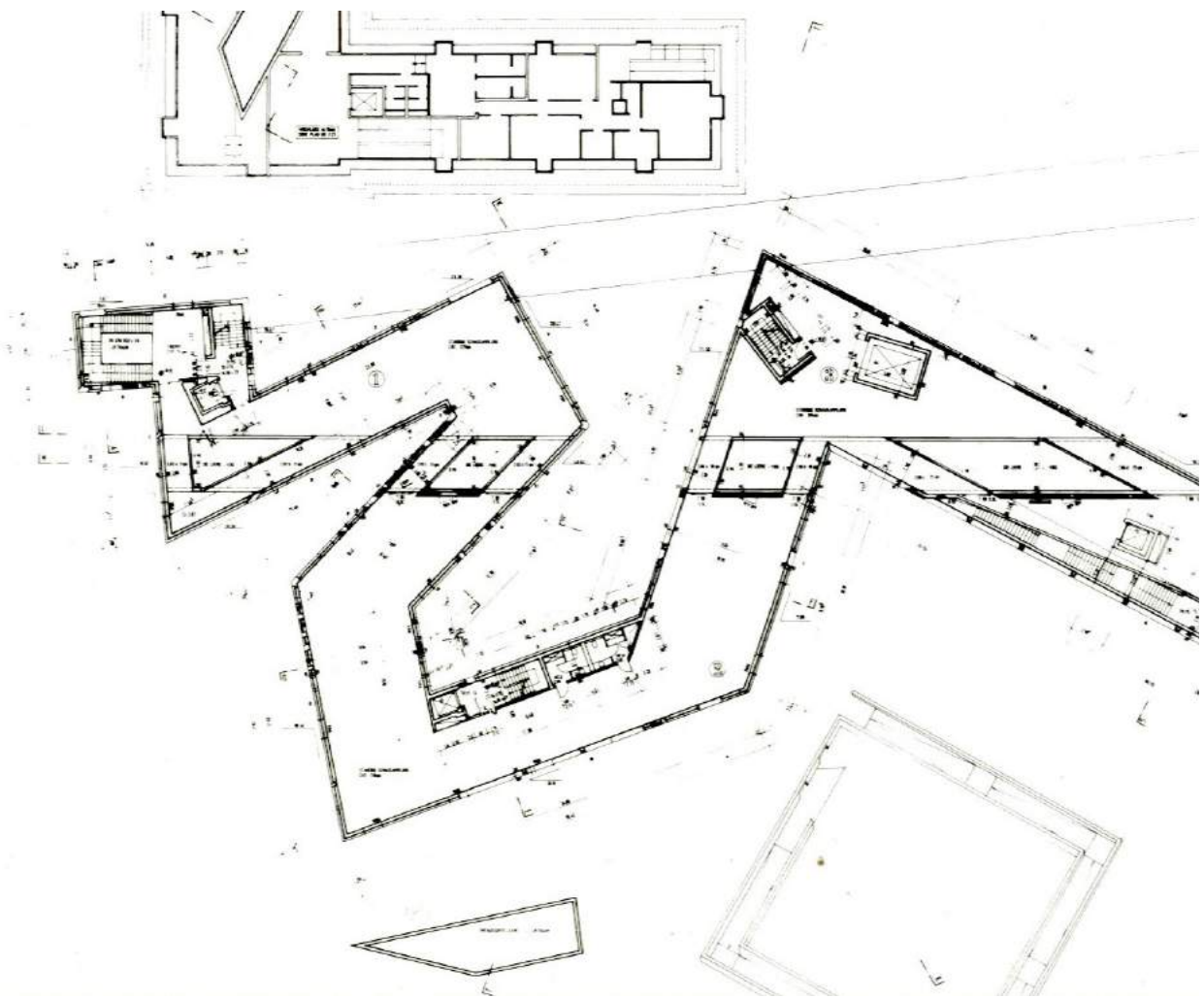
Daniel Libeskind

Architect Daniel Libeskind has described the towering concrete spaces that punctuate his first Jewish Museum as voids; empty spaces representing the millions of Jews lost to the world in the Holocaust. Though none of them are physically interred here, their presence is invoked in Libeskind's thinking as much as their absence.

In the first of the spaces visitors are closed in by a heavy steel door. The only light that enters the space comes from a small opening in a severely acute angle near the ceiling. Well above one's reach, perhaps halfway up the narrow, five or six story void is a steel ladder – an impossible route to freedom. In the winter the room is extremely cold; in the summer it is warm and muggy. The space is meant to recreate, phenomenally, some fraction of the experience of those locked away in the concentration camps of Nazi Germany. One feels alone and small in a large space. One feels the presence of many through their experiences reconstituted.

In a second void, light pours down smooth grey walls, catching formwork joints and disappearing into blackness at deep lateral cuts, apparently additional floors to themselves, though inaccessible. Looking up, the opening that admits the light it is blinding. By the time it reaches the void's bottom, it has all but disappeared. Across the floor a sea of steel disks cut through with agonized faces clink and clank as visitors walk through. The installation is called *Fallen Leaves*, by Israeli artist Menashe Kadishman. It evokes the lives lost and the horror of their final days, weeks, months, mimicking the screams of thousands underfoot. The clamor fills the high, echoey space creating, not loudness but a persistent presence. Even without sight, the sounds reinforce the cold volume of the space. Just as one can see the light fade away as it descends, so, too the sound, the cries of the steel countenances dissipates before it can reach the top. Between them, one becomes acutely aware of silence.







The surfaces are all cold and smooth, grey and cracked like the columns of Bagsvaerd. Small openings and form-tie holes along the walls high above punctuate blackness into the white light. Through the openings, other visitors look back down into the voids as they move through other exhibitions throughout the building. Each empty space continually repunctuates visitors long journey through the galleries even as their presence punctuates it. The voids are a continuous presence marking a continuous absence. They, which ostensibly display nothing, are the centerpieces of the collection. Among the hundreds of voices the museum brings to light, theirs are loudest in their darkened silence.

As Libeskind's voids are the simplest atmospheres among the five, so too are they the simplest constructions. Each is solid concrete, cast in place. Skylights on the building's flat roof admit light straight down into the spaces, parallel to the smooth concrete surfaces. The floors are of concrete, with the one covered in weathering steel disks. The first void stands outside of the mass of the building as a tower, but it is built in the same manner.

The construction mastery at work in these spaces is related primarily to an

understanding of material. The concrete is all that there is, and so it is handled carefully. Its surface is glassy but matte. Hairline cracks propagate across the surface. Perfectly spaced form-panels, two ranks per floor, leave crisp rhythmic tie-holes and rough joint protrusions which interact dramatically with the top light. Cuts back into the density of the material further a sense of mass. The hard, smooth surfaces, together with the height of the volumes lend a gargantuan silence to their atmosphere, even through the din of the steel faces. While not the most compelling of the set, the Jewish Museum most simply succeeds in evoking mass, light, silence through constructed space.



Silence

In all five of these spaces, we experience mass and light and are left with silence. Silence is the unbuilt element of the atmosphere. Mass is placed; light is introduced; silence can only be accommodated.

Unlike the other two, silence is also self-reinforcing. Its quiet presence, itself an absence calls upon visitors to listen. In listening, we find that there is more, even, than what we initially sensed about the space. Silence, more than any other stimulus activates our senses. We are left searching for something in the still.

Perhaps, then, these spaces are no more powerful than others; it is only that they make us notice them. These rooms are self-reflective, and make us mirrors unto ourselves, as well. Only in this state of mind to we begin to understand them and our relationship to them. Only then to we begin to appreciate the tensions that instill them with power and allow them to move us

beyond words, further into silence.

These five architects have succeeded in creating spaces that move beyond their measure as functional objects and past artistic considerations of the beauty of things. They have created slow spaces that allow us to pause and reflect on the raw experience of being present in the world, and they have done so with the very materials and processes that we cease to see.

There are other projects like these, some which fit the type and many others that relate. By looking at the design strategies that produce them, we may one day be able to contribute to their number ourselves. Laying them beside one another, we have isolated the roles of singularity and multitude, addition and subtraction, presence and absence. We have seen the recurring role of expressed materiality and of the materialization of the abstract. We have begun to fill our tool belt; now we are left to bring hammer to stone and see what

Many Thanks are Due to:

Professors Mark Cottle, Jude LeBlanc,
Richard Dagenhart and Michael Gamble
for leading our trip, inspiring my work
and directing my thoughts.

Professors Leigh Johnson and Kyle Grady
for for introducing me to Phenomenology
and thereby shaping my design outlook.

Will Ramholdt, Jeremy Nash and Kai Liao
for putting up with me and my three
pairs of clothes for ten weeks.

Juliana Lynch for being ever graceful,
ever giving and ever patient.

Source Material was Drawn from:

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