

patterns in software design

Daniel Jackson

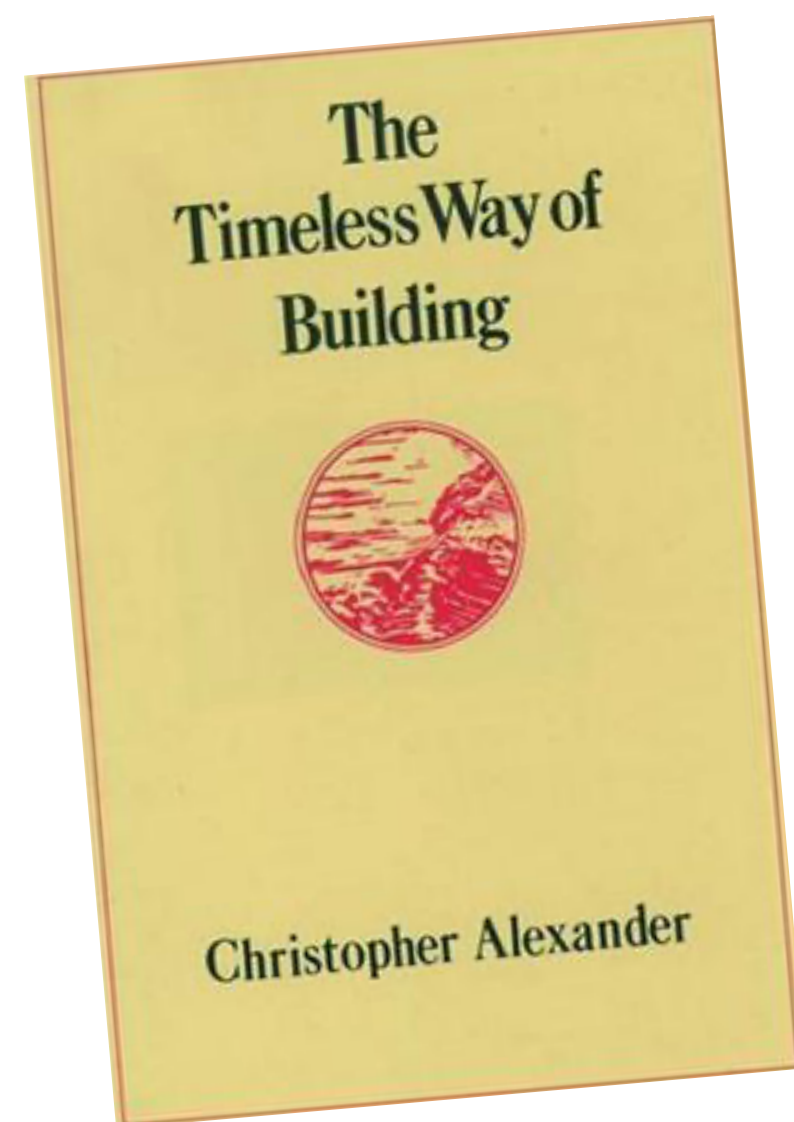
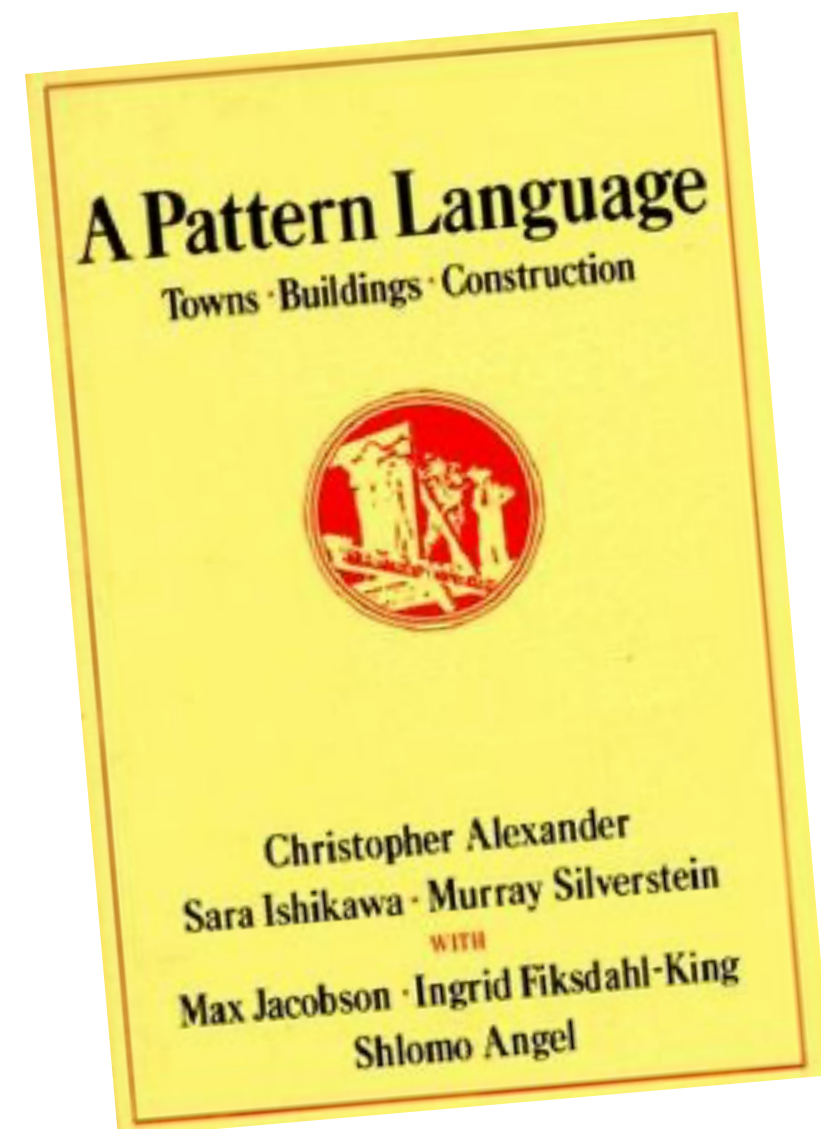
how do experts solve design problems?



Apple iPod
(Jony Ive, 2001)



Braun Pocket Radio T3
(Dieter Rams, 1958)



christopher alexander's patterns



Mont Saint Michel (1450–1521)

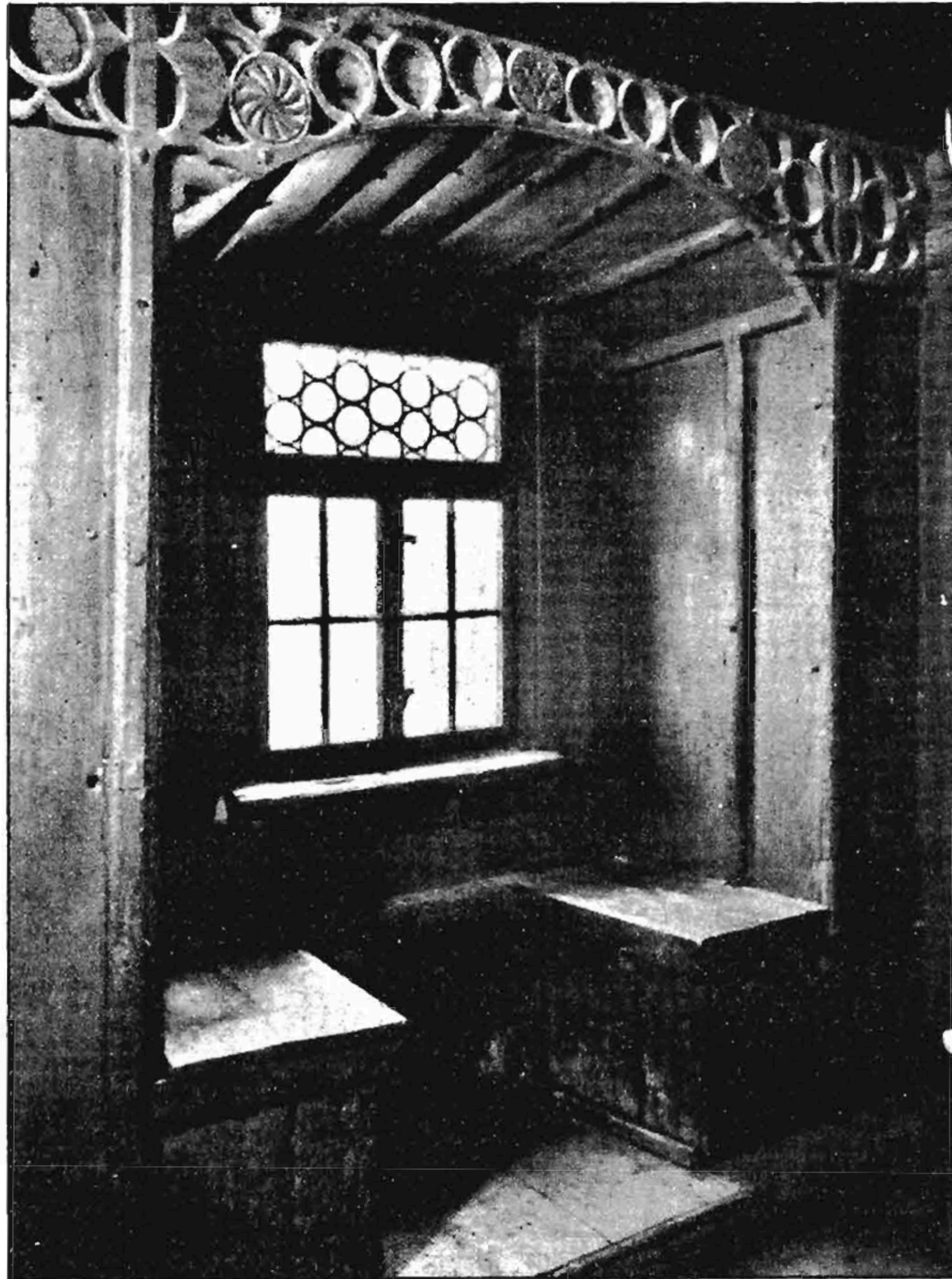


MIT (Bosworth, 1916)



Stata Center (Gehry, 2004)

180 WINDOW PLACE**



. . . this pattern helps complete the arrangement of the windows given by ENTRANCE ROOM (130), ZEN VIEW (134), LIGHT ON TWO SIDES OF EVERY ROOM (159), STREET WINDOWS (164). According to the pattern, at least one of the windows in each room needs to be shaped in such a way as to increase its usefulness as a space.



Everybody loves window seats, bay windows, and big windows with low sills and comfortable chairs drawn up to them.

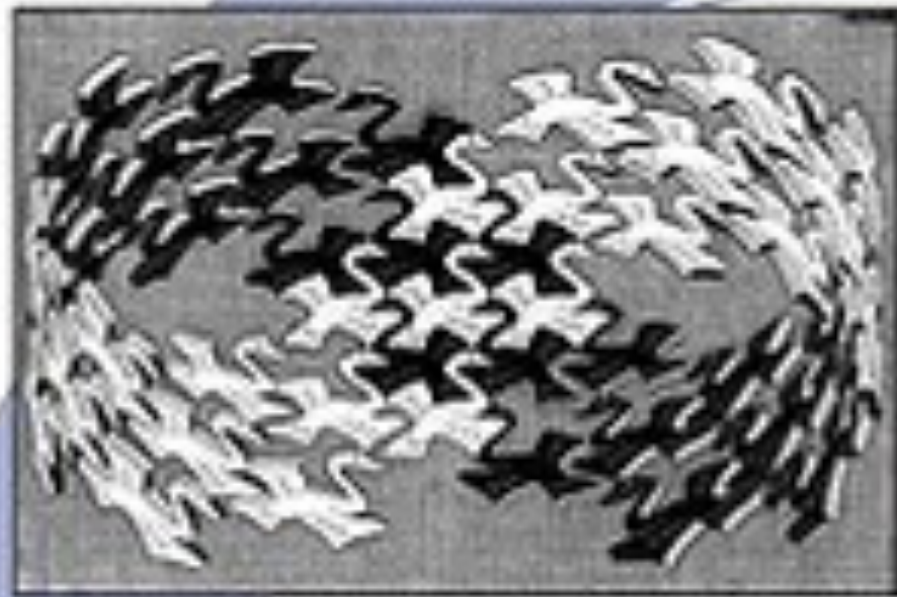
Christopher Alexander et al, *A Pattern Language* (1977)

patterns in coding

Design Patterns

Elements of Reusable
Object-Oriented Software

Erich Gamma
Richard Helm
Ralph Johnson
John Vlissides



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Foreword by Grady Booch

ADDISON-WESLEY PROFESSIONAL COMPUTING SERIES



Object Behavioral: Observer

Intent

Define a one-to-many dependency between objects so that when one object changes state, all its dependents are notified and updated automatically.

Also Known As

Dependents, Publish-Subscribe

Motivation

A common side-effect of partitioning a system into a collection of cooperating classes is the need to maintain consistency between related objects. You don't want to achieve consistency by making the classes tightly coupled, because that reduces their reusability.

what patterns
for designing
function?

concepts: patterns of reusable behavior

Reserving

Ordering

Availability

Inventorying

Rating

Posting

Notifying

Friending

UserAuthenticating

Upvoting

what's in a concept definition?



core concept elements

name

Upvoting

purpose

improve quality by
crowd-based ranking

principle

after series of upvotes,
rank items by count

actions

upvote, downvote

state

votes for items with users

concept catalog also includes

related concepts

Rating, Recommending, Reacting, ...

concepts often used with

UserAuth, Karma, Recommending

typical uses

social media posts
comments on articles
Q&A responses

a surprise

patterns are never perfect
help anticipate problems too

concept: Upvoting

related concepts

Rating, Recommending, Reacting, ...

name

Upvoting

purpose

improve quality by crowd-based ranking

principle

after series of upvotes, rank items by count

actions

upvote, downvote

state

votes for items with users



known issues

old content is unfairly promoted
feedback favors early upvotes
voting encourages echo chamber
people may vote many times

design variants

downvote as unvote
use age in ranking
weigh downvotes more
various identity tactics
freezing old posts

often used with

UserAuth, Karma, Recommending

typical uses

social media posts
comments on articles
Q&A responses