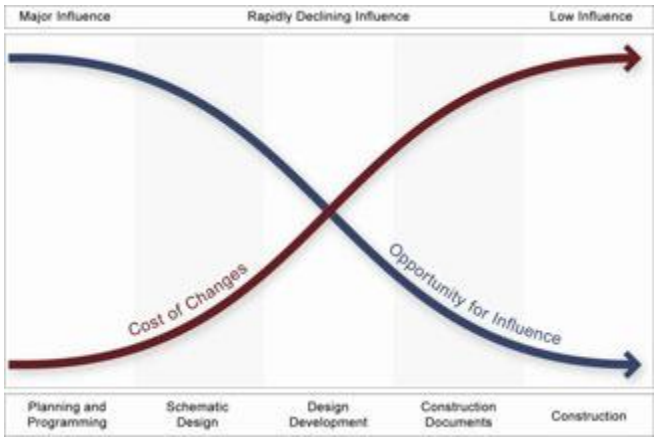
# METODA PERANCANGAN ARSITEKTUR II

## PERTEMUAN KEDELAPAN + DUKUNGAN MULTIMEDIA + DISKUSI



- PERANCANGAN BERDASARKAN PROGRAM
- PENYUSUNAN KRITERIA DAN KONSEP RANCANGAN

## ▪ PERANCANGAN BERDASARKAN PROGRAM




Pada tahun 1980 dan 1990-an, beberapa sekolah arsitektur meng-hapus mata kuliah pemrograman arsitektural/ *architectural program-ming* dari kurikulumnya. Gubahan massa pada proses desain sangat dipengaruhi oleh penekanan dari agenda *Post-Modern* and *Decons-truction*. Pemrograman dan perha-tian terhadap para pengguna ge-dung bukan merupakan prioritas.

Saat ini, beberapa generasi arsitek tidak terlalu akrab dengan istilah *architectural programming* dan keuntungan-keuntungan yang ditawarkan:

- Keterlibatan pihak-pihak yang berkepentingan dalam mendefinisikan *the scope of work* sebelum dilakukan upaya-upaya desain.
- Penekanan dilakukan pada penggabungan dan analisis data di awal proses desain, sehingga desain berdasarkan pada keputusan-keputusan yang bulat.
- Efisiensi dicapai dengan menghindari redesain dan semakin banyak redesain begitu kebutuhan semakin meningkat selama proses *architectural design.*

*The most cost-effective time to make changes is during programming. This phase of a project is the best time for interested parties to influence the outcome of a project.*

Pendekatan desain "*whole building*" ditujukan *"to create a successful high-performance building."* Untuk mencapai tujuan itu, kita harus mengaplikasikan pendekatan desain yang terintegrasi pada proyek selama fase-fase *planning and programming*. Semua orang yang terlibat di dalam desain suatu gedung sebaiknya berinteraksi secara intensif dengan proses desain. *The owner, building occupants, and operation and maintenance personnel* sebaiknya terlibat untuk menyumbangkan pengetahuan mereka terhadap, bagaimana gedung dan sistem-sistemnya akan bekerja bagi mereka begitu mereka menggunakan gedung bersangkutan. Tantangan mendasar dari desain "*whole building*" adalah untuk mengerti bahwa seluruh sistem dalam suatu gedung memiliki saling kebergantungan/ *interdependent. (Source: WBDG Web site, the goal of "Whole Building" design).*

*Levels of Programming*

*Programming* = pemrograman dilakukan untuk beragam tujuan dan akan berdampak pada tingkat investigasi dan kemungkinan untuk disampaikan kepada yang berkepentingan. Sebagai contoh, pemrograman pada tingkat *master planning* lebih strategis dalam memberikan informasi kepada para pemilik bangunan untuk membuat keputusan yang berhubungan dengan kebutuhan-kebutuhan ruang masa kini dan di masa yang akan datang beserta garis besar pembiayaan untuk implementasi. Pemrograman pada tingkat proyek individual menyiapkan informasi rinci yang spesifik untuk memberikan arahan bagi perancangan suatu gedung.

*An Architectural Programming Process*

*The following discussion is intended to provide a clear process for conducting the research and decision-making that defines the scope of work for the design effort. It is imperative that the major decision-maker—the client-owner—allows participation of all of the stakeholders, or the client-users, who are affected by the design. Experience has shown that client-users' involvement in the programming process results in designs that can be optimized more efficiently.*

***ORGANIZING FOR THE PROGRAMMING EFFORT***

*Design programming should involve the parties that are affected by the design solution.*

*Prior to the beginning of the process of programming a project, the programmer and the client-owner develop a list of the stakeholders to be involved. One organizational method is to form a Project Programming Committee with representatives from the stakeholder groups. For example, if the project is to be an office/ classroom building for the humanities department at an institution of higher education, the Project Programming Committee could include representatives from the involved academic department(s), faculty, students, and building operations and facility maintenance departments.*




*Lines of communication must be established to determine how and when meetings will be called, what the agenda will be, how contacts will be made, and how records of the meetings will be kept. The authority of the committee must be made clear. In the example above, the committee's authority will be to make recommendations to the college authorities. Within that framework, the committee must decide how it will make decisions as a committee (by consensus? majority rule? other means?).*

***A SIX-STEP PROCESS***

*Many different programming formats incorporate the same essential elements. In all cases, the design programming fits within a larger context of planning efforts which can also be programmed. For design programming for a building, we propose a six-step process as follows:*

1. *Research the project type*
2. *Establish goals and objectives*
3. *Gather relevant information*
4. *Identify strategies*
5. *Determine quantitative requirements*
6. *Summarize the program*

*1) Research the Project Type*

*This step is necessary if the programmer is working on a project type for the first time. The programmer should become familiar with some of the following relevant information:*

- *The types of spaces frequently included in the building type,*
- *The space criteria (number of square feet per person or unit) for those spaces,*
- *Typical relationships of spaces for these functions,*
- *Typical ratios of net assignable square footage (NASF—areas that are assigned to a function) to gross square footage (GSF—total area to the outside walls) for this building type,*
- *Typical costs per square foot for this building type,*
- *Typical site requirements for the project type,*
- *Regional issues that might alter the accuracy of the data above in the case of this project, and*
- *Technical, mechanical, electrical, security, or other issues unique to the project type.*

*This information can be obtained from literature on the building type, analysis of plans of existing projects, expert consultants familiar with the building type, and/or cost estimating services.*

*2) Establish Goals and Objectives*

*Working with the committee, the programmer solicits and suggests broad goal statements that will guide the remainder of the programming process. (See Design Objectives on the WBDG Web site.) Each of the following categories of goals should be addressed:*

- *Organizational Goals: What are the goals of the owners? Where do they see their organization headed? How does this architectural project fit into this broad picture?*
- *Form and Image Goals: What should be the aesthetic and psychological impact of the design? How should it relate to the surroundings? Should its image be similar to or distinct from its neighbors? From other buildings belonging to the owner that are located elsewhere? Are there historic, cultural, and/or context implications?*
- *Function Goals: What major functions will take place in the building? How many people are to be accommodated? How might the building design enhance or impact occupant interactions?*
- *Economic Goals: What is the total project budget? What is the attitude toward initial costs versus long-range operating and maintenance costs? What level of quality is desired (often stated in relation to other existing projects)? What is the attitude toward conservation of resources and sustainability (energy, water, etc.)?*
- *Time Goals: When is the project to be occupied? What types of changes are expected over the next 5, 10, 15, and 20 years?*
- *Management Goals: These goals are not so much an issue of the nature of the project as they are the circumstances of the owner, clients, programmer, or architect. For example, perhaps the schematic design must be completed in time for a legislative request application deadline.*

*3) Gather Relevant Information*

*Based upon the goals, the categories of relevant information can be determined and researched. Typical categories include:*

- *Facility users, activities, and schedules: Who is doing what, how many people are doing each activity, and when are they doing it?*
- *What equipment is necessary for activities to function properly? What is the size of the equipment?*
- *What aspects of the project need to be projected into the future? What is the history of growth of each aspect that requires projection?*
- *What are the space criteria (square feet per person or unit) for the functions to take place?*
- *What other design criteria may affect architectural programming: access to daylight, acoustics, accessibility, campus/area design guidelines, historic preservation, etc.?*
- *Are there licensing or policy standards for minimum area for various functions? What are these standards?*
- *What are the energy usage and requirements?*
- *What code information may affect programming decisions?*

- *Site analysis: the site is always a major aspect of the design problem and therefore should be included in the program. Site analysis components that often affect design include:*
  1. *Legal description*
  2. *Zoning, design guidelines, and deed restrictions and requirements*
  3. *Traffic (bus, automobile, and pedestrian) considerations*
  4. *Utility availability (a potentially high cost item)*
  5. *Topography*
  6. *Views*
  7. *Built features*
  8. *Climate (if not familiar to the designer)*
  9. *Vegetation and wildlife*
- *Client's existing facility as a resource*
  1. *If the client is already participating in the activities to be housed in the new facility, it may be possible to make use of information at hand. Determine if the existing facility is satisfactory or obsolete as a resource.*
  2. *If a floor plan exists, do a square foot take-off of the areas for various functions. Determine the building efficiency (the ratio of existing net-to-gross area). This ratio is useful in establishing the building efficiency target for the new facility.*
  3. *If the client is a repeat builder (school districts, public library, public office building, etc.), obtain plans and do area take-offs; determine typical building efficiencies.*
  4. *Use the existing square footages for comparison when you propose future amounts of space. People can relate to what they already have. (See illustration above in Step 5, Determine quantitative requirements.)*

*4) Identify Strategies*

*Programmatic strategies suggest a way to accomplish the goals given what one now knows about the opportunities and constraints. A familiar example of a programmatic strategy is the relationship or "bubble" diagram. These diagrams indicate what functions should be near each other in order for the project to function smoothly. Relationship diagrams can also indicate the desired circulation connections between spaces, what spaces require security or audio privacy, or other aspects of special relationships.*

*Other types of strategies recur in programs for many different types of projects. Some examples of common categories of programmatic strategies include:*

- *Centralization and decentralization: What function components are grouped together and which are segregated? For example, in some offices the copying function is centralized, while in others there are copiers for each department.*
- *Flexibility: What types of changes are expected for various functions? Do facilities need to change over a period of a few hours? A few days? A summer recess? Or is an addition what is really needed?*

- *Flow: What goods, services, and people move through the project? What is needed at each step of the way to accommodate that flow?*
- *Priorities and phasing: What are the most important functions of the project? What could be added later? Are there ongoing existing operations that must be maintained?*
- *Levels of access: Who is allowed where? What security levels are there?*

*Ideally, each of the goals and objectives identified in Step 2 will have some sort of strategy for addressing that goal. Otherwise, either the goal is not very important, or more discussion is required to address how to achieve that goal or objective.*

*5) Determine Quantitative Requirements*

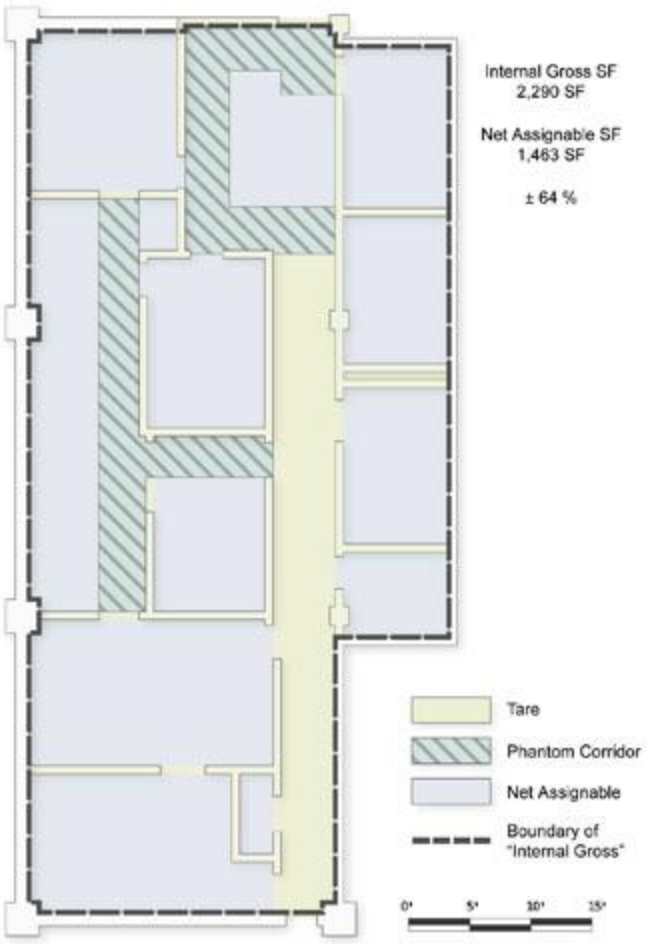



*Cost, schedule, and affordable area are interdependent. Costs are affected by inflation through time. Affordable area is determined by available budgets.*

*In this step, one must reconcile the available budget with the amount of improvements desired within the project time frame. First, a list of spaces is developed to accommodate all of the activities desired (see Exhibit A). The space criteria researched in Step 3 are the basis of this list of space requirements. The space requirements are listed as net assignable square feet (NASF), referring to the space assigned to an activity, not including circulation to that space.*

*A percentage for "tare" space is added to the total NASF. Tare space is the area needed for circulation, walls, mechanical, electrical and telephone equipment, wall thickness, and public toilets. Building efficiency is the ratio of NASF to gross square feet (GSF), the total area including the NASF and tare areas. Building efficiency equals NASF/GSF. The building efficiency for a building type was researched in Step 1 and possibly Step 3. See Exhibit A for an example of space requirements.*

*The building efficiency of an existing space used by a client can inform the selection of the net-to-gross ratio. The example below of an office suite within an office building illustrates the areas of net assignable square feet and tare area. Notice that some space within an office is considered circulation, even though it is not delineated with walls. We call this circulation, "phantom corridor."*




*In the case of a tenant improvement within a larger building, one establishes the "internal gross" of the leased space. Additional support space or tare area such as mechanical rooms and public toilets would not be included in the calculation for this project type.*

*The desired GSF is then tested against the available budget (see Exhibit B). In drafting the total project cost, the programmer uses the cost per square foot amount researched in Step 1. Factors for inflation should be included, based upon the project schedule. Costs should be projected to the date of the mid-point of construction because bidders calculate estimates on the assumption that costs could change from the time of the bid date.*

*The total project cost includes the construction cost (for building and site work), plus amounts for architect's fees, furniture and equipment, communications, contingency, printing for bid sets, contingency, soils tests, topological surveys, and any other costs that must come from the owner's budget. The intention is to help the owner prepare for all the project costs, not just those costs assigned to construction.*

*If the bottom line for the project costs is more than the budget, three things can happen: 1) space can be trimmed back or delegated to a later phase (a reduction in quantity); 2) the cost per square foot can be reduced (a reduction in quality); or 3) both. This reconciliation of the desired space and the available budget is critical to defining a realistic scope of work.*

*6) Summarize the Program*

*Finally, once all of the preceding steps are executed, summary statements can be written defining "in a nut shell" the results of the programming effort. All of the pertinent information included above can be documented for the owner, committee members, and the design team as well. The decision-makers should sign-off on the scope of work as described in the program.*

Begitu suatu program selesai dan disetujui oleh klien, informasi yang diperoleh harus diintegrasikan ke dalam proses perancangan. Beberapa klien

menginginkan para programer tetap terlibat setelah *programming phase* untuk meyakinkan bahwa kebutuhan dan persyaratan yang ditentukan dalam program direalisasikan dalam proses perancangan.

## ▪ PENYUSUNAN KRITERIA DAN KONSEP RANCANGAN

Berdasarkan uraian di atas, kita akan mencoba menyusun Kriteria dan Konsep Rancangan. Secara mendasar kedua istilah di atas dapat dibedakan sebagai berikut:

1. Kriteria yang secara harfiah berarti *standard for judging things by*, yaitu standar-standar yang digunakan untuk meyakinkan sesuatu (dalam hal ini rancangan arsitektur) sedemikian rupa, sehingga rancangan tersebut dapat diakui sebagai sesuatu yang secara normatif (aturan=ketentuan) benar.
2. Konsep rancangan, prinsip dasar yang diambil (melalui pemikiran perancang) berdasarkan permasalahan rancangan yang telah terumuskan guna menyelesaikan permasalahan bersangkutan.