DEVELOPING PERFORMANCE-BASED REQUIREMENTS FOR DESIGN-BUILD PROJECTS

COURSE OVERVIEW

- KEY QUESTIONS
- DEFINITION OF TERMS & COMPARATIVE OVERVIEW
- TYPES AND ALLOCATION OF PROJECT REQUIREMENTS
- DEVELOPING PROJECT REQUIREMENTS IN DESIGN BUILD RFP DOCUMENTS
- BEST PRACTICE & WRAP- UP

KEY QUESTIONS

What are Performance Requirements?

How do we develop requirements in RFP on DB Projects?

What are some Industry Best Practices re: Requirements Development?

How to ask and create a measurable performance outcome ?

How can the Owner get what they want without owning the risk?

Is there a place for Prescriptive Requirements on DB Projects?

What are some drawbacks of Prescriptive Specs?

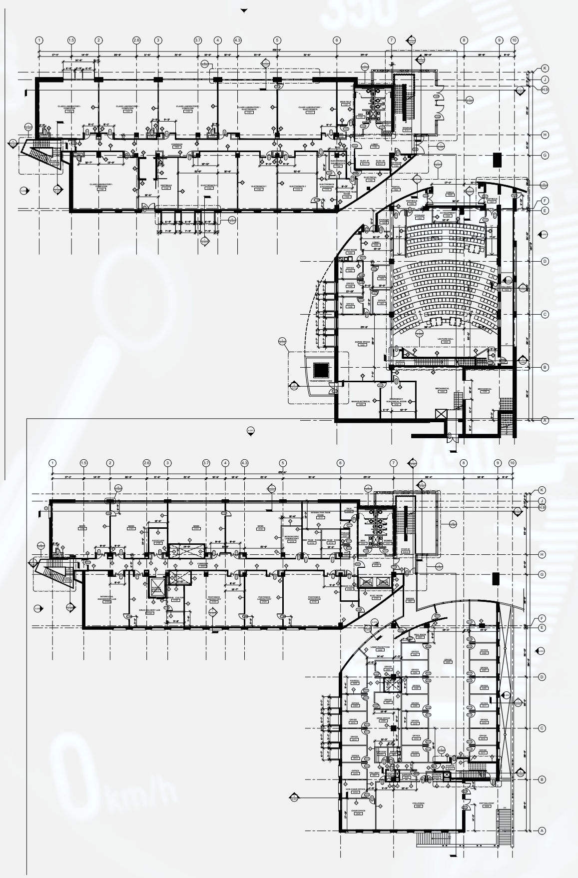
How to get the best benefits out of Design Build Delivery

PROJECT DOCUMENTS BRIDGING VS. CRITERIA

BRIDGING DOCUMENTS	CRITERIA DOCUMENTS
✓ Plans, specifications or other documents in the RFP that **prescribe HOW** to accomplish the owner's criteria requirements	✓ Instructions in the RFP that describe **WHAT** the owner expects but **NOT HOW**
✓ Owner is responsible for performance and cost of changes if resulting performance is not acceptable	✓ Design Builder is responsible to meet Owner's established Criteria Documents
✓ Design details of elements assembly and contents, layouts and dimensions, and specified products and materials	✓ Programming, levels of quality, performance specifications, standards, objectives and other measuring information

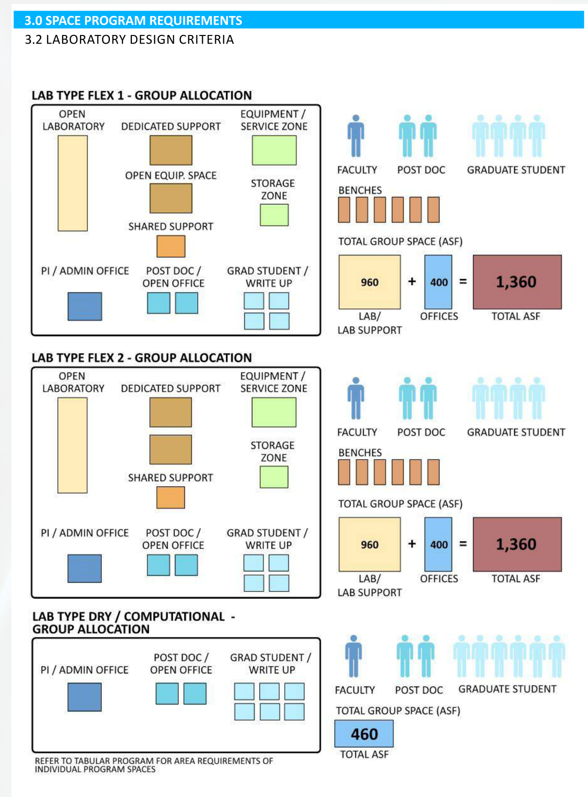
BRIDGING DOCUMENTS

- ✓ Owner responsible for results: Spearin Doctrine



CRITERIA DOCUMENTS

- ✓ Design Builder's Means and Methods to meet criteria



DEFINITIONS

PROJECT REQUIREMENTS PRESCRIPTIVE VS. PERFORMANCE

PRESCIPTIVE REQUIREMENTS

- ✓ AKA design Specification, Expressed in terms of specific product or configuration detail
- ✓ Traditional approach typical to design-bid-build documents
- ✓ Owner is responsible for performance and cost of changes if resulting performance is not acceptable
- ✓ No room for innovation
- ✓ Requirement is rigid and defined in detail: Prescriptive → Spearin Doctrine

PERFORMANCE REQUIRMNTS.

- ✓ Expressed in terms of an expected outcome or acceptable performance standard
- ✓ Includes a measurable objective
- ✓ Design Builder is responsible to meet Owner's established Performance requirements
- ✓ Approach allows the design-builder to innovate to meet requirements
- ✓ Cost effective and time efficient, relies on DB's expertise + Means and Methods

PRESCIPTIVE REQUIREMENTS

the right cabinet
for you

Thermo Scientific Herasafe KS biological safety cabinet

outstanding protection, comfort and performance for advanced applications

Thermo Scientific 1300 Series A2 biological safety cabinet

exceptional efficiency, safety and value for daily applications

specifications

Size/Width			3-foot	4-foot	5-foot	6-foot
Dimensions	Exterior dimensions W x H x D	in	39.4 x 62.4 x 31.5	51.2 x 62.4 x 31.5	63.0 x 62.4 x 31.5	74.8 x 62.4 x 31.5
	Interior dimensions W x H x D	in	35.4 x 30.7 x 24.8	47.2 x 30.7 x 24.8	59.1 x 30.7 x 24.8	70.9 x 30.7 x 24.8
	Shipping dimensions[1] W x H x D	in	43.7 x 69.3 x 36.4	55.5 x 69.3 x 36.4	67.3 x 69.3 x 36.4	79.1 x 69.3 x 36.4
	Working height of front window	in	10			
	Maximum opening height of front window	in	30.4			
Weight	Net weight	lbs	375	441	507	617
	Shipping weight[1]	lbs	419	496	573	694
Electrical Data	Voltage	V	120			
	Frequency	Hz	60			
Filter Specification			H14 HEPA EN 1822, 99.995% MPPS			
Certification			NSF/ANSI 49, ETL, CE			
Ergonomics and Utilities	Lighting power	fc	>70	>70	>110	>120
	Receptacles		2 GFI duplex, one on each sidewall			
	Service valves		Up to 4 may be installed through access ports (2 on each side)			
			Up to 6 more may be factory-installed on rear wall (optional)			
10-Inch Work Aperture	Sound pressure level	dB (A)	<65			
	Energy consumption, operating set point[2]	W	210	275	350	435
	Energy consumption, Night Set-Back mode	W	40	40	70	70
	Heat output, operating mode (non-vented)	BTU/hr	717	938	1194	1484
	Heat output, Night Set-Back mode (lights off, non-vented)	BTU/hr	136	136	239	239
	Exhaust / inflow air volume, recirculated	cfm	255	342	428	514
	Exhaust volume, thimble ducted	cfm	332	444	556	668

PERFORMANCE REQUIRMNTS.

6.0 ARCHITECTURAL PERFORMANCE CRITERIA

6.2 GENERAL DESIGN CRITERIA

- Brick:
  - Using the accepted "U blend" – match existing precedence in dimensions, texture, color and pattern.
  - Brick should be used volumetrically, carefully detailed, and planned on a full module.
- Clear anodized or pre-finished aluminum:
  - Curtain wall and infill panels.
- Pre-finished aluminum or unfinished zinc:
  - Rain-screen cladding systems, equipment screens.
- Exposed architectural steel:
  - At sunshades, railings, projections, canopies, etc.
- Glass:
  - Insulated, low-e, selected for high transparency and low reflectivity.

- Materials that are discouraged include:
  - Cement plaster and EIFS.
  - Painted metal cladding in brightly or deeply saturated colors.
  - Glass: Reflective (i.e., exceeding the reflectivity of PPG Solarban 70), or deeply tinted.

7.0 SYSTEMS DESIGN AND PERFORMANCE CRITERIA

7.2 MECHANICAL SYSTEMS

Space Type	Minimum Ventilation	Temperature	Humidity	Supply System	Return / Exhaust System
Hazardous Chemical Storage (H-Occupancy)	6 ACH Continuous[1, 2] Negatively Pressurized	68 - 75°F ±2°F	N/A	Central AHU System	Hazardous Storage Exhaust System
Gas Cylinder Storage	6 ACH Continuous[1, 2] Negatively Pressurized	68 - 75°F ±2°F	N/A	Central AHU System	Central Lab Exhaust System
Central Chemical Storage (H-Occupancy)	6 ACH Continuous[1, 2] Negatively Pressurized	68 - 75°F ±2°F	N/A	Central AHU System	Hazardous Storage Exhaust System
Vivarium Holding 4-Racks (Mice or Rats)	12 ACH[3] Negatively, Neutrally, & Positively Pressurized[4]	68 - 75°F ±2°F	30 – 70% RH	Vivarium AHU System	Vivarium Exhaust System
Vivarium Holding 2-Racks (Mice or Rats)	12 ACH[3] Negatively, Neutrally, & Positively Pressurized[4]	68 - 75°F ±2°F	30 – 70% RH	Vivarium AHU System	Vivarium Exhaust System
Vivarium Holding 2-Racks (Mice or Rats)	12 ACH[3] Negatively, Neutrally, & Positively Pressurized[4]	68 - 75°F ±2°F	30 – 70% RH	Vivarium AHU System	Vivarium Exhaust System

DEFINITIONS

TYPES AND ALLOCATION OF PROJECT REQUIREMENTS

FUNCTIONAL

- HIGH LEVEL GOALS

PERFORMANCE

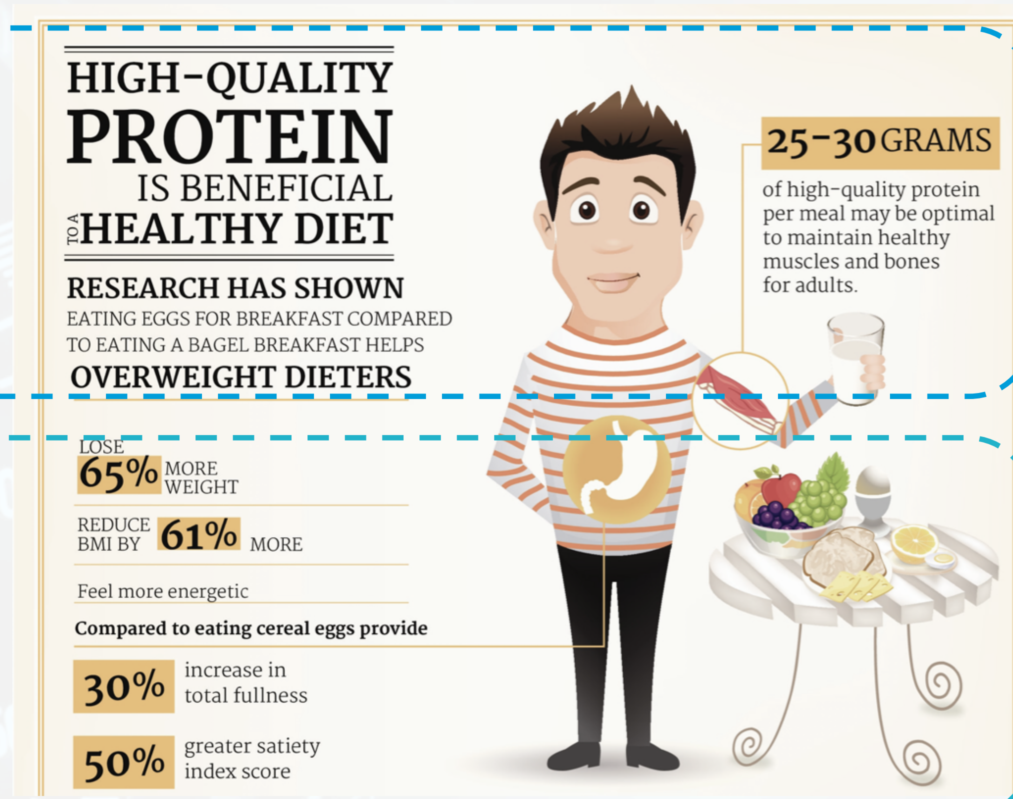
- CRITERIA WITH MEANSURABLE STANDARDS

DESIGN

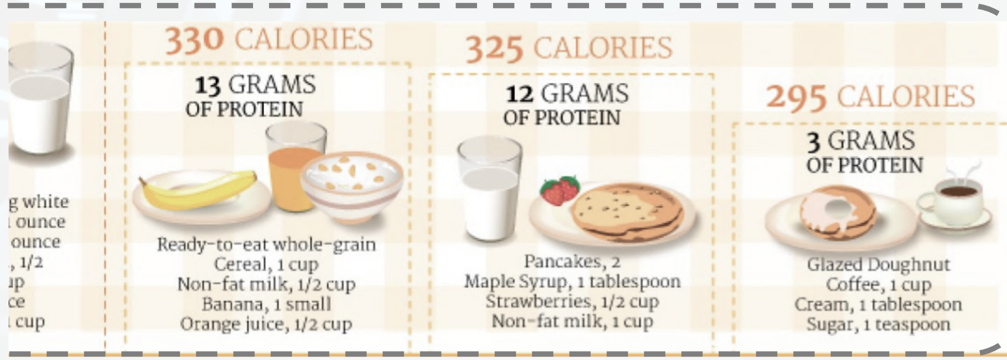
- SPECIFIC AND PRESCRIPTIVE

FUNCTIONAL REQUIREMENTS

PERFORMANCE REQUIREMENTS



PRESCRIPTIVE REQUIREMENTS



FUNCTIONAL REQUIREMENTS

EXAMPLE

Functional Goal: "Build an office bldg on my existing lot to provide office space for 1,000 workers."

Functional req (Stakeholders)

PERFORMANCE REQUIREMENTS

EXAMPLE

UniformatC 10, Interior Construction: "Provide durable, paintable interior walls between the offices with STC 35 (min)."

Performance (A/E 1)

PRESCRIPTIVE REQUIREMENTS

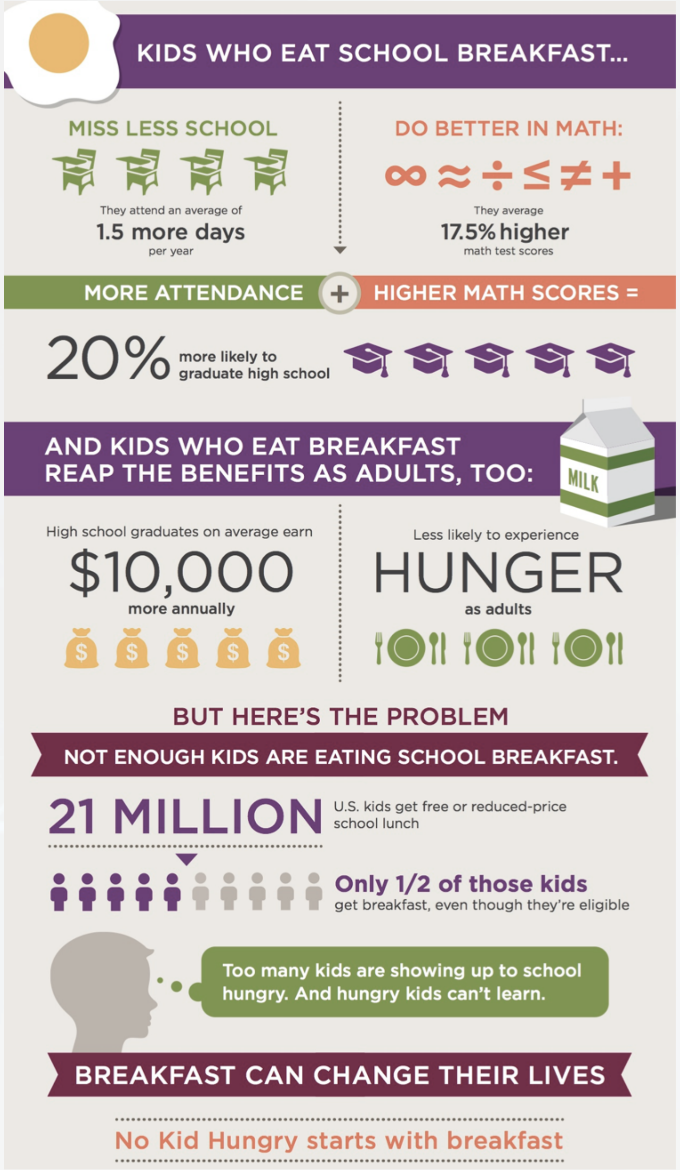
EXAMPLE

UniformatC 1010, Partitions: "Install gypsum wallboard on 3 5/8" metal studs at 16" o.c. with XX acoustical insulation per YY Standards."

Design spec (A/E 2)

FUNCTIONAL REQUIREMENTS

- Plain English expressions of goals, challenges and constraints.
- Describe at the highest possible level the stakeholders' vision of the goal
- Enumerate the issues surrounding its successful delivery.
- Example:
  - Space Program, project budget, occupancy date

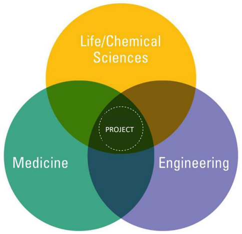


FUNCTIONAL REQUIREMENTS

- Plain English expressions of goals, challenges and constraints.
- Describe at the highest possible level the stakeholders’ vision of the goal
- Enumerate the issues surrounding its successful delivery.
- Example:
  - Space Program, project budget, occupancy date

1.0 EXECUTIVE SUMMARY

The Project will provide much needed research space to advance the University's strategic plan. The facility will be an important step towards achieving the primary goals of the strategic plan, which include substantial increases in student enrollment and research funding through the hiring of new scientific research and teaching faculty. The proposed facility will include laboratory and related laboratory support spaces, along with research cores that include a Vivarium, office space, scholarly activity and interactive spaces. All programmatic spaces will be arranged and designed in a manner to support cross-disciplinary collaborations while enhancing existing research synergies and shared campus resources.



The Project is envisioned to include approximately 142,000 gross square feet of new construction, and a minimum of 85,825 assignable square footage (ASF). The building will be located within the academic core adjacent to the existing Material Sciences & Engineering Building and the College of Engineering. A key planning element to the building will be its ability to support multiple themes of research at the intersection of Life/Chemical Sciences, Medicine and Engineering. The Project will be a flexible and adaptable building that will allow the accommodation of emerging research demands over the next several decades.

Project goals:

- Designed to improve faculty recruitment.
- Expand University’s research capabilities.
- Address current and short-term research space needs.
- Establish a sense of place in the unique campus setting that strengthens the academic community.
- Provide adaptable and flexible laboratory, laboratory support, and core facilities to meet evolving research needs.
- Reflect a well-organized and welcoming environment that promotes scientific collaboration and cross-discipline research in an atmosphere that stimulates academic scholarship and provides opportunities for intellectual discourse to attract and retain the best faculty, graduate students and technical and support personnel.

TYPES OF REQUIREMENTS

PERFORMANCE REQUIREMENTS

- Engineering-oriented requirements
- Professional judgment of the performance level required to satisfy the stakeholders' functional needs
- Does not dictate how to achieve those needs.
- Must include an objective, measurable standard to validate solution

PERFORMANCE REQUIREMENTS

- Engineering-oriented requirements
- Professional judgment of the performance level required to satisfy the stakeholders' functional needs
- Does not dictate how to achieve those needs.
- Must include an objective, measurable standard to validate solution

Table 2- Background Noise Level Criteria	
Room Type	**Noise Criteria (NC)**
Conference Rooms w VTC capabilities	NC 25
Seminar Room, Conference Room (non VTC), Vivarium Imaging Suite	NC 30
Private Offices, Animal Holding Rooms, Behavioral Testing Rooms, Animal Procedure Rooms	NC 35
Research Labs without fume hoods, Open offices, Open Collaboration Spaces, Kitchenette/Scholarly Activity, Staff Lounge, Surgery, Euthanasia, Necropsy	NC 40
Corridors, Lobby, House Keeping, Laundry, Research Labs with fume hoods, Cage Wash, Rack Wash, Autoclave	NC 45

Airflow velocities in duct and at diffusers and grilles shall be strictly controlled, in accordance with Table 3 below, to limit background noise levels to the values listed in Table 2.

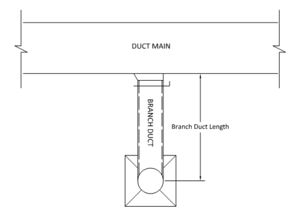


Table 3 - Maximum Recommended Outlet Airflow Velocities				
	Supply Side, 3-ft of acoustic flex at diffusers			
NC Criterion	**Branch duct and at diffuser neck**	**Duct main with 2.5-ft branch duct**	**Duct main with 5-ft branch duct**	**Duct main with 10-ft branch duct**
NC 25	425	625	765	1,000
NC 30	500	720	880	1,170
NC 35	600	880	1,080	1,200
NC 40	700	1,020	1,200	1,200
	Return Side, 3-ft of acoustic flex at grilles			
NC 25	500	750	915	1,155
NC 30	600	860	1,050	1,200
NC 35	700	1,045	1,200	1,200
NC 40	800	1,200	1,200	1,200

TYPES OF REQUIREMENTS

PRESCRIPTIVE REQUIREMENTS

- Complete specifications of exactly **how** a product, system or component must be built.
- States Means and Methods that are otherwise best left to the Expert: the Design Builder
- Prescriptive requirements include design specs and drawings and leave little to the performer.
- Represent the designer's professional judgment of the solution to a performance requirement: Spearin Doctrine Exposure
- Potentially driving up construction and lifecycle costs

PRESCRIPTIVE REQUIREMENTS

- Complete specifications of exactly **how** a product, system or component must be built.
- States Means and Methods that are otherwise best left to the Expert: the Design Builder
- Prescriptive requirements include design specs and drawings and leave little to the performer.
- Represent the designer's professional judgment of the solution to a performance requirement: Spearin Doctrine Exposure
- Potentially driving up construction and lifecycle costs

KEWAUNEE® Scientific Corporation

Enterprise Workstations

Extended Chase Support Frame Fittings

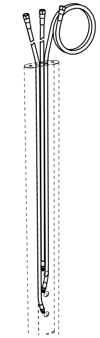
Specifications:

Internal Service Hoses are required to mount services on the workstation support frame. They are factory installed when ordered with the service fitting and are available in either reinforced PVC or braided stainless steel. The 3/8" hoses are furnished with a 1/4" IPS female outlet and either a 3/8" IPS female inlet or 3/8" IPS male quick-connect inlet. They are available in multiple lengths from 3 feet to 8 feet above the top of the post.

Double Ball Valves consist of a 90° wye turret with two chrome plated valves which provide on/off control of gas, air, or vacuum at pressures up to 75 PSI.

Double Needle Point Cocks consist of a 90° wye turret with two chrome plated valves with a brass floating cone and integral brass seat. They provide metering control of laboratory gases at pressures up to 60 PSI.

Internal Service Hoses (for FE33 Frames)



Reinforced PVC Hose
for Non-burning Gases
3/8" IPS Female Inlet
1/4" IPS Male Outlet

Part Number	Length (Above Top Of Post)
W-6134E36	36" ATOP
W-6134E48	48" ATOP
W-6134E60	60" ATOP
W-6134E72	72" ATOP
W-6134E96	96" ATOP

Braided Stainless Steel Hose
for Natural & Reactive Gases
3/8" IPS Female Inlet
1/4" IPS Male Outlet

Part Number	Length (Above Top Of Post)
W-6234E36	36" ATOP
W-6234E48	48" ATOP
W-6234E60	60" ATOP
W-6234E72	72" ATOP
W-6234E96	96" ATOP

Reinforced PVC Hose with Quick-connect Fitting
for Non-burning Gases
3/8" IPS Male Quick-connect Intlet
1/4" IPS Male Outlet

Part Number	Length (Above Top Of Post)
W-6136E36-K_	36" ATOP
W-6136E48-K_	48" ATOP
W-6136E60-K_	60" ATOP
W-6136E72-K_	72" ATOP
W-6136E96-K_	96" ATOP

Braided Stainless Steel Hose with Quick-connect Fitting
for Natural & Reactive Gases
3/8" IPS Male Quick-connect Inlet
1/4" IPS Male Outlet

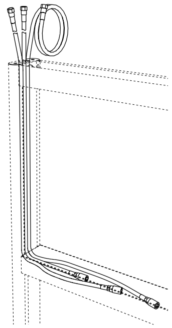
Part Number	Length (Above Top Of Post)
W-6236E36-K_	36" ATOP
W-6236E48-K_	48" ATOP
W-6236E60-K_	60" ATOP
W-6236E72-K_	72" ATOP
W-6236E96-K_	96" ATOP

Internal Service Hoses are required to mount services on the workstation support frame. They are factory installed when ordered with the service fitting and are available in either reinforced PVC or braided stainless steel. The 3/8" hoses are furnished with a 3/8" IPS female outlet and either a 3/8" IPS female inlet or 3/8" IPS male quick-connect inlet. They are available in multiple lengths from 3 feet to 8 feet above the top of the post.

Double Ball Valves consist of a 90° wye turret with two chrome plated valves which provide on/off control of gas, air, or vacuum at pressures up to 75 PSI.

Double Needle Point Cocks consist of a 90° wye turret with two chrome plated valves with a brass floating cone and integral brass seat. They provide metering control of laboratory gases at pressures up to 60 PSI.

Internal Service Hoses (for FE32 Frames)



Reinforced PVC Hose
for Non-burning Gases
3/8" IPS Female Inlet
3/8" IPS Female Outlet

Part Number	Length (Above Top Of Post)
W-6132E36	36" ATOP
W-6132E48	48" ATOP
W-6132E60	60" ATOP
W-6132E72	72" ATOP
W-6132E96	96" ATOP

Braided Stainless Steel Hose
for Natural & Reactive Gases
3/8" IPS Female Inlet
3/8" IPS Female Outlet

Part Number	Length (Above Top Of Post)
W-6232E36	36" ATOP
W-6232E48	48" ATOP
W-6232E60	60" ATOP
W-6232E72	72" ATOP
W-6232E96	96" ATOP

Reinforced PVC Hose with Quick-connect Fitting
for Non-burning Gases
3/8" IPS Male Quick-connect Inlet
3/8" IPS Female Outlet

Part Number	Length (Above Top Of Post)
W-6135E36-K_	36" ATOP
W-6135E48-K_	48" ATOP
W-6135E60-K_	60" ATOP
W-6135E72-K_	72" ATOP
W-6135E96-K_	96" ATOP

Braided Stainless Steel Hose with Quick-connect Fitting
for Natural & Reactive Gases
3/8" IPS Male Quick-connect Inlet
3/8" IPS Female Outlet

Part Number	Length (Above Top Of Post)
W-6235E36-K_	36" ATOP
W-6235E48-K_	48" ATOP
W-6235E60-K_	60" ATOP
W-6235E72-K_	72" ATOP
W-6235E96-K_	96" ATOP

DEVELOPMENT OF PROJECT REQUIREMENTS: HOW-TO PROCESS IN RFP

1. Determine & Prioritize Functional Requirements in alignment with Owner's budget and schedule

2. Develop Performance Requirements & Draft RFP in alignment with Owner's, budget, schedule, and the functional requirements

What is the project about, goals and objectives???

Consolidate Performance Requirements in the RFP Documentation

Prescriptive Requirements?

Only where and if absolutely necessary. Understand Risk to Owner.

1. Determine & Prioritize Functional Requirements in alignment with Owner's budget and schedule

Brainstorm to determine goals/constraints/ problems

Organize functional requirements

Include functional requirements in RFQ.RFP

Complete a risk assessment

Prioritize functional requirements

WORKING WITH THE STAKEHOLDERS

- Who's got an interest in the project?
- Who's got the money/ power/influence over the project?
- Who's got to live with/operate/maintain the completed facility?
- Who can stop you?
- Who can help you?

BRAINSTORMING FUNCTIONAL REQUIREMENTS

- What are your goals for project/facility?
- What are the challenges/constraints?
- What are the current issues ?
- What are your biggest project concerns?
- Do we have a common understanding of the nature of the facility? Aesthetics?
- New construction? Renovation?
- Site? Project phasing?
- Facility purpose/ operations/activities?
- Nature of building occupancy?
- Special requirements — security, organizational standards, etc?
- What's the project budget? What about Schedule: How flexible is it?
- What about life cycle cost?
- What's the operations and maintenance approach? Issues?
- What have we missed?

MISSION AND GOALS

The mission of will be to support multi-disciplinary research that is at the intersection of life/chemical sciences, engineering and medicine, with an initial emphasis on neurosciences, environmental studies and bioengineering. To that end, the following goals have been established for the project:

- has identified the need to increase its number of research faculty by approximately 300 by the year 2020. Maximizing the number of faculty-led research groups that can be supported by is a campus priority.
- Space in will not be apportioned to individual departments. Instead, it will be assigned by the campus, to be operated as a shared resource under a shared governance model.
- The researchers who will occupy have not yet been identified, but are likely to be selected as "cluster hires" who will pursue a number of new, multi-disciplinary research themes that have already been identified by as supportive of its strategic Plan".
- The initial research themes considered include the following:
  - Human Health & Well Being
    - Mammalian Neuroscience
    - Translational Neuroscience
    - Animal Neuroimaging
    - Pathology & Microbial Systems Biology
  - Energy, Environment & Sustainable Development
    - Environmental Toxicology
    - Multiphase Atmospheric Chemical Transformations
    - BREATHE Center
  - New Generation Technologies
    - Bioengineering
    - Engineered Materials & Devices
    - Autonomous & Intelligent Embedded Systems

The space program and laboratory design criteria has been developed to support these goals and research themes as documented in the sections that follow.

Functional objectives:

- A modular and open lab concept that enables assignment of space by individual research cluster.
- Flexible research space allocations to maximize space for future space assignments.
- Infrastructure to support active and evolving research programs.
- Easy incorporation of new utilities and technologies.
- Core research lab facilities for sharing of commonly used specialized equipment- both centralized on the lower floor and distributed on each of the laboratory floors.
- Provide shared campus resources through the shared research cores, seminar and meeting spaces.

Proposed program:

- Wet, damp and dry laboratories of various fume hood densities.
- Wet research labs will be designed to Biosafety Level 2 (BSL2).
- Flexible, multi-purpose laboratory support spaces that support a broad range of activities.
- Vivarium with centralized cage wash and a dedicated loading dock.
- Shell space for the future fit-out of centralized and distributed core laboratories.
- Offices, scholarly activity and meeting spaces.
- Public spaces that reinforce the collaborative aspirations for the facility to facilitate connections between groups and disciplines of researcher and activities both horizontally on the floor plan as well as vertically, breaking down the stratification of different levels of the building.

DEVELOPING REQUIREMENTS

2. Develop Performance Requirements…

Refine with Uniformat at Level 2

Select performance standards: Code requirements adequate?

Determine code+ and/or commercial/industrial/ organizational standards

Include in the requirements document

DETERMINING PERFORMANCE STANDARDS

- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- American National Standards Institute (ANSI)
- American Society for Testing and Materials (ASTM)
- National Electrical Manufacturers Association (NEMA)
- National Fire Protection Association (NFPA)
- National Electrical Code (NEC)
- Sheet Metal and Air Conditioning Contractors' National Association (SMACNA)
- Institute of Electrical and Electronic Engineers (IEEE), etc.

ESTABLISHING MEANS FOR SUBSTANTIATION

- Performance requirements should also describe the means of substantiation.
- Through what activity will the parties be able to measure compliance with the performance standard? Evaluation of design documentation? Testing? Visual examination? Measurement? Analysis?
- Accommodation in Budget and Schedule for adequate Testing and Inspection to verify compliance
- Align expectations and ensure the design-builder has priced the project correctly.

4.0 CODES AND REGULATIONS
4.2 CODE ANALYSIS

Accessible Means of Egress
Accessible spaces must be provided with not less than one accessible means of egress. Where more than one means of egress is required from an accessible space, each accessible portion of the space must be served by the same number of accessible means of egress [CBC §1007.1].

Accessible means of egress for the building are required to be continuous to a public way and may consist of one or more of the following components [CBC §1007.2]:

- Accessible routes complying with CBC Chapter 11.
- Stairways within vertical exit enclosures complying with CBC §1007.3 and §1020.
- Elevators complying with CBC §1007.4.
- Horizontal exits complying with CBC §1022.
- Platform lifts complying with CBC §1007.5.
- Smoke barriers.

In buildings where a required accessible floor is located four or more stories above or below a level of exit discharge, at least one accessible means of egress is required to be an accessible egress elevator complying with CBC §1007.4

4.0 CODES AND REGULATIONS
4.3 SUSTAINABILITY

4.3 SUSTAINABILITY

4.3.1 SUSTAINABILITY OVERVIEW
The design framework has been developed to reinforce the *Sustainable Practices Policy 2015* which establishes goals in nine areas of sustainable practices: green building, clean energy, transportation, climate protection, sustainable operations, waste reduction and recycling, environmentally preferable purchasing, sustainable foodservice, and sustainable water systems.

As stated in the policy "*the University is committed to responsible stewardship of resources and to demonstrating leadership in sustainable business practices. The University's locations should be living laboratories for sustainability, contributing to the research and educational mission of the University, consistent with available funding and safe operational practices.*" should reflect this commitment and shall be designed to meet or exceed the following minimum standards:

- Outperform the CBC energy-efficiency standards by at least 20 percent, with a desire to achieve 30 percent or more.
- Strive to optimize the energy efficiency of systems not addressed by the CBC energy efficiency standards.
- Meet the prerequisites of the I2SL Environmental Performance Criteria (EPC).
- Achieve a LEED - "Silver" certification.
- Achieve at least two points within the available credits in LEED-NC's Water Efficiency category.
- **IMPORTANT: Division One specification section "Sustainable Design Requirements, v2009" includes a USGBC checklist indicating University's referred credits.**

…Consolidate Requirements in the RFP Documentation

Draft the preamble, including the functional requirements

Ensure correct code invoked in requirements document

Group all performance requirements by Uniformat Level 2

Complete a quality check

Produce draft requirements document

PRODUCING THE DRAFT RFP

- Are the requirements and evaluation criteria written in such a manner that your innovative solution can be considered? If not, what changes are recommended?
- Are there inconsistencies or conflicts in the performance requirements?
- Are there conflicts in the RFP?
- Does the RFP clearly communicate the owner's requirements and priorities?

OVERVIEW OF PROJECT ACQUISITION RFP CONTENT

- Introductory narrative
- Include the prioritized functional requirements, if they're not already captured in the RFP preamble
- Include any other pertinent background information to help offerors put the requirements in context
- Applicable documents
- Invoke applicable codes, if necessary
- The performance criteria, grouped by Uniformat or other WBS element
- Resist working at a lower level of detail (for Uniformat, below Level 2)
- Consider an approach such as the SpecLink-E categories to group performance criteria within the WBS element

TABLE OF CONTENTS

COMPLETING A PROJECT RFP QUALITY CHECK

- Is each requirement attainable and feasible? Is it possible to construct a facility that meets this requirement?
- Is each requirement necessary? What would/could happen if this requirement were not included?
- Is the requirement unambiguous? Will all readers give the same interpretation?
- Is the requirement traceable from a higher-level functional requirement? If not, why is it included?
- Does the requirement have an objective, measurable standard and a means of substantiation?

Prescriptive Requirements?

Re-engage stakeholders to review prescriptive requirements

Elicit underlying rationale

Vet inclusion of each proposed prescriptive requirement

Finalize performance requirements document

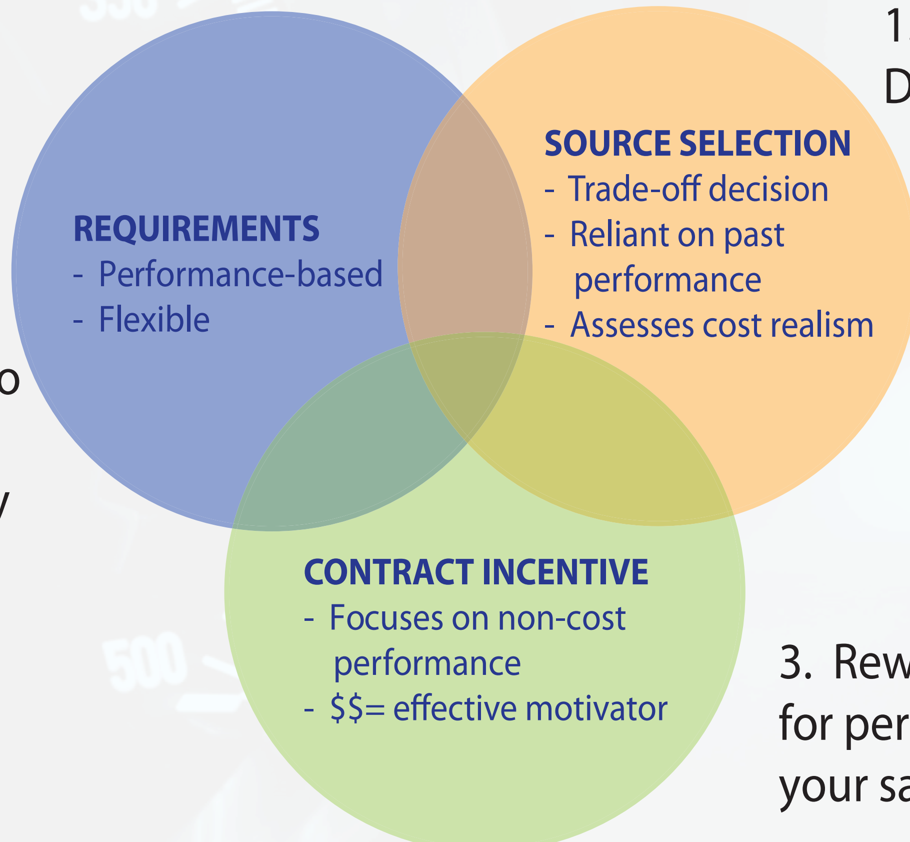
PRESCRIPTIVE REQUIREMENTS IN DESIGN-BUILD

- With prescriptive requirements, owner transfers risk and accountability back to itself
- It is not a best practice to have substantive prescriptive content on a design-build project
- Prescriptive requirements in design- build delivery may be necessary in specific cases and should be clearly communicated as such
- Typically, prescriptive content above 10 percent seriously diminishes the efficacy and value of design-build

BEST PRACTICE: ACQUISITION STRATEGY

1. Pick the right Design-Build team

2. Give them flexibility, opportunity to succeed & accountability



3. Reward them for performing to your satisfaction

PROJECT REQUIREMENTS AND DESIGN BUILD TEAM PROCUREMENT

	Stakeholders	Phase I RFQ/ Source Selection	Stakeholders +	Phase II/RFP Source Selection	Final Integrated Product Team
Team	•Team formed early--owner, tenant reps, users, project manager, A/E1, others		•Team expanded to include input from Phase I successful offerors		•Final team includes successful offeror
Req'ts	•Seeking to understand goals, constraints, problems		•Working to determine facility performance requirements		•During design phase, A/E2 determines design solution with input/insight from rest of team

BEST PRACTICE

USING RISK TO PRIORITIZE FUNCTIONAL REQUIREMENTS

Functional Requirement 1

Aesthetics compatibility with historic features of surrounding neighborhood

Risk

1A. If the fine arts commission disapproves exterior design, redesign may be required

1B. If limestone to match surrounding facades is not available, project may be delayed

1C. Etc.

Functional Requirement 2

Etc.

Probability

Unlikely → *Certain*

Impact (Severe ↑ Minor)

	1	2	3	4	5
5		*1A, 3F*		*5C*	*5G, 2B*
4				*2A, 2E*	*2F, 2G*
3	*2C, 3B*		*1B, 5F*	*2D*	*5D, 3A, 3D*
2	*3E, 5E*			*1C, 5A, 5B*	
1	*3C*		*4A, 4B*		

Example from the Guidelines

BEST PRACTICE

VAGUE AND UNCLEAR REQUIREMENTS TO AVOID

- Rapid or fast
- Etc.
- Some
- Another
- Too
- May
- Clearly
- Most
- Flexible
- High fidelity
- Adaptable
- Adequate
- User friendly
- Support
- Maximize
- Minimize
- And/or
- Easy
- Sufficient
- Adequate
- Quick

WRAP-UP

- After Award, the performance requirements document is the baseline against which acceptable contract performance is measured.
- Owner must establish the performance requirements as the minimum, with any proposed betterments taking precedence.
- It's the design-builder's responsibility to achieve the level of required performance.
- It's the owner's responsibility to have set that required level of performance
- It's the owner's responsibility to establish (and budget for) industry-accepted means of testing and inspection to validate requested performance is achieved by the Design Builder

REQUIREMENTS IN RFP MUST BE:

- ***Clear*** – conveys the intention of the author
- ***Complete*** – provides necessary information to carry out the next step, capable of standing alone
- ***Correct*** – no errors in the information content
- ***Concise*** – short and to the point
- ***Consistent*** – requirements don't contradict each other

BEST PRACTICE