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Program of Rooms/Spaces for Building Design Guidelines

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1.0 PURPOSE

The purpose of this document is to serve as a guide for preparing the Program of Rooms/Spaces for Building Design for projects executed by the Architect/Engineer A/E on behalf of the Entity.

2.0 SCOPE

The Program of Rooms/Spaces for Building Design are project-specific documents produced during the Preliminary Engineering (PE) phase. These documents are the result of close consultation with the Client in collecting data on their spatial requirements and converting it into useful information. The listing of rooms/spaces and their sizes provides a basis for developing the building design. The Project Engineer (PE) and the Architect shall be responsible for developing these documents. See Template 1, EPM-KEA-TP-000004 - Program of Rooms/Spaces for Building Design.

3.0 ABBREVIATIONS, ACRONYMS AND DEFINITIONS

Definitions	Description
A/E	The A/E is any organization including their sibs who are responsible for the design of the project including EPC Contractor or Specialty Consultants or organizations providing engineering support during design or construction.
Benchmarking	An evaluation that identifies quantified performance levels from precedents and appropriate levels of performance with specific, quantitative insight and best practices for a project.
CGSF	Component Gross Square Meters. Total Net Square Meters multiplied by unit circulation, where the unit circulation would be the additional space allocated for circulation. Working off the net space required by the user, the unit circulation is a load factor multiplied to the sum of net spaces thereby deriving the gross space required.
Entity	The Entity refers to any Government Ministry or EPMO or any organization hired by the Government Ministry on their behalf.
RICS	Property Measurement Manual, 1st Edition
GBU	Global Business Unit
GFA	Gross Floor Area. An all-inclusive measurement of building area to the exterior surface of the building. The term “Gross Program Area” is synonymous.
HSW	Health, Safety and Welfare
NSF	Net Square Meters. A description of the area assigned to a certain function and excludes all circulation space and walls. The terms “Net Assignable Area” and “Net Program Area” are synonymous.
NGR	Net to Gross Ratio. A ratio that accounts for shared spaces, such as circulation, interior walls, mechanical / electrical spaces and lobby space. The term “Gross-Up Factor” is synonymous.
PJB	Pre-Job Brief
Program	The architectural research and decision-making process that identifies the scope of work to be defined. The terms “brief”, “scoping”, “facility programming” and “functional and operational requirements” are synonymous.
RFP	Request for Proposal
PE	Preliminary Engineering

4.0 PERFORMANCE-BASED AND PRESCRIPTIVE-BASED INFORMATION

There are two approaches to architectural programming that are based on the quality and quantity of Client-provided information.

A performance-based approach utilizes Client-provided criteria and minimum quantity data which describes the purpose of a building asset and desired results. From this data, consultation with the Client is conducted to develop and analyze a list of rooms / spaces and their areas.

A prescriptive-based approach utilizes detailed and comprehensive Client-provided data which describes the rooms / spaces needed. From this data, consultation with the Client is conducted to analyze and verify the Client-provided list of rooms / spaces and their areas.

4.1 Client-Provided Information in Performance-Based Approaches (if applicable)

For the performance-based approach, the following items may be provided by the Client in the Request for Proposal (RFP) or at the start of the PE phase:

- The need for a building but without a specific program or site
- Budget
- Building type
- Administrative organizational chart with number of staff, both present and projected
- Examples of other similar buildings
- Site survey or photograph

4.2 Client-Provided Information in Prescriptive-Based Approaches (if applicable)

For the prescriptive-based approach, the following items may be provided by the Client in the RFP or at the start of the PE phase:

- Detailed program of rooms / spaces, listing required functional spaces and area requirements for each User Group occupying the building
- Projected occupant loading by each User Group
- Site survey
- Existing floor plan if the project is a building renovation or addition
- Codes and standards compliance

5.0 INFORMATION GATHERING

- Identify Client's Goals and Values
- The A/E shall consult with the Client to identify goals and values of the project and express them in the programming. Many of these goals and values may evolve over the course of the design process and can be one or a combination of the following factors:

    - Economic - Consideration of the total project budget, including initial and long-range costs, the quality of the materials and the level of sustainability desired.
    - Form and Image - Identify the aesthetic context of the project site, the form and image desired by the Client and how the design will impact its surroundings.
    - Functional - Determine the functionality of the building so that the building design is tailored to create a healthy and productive environment.
    - Organizational - Identify how the project will be compatible with where the organization is headed.
    - Time - Identify when the project is to be occupied and the changes to the organization envisioned in the expected lifetime of the project.

5.1 Identify Requirements of the Building(s)

Once the goals and values of the project are established, the specific space needs of the building(s) are to be identified. The A/E, in consultation with the Client, shall:

- identify the required spaces for each User Group
- establish the size of the spaces
- establish the relationship of the spaces through adjacencies
- select a target Net to Gross Ratio (NGR) of building efficiency programmed space verses circulation
- develop budget requirements based on established goals and values
- develop schedule requirements based on established goals and values

5.2 Research of Similar Building Projects

The purpose of identifying projects of the same building type and scope is to discover how their program execution of adjacencies, building systems, circulation, layout and materials were addressed. This research can help determine the range of possibilities and attributes that can apply to the building project. In addition, it is helpful in determining the appropriate area for non-programmed spaces. If possible, visit these identified projects to record additional insights on the performance of the buildings.

5.3 Literature Search and Review

The purpose of a literature search and review is to provide background knowledge of the Project. The A/E, with the assistance of the Client, are to gather relevant documents, such as site surveys, construction documents, relevant codes and government ordinances, building and planning standards, and archival materials. Information from other sources, such as professional publications and the Internet, can also be gathered.

5.4 Interview Client's Programming Participants

The A/E shall conduct interviews with the Client to refine a work plan and identify key personnel within the Client's organization to participate in the programming process. For large establishments, an organization chart is reviewed to identify who are knowledgeable about organization needs or who have decision-making authority.

5.5 Observation (if applicable)

The A/E can conduct a walk-through observation of an existing Client's building, conducting a space inventory with measurements and photographs, if allowed, to develop baseline information. Behavioral observation can document the functions of the building's occupants in relation to the building's spaces.

5.6 Questionnaires and Surveys

For large organizations, questionnaires and surveys can supplement interviews in gathering facts and quantitative details. These create large databases that need to be organized for collection and retrieval.

5.7 Group Sessions (if applicable)

The A/E is to conduct group sessions with User Groups for feedback of information obtained from other data gathering methods to achieve consensus on elements that will influence the building design. See Template 5 - EPM-KEA-TP-000024 Group Session and Notes.

6.0 ANALYSIS OF INFORMATION

The A/E is to analyze and develop the gathered data into a useful and understandable state. This shall take the form of Room / Space Listings, Room Data Sheets, Adjacency Matrices, Bubble Diagrams, and Blocking and Stacking Diagrams. Some information may be global and pertain to entities outside of the project, such as other departments or buildings. Other information may involve individuals and their needs. Preliminary site

analysis is often included in the program to describe the site, such as requirements for parking and access to roads.

The following documents are included in a deliverable to the Client:

7.0 ROOMS / SPACES LISTING

The A/E is to develop, in consultation with the Client, an inventory of rooms and spaces based on information gathering methods or directly from the Client. The inventory shall include room name, room quantity, room height and room area.

The A/E is referred to the RICS Property Measurement Manual, 1st Edition, as a basis of the project standard measurement convention for all required area calculations. The A/E will obtain any additional or revised calculation methodology as defined in the Property Measurement Manual as requested by the Entity. Upon approval of the agreed methodology by the Entity, the A/E will begin preparing the calculation This convention will include all necessary calculations required by the Entity for confirmation of floor space for planning, programmatic, financial and/or marketing reasons. It is essential to confirm these at the earliest stage of design as the calculation of these figures will directly apply to the program of areas and site design parameters and compliance with the overall project area requirements, site coverage and Floor Area Ratio (FAR).

7.1 Room Data Sheets

The A/E is to develop, in consultation with the Client, a Room Data Sheet for each room / space identified in the Room / Space Listing inventory. Data specific to each room / space is to be recorded on these sheets, such as room function, technical requirements, construction type, acoustic requirement and number of occupants, and a graphic depicting the room layout.

7.2 Adjacency Matrices

The A/E is to develop an interaction Adjacency Matrix that can either correspond to a specific floor for horizontal adjacencies or multiple floors for vertical adjacencies. See Template 4 - Interaction Adjacency Matrix. See Reference 3 for an example of an Interaction Adjacency Matrix using an alphabetic hierarchy.
An alphabetical listing of the rooms / spaces is strongly recommended for ease of reference. Add to, or delete entries from, spaces to the Matrix as required to accommodate the needed rooms and spaces.
Key adjacencies are recorded in the matrix template with an alphabetic hierarchy: **S** = Strong Adjacency; **C** = Close Adjacency; **N** = Neutral Adjacency; **A** = Avoidance.

The definitions and examples of the key adjacencies are as follows:

7.2.1 Strong Adjacency (S)

Mandatory proximity; next to each other optimally; adjacency critical to operational requirements. In Reference 3, Labor and Delivery has a strong adjacency to Nursery because of their linked operational requirements.

7.2.2 Close Adjacency (C)

Important proximity; can be next to each other or a short distance apart; desirable but not critical to operational requirements. In Reference 3, Emergency has a close adjacency to Pharmacy because of their desirable but not critical relationship.

7.2.3 Neutral Adjacency (N)

Flexible proximity; no apparent conflict or relationship between spaces; adjacency not critical to operational requirements. In Reference 3, Education has a neutral adjacency to Physical Therapy because of their lack of conflict or relationship.

7.2.4 Avoidance (A)

Mandatory separation due to conflict between spaces; critical detachment of spaces to achieve operational requirements. In Reference 3, Maintenance has an avoidance relationship to Surgery because of their conflict in operational requirements.

7.3 Bubble Diagrams and Relationship Adjacency Diagrams

The A/E is to develop two-dimensional, unscaled, simple graphics to explore and record the basic planning options, adjacencies, connections and circulation. Begin with bubble diagrams and develop the analysis to relationship adjacency diagrams. See Reference 1 for an example of a bubble diagram and Reference 2 for examples of Relationship Adjacency Diagrams.

7.4 Blocking and Stacking Diagrams

The A/E is to develop scaled diagrams showing groups within an organization, their relationship to other groups and to individuals within these groups. It is used to determine how program elements fit in a building envelope. Blocking is the summation of areas into blocks of space based on the desired adjacency. Stacking are blocks of space with three-dimensional adjacencies, with each unit represented by a volume of space. See Reference 4 for examples of Block and Stacking Diagrams.

8.0 AREA CALCULATION REPORTING

The A/E shall prepare area calculations based on the analysis and findings of the architectural program, and shall present these to the Entity and the participating User Groups. Workshops shall be conducted to receive feedback and adjust these deliverables.

The A/E shall then prepare a Report and Program that includes an executive summary, value and goal statements, conclusions of data analysis and documentation of the methodology used. The Program requirements shall include the Room / Space Listings, Room Data Sheets, Adjacency Matrices, and Blocking and Stacking Diagrams.

On approval of the initial area report and program and its calculation methodology, the report shall be continually updated throughout all stages of design and issued as part of the stage deliverables.

9.0 INSTRUCTIONS FOR PREPARING PROGRAM TEMPLATE

The Program document is prepared for the Project during the PE phase. It is developed through collaboration with the Client with the RFP serving as the basis for the Program document. The A/E shall be responsible for preparation of the Program document as follows:

9.1 Templates – Referenced for use with this Guideline

- EPM-KEA-TP-000004 - Template-Final Report of Program of Rooms / Spaces for Building Design
- EPM-KEA-TP-000021 - Template -Room Data Sheet
- EPM-KEA-TP-000022 Template -List of Rooms / Spaces with Areas
- EPM-KEA-TP-000023 Template -Interaction Adjacency Matrix
- EPM-KEA-TP-000024 Template -Group Session Meeting Agenda and Notes

9.2 Cover Sheet (if applicable)

- Fill in project-specific data (i.e.: blue text fields for project name, project number, document number, revision).

9.3 Headers and Footers

- In the header, fill in project-specific data (i.e.: blue text fields for project number, document number, revision). In the footer, remove the Design Guide number and “Attachment #”.

9.4 Standard Narrative

- Narrative text in black is standard and shall remain in the document. This narrative does not change.

9.5 Text Fields

- Blue text fields set within parentheses or carets are to be filled in with project-specific reference numbers.

9.6 Instructions

- Instructions in bracketed blue text shall be deleted when the instruction is complied with.

9.7 Narrative

- Narrative in blue text shall be changed to project-specific narrative content. This text shall be changed to black font.

9.8 Deleting and Adding Items (if applicable)

- Do not delete any section numbers or headings in Program templates unless directed by the Client. When items do not apply, leave section number and heading and replace the narrative with “Not Applicable”. Additional items that are project-specific can be added as required using sub-numbers to maintain the original Program template section numbering sequence.

9.9 Alteration of Format

- The format of the Program templates is not to be altered in any way.

9.10 Section Numbers (if applicable)

- The section numbers and sequence of the Program templates are to be maintained for the project-specific Program.

9.11 Obtain Approval

- The Client is responsible for the final review and comment. The A/E is responsible for the correction process of the Program and resubmittal to the Client if required.

9.12 Document Records

- Send the document to the Project Document Controller to log-in and file the document in ECMS