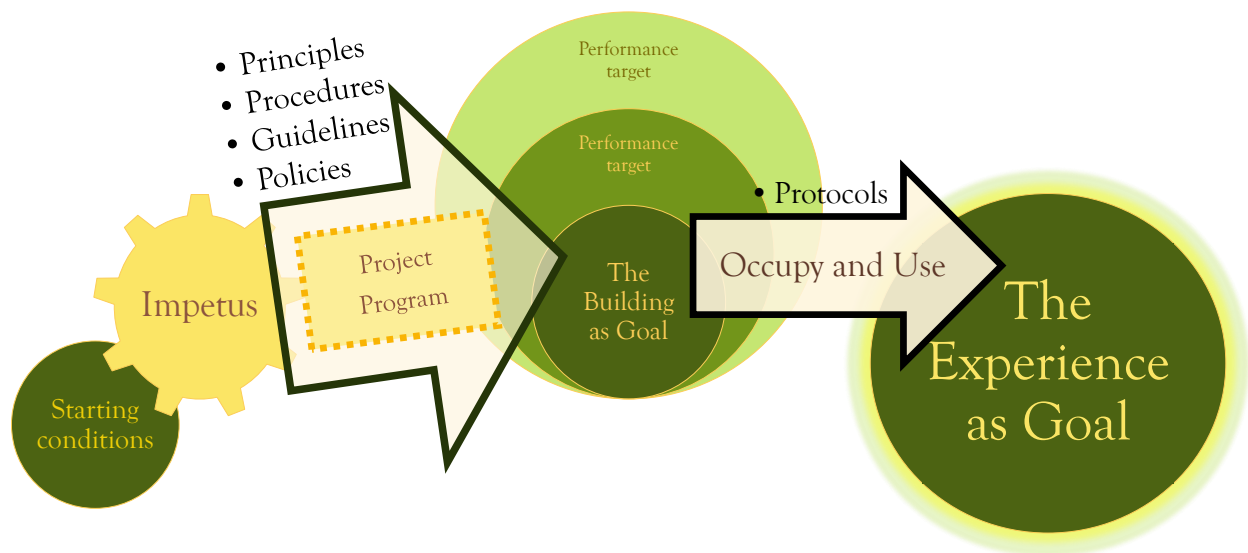


A Different Approach to Design

Although I have had my smarty-pants moments, there have also been plenty of periods of idiocy. Some of us clearly have them in different proportions but frankly I cannot imagine anyone who is all genius all the time. And that is why we need well-considered systems of design, so that normal people can produce good design on a wet Tuesday morning. We need more good design than the world's handful of geniuses can produce at their most prolific brilliance.

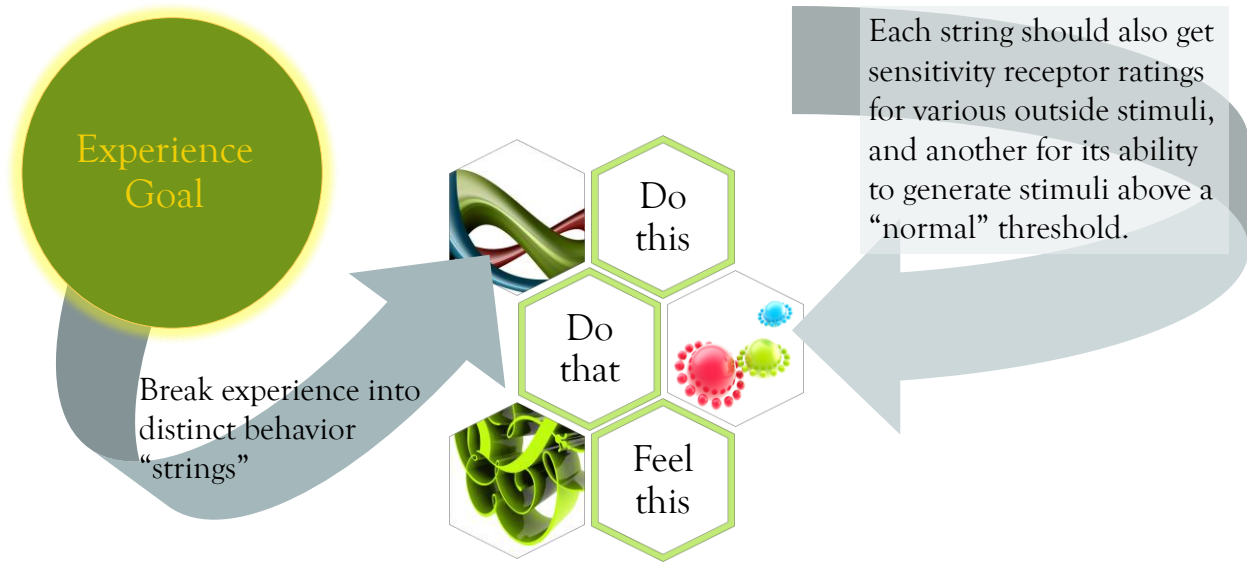
An example of a system of design is the running of a risk analysis. Given the money spent and the lives exposed, it is amazing that risk analysis is rarely run for an architectural design project. Lesser financial investments are regularly scrutinized for risk. The process of construction does have some established procedures for risk analysis and assignment, but there is precious little precedent for the analysis of the building product itself. We've got a separate paper covering just that sub-topic, but in the meantime, here's our version of the idealized approach to architectural design, wherein all decisions are consciously made, at the right time.

Architecture, above all else, requires the juggling of a zillion considerations, which is why we start with a high level overview of the entire process. Later on we will dive into the juicy stuff. For the moment, please bear with us as getting this semi-bureaucratic stuff clear now can lead to less heartache later on.



The Architectural Project

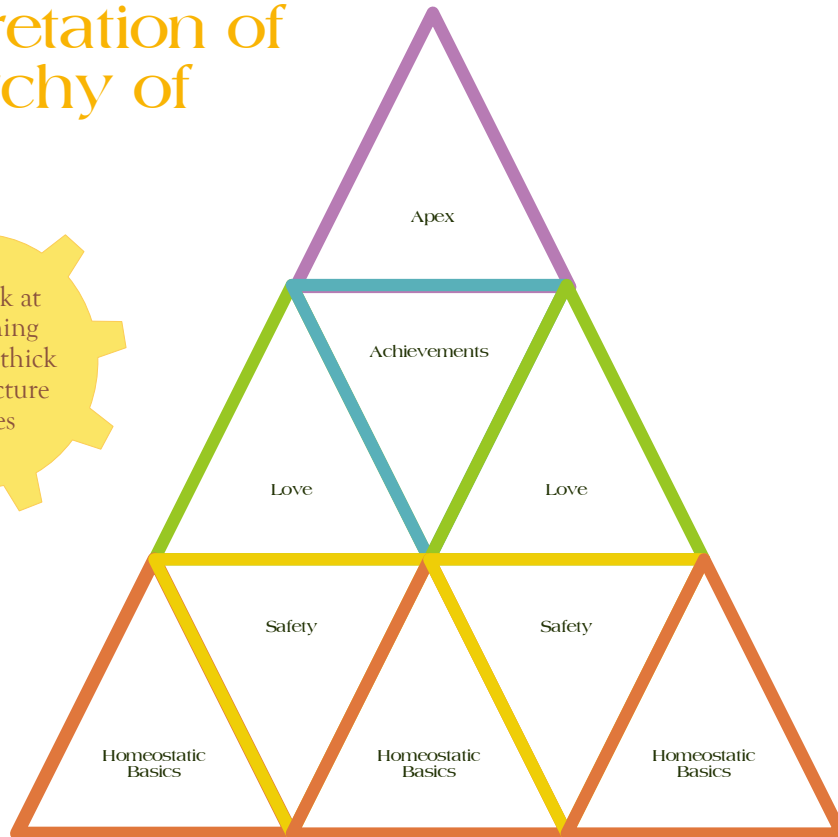
What is necessary to fulfill the goal?



2

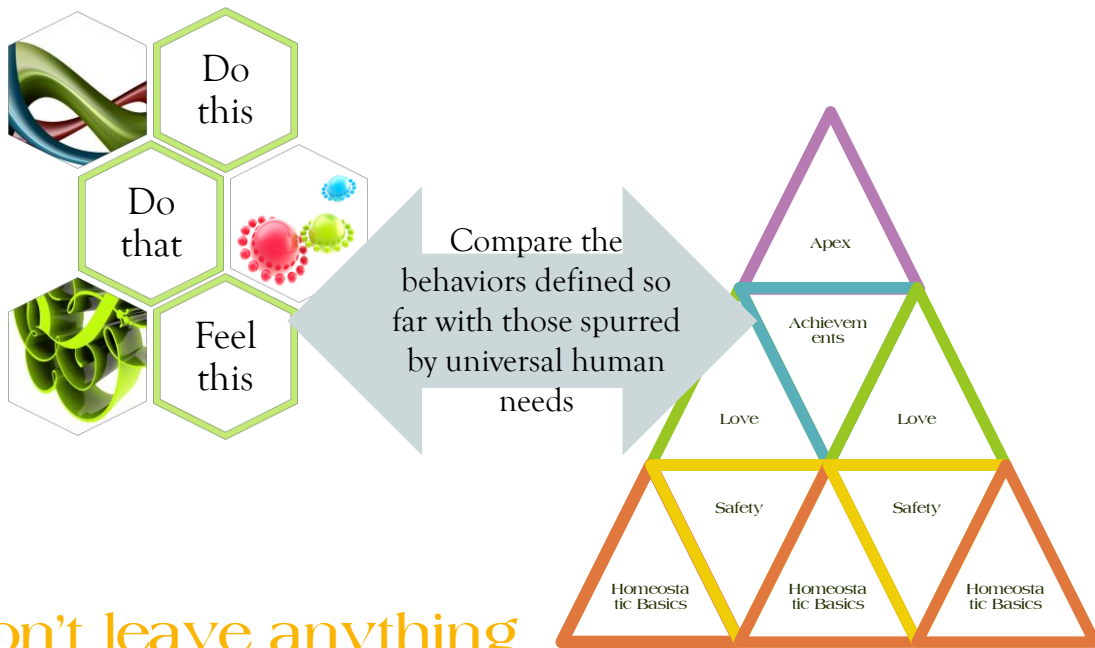


an interpretation of the hierarchy of needs



3





Don't leave anything out

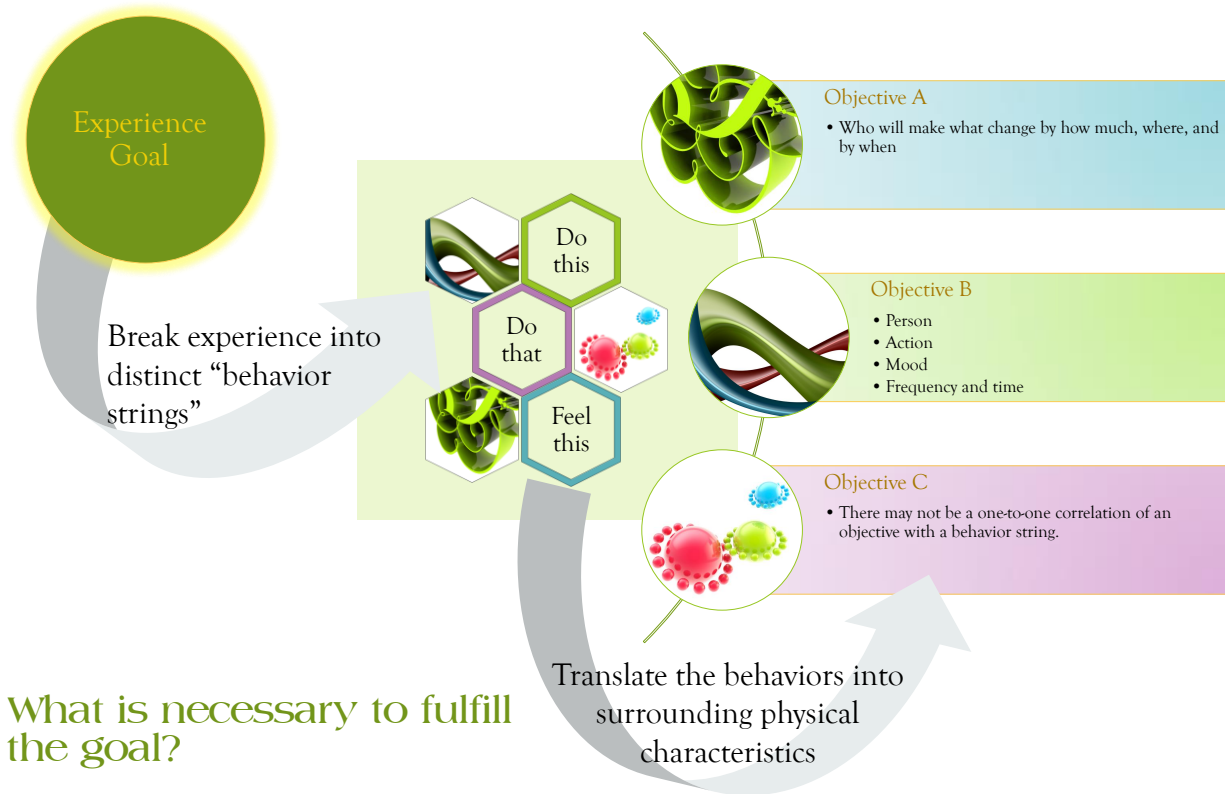
4

Set priority rankings

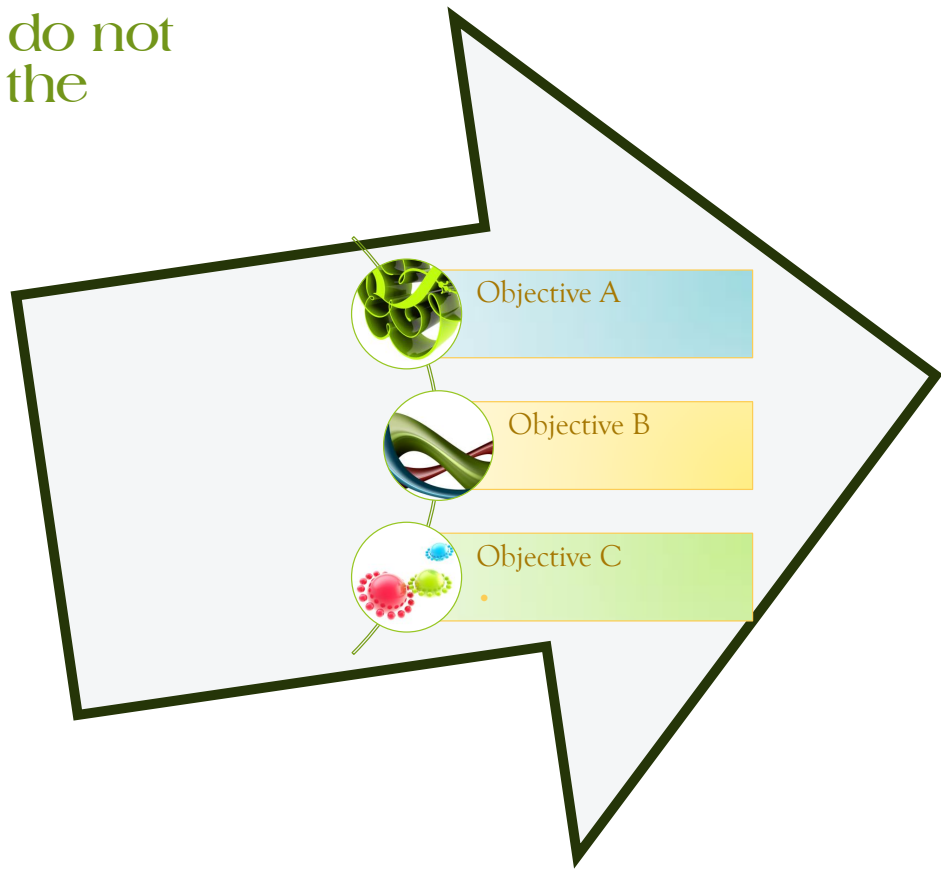


5





Check that the Objectives do not stray from the Principles

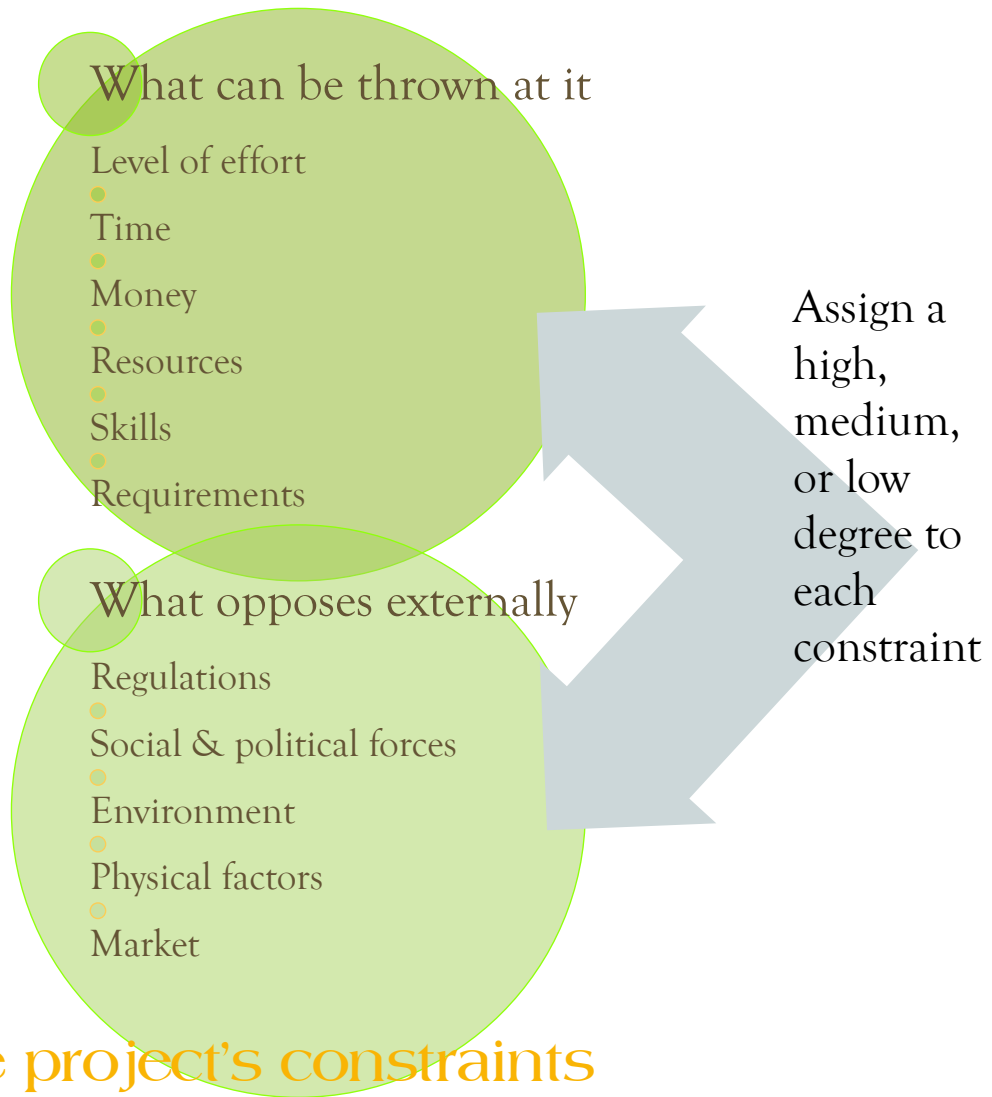


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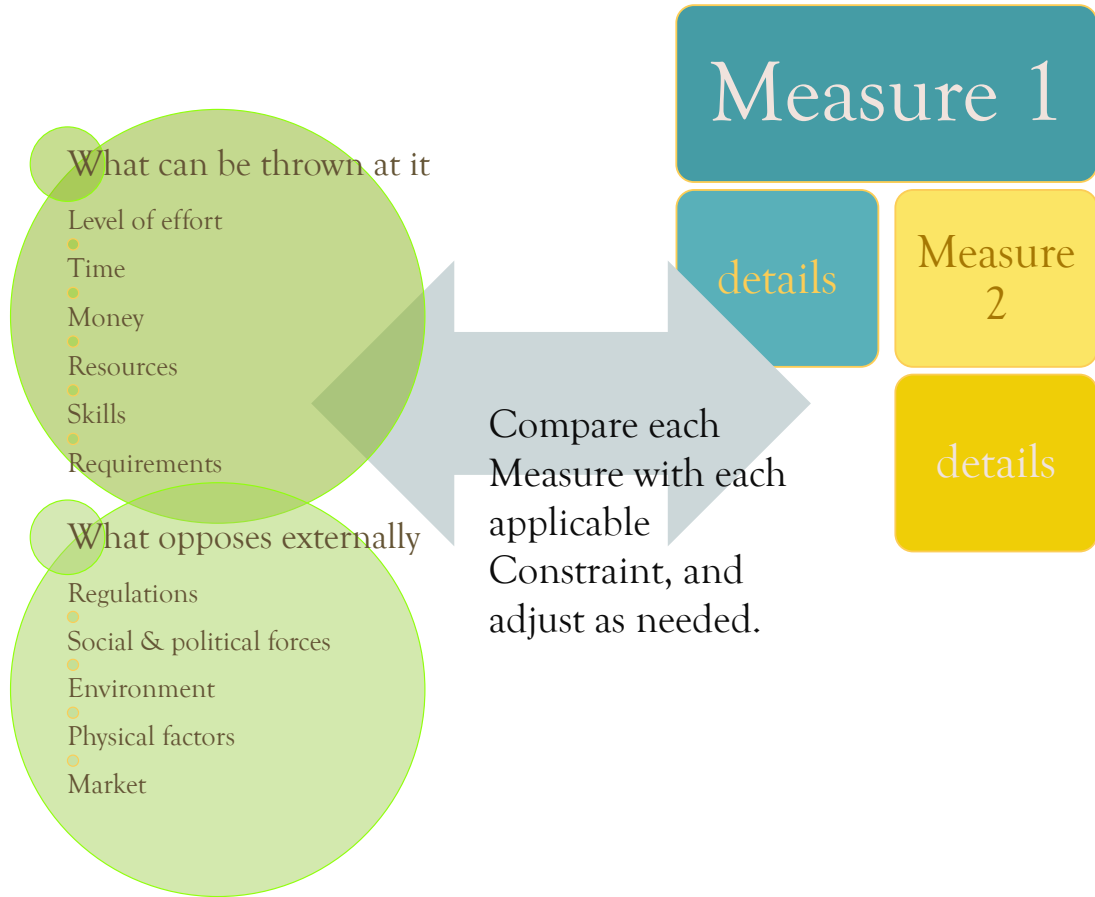


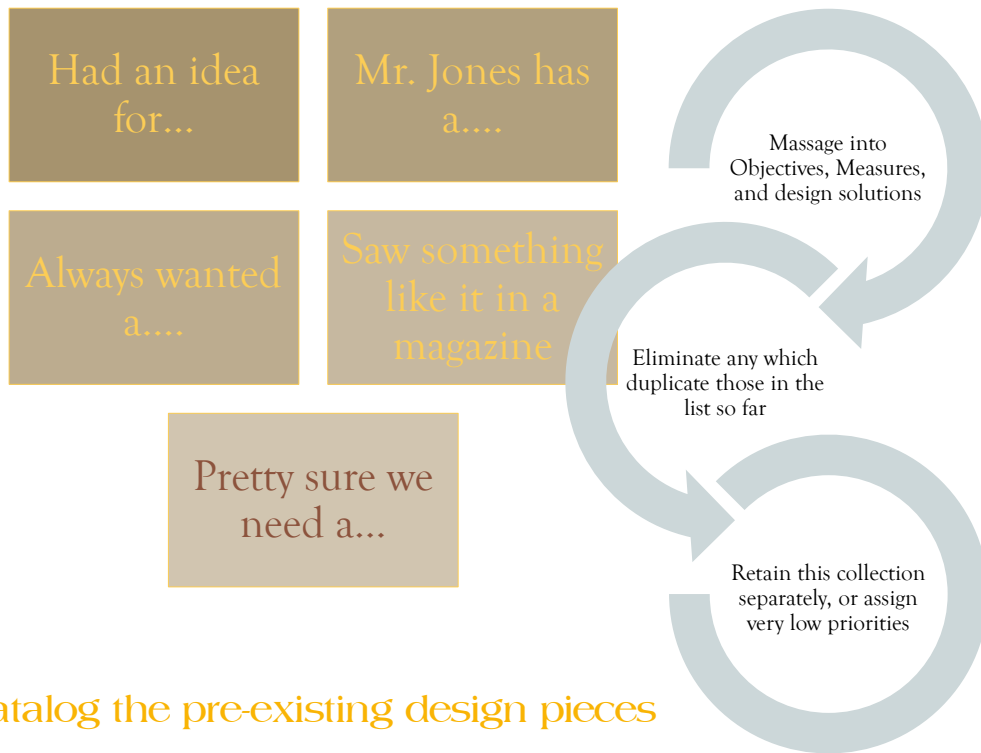
Break each Objective into smaller, more specific Measures.





Check for general feasibility



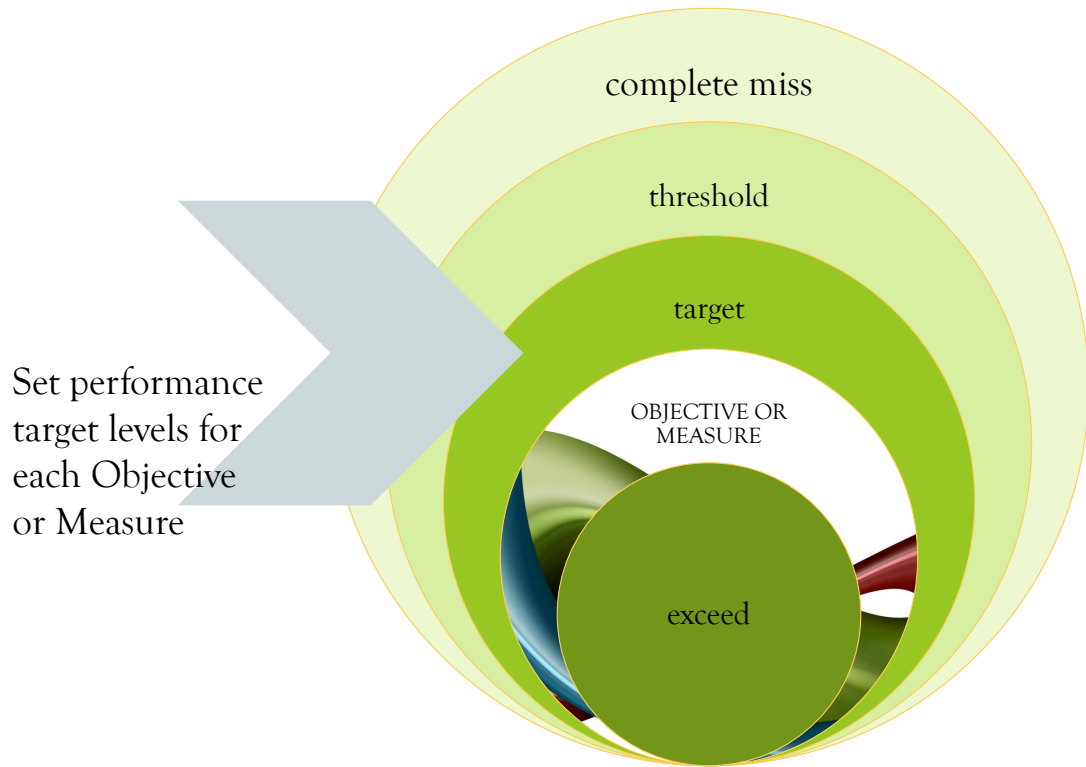


Catalog the pre-existing design pieces

11



What standards are to be achieved?

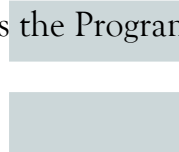


12





The vetted,
ranked,
prioritized list
of Measures
make up the
action plan that
is the Program



Show the elements that go in the Program

13

PROJECT IMPETUS

This is a description of the hurt that pushes or the lure that pulls Owners into doing a project, containing or merely implying a mission statement just for the project. A project mission statement is distinct from a personal or corporate version. The larger going-through-life sort of purpose statement is generally appended if it is not too personal to publish. Basically this is the engine of the project.

PROJECT PRINCIPLES

The purpose of principles is to act as a guide, and therefore we advocate making the listing of the principles for a project into a separate board which can be kept in sight as a reference during the design process.

For that same reason, there is an exception to our standard rule of never repeating information; the design service life is repeated from the Goals Narrative and shown on the board.

PULLING OUT THE BEHAVIORAL STRINGS

Goals must be greatly expanded from the Narrative and be fully comprehensive. So first, we look at the common hierarchy of needs as a way of catching any missing pieces. We start with basic universal human needs, which are often unstated and implicit and work through the entire panoply to be sure we have a full, written-out list of necessities.



The experience goal should be broken out into high level “behavioral strings,” a term we use for chunks of function. We are trying to describe experiential, sensual, functional blocks of time spent by a person or group. One of the reasons for comparing against the hierarchy of needs is that many human pursuits, arguably all, are chasing the satisfaction of needs. Doing this portion well takes tremendous honesty and self-reflection from the Owner.

Even at the high level, the behavior strings will likely enjoy some fleshing-out as the design progresses. They should describe the actions, the mood, the frequency and the time performed by any person (or set of people).

Note that the eventual solution spaces may contain many overlapping behavioral strings, and their potentially differing moods, so the designer will need to meld the conflicts into something not brown and blotchy. That aspect will be a big informer of the aesthetic grammar.

When looking to reduce project scope, the first place to look is at desired behavior strings (and not the experience goal). The frequency of use can be a clue to whether a string can be lopped off without anyone really noticing.

All behavior strings, not just the iffier ones, ought to be assessed as to whether they can be conducted off-site. Perhaps a private venue or service can be rented, or a publically available facility is offered. The Owner may have other resources under their control, or perhaps a larger-scale cooperative venture is a possibility. All will need to be balanced against cost, availability, access cum distance, quality and reliability. Evaluating how the needs may be met off-site can inform the need for redundancy in the elements which are included.

Should a behavior string be eliminated, it should not be excised from this catalog, in part just to keep record-keeping neater. It will receive a designation that it is no longer valid. However, resources could change and revive a hope. And the method of discarding an idea for immediate consideration is useful to record. A function can be eliminated altogether of course; it might also just be roughed-in, in an empty shell for future work. Temporary, less-expensive stopgap means or some sort of downgrade could be implemented instead. It could be fully designed as an Add-Alternate to a bid in hopes that predictions are off, or it could be planned for as a separate phase.

Checking for conformity with principles is a part of cataloging the behaviors. Once the behavior strings are identified, they should be scored for vulnerability to outside stimulation. Those “sensitivity receptor” rankings are included in Appendix B.

PRIORITY SETTING

To a large extent, which can be over-ridden, priority levels are pre-determined by comparison with a human needs hierarchy. There are judgment calls to applying levels, of course. When an item, whether behavior in this case or a physical measure later on, is considered it receives the same ranking as the need it answers if it does so directly. If, as in a supply chain for instance, the item is removed from the need, then its ranking is decreased a half step for every degree of removal.



Priorities are assigned to behavioral strings based on the hierarchy of the needs being answered by that behavior, and those priority ranking then transfer to the Objective linked to the behavior.

A catalog of general behavior strings, as a starter kit of parts, is being developed for later publication.

THE TRADITIONAL PROGRAM

Eventually the behavior strings will be broken into smaller “beads,” sub-units which tend to have a dimensional module size. That gives the proper starting space chart, which is better than estimates given as requirements in the more traditional way. Either the areas of the “beads” or that of the Measures (see further on below) can be toted up for a total maximum, non-optimized net building size.

WRAPPING A SKIN AROUND NEGATIVE SPACE

In order to translate the experience goal’s behavior strings into the physicality of the building goal, we suggest looking at Doc Edgerton’s famous golf swing photograph as an analogy.

Think of playing golf as a behavior string, much as any other that gets defined in this architectural process.



Although we and our golf clubs are solid physical objects, our movements through space trace a void, a negative space. Now take a pen and trace the outline of that golf swing. That outline becomes a positive, physical shell, perfectly tailored to the functional needs of a golfer. Of course a loose fit is a better idea than a tightly tailored one in practice.

That abstract outline around the behaviors are the physical characteristics, often at a high level just the basic spaces and systems needed for the building to house the desired behaviors. The description of those spaces and systems, the result of this translation exercise, are the Objectives. This translation exercise requires keen observational skills.

We’ve a lot more to say, elsewhere, on the integration of aesthetics and intellectual delight with the more traditional conceptions of “functional behaviors.” Were one writing a program, the Objectives Table would go here, followed by a Table of Measures!

THE NITTY GRITTY - BREAKING OBJECTIVES INTO MEASURES

These are just smaller, more specifically concrete bits of the larger Objectives. There may be Measures which are alternate means of doing the same thing. They are always linked to an Objective so that if one is rejected or altered, or added in, during the course of design the direct line of reasoning for why it is needed will not be overlooked. Similarly the priorities and other information flow through too.

Furniture, fixtures, and equipment are essentially details of Measures. We suggest putting them in a separate inventory for ease of handling.



IDENTIFY AND ASSESS THE CONSTRAINTS

Constraints are just given a gross ranking of high/medium/low to assess how much of a barrier each one presents to the ease of implementing any particular Measure. The Measures are then given an overall score, with each constraint weighted equally, as a quick and dirty method of evaluating alternatives. That overall score is shown in the Measures table above. See Appendix C for the details.

JUMPING THE GUN

Everyone always has favorite elements and solutions in mind before starting a project. They should not be designing ahead of time, but those too-early solutions need acknowledgement. See Appendix D for the raw details.

TARGETING

Setting performance target locations, that is against the final experience goal or against the building, is based on responsibility. That is a subject covered in the Agreements.

Sometimes performance criteria are critical to achieving an Objective, particularly when third-party certifications are part of the requirements. Other times the criteria, the level of the Target, is a judgment of will and distance from goal achievability. Note that some of the targets will be a complete miss from the beginning.

Setting of performance criteria is a design decision, and does not belong in a program catalog.

A LITTLE MORE SONG & DANCE ABOUT THE PROCESS DIAGRAMS

This is our thinking about how the process should work and why it is presented here in this manner. We have used infographics which should convey meaning on their own, and reinforce the message. Dreaming up something wonderful and figuring out how to achieve it is hardly a new problem, in architecture or any other endeavor. However, we have often found descriptions of the way to go about things to be done in soft watercolors and we've tried to go all crisp, architectural pen and ink instead. The big idea is that if we comprehend thoroughly what we are doing, then fewer stumbles are likely and we have a better chance of replicating successes in the future.

The state which is the set of starting conditions can be shown as being a certain distance from the goal, along a timeline. It also is likely the source of most the "fuel" needed to move from that starting point. It's not the starting conditions themselves which prompt a project. It is the interaction of those conditions and some human spirit which does.

From that interaction comes the energy, the will to initiate a project. That will is the only thing that not only starts the project but keeps it moving once any initial momentum has been worn away by the inevitable frictions of the world.

The actual change, the transformation has several components. We have used an arrow to imply both a speed and a direction of change. One could actually draw the transformation to graph how far in terms of



time and how big in scope. Our diagrams are more generic than that, though. Our arrow is also a packaging, a container for a plan of action.

It is the principles held by a group or an individual which provide the direction, the guidance in decision making. Decisions can be made without such guidance, and often are. We believe that the more clearly articulated the principles are, the easier it is to not veer off in regrettable directions.

The step by step process, working backwards from the desired state, of developing a project program is detailed in the subsequent process diagrams.

The building and its environment, once completed, is a state, a set of conditions. It is a discrete, measurable entity and therefore is often defined as the goal of an architectural project. However we believe that the underlying truth of the matter, analogous to an advertiser selling the sizzle and not the steak, is that people do not need buildings per se. They need the benefits that buildings can offer—shelter, respite, drama, comfort and so on. So it is the experience of living in the building that should be the final goal of an architectural project. We think of that goal experience as a state consisting of the resources the owner is left with plus the ongoing set of conditions for doing what they do.

However, moving from the set of conditions that is a physical building to the set of conditions that represents the experience of living in that building involves one more transformation, the very act of occupation and use. Someone could sleep in a kitchen, fling open windows mid-winter, never turn on lights and other less odd things, and thus realize an unpleasant time. The transformative process between people and environment works in both directions, which makes the whole business of prediction and control considerably harder.

It is for the last reason, which could also be characterized as areas of responsibility, that most targets are set for the building goal rather than the experience goal. Wherever they are set, targets should not be conceived of as concentric rings in the traditional bull's eye configuration but rather skewed ovals, all touching at a tangent. The broader the target "ring" or level, the more distorted it is and the less like the original goal.

A sensitivity receptors rankings is still in the works, for later publication.

ODDS AND ENDS

There are a few things which should be noted about behavioral aspects, people's actions. The first is that architects cannot, for better or for worse, control the subsequent behavior of building occupants. We can influence those behaviors, and therefore should be explicitly cognizant of actions to be either supported or discouraged.

How best to do that is the subject of other tomes, well beyond the scope of the introduction of this report. A hallmark of design successfully influencing behavior is a particular direction is that that behavior feels intuitive for most people. Designs which require long training sessions and a slathering of signs for proper use are a cop-out.



So I admit to a bias for solutions which have a technical basis—a clear route out for instance—rather than a behavioral one—trained guides for example. A design which heavily relies on specialized behavior for its use or maintenance can suffer mightily from turnover in personnel and subsequent loss of knowledge, from under-staffing and plain incompetence, and from unanticipated change in use or procedure (because that never happens, right?). Plus there is the laziness factor. Any building which is too demanding of its occupants is a failure.

Sadly of course there is another side to this. A technical bias can lead to an over-reliance on such things as monitoring systems which are themselves prone to failure, may be expensive, or just be inappropriate measures. People can forget the reasons why systems were installed, thus leading to various stupidities, and often assume that a decreased demand for vigilance (say, not needing a 24-hour security guard) actually means that none is required (leading to having no one responding to an alarm). Much as I desire it, there is no substitute for common sense.



GLOSSARY

These are the terms as we are using them.

Aims - very similar to goals, general and broad brush, without a time element. Not a term we actually use.

Behavior String - our own term for chunks of function. We are trying to describe experiential, sensual, functional blocks of time spent by a person or group. A short description of the actions performed in the desired frame of mind (or mood) and some indication of how often and when will really do the trick.

Effort Level - a threshold, which might be standard or aggressive, or even weak. Success has effort measures inherent.

Goal - what is hoped to be attained by the undertaking. Broad, intangible but describable, has a deadline. A point or state to be achieved. It is a destination of a journey.

Guidelines - often a published document from a group that seek to simplify a set of processes with regard to an established habit or practice; non-compulsory, and generally analogous to principles.

Hierarchy of Needs - We began with Maslow's famous pyramid, read some criticism and expansion of his theories by Ed Diener et. al., and then looked for the architectural implications of what we understood. In others words, there are plenty of imperfections and cultural biases (including our strongly individualistic tendencies) but this is our best working tool at the moment for remembering the oft unstated and for assigning priorities.

Impetus - the will, the spirit, the energy and the commitment of resources. The spirit will derive from the purpose or mission of the person, or group.

Measure - a smaller unit of an Objective, with a little more detail attached. They represent parameters of the level of change in the Objective to which they're linked. To some extent, they also imply who sees the impact of that change, who the audience is.

Mission - the overall purpose of a group or organization—but not that of a project. A singular vision often with a statement of how it will be fulfilled. A project's justification will often be rooted in here. This is analogous to purpose, but we use Mission as a term when it applies to a large group or organization, any bunch of people who tend to act as a single body.

Objectives - clearly accomplishable distinct item, generally describing a physical space or system. Specific, measurable, validate-able, reasonable, precise concrete action and object. It is a change, starts with a verb. The "when" portion represent at what times that functional element of the building will be used, i.e. weekly, 9-5, seasonally, continually, once, rarely, etc.

Policies - generally the compulsory form of guidelines.

Principles - they define the value in a moral sense or establish an obligation. They are guidance, decision makers for action and thus start with verbs. Project principles describe the values the building will embody.

Priorities - They have an urgency, a time component to them; they are not just hierarchical. The other component of priorities is resource allotment. That allotment is not based on what is available, nor even what is necessary to accomplish the task but a level of commitment that that ranking commands.

Procedures - methods to be followed in doing things, implemented protocols. Step by step instructions. For us, analogous to principles.



Program – a planning and evaluation document to describe the reason for a project with some general criteria and standards for design. It is an overall plan or schedule, an approach to solving the problems which gave rise to the project.

Project – an endeavor, the process. Architects, working project by project, design in service of an object in service of an experience.

Protocols – methods to be followed in doing things, with a connotation of formality. For us, analogous to principles.

Purpose – this is like a goal but has no deadline. It is the reason that one has a goal. It's rooted in values and beliefs. It is not measurable. It can be termed a fundamental human need, to have meaning for one's actions. It is the vision, for some. We use this term when it is an individual or a small aggregate of people.

Sensitive Receptors – those populations who are especially vulnerable to disruption or worse by stimuli which would not be considered intrusive in other circumstances. Conversely, some populations and functions tend to be producers of high levels which make them difficult neighbors.

Sensitive Receptor Ranking - Applying a sensitive receptor ranking to each behavior string precludes one of the needs for a traditional space adjacency chart (e.g. understanding which spaces need to be buffered from each other). The other reason for a space adjacency chart, comprehending the positive relationships that certain spaces ought to have for one another is much more completely understood with the use of the behavior string themselves.

Service Life – a single time span declared at the outset, usually in the Project Goals Narrative, to be used for all durability calculations, risk analyses, life cycle analyses, investment calculations, and similar calculations and predictions used in designing the project. It is calculated as being the life expectancy of the Owner's purpose plus a 25% margin so that early failures do not become a burden near the end and so that a take-over by a new owner or a new purpose can have a window of operating time for re-grouping before financial outlay becomes necessary.

Starting Conditions – a combination of the resources (at least, those which are committed to the project), the conditions which work and those cause discomfort. The Site Analysis Report will assess many of the starting conditions.

Target – generally performance criteria, standards. The desired value, in the sense of magnitude, of the Measure. Broadening them means less energy and resources are needed to get from the start to the finish, or in other words, by moving the finish line closer to where one is to begin with. Overshooting a target can be problem, meaning trouble managing the success (way more business generated than can be handled, or excess stuff generated that must be sold off) as well as the suspicion of an inappropriate expenditure of resources.

Value Functions – they translate values to a measurement unit

Values – utilities, preferences, satisfactions, etc. Stemming from our beliefs about the world.

Weights – aggregation of value from different goals into a score, to work out trade-offs between goals or objectives.

Daphne Dodds Cothren

