







## **Architecture and Psychiatry**

## Consensus, Evidence-Based & Sociopetal Design

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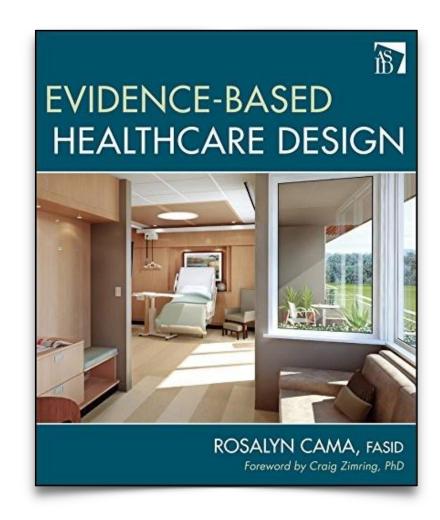
Jason Danziger Architect BDA

thinkbuild architecture / Berlin <a href="https://www.thinkbuild.com">www.thinkbuild.com</a> <a href="https://www.psychraum.de">www.psychraum.de</a>

### **Evidence-based design**

### The four components of Evidence-based Design:

- Gathering qualitative and quantitative information
- Establish strategic, cultural, and research goals
- Hypothesize outcomes, develop innovations, and implement translational design
- Measure and share results





## View Through a Window May Influence Recovery from Surgery

Abstract. Records on recovery after cholecystectomy of patients in a suburban Pennsylvania hospital between 1972 and 1981 were examined to determine whether assignment to a room with a window view of a natural setting might have restorative influences. Twenty-three surgical patients assigned to rooms with windows looking out on a natural scene had shorter postoperative hospital stays, received fewer negative evaluative comments in nurses' notes, and took fewer potent analgesics than 23 matched patients in similar rooms with windows facing a brick building wall.

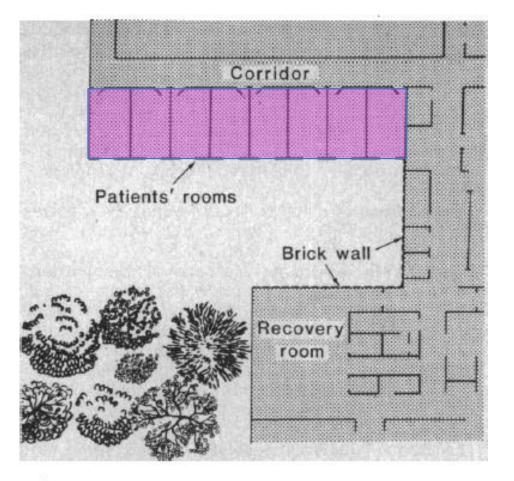


Fig. 1. Plan of the second floor of the study hospital showing the trees versus wall window views of patients. Data were also collected for patients assigned to third-floor rooms. One room on each floor was excluded because portions of both the trees and wall were visible from the windows. Architectural dimensions are not precisely to scale.





Journal of Affective Disorders 40 (1996) 49-51

### Research report

## Sunny hospital rooms expedite recovery from severe and refractory depressions

Kathleen M Beauchemin, Peter Hays \*

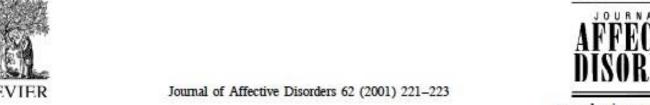
University of Alberta, 1E7.31 Mackenzie Health Sciences Centre 8440-112 Street, Edmonton, Alberta T6G 2B7, Canada Received 25 January 1996; revised 1 February 1996; accepted 4 April 1996

### Abstract

Bright light therapy is an effective treatment for seasonal affective disorder, an uncommon condition marked by mild winter depression. Bright lights have been used as adjuncts in the pharmacological treatment of other types of depressive illness. The rooms in our psychiatric inpatient unit are so placed that half are bright and sunny and the rest are not. Reasoning that some patients were getting light therapy inadvertently, we compared the lengths of stay of depressed patients in sunny rooms with those of patients in dull rooms. Those in sunny rooms had an average stay of 16.9 days compared to 19.5 days for those in dull rooms, a difference of 2.6 days (15%): P < 0.05.

Keywords: Depression; Phototherapy; Cost







### Brief report

### Morning sunlight reduces length of hospitalization in bipolar depression

Francesco Benedetti\*, Cristina Colombo, Barbara Barbini, Euridice Campori, Enrico Smeraldi

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Received 3 June 1999; received in revised form 5 November 1999; accepted 15 January 2000

### Abstract

Background: Bright artificial light improves non-seasonal depression. Preliminary observations suggest that sunlight could share this effect. Methods: Length of hospitalization was recorded for a sample of 415 unipolar and 187 bipolar depressed inpatients, assigned to rooms with eastern (E) or western (W) windows. Results: Bipolar inpatients in E rooms (exposed to direct sunlight in the morning) had a mean 3.67-day shorter hospital stay than patients in W rooms. No effect was found in unipolar inpatients. Conclusions: Natural sunlight can be an underestimated and uncontrolled light therapy for bipolar depression. Limitations: This is a naturalistic retrospective observation, which needs to be confirmed by prospective studies. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Sunlight; Bipolar depression; Hospitalization

|   | Publika-<br>tionsjahr |    |  | Studien-<br>design          | Ergeb-<br>nisse |  |  |  |   |   |     |    |
|---|-----------------------|----|--|-----------------------------|-----------------|--|--|--|---|---|-----|----|
| Kasmar et al. [46]                      | 1968                  |    | Allgemein-<br>psychiatrie                | Instituts-<br>ambulanz      | 115             | unterschiedliche<br>gestaltete Räume<br>(Böden, Tapeten,<br>Beleuchtung) | Stimmung   | KG                                       | +   |   |     |    |
| Higgs [47]                              | 1970                  |    | Allgemein-<br>psychiatrie                | Stationen                   | 125             | neue Stationsum-<br>gebung (keine<br>Detailangaben)                      | BPRS , Verhaltensb<br>obachtungen                      | e- KG                                    | +   |   |     |    |
| Ittelson et al. [48]                    | 1970                  |    | mehrere<br>Kliniken                      | Patienten-<br>zimmer        | n.b.            | geringere Betten-<br>zahl pro Zimmer                                     | Sozialverhalten  | KG                                       | +   |   |     |    |
| 110101111111111111111111111111111111111 | 1972                  | US | Allgemein-                               | Tagesraum                   |                 | unterschiedliche   | Verhaltensbeobac                                       |  | +=  |   |     |    |
| Daffern et al. [58]                     | 2004                  |    | AUS                                      | Forensik                    |                 | Klinik   | n.b.   | Renovierung                              |   | Aggressionsereignis-<br>se                      | PP  | =  |
| Kagan u. Kigli-<br>Shemesh [59]         | 2005                  |    | IL                                       | L Allgemein-<br>psychiatrie |                 | Stationen  |  | Umzug auf neu<br>renovierte Stationen    |   | Angst, Unsicherheit                             | PP  | += |
| Vaaler et al. [60]                      | 2005                  |    | N  | Allgemein-<br>psychiatrie   |                 | Isolations-<br>zonen   |  | Renovierung (wohn-<br>liche Einrichtung) |   | Aggressionsereignis-<br>se                      | KG  | =  |
| Olver et al. [61]                       | 2009 AUS              |    | AUS                                      | Forensik                    |                 | Stationen  |  | Umzug auf neu<br>renovierte Stationen    |   | Psychopathologie,<br>Aggressionsereignis-<br>se | PP  | += |
| Payne u. May [62]                       | 2009 UK               |    | psychiatri-<br>sche Inten-<br>sivstation |                             | Station         |  | Renovierung (Bö-<br>den, Möblierung,<br>Vorhänge etc.) |  | Krankheitstage MA;<br>Aggressionsereignis-<br>se                  | PP  | -+  |    |
| Edgerton et al.<br>[63]                 | 2010                  |    | UK                                       | Allgeme<br>psychiat         |                 | Korridor   | 100  | Renovieru                                | ing   | Behavioral Mapping                              | PP  | += |
| Southard et al.<br>[64]                 | 2010                  |    | US                                       | Akutklin                    | nik             | Stations-<br>empfang   | 81   | offen vs. v                              | verglast  | Stationsatmosphäre<br>(WAS)                     | PP  | =  |
| Long et al. [65]                        | 2011 UK Fore          |    | Forensik                                 | Forensik Stationen          |                 |  | Umzug auf neu reno-<br>vierte Stationen                |  | Stationsatmosphäre<br>(WAS), Psychopatho-<br>logie, Zufriedenheit | PP  | =++ |    |
| Nanda et al. [66]                       | 2011                  |    | US                                       | Allgeme                     |                 | Warteräume   | n.b.   | Kunstinsta                               | allationen  | Bedarfsmedikation                               | KG  | +  |

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| Edgerton et al.<br>[63] | 2010 | UK | Allgemein-<br>psychiatrie | Korridor             | 100  | Renovierung                              | Behavioral Mapping  |     | +=   |
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| Nanda et al. [66]       | 2011 |    | Allgemein-<br>psychiatrie | Warteräume           | n.b. | Kunstinstallationen                      | Be darfs medikation   | KG  | +    |
| Nijman et al. [32]      | 2011 | UK | Allgemein-<br>psychiatrie | Stationen            | n.b. | offene vs. geschlos-<br>sene Stationstür | Entweichungen   | MLA | 1.71 |

Richter D, Hoffmann H. (2014): Architektur und Design psychiatrischer Einrichtungen. **Psychiatr Prax. 41(3):128-34.** 

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## Psychiatric ward design can reduce aggressive behavior $^{\sharp}$



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- t White Arkitekter AB, Sweden

ARTICLE INFO



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### 11. Introduction

Patient aggressive behavior in psychiatric facilities is a serious and worldwide problem that may be increasing (Bowers et al., 2011). Incidents of violence are alarmingly prevalent and cause psychological harm and often physical injury to patients and staff. A review of 122 studies carried out in 11 countries (among others, United States, United Kingdom, Australia, Sweden, Germany, Netherlands) found that 32.4% of patients admitted to psychiatric facilities engaged in aggressive behavior or violence (Bowers et al., 2011). The mean incidence of violent events internationally per 100 patients sampled randomly was 224. Rates are somewhat similar across different countries but vary by type of psychiatric diagnosis and treatment setting (Bowers et al., 2011). Variation also arises from the use of different definitions and measures of aggression and violence in clinical reporting and studies.

Nearly 50% of all aggressive incidents recorded in psychiatric facilities internationally involve physical violence. On average 62% of nurses in different countries indicate they have experienced physical

violence over the course of a year (Bowers et al., 2011). Similarly, a study of psychiatric personnel in Sweden (731 nurses, 320 psychiatrists) found that 57% had been the target of physical violence in the past 12 months (Soares, Laoko, & Nolan, 2000). International data suggest that 37% of violent or aggressive incidents result in physical injury to staff (Bowers et al., 2011), an alarming figure that underscores the seriousness of aggression as a staff as well as patient safety hazard.

Much research in psychiatry to predict and reduce aggressive behavior has focused on patient characteristics (such as diagnosis or history), as well as improvements to staff training and care processes (Daffern & Howells, 2002; Dolan, Fullam, Logan, & Davies, 2008; Forster, Cavness, & Phelps, 1999; Privitera, Weisman, Cerulli, Tu, & Groman, 2005). By contrast, few studies have examined the possible influence of architectural features on outcomes (Papoulias, Csipke, Rose, McKellar, & Wykes, 2014). There is also a lack of reasoned and plausible theory for designing psychiatric facilities to lessen aggression. As a result, best practices for designing psychiatric facilities traditionally have been based on clinical conjecture, anecdote, and experience,

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(http://creativecommons.org/licenses/BY-NC-ND/4,0/).

<sup>\*</sup> Portions of the findings were presented at the conference ARCH 12: Architecture, Research, Care & Health held at Chalmers University, Gothenburg, November 2012 (Ulich et al.,

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## Psychiatric ward design can reduce aggressive behavior<sup>\*</sup>

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- <sup>c</sup> Linköping University, Faculty of Medicine and Health Sciences, 58183, Linköping, Sweden
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### ARTICLE INFO

Handling Editor: Prof. Robert Gifford

Keywords: Aggressive behavior Psychiatric hospital Evidence-based design Psychiatric patients

The article describes a conceptual model proposing that aggression in psychiatric facilities may be reduced by designing the physical environment with ten evidence-grounded stress-reducing features. The model was tested in a newer hospital in Sweden having wards with nine of the ten features. Data on two clinical markers of aggressive behavior, compulsory injections and physical restraints, were compared with data from an older facility (replaced by the newer hospital) that had only one stress-reducing feature. Another hospital with one feature, which did not change during the study period, served as a control. The proportion of patients requiring injections declined (p < 0.0027) in the new hospital compared to the old facility but did not change in the control hospital. Among patients who received injections, the average number of injections declined marginally in the new hospital compared to the old facility, but increased in the control hospital by 19%. The average number of physical restraints (among patients who received at least one) decreased 50% in the new hospital compared to the old. These findings suggest that designing better psychiatric buildings using reasoned theory and the best available evidence can reduce the major patient and staff safety threat posed by aggressive behavior.

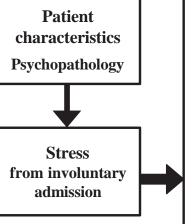
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### Ward with Stress Reducing Design Features

Reduction of crowding stress

- Single patient rooms with private bathrooms
- Communal areas with movable seating and ample space to regulate relationships
- Design for low social density

Reduction of environmental stress

- Noise reducing design
- Design for control in patient rooms

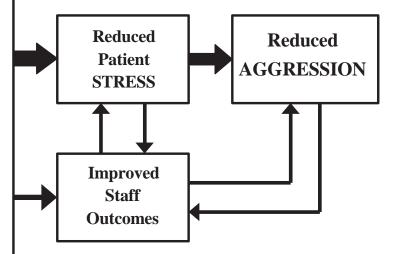
Stress reducing positive distractions

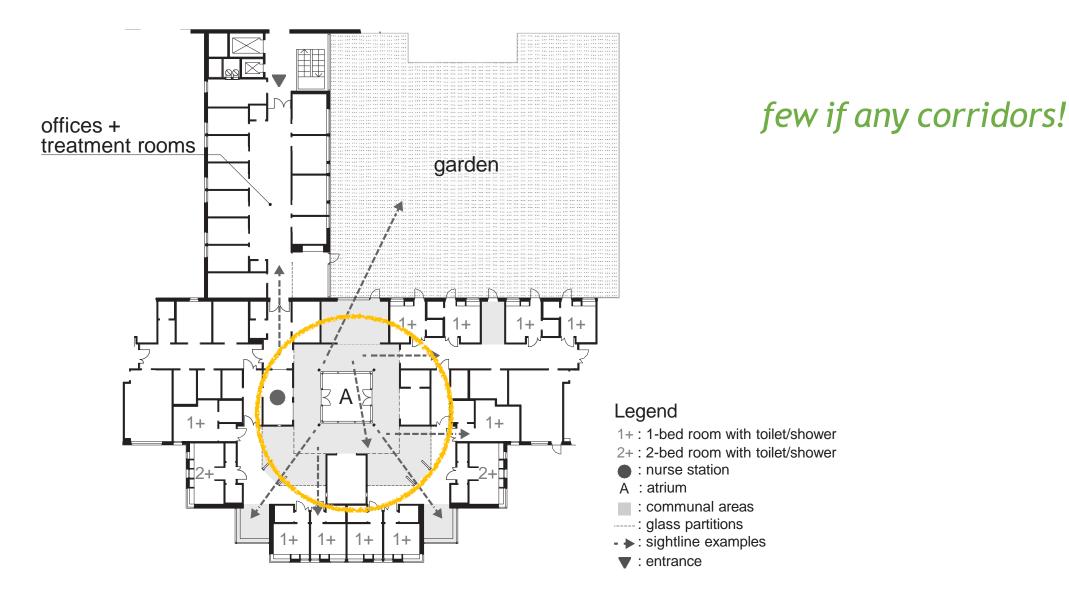
- Garden accessible to patients
- Nature window views
- Nature art
- Daylight exposure

Design for observation

 Communal spaces and bedroom doors observable from central area

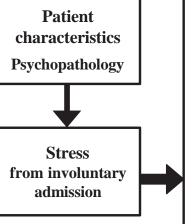
# Conceptual model for designing inpatient psychiatric wards to reduce aggression





## Coral Ward, Luton





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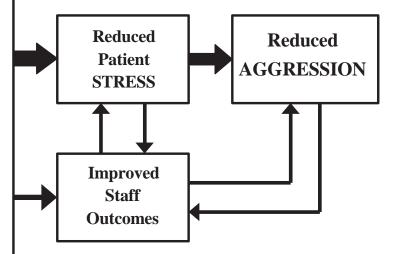
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# Conceptual model for designing inpatient psychiatric wards to reduce aggression



## challenges of the planning process

- users know what they need, but may not be able to imagine what it can look like...
- designers know what they can build, but not necessarily what is needed...

! translation ! or Interpretation? (übersetzungsarbeit!)

- as a result ... what often happens:
  - users are involved too late in the decision-making process = default solutions are repeated ... because: same is safe!
  - users often have to make architectural decisions, and ... planners (unconsciously) make therapeutic decisions.

## Spatial Requirements - "Hard" and "Soft" Factors

Spannungsfeld - "field of tension"?

### "Hard" Factor

...defined by standards, regulations and rules

Hospital Regulations

Building and operational fire safety

Technical regulations for workplaces

Guidelines for hospital hygiene

Barrier-free construction - DIN 18040

Heritage issues (listed buildings)

Requirements for Building in existing structures

### "Soft" Factors

...not (yet?) defined by standards

Atmosphere - φαινόμενο (Phenomenon)

Encouraging social interaction (sociopetal)

Orientation in space

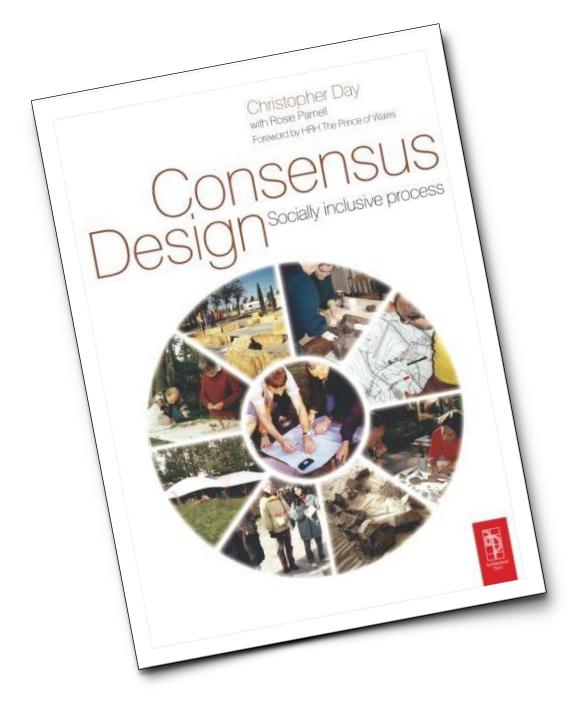
Spatial support for therapeutic processes

Stimulation vs. protection from stimuli

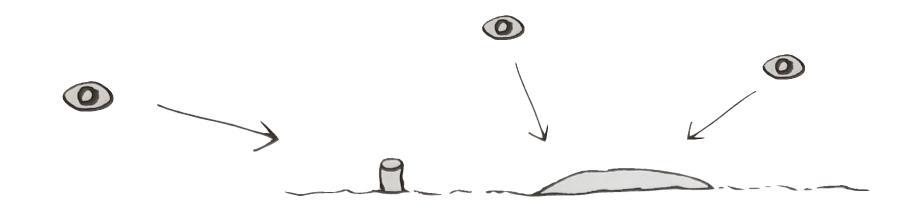
Zoning - privacy vs. community

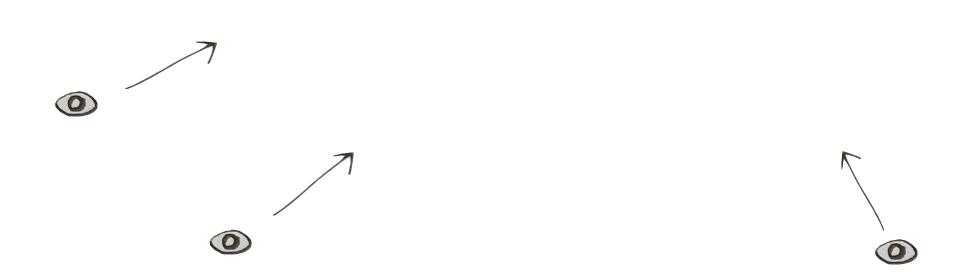
## **Participation & Consensus**

"Phase 0" as a basis for successful interdisciplinary cooperation

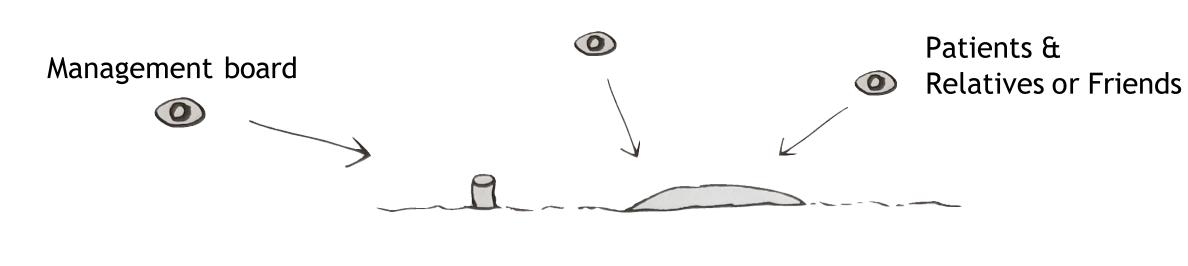








## Doctors / Psychologists Therapists & Nursing Staff



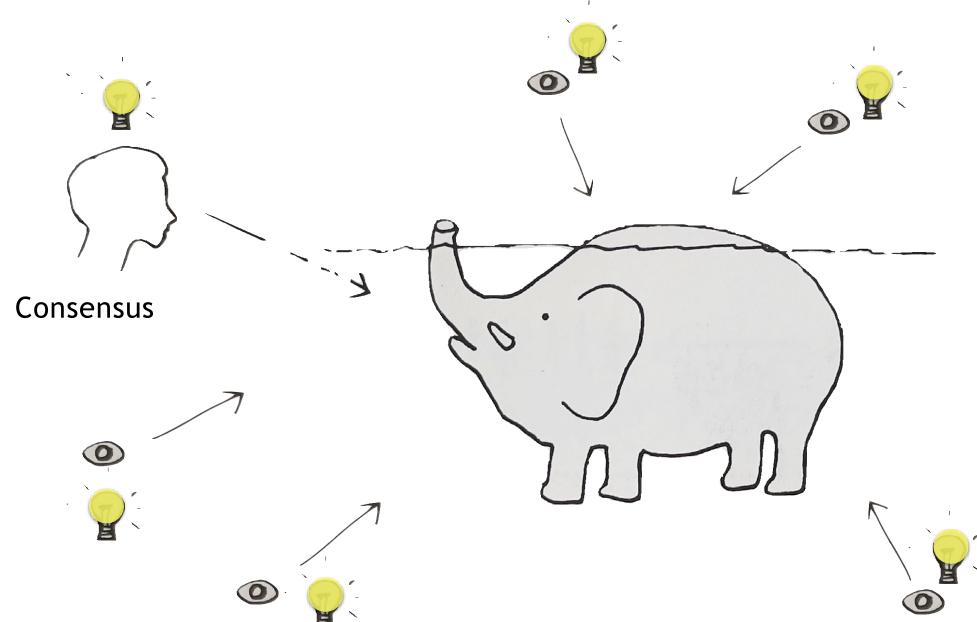


Facility Management





Technical Systems



# uncertainty / patterns / insights clarity / focus design research concept



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### The fuzzy front-end and the forgotten backend: User involvement in later development phases

Frida Almqvist a\*

<sup>a</sup>The Oslo School of Architecture and Design

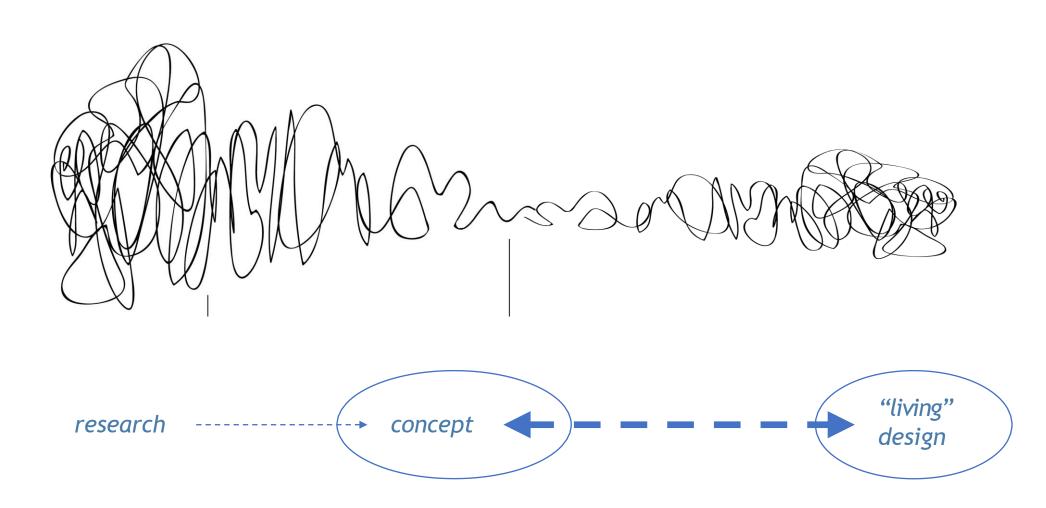
### **Abstract:**

The early design phases, often referred to as the "fuzzy front-end", have been closely examined by scholars and have a tendency to dominate the content of service design handbooks. However, there has been less focus on the back-end of the development process, both in practice and in academia. By combining theoretical perspectives with interviews of five service design practitioners and researchers, and observations of service design projects in healthcare, this work contributes to an initial exploration of the later phases. Findings indicate that service designers often have the deepest user insight knowledge in a team; hence, knowledge is lost when the designer leaves the project. This can make the project drift away from initially identified user needs, here called "user insight drift". Drift can lead to an unintended mismatch between user needs and the service experience, due to decision-making in the later phases with limited consideration of user needs.

<sup>\*</sup>Corresponding author e-mail: <a href="mailto:frida.almqvist@aho.no">frida.almqvist@aho.no</a>

### uncertainty / patterns / insights

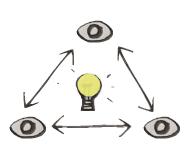
### clarity / focus



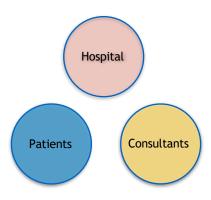
### Principles of the (joint) planning process

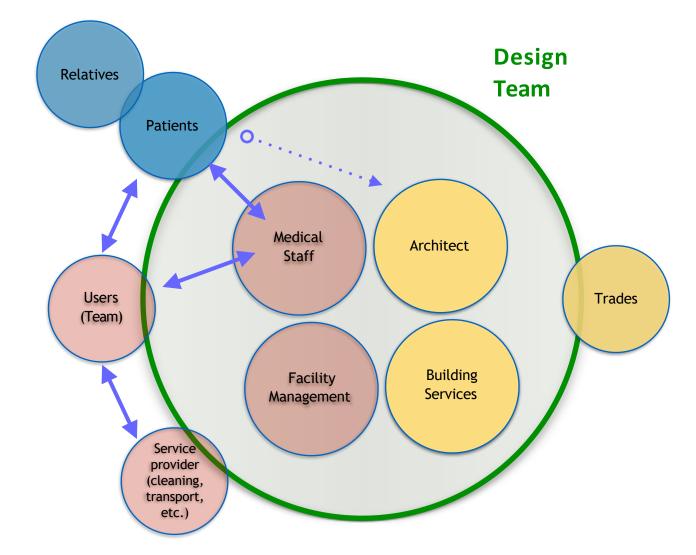
- All stakeholders at the same table FROM THE BEGINNING and throughout the entire planning and construction process.
- Continuous "translation work": clinical / everyday problems must be translated into architectural solutions
- Common language, interdisciplinary exchange
- "Poetry" / "spirit" of the project, "active atmosphere"
- Design as an ongoing process "living design"
- CAVE: in large (new) construction projects, there is a frequent change of decision-makers.
- -> All the more important is the broadest possible consensus!

## Trialog or communication channels ex. renovation of existing buildings



Co-learning





## Introducing the clinical model

## The clinical model / therapeutic concept

- differentiated from a Clinical Strategy
- --> centred on the Service Users themselves and the way services are provided.
- understand and optimise the experience individuals might have in their various interactions with staff of diverse disciplines within the larger service, including
  - Inpatient services
  - Outpatient services
  - Home treatment (crisis intervention teams etc.)
- diagrammatic or schematic understanding of the way and the locations within which services will be provided forward.
- Helps top generate a more efficient Schedule of Accommodations (SoA) for BHV.

### The clinical model can be used to:

...trace the path of a service user in and around the service;

...explain how therapists, nurses, caretakers work together - finding synergies between them;

...clarify or define how different services (inpatient, outpatient, community services etc.) interact;

...guide a developing SoA to ensure a bespoke solution appropriate for the community it serves.

## **Example questions**

### ... on coordination btw service users and staff / different services:

- How do therapists (e.g. occupational therapy, music, arts etc.) operate? On each ward or as part of each team? Centrally located?
- How does the interaction with community services and outpatient dept. work?

### ... on organization of the wards:

- What role do the following criteria currently play in assigning service users to a particular wards?
  - Gender
  - Diagnosis / DSM Criteria
  - (estimated) Duration of stay
  - Address of home (within Bedfordshire)
  - Consultant psychiatrist
  - Previous contact person within the therapeutic staff = is there a "home" lead available for specific Service Users?

+hoopers architects



### inspirations.

"Places are material, but its their spirit that matters to us-and this is include by how, and why, people use them..." - Christopher Day (2003)



light as material (phenomenon)



piazza - community (activated public space) (context and point of





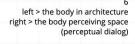


community (activated street)



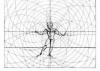
material and body

(architectural dialog)









Maybe we're here only to say: house, bridge, well, gate, jug, olive tree, window, At most, pillar, tower. But to say them, remember, Oh, to say them in a way that the of existing so intensely.

— Rainer Maria Rilke



Sketch, above, Christopher Day









(right) Peter Zumthor, Bruder ausen-Kapelle, echernich/Eifel, Germany,





(right) Louis Kahn, Fisher House, Hatboro,

RED They call me Red.





detail & colour (inhabitation.2)

scale & proportion



Pop" New York: Random



Roof as shelter

(concept)

(left) Arch Studio,





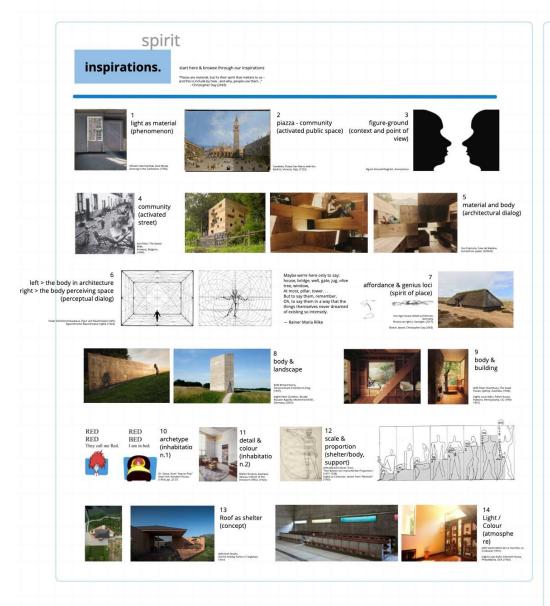




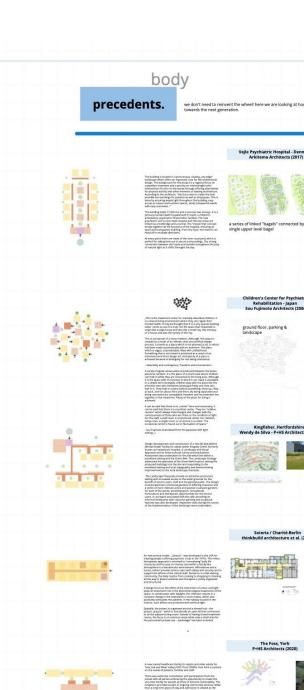


Light / Colour (atmosphere) Tourette, Le Corbusier (1961)

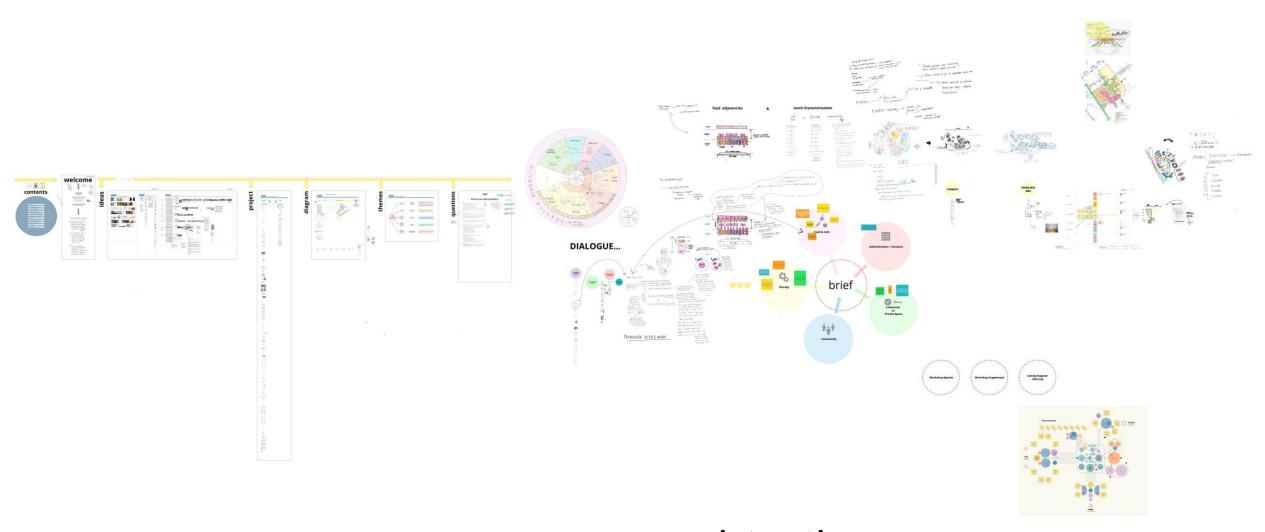
### +hoopers architects



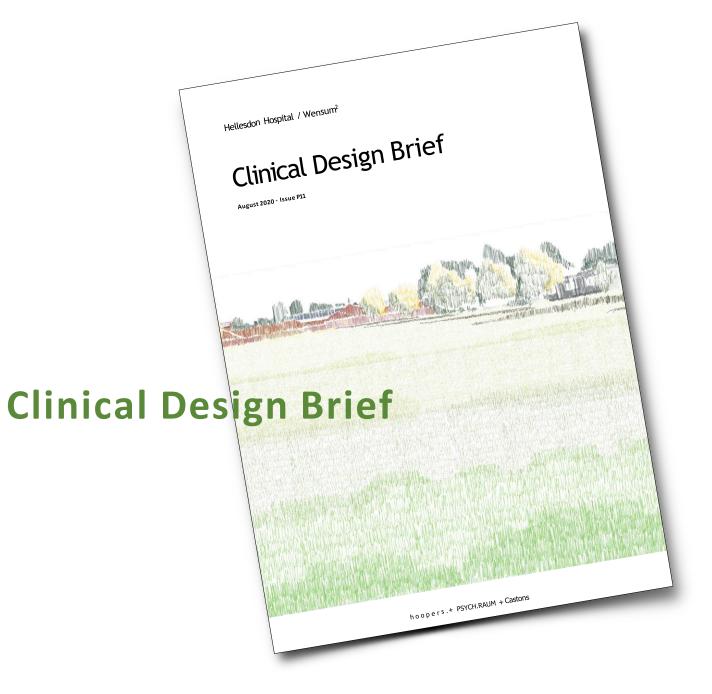




+hoopers architects

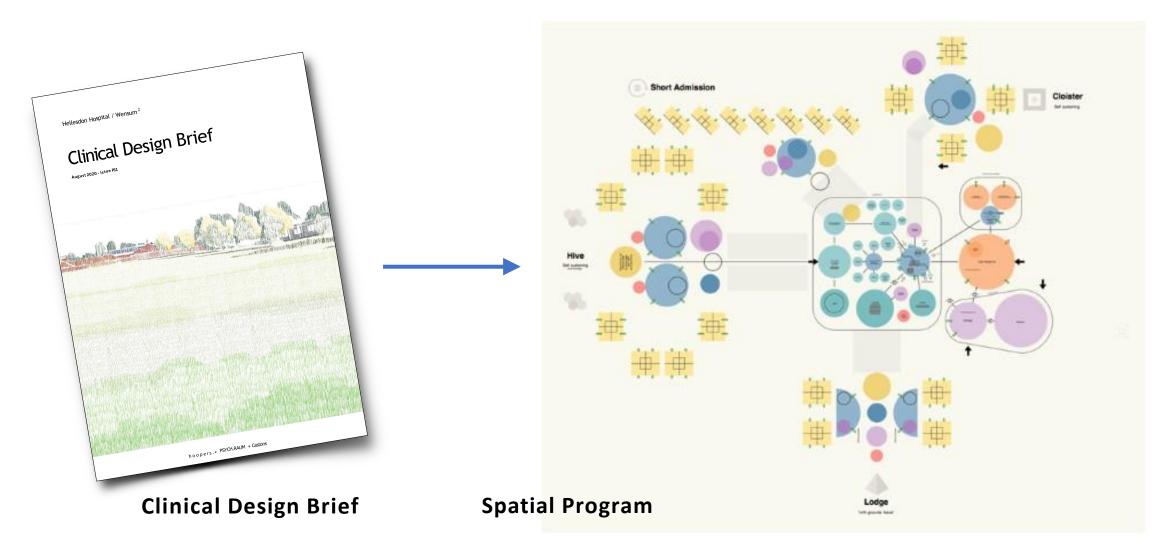


...interative process

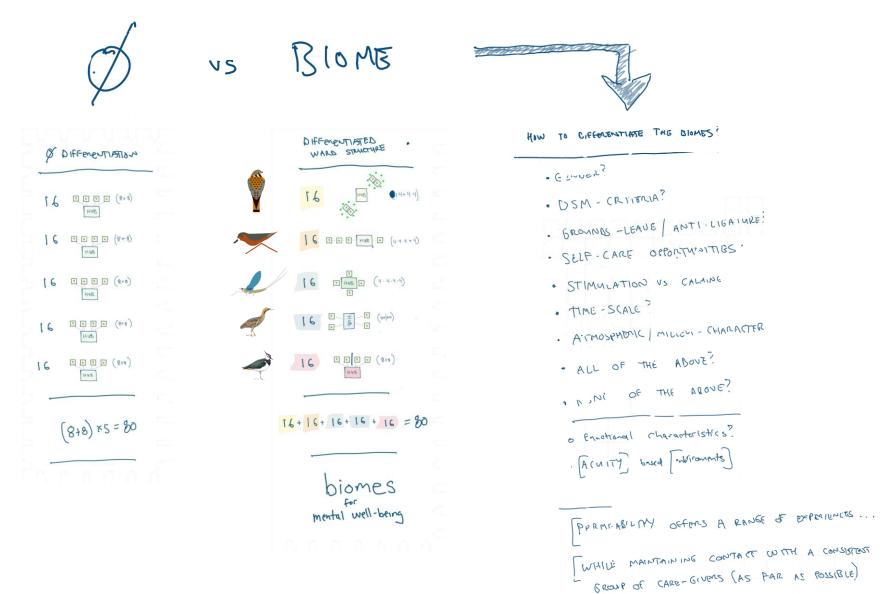




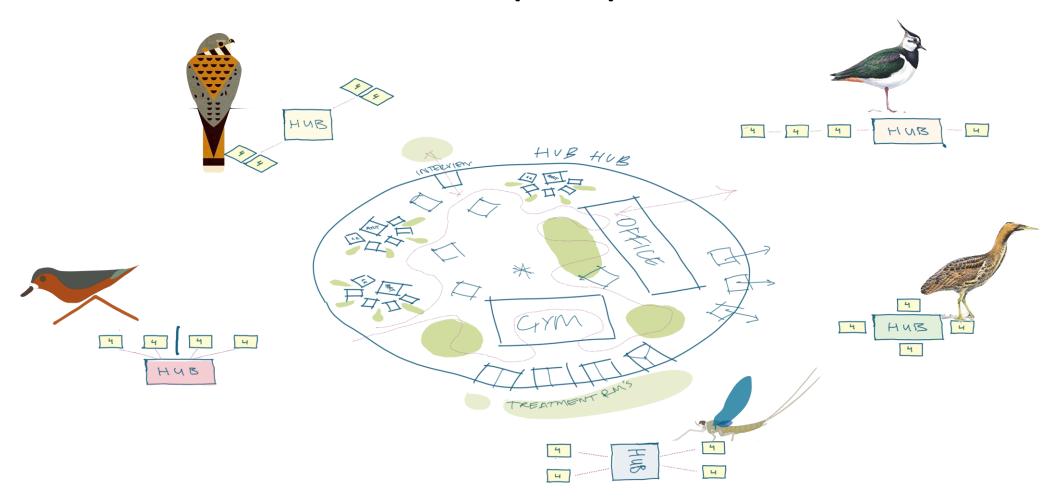
### ...from "Phase 0 " to Spatial Program



## Ward Characterisation - "Stationscharakterisierung"



### Biome (Ward) & Hub

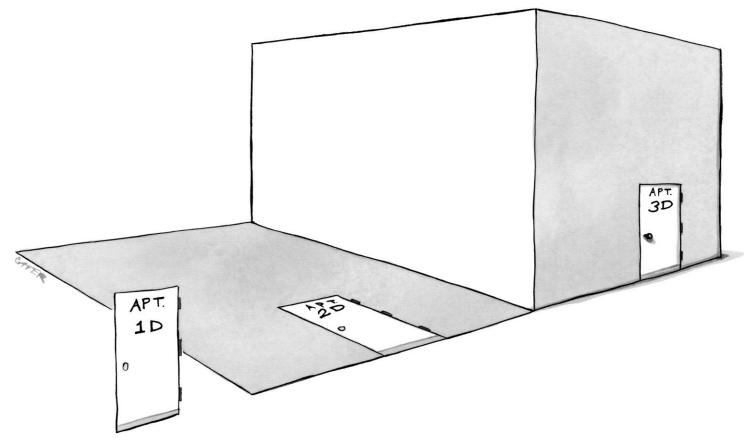


Biomes & Hub-Hub

#### Recommendations for effective interdisciplinary project work:

- Pay equal attention to "hard" and "soft" factors;
- Effective psychiatry projects begin with Phase 0 (concept + clinical design brief); only then does "traditional" needs planning begin;
- Consensus process is **iterative and ongoing**, and extends throughout the design and construction phases as well as during use;
- continuous joint learning in a permanent consensus process;
- sufficient staffing and other resources must be available for this.

# sociopetal design





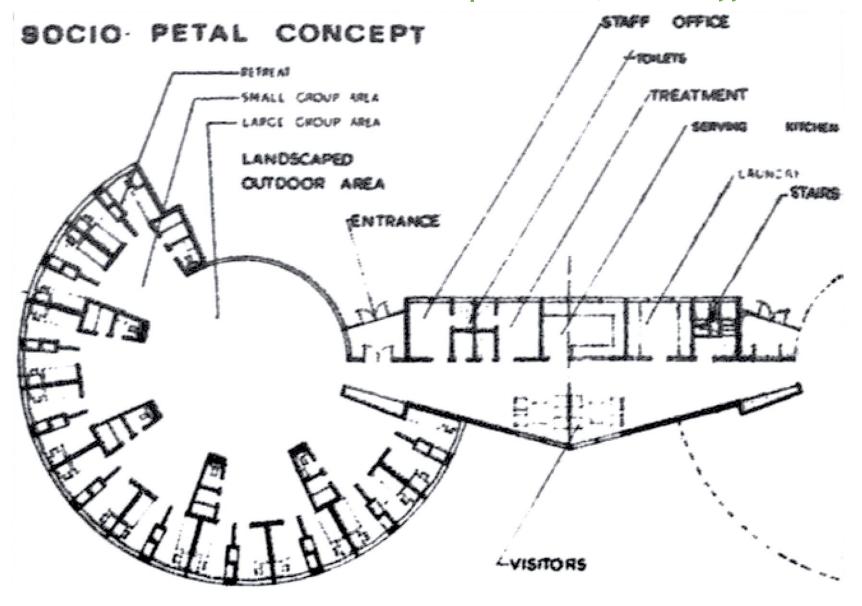
"I saw a crack in the wall and it frightened me. I imagined it was a huge crevice," says Izumi. This is typical of fear suffered by schizophrenics.

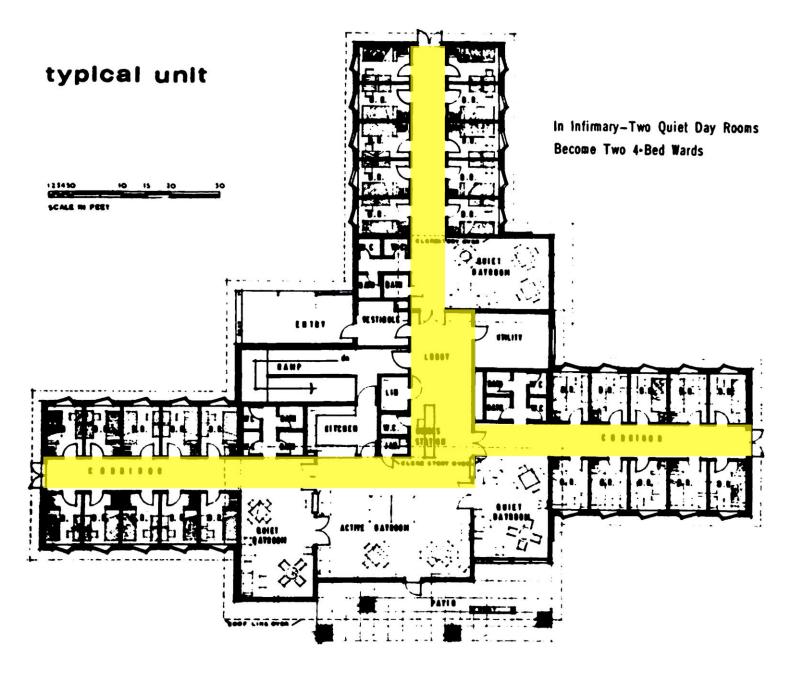
# fostering community

...based on his observations of disculturation within the institution, its main therapeutic function, as aided by its design, needed to rely on creating space that was conducive to social interactions. In other words, the mental hospital required an architectural layout that fostered community.

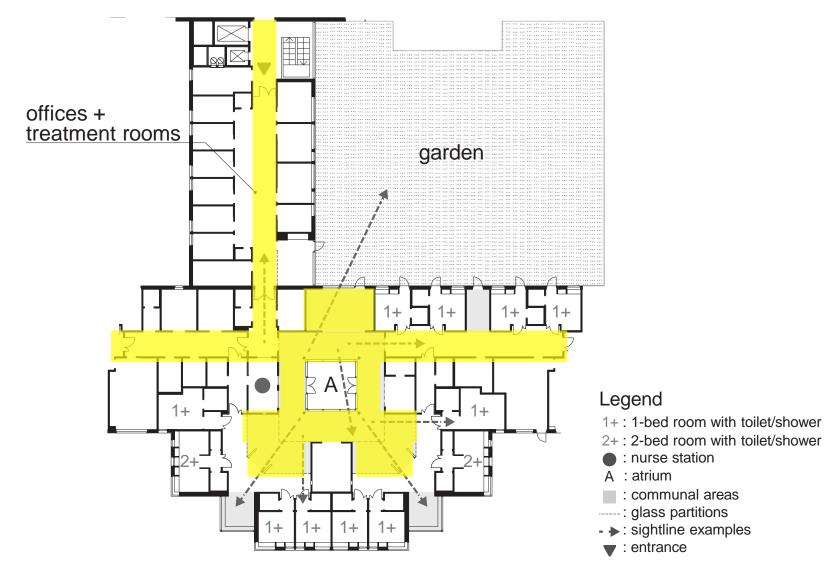
- Erika Dyck, on Izumi's work (2010)

### patients, not staff at the center...





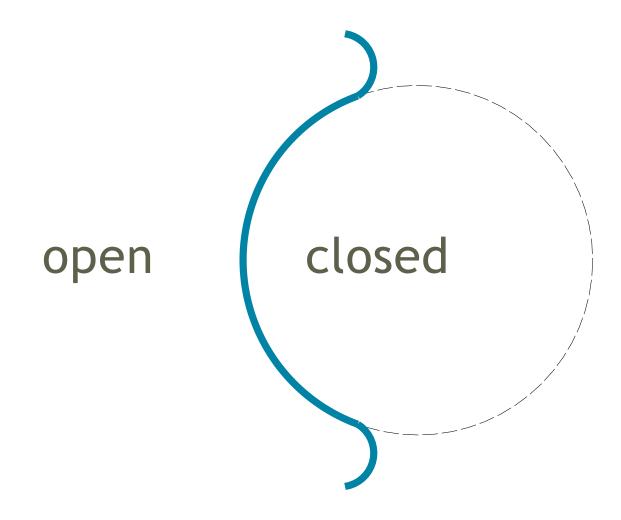
(2018)



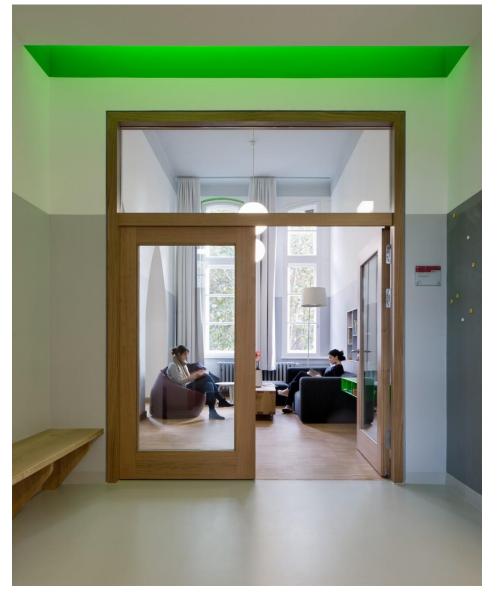
## sociopetal design opportunities

- threshold & atmosphere (activating the in between)
- zoning: public / private & inside / outside
- prospect / refuge
- archetype / affordances
- diversity / repetition (jazz) -> sympathetic vs parasympathetic spaces
- patina & texture = time in space

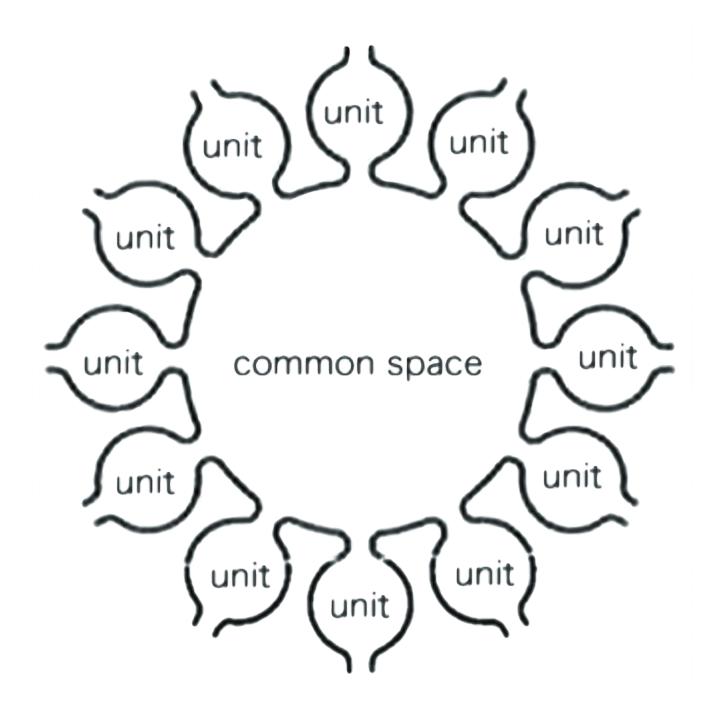


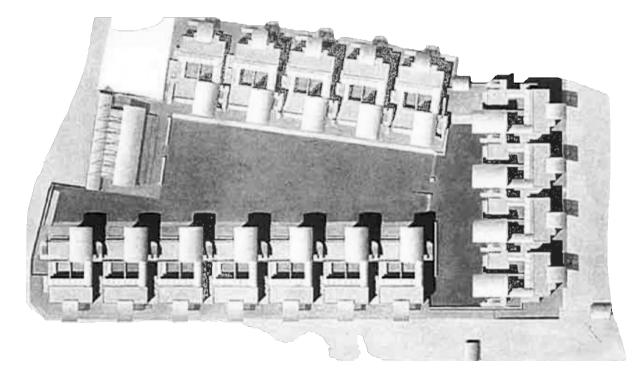


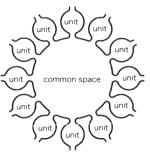
### inhabitation and threshold

















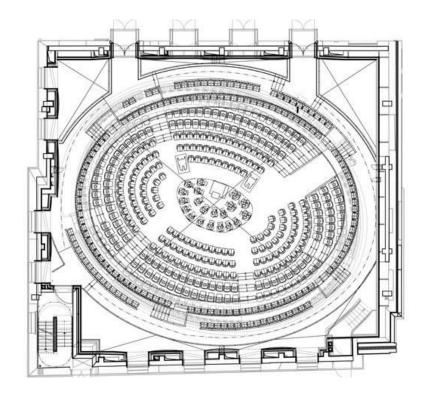
## inspiration



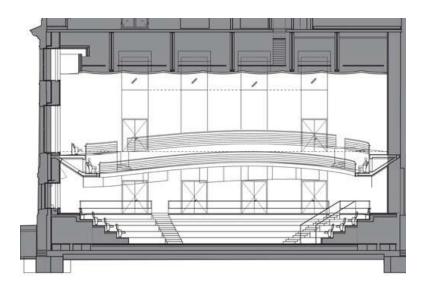


for bould facon fame out/012











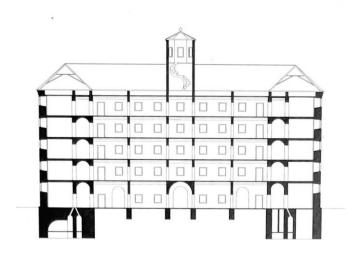


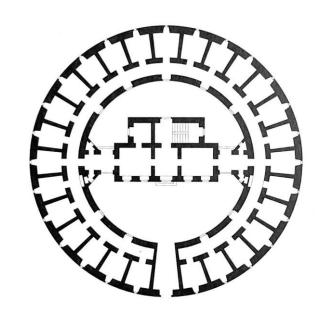


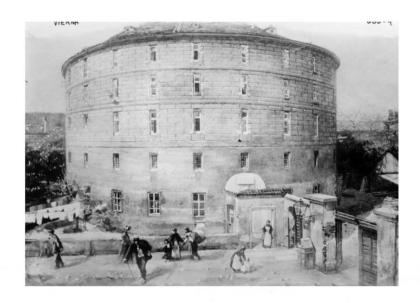


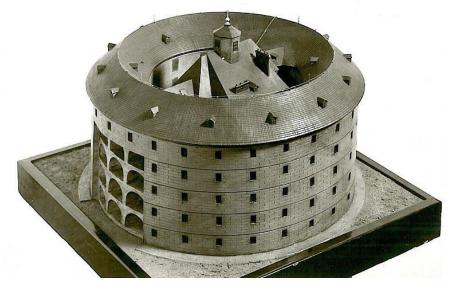
# typology

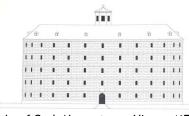
## based on the panopticon & corridor control



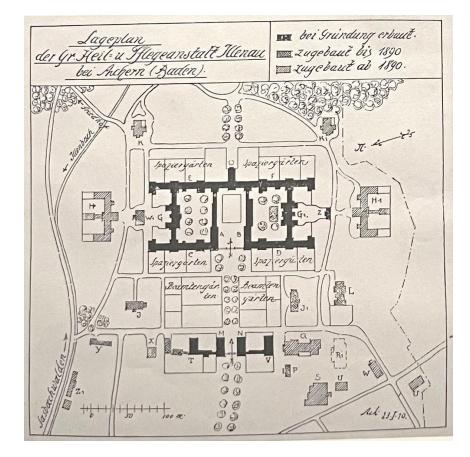


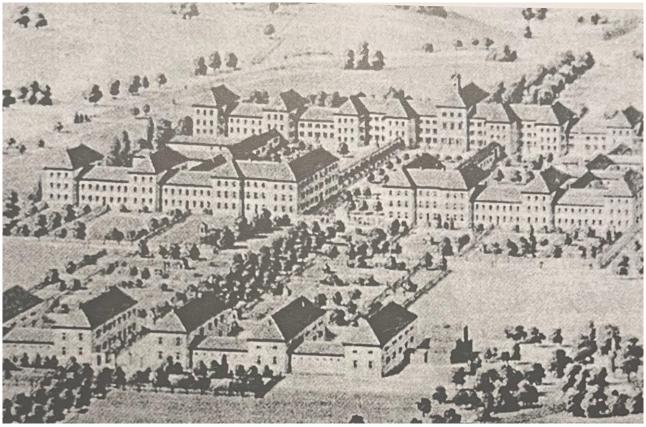


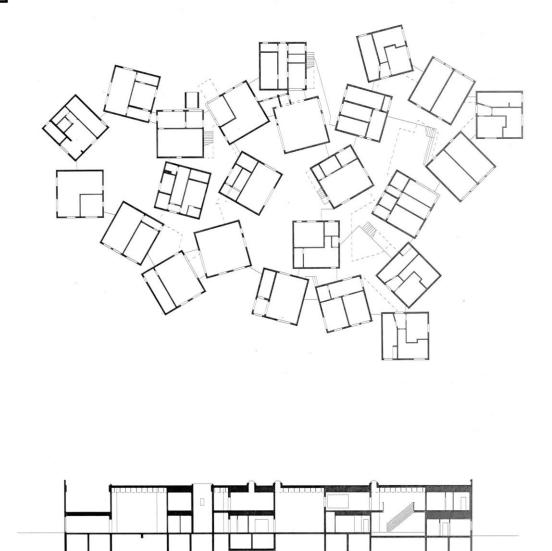




Josef Gerl, Narrenturm, Vienna (1784)

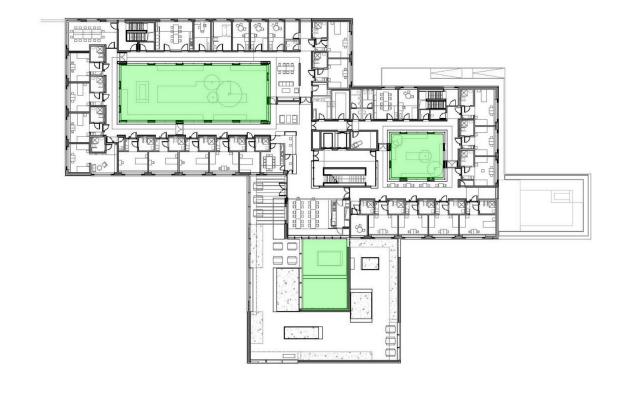








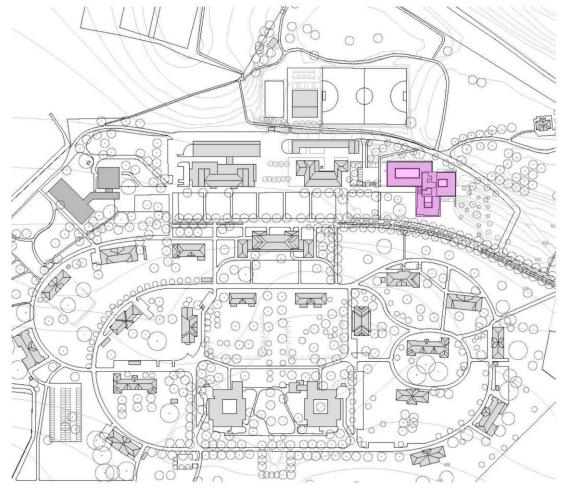














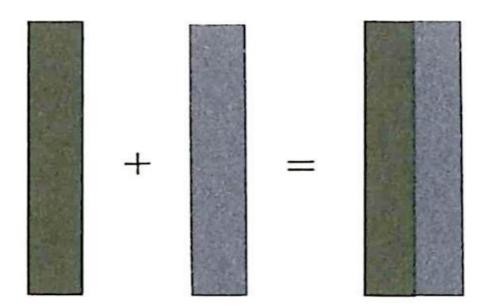




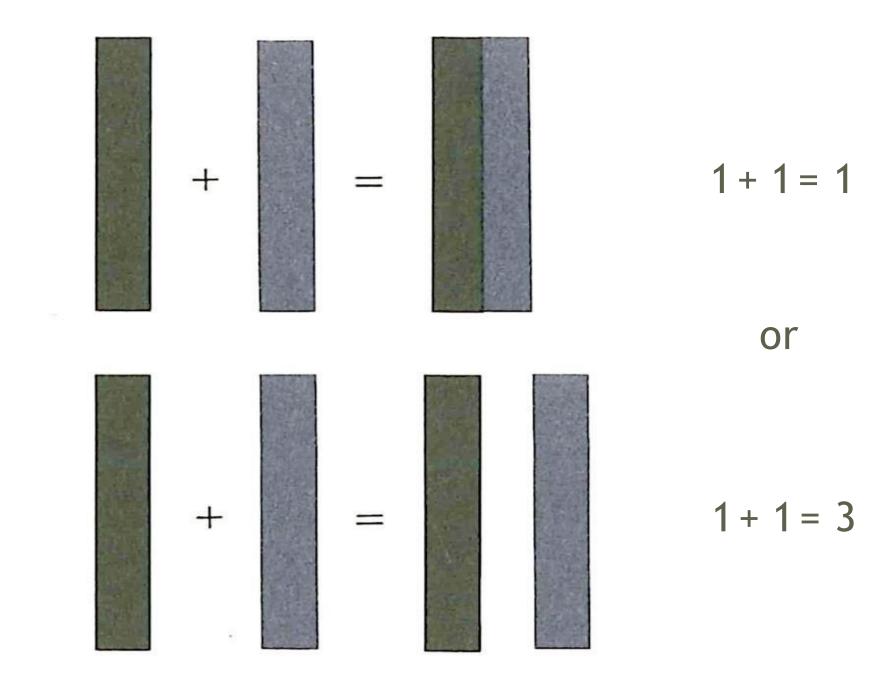


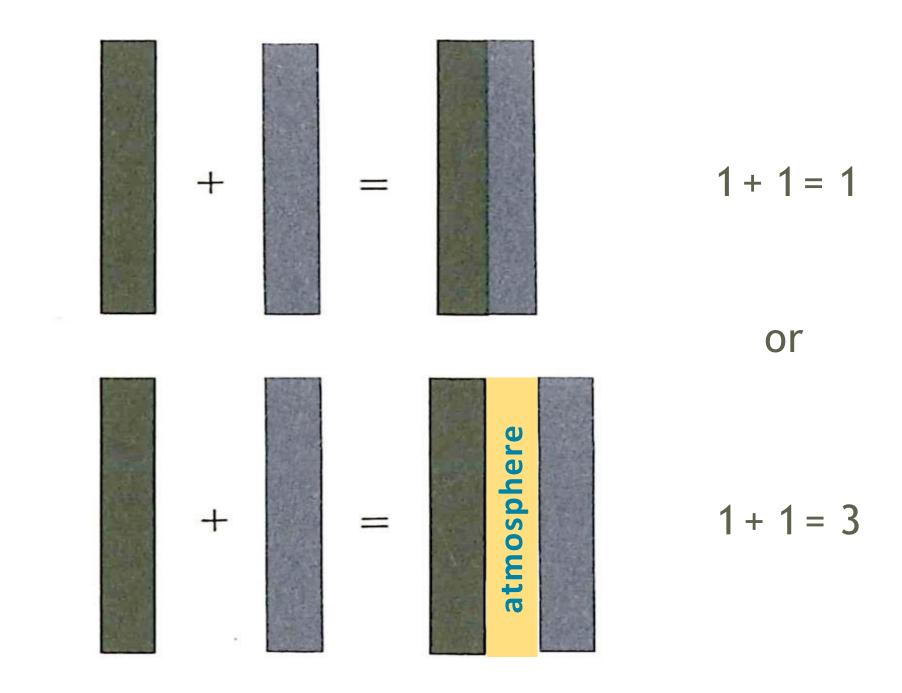


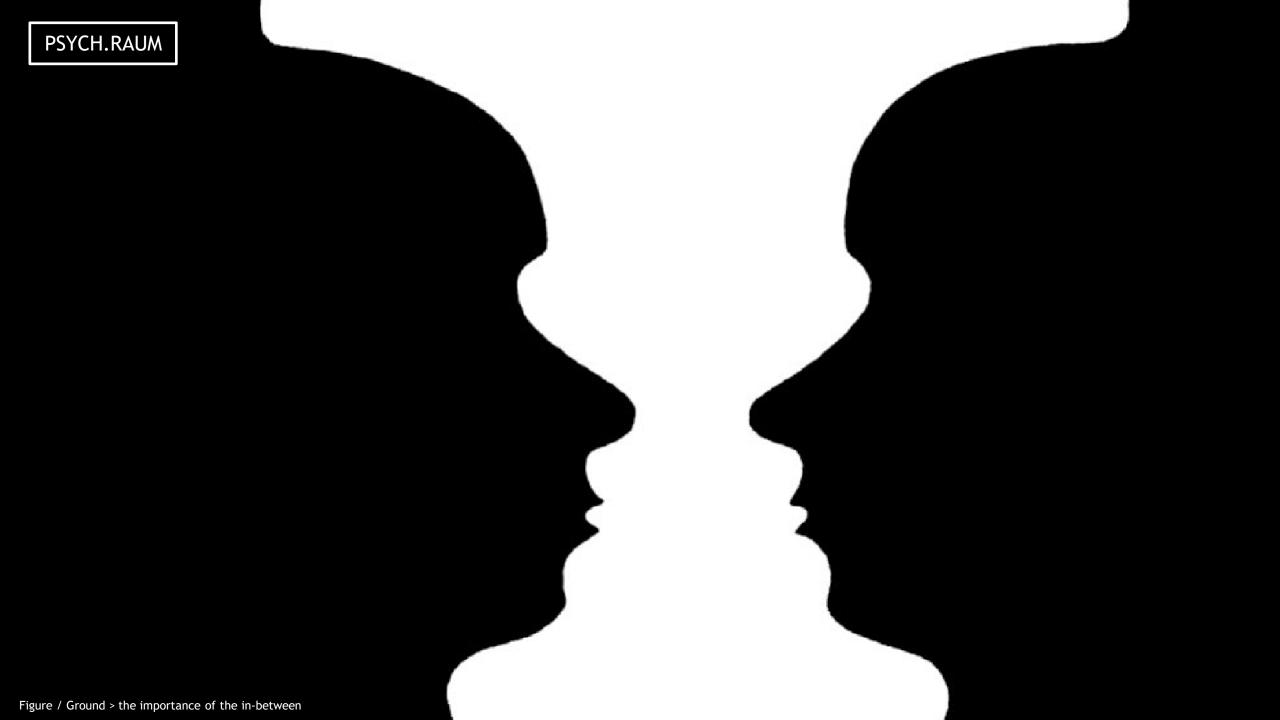
# active atmosphere



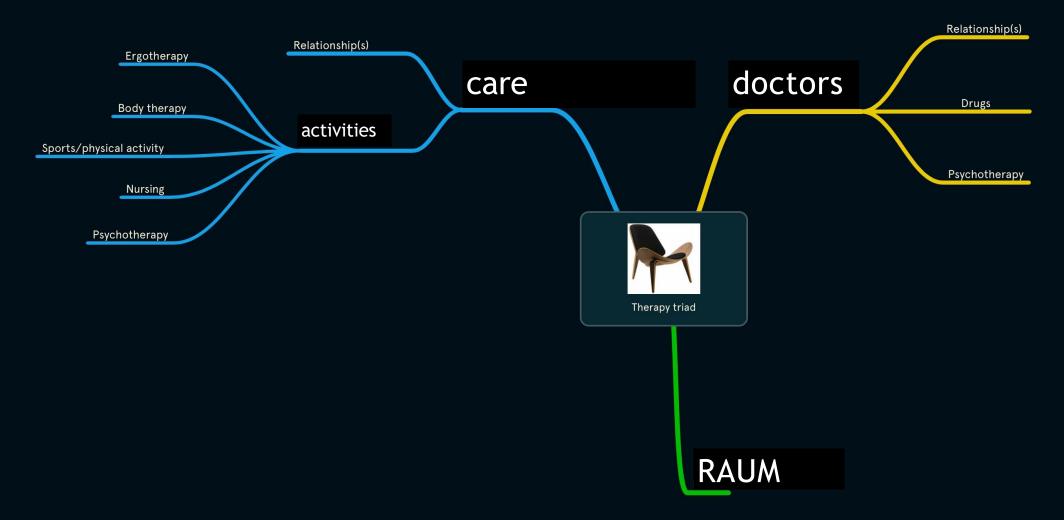
$$1 + 1 = 1$$





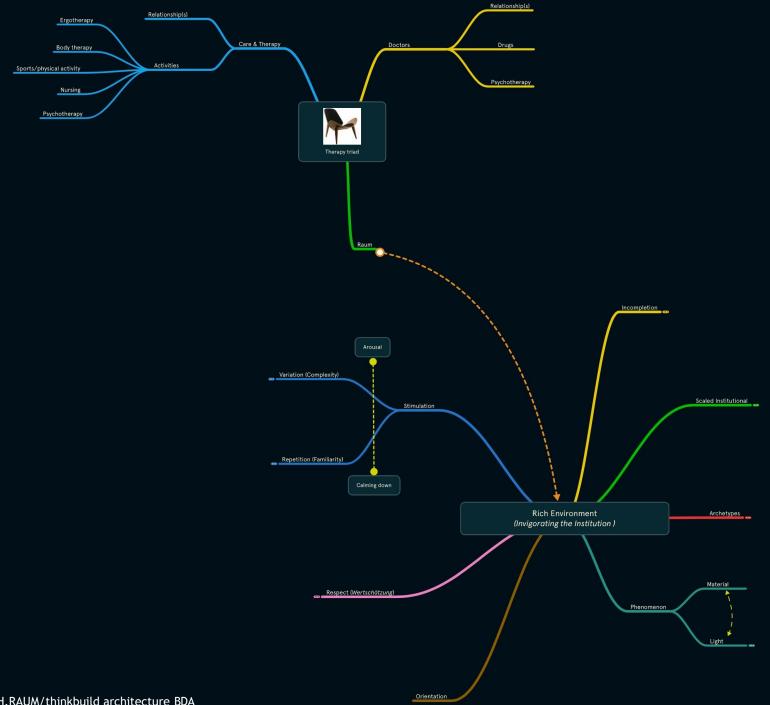


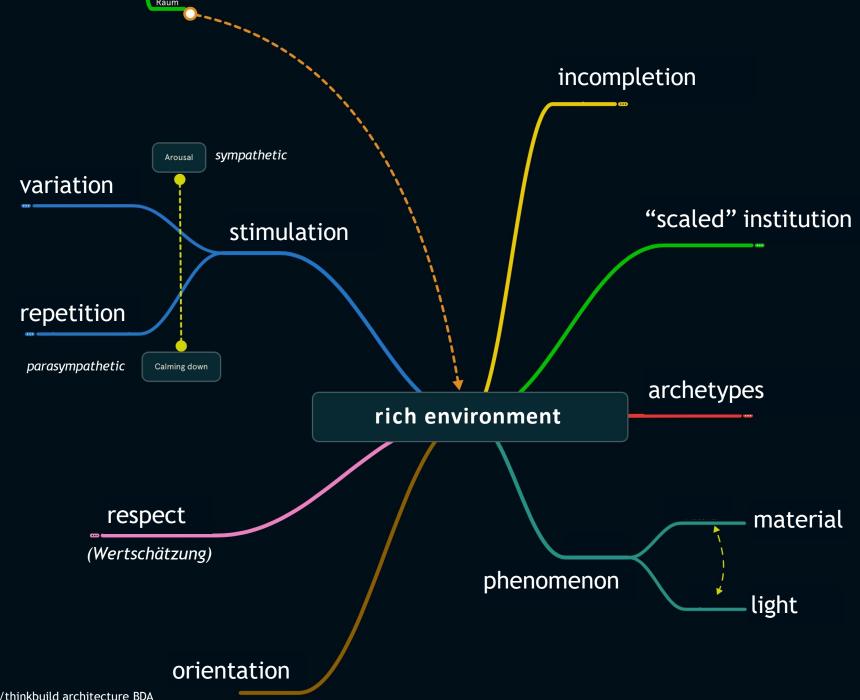
#### Mathad

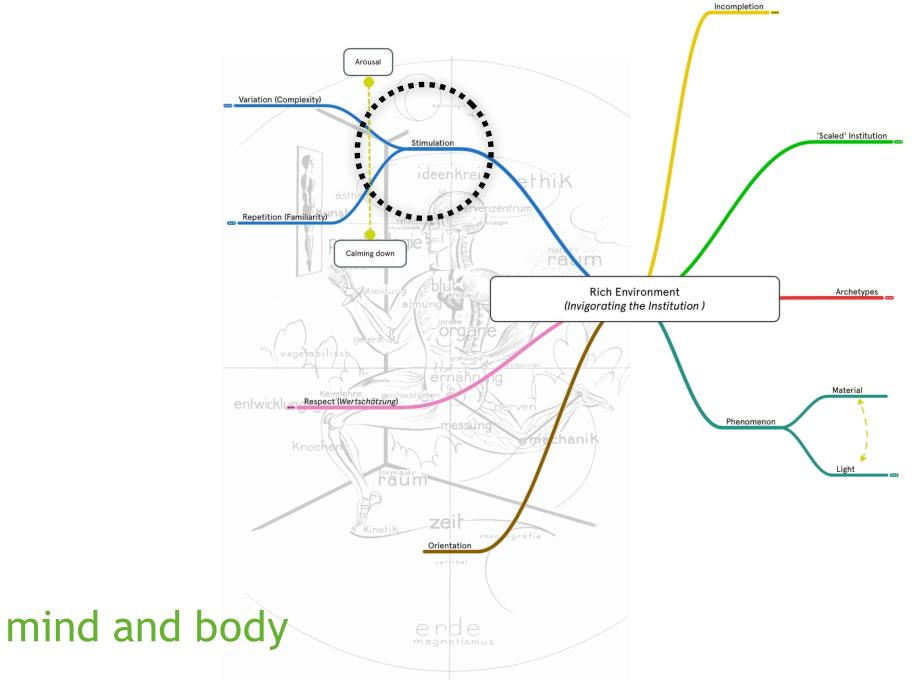


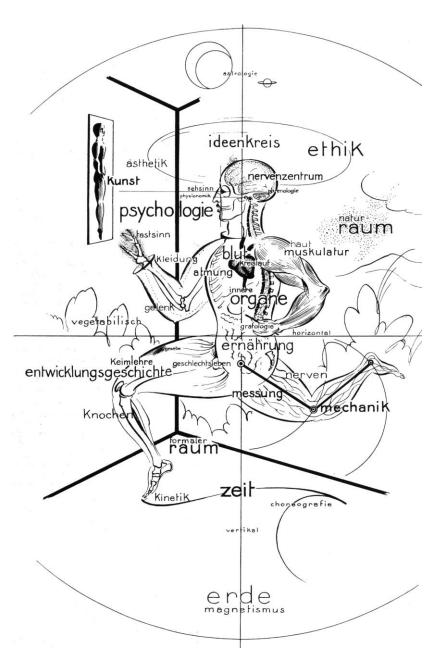
"I have become so impressed with the power of our atmospheric judgement that I want to suggest that this capacity could be named our sixth sense. Thinking only of the five Aristotelian senses in architecture fails to acknowledge the true complexity of the systems through which we are connected to the world..."

- Juhani Pallasmaa (2012)

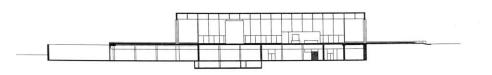


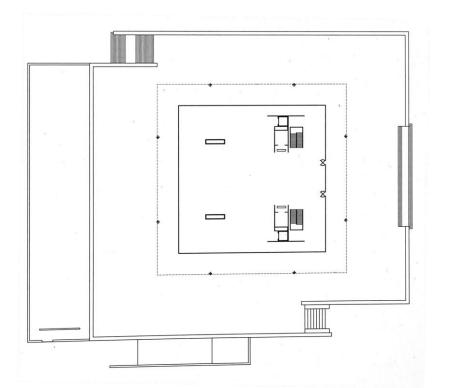






### para-sympathetic > regular & predictable = visceral relaxation

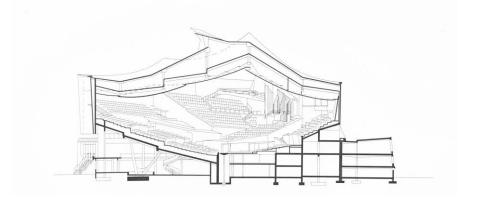


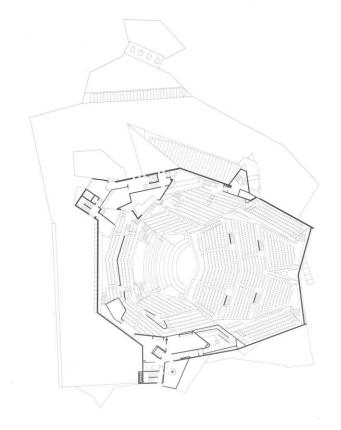


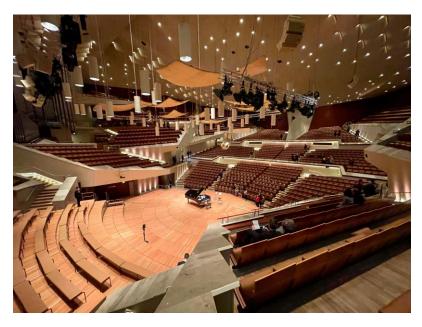




### sympathetic > arousing, multi-sensory & narrative stimulation



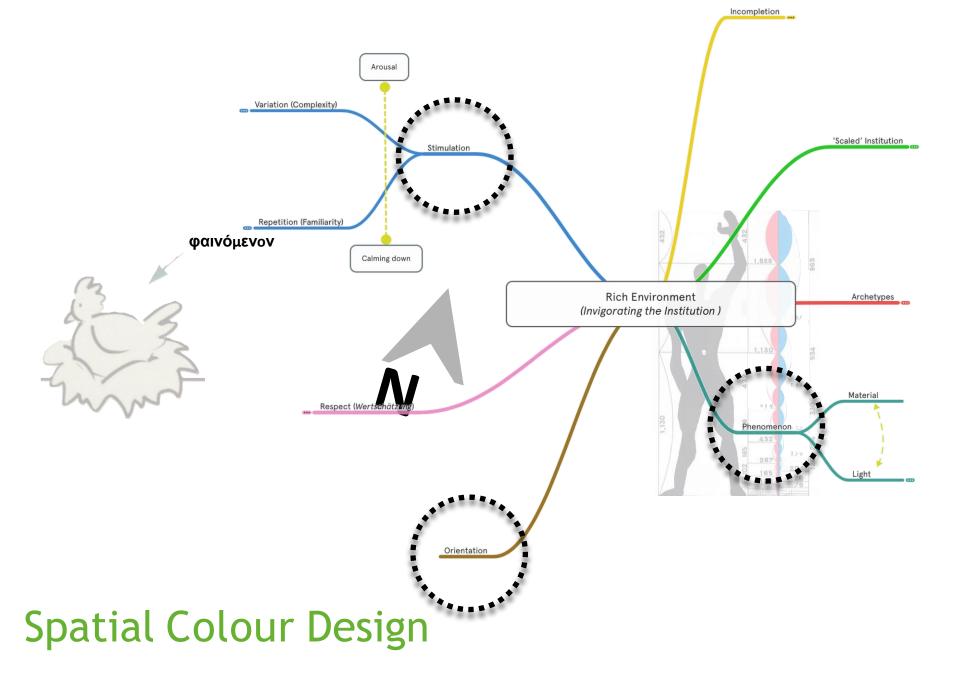


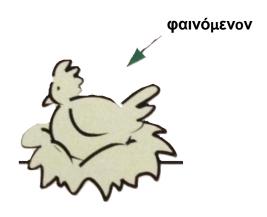




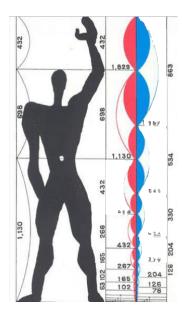


Hans Scharoun, Philharmonie Berlin (DE), 1963





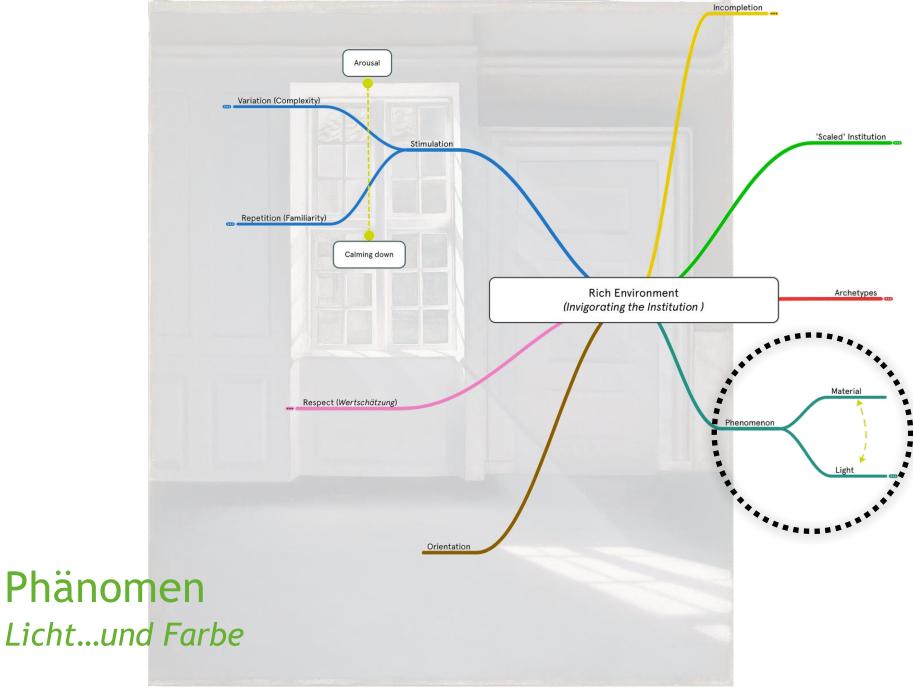


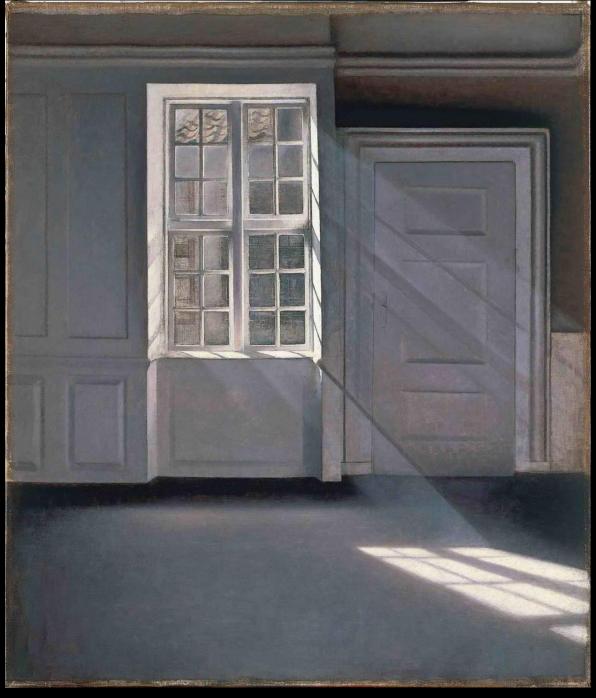


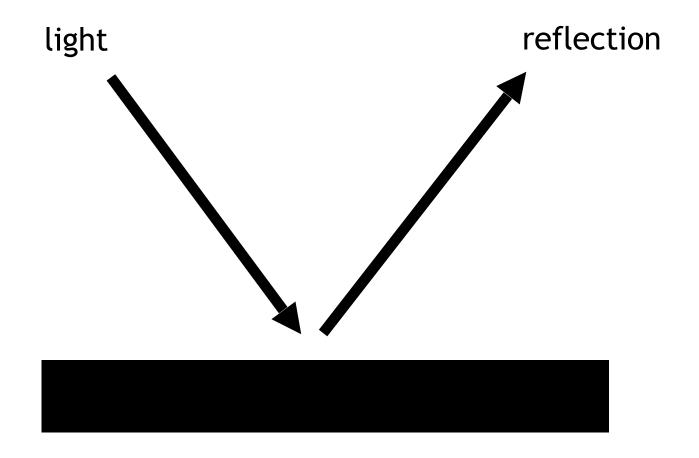
**Phenomenon** 

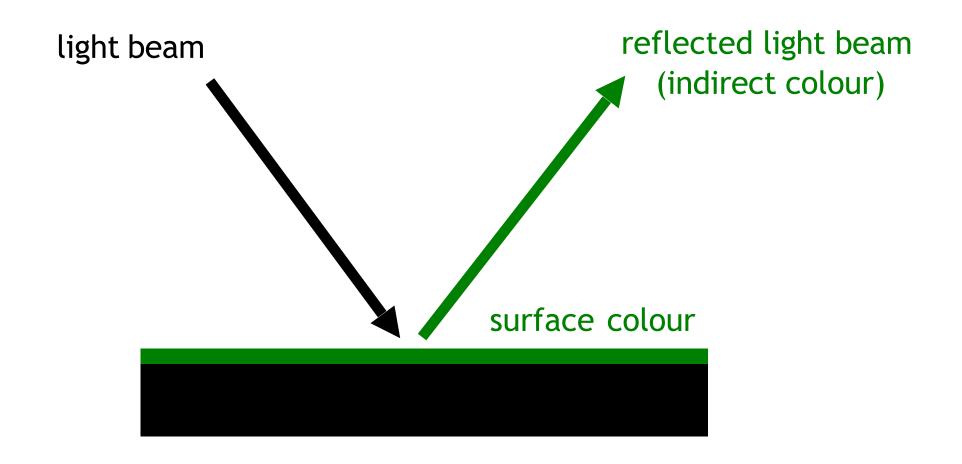
Orientation

**Stimulation & Proportion** 





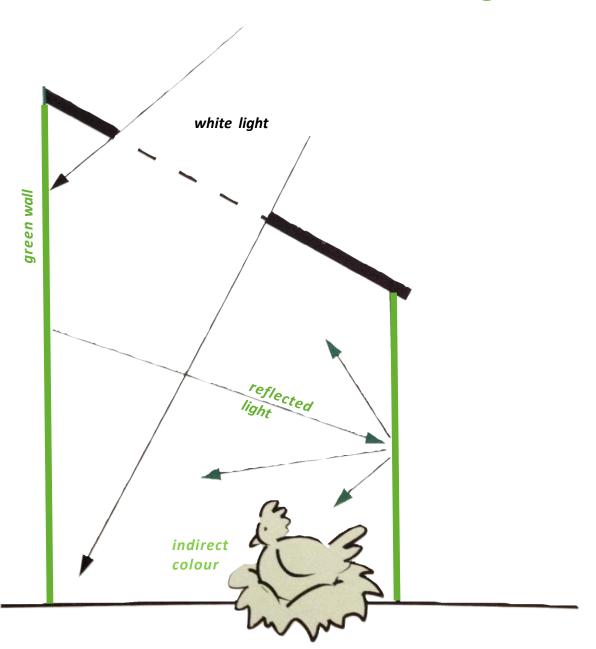




# how to make a green chicken

#### φαινόμενον

"directly observable experience"





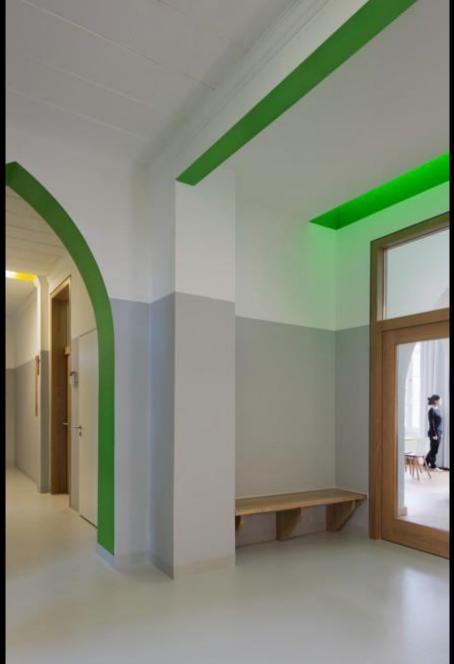


## light, natural and reflected...



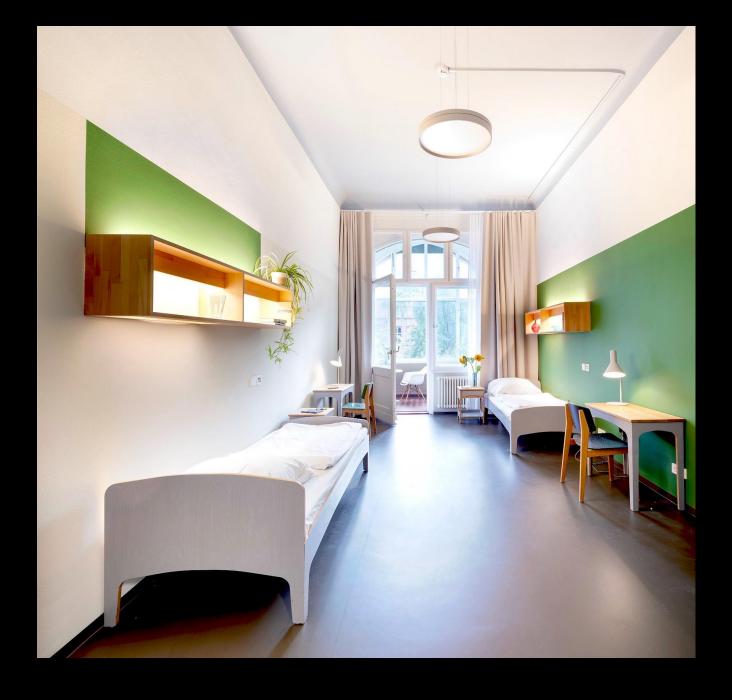
Josep Luis Sert, Fondation Maeght, St.Paul-de-Vence (1964)

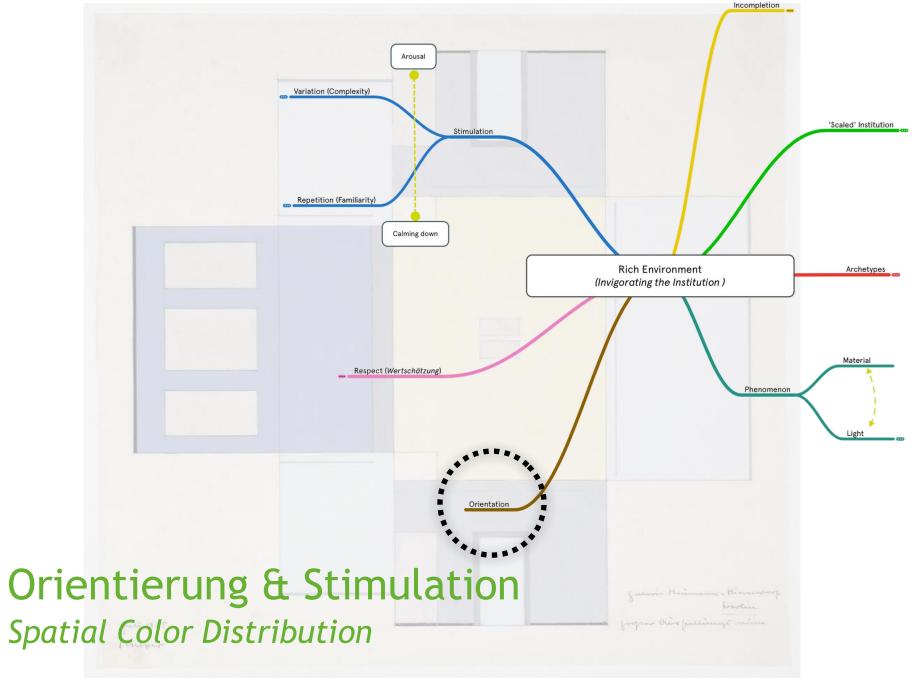


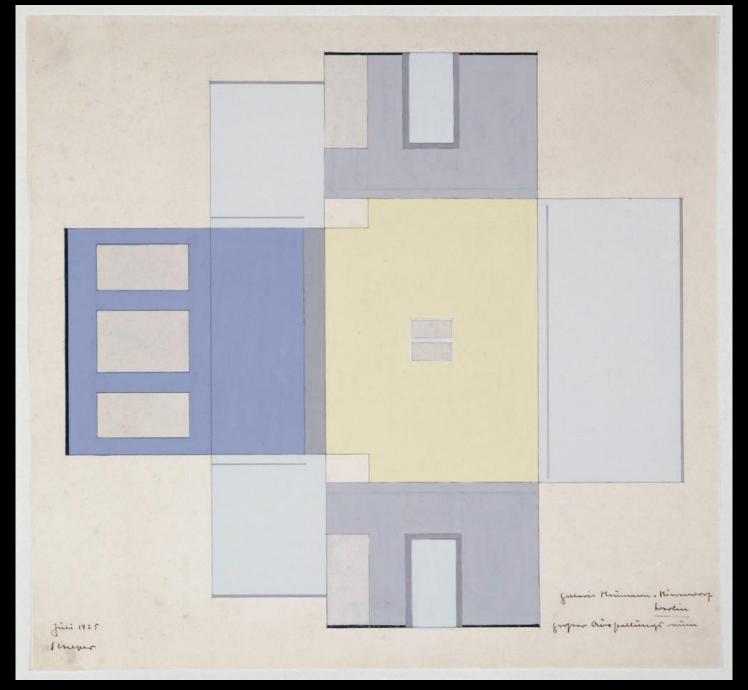


PSYCH.RAUM Foto Hilmar Schmundt - © 2022 PSYCH.RAUM/thinkbuild architecture BDA







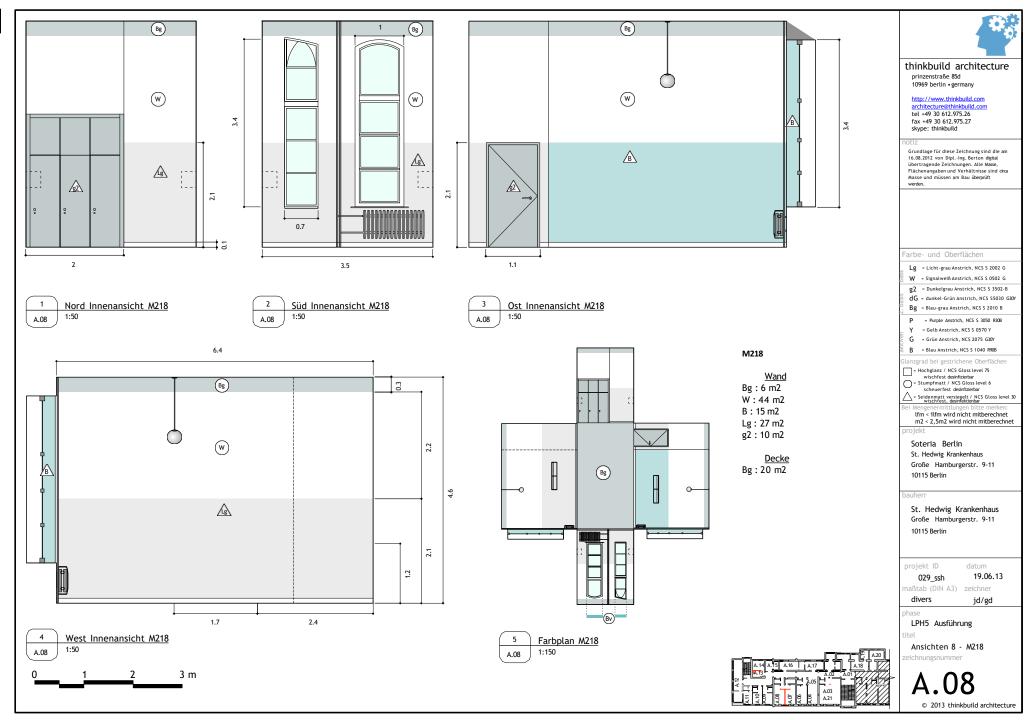


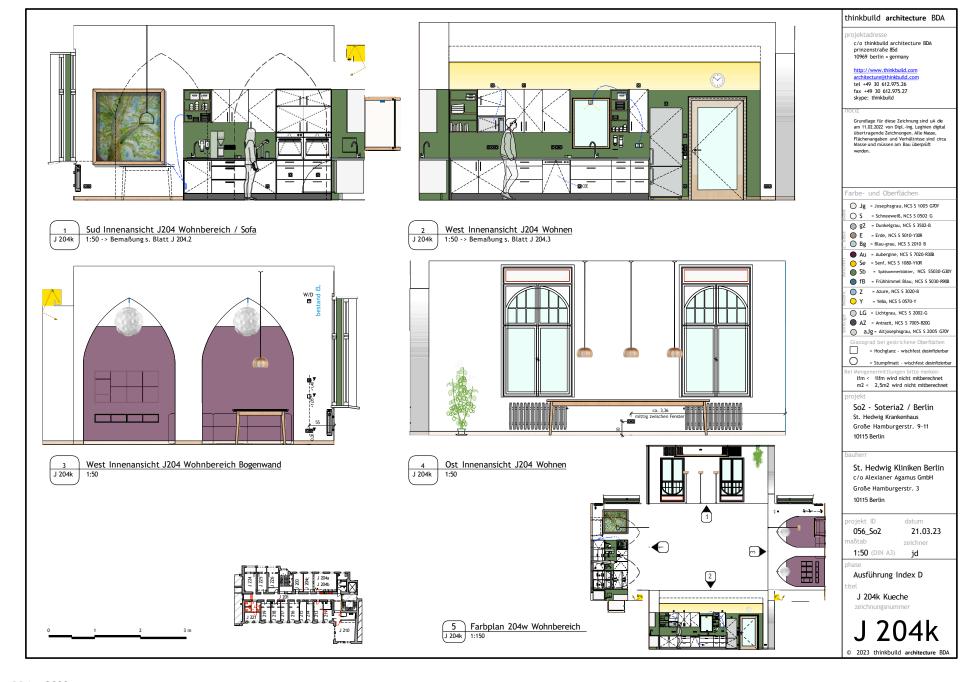
Hinnerk Scheper, Farbplan Großer Ausstellungsraum, Galeria Neumann-Nierendorf, Berlin, 1925

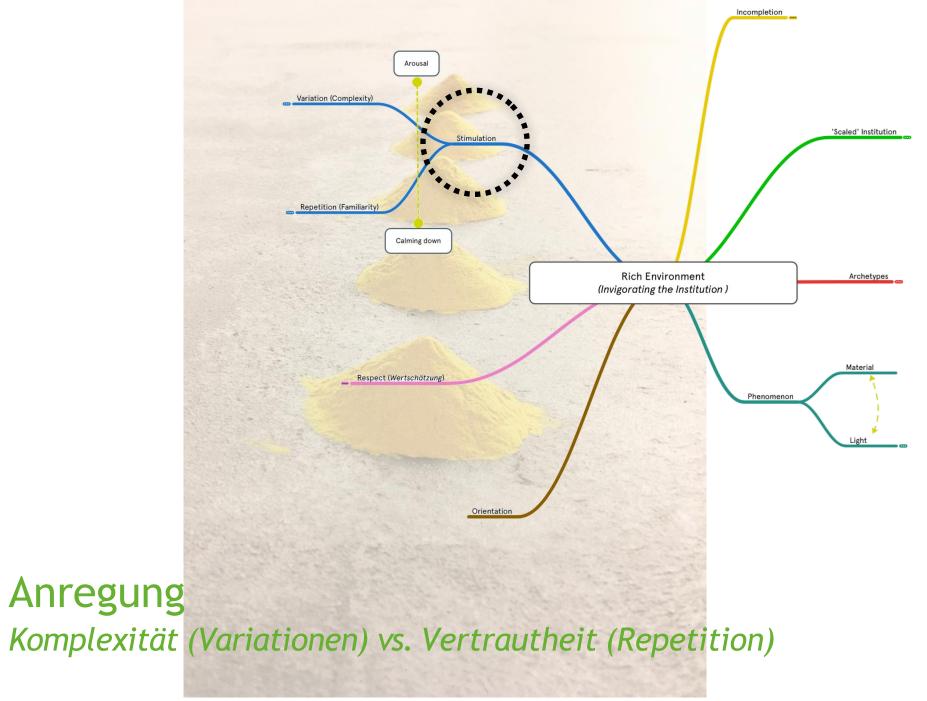


Anthony Van Dyck, Charles I in Three Positions, {sent to Rome for Bernini to model a bust on}, London, Royal Collection/Windsor, c. 1635

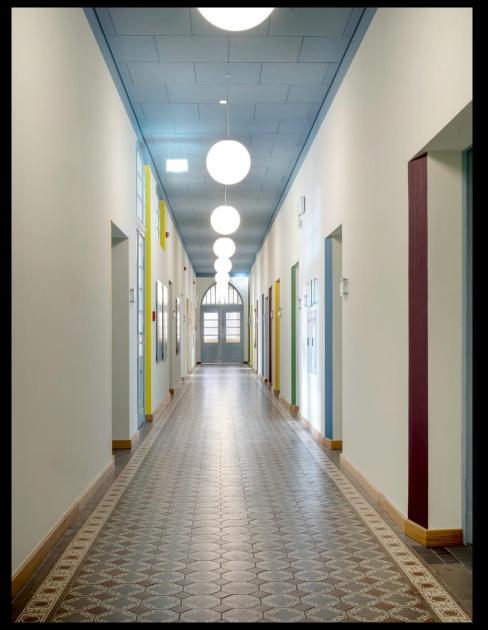
thinkbuild architecture BDA

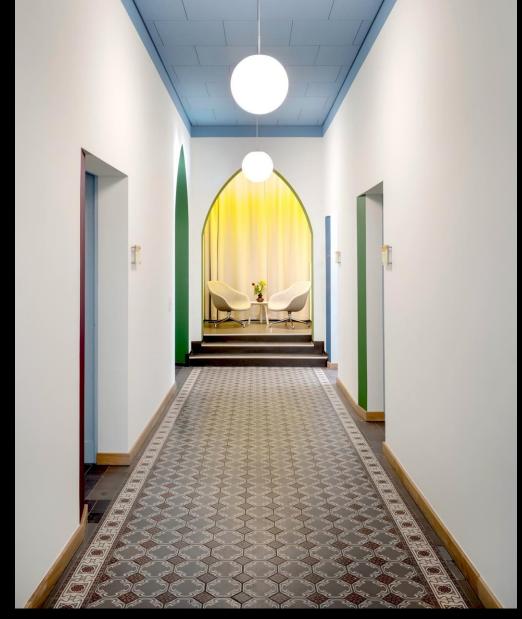




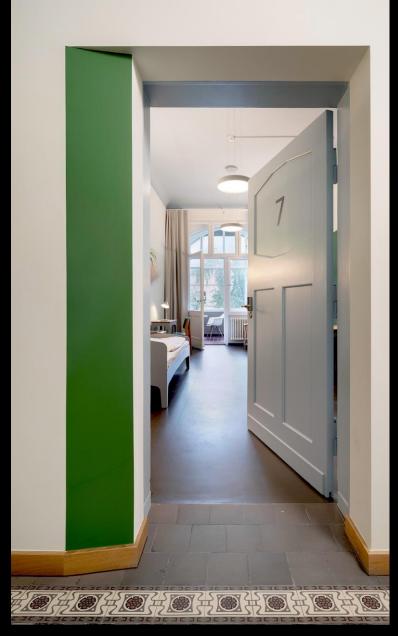


Therapie Triad + Raum - © 2022 PSYCH.RAUM/thinkbuild architecture BDA







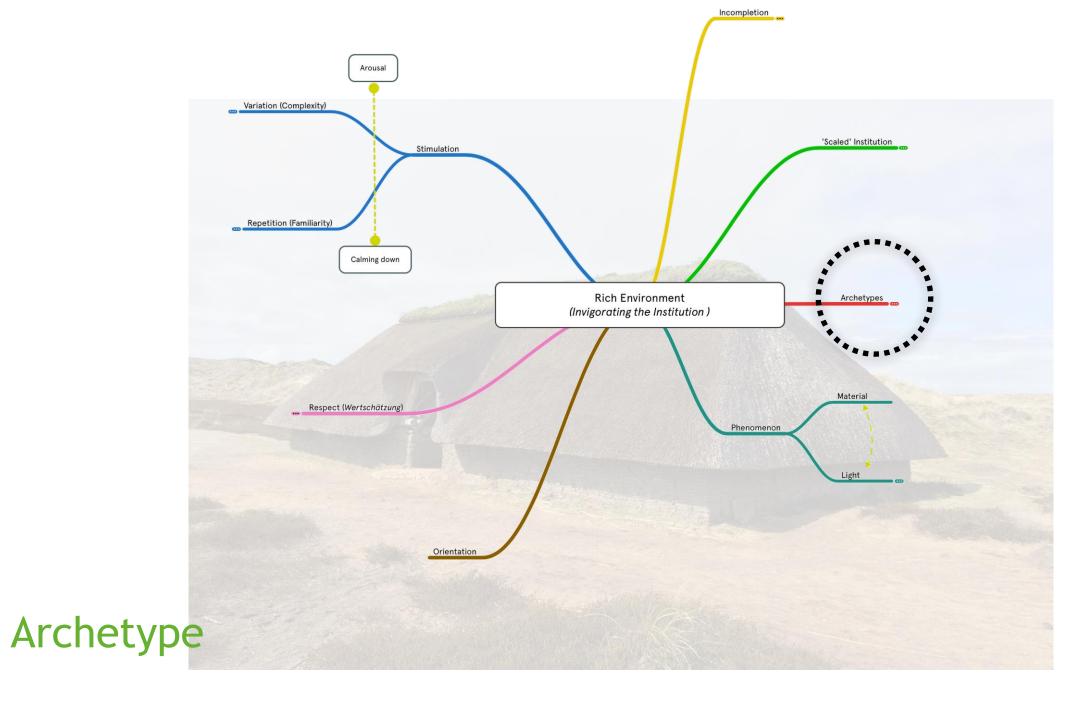








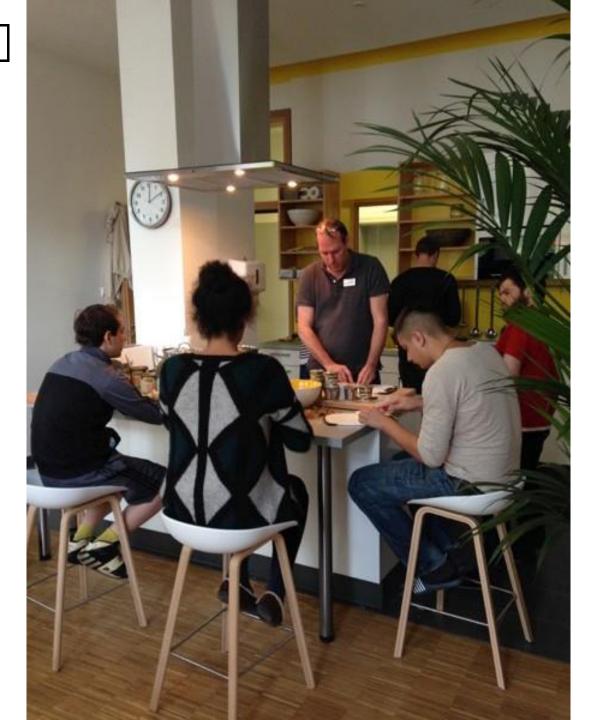






# archetype - hearth





"The first groups collected around the fire...."

G. Semper (1803-1879)







Paul Cezanne, La montagne Saint Victoire - vue des Lauves, (1901).



## hartelijk bedankt

## PSYCH.RAUM

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