

SPACE PLANNING AND MANAGEMENT
FORT WORTH, TEXAS
JANUARY 2023

PROCESS
IMPORTANCE
DEFINITIONS
INVENTORIES
MANAGEMENT
PROGRAM NEEDS
ANALYSIS
TRENDS

Space Planning

JOE BILOTTA,
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Space Planning and Management

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PROCESS

Program People Resources Plans

MASTER PLAN

LONG RANGE PLANS

PROJECT PLANS

IMPLEMENTATION (DESIGN AND CONSTRUCTION)

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2

WHY IS IT IMPORTANT?
HERMAN / Jim Unger

• **Largest Asset**
• **Provide Physical Environment**
• Program Needs
• Capital Assessments
• Research Reporting
• **Develop Priorities**
• Capital
• Maintenance
• **Statewide Analysis**
• **GOOD BUSINESS**

"Here, you want to be plant manager. Take care of this!"

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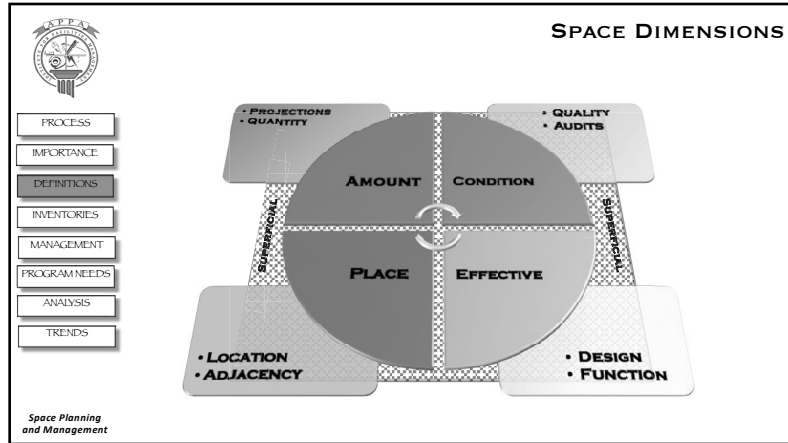
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SPACE USE NEEDED FOR.....

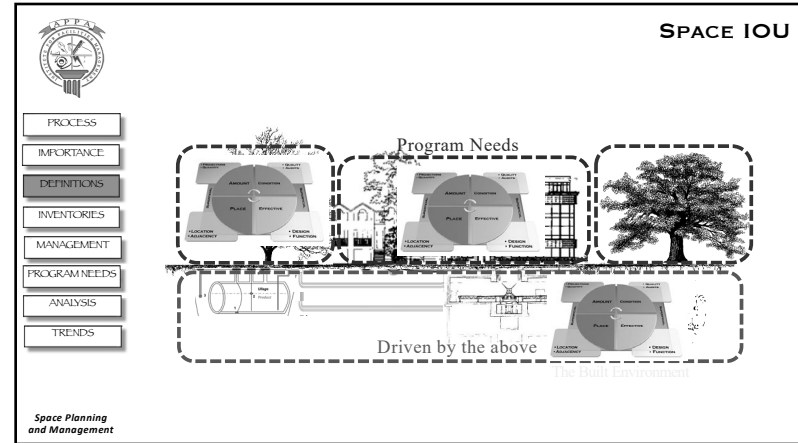
- Master Planning
- Long Range Planning
- Building Programming
- Accreditation Issues
- Budget/Funding Requests
- Maintenance/Repair and Replacement Issues
- Space Efficiency Studies
- Appropriate Space Allocations
- Understand Space Adjacencies
- Research Accountability
- Proper Space Use – Program Locations
- Operating Cost Allocations

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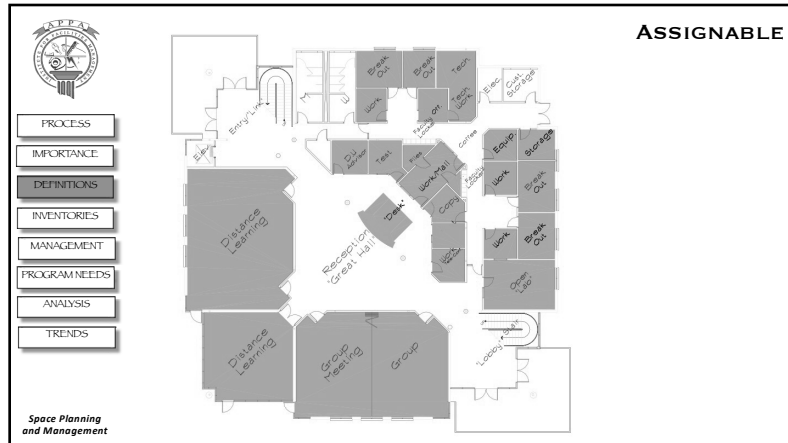
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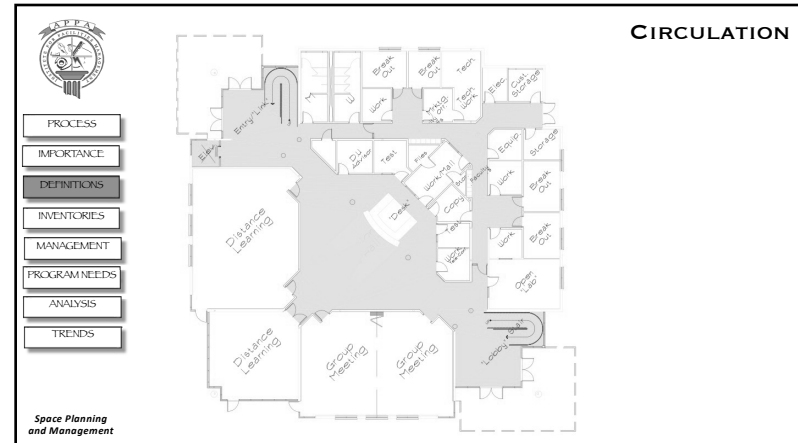
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7



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SOME FUN SPACE FACTS




Percent of Useable ASF – GSF

- Office
- Classroom
- Library
- Research Laboratory
- Other

Largest Campuses


Percent Campus Space



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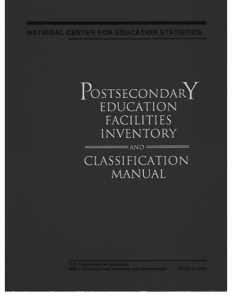
13

FICM



Post Secondary Education
Facilities Inventory and
Classifications Manual


National Center for Education
Statistics, Revised and Reprinted
April 1997, NCES (92-165r)
nces.ed.gov/pubs/92165.pdf



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MAJOR CLASSIFICATIONS



Classroom Spaces	100-199's
Laboratory Spaces	200-299's
Office Spaces	300-399's
Study Spaces	400-499's
Special Use Spaces	500-599's
General Use Spaces	600-699's
Support Spaces	700-799's
Health Care Spaces	800-899's
Residential Spaces	900-999's
Unclassified Spaces	000-099's

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CLASSROOM SPACES





110 Classroom
115 Classroom Service

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- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
- MANAGEMENT
- PROGRAM NEEDS
- ANALYSIS
- TRENDS



LABORATORY SPACES

210	Class Laboratory
215	Class Laboratory Service
220	Open Laboratory
225	Open Laboratory Service
250	Research/Nonclass Laboratory
255	Research/Nonclass Laboratory Service

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- IMPORTANCE
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OFFICE SPACES


310	Office
315	Office Service
350	Conference Room
355	Conference Room Service

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- IMPORTANCE
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STUDY SPACES

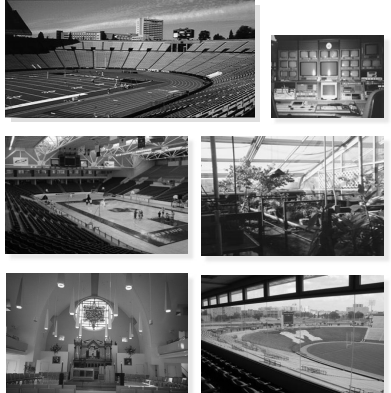
410	Study Room
420	Stack
430	Open-Stack Study Room
440	Processing Room
455	Study Service

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- IMPORTANCE
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SPECIAL USE SPACES

510	Armory
515	Armory Service
520	Athletic or Physical Education
523	Athletic Spectator Seating
525	Athletic or PE Education Service
530	Media Production
535	Media Production Service
540	Clinic
545	Clinic Service
550	Demonstration
555	Demonstration Service
560	Field Building
570	Animal Facilities
575	Animal Facilities Service
580	Greenhouse
585	Greenhouse Service
590	Other (All Purpose)

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- PROCESS
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GENERAL USE SPACE

610	Assembly
615	Assembly Service
620	Exhibition
625	Exhibition Service
630	Food Facility
635	Food Facility Service
640	Day Care
645	Day Care Service
650	Lounge
655	Lounge Service
660	Merchandising
665	Merchandising Service
670	Recreation
675	Recreation Service
680	Meeting Room
685	Meeting Room Service

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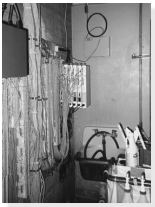



- PROCESS
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SUPPORT SPACES

710	Central Computer or Telecommunications
715	Central Computer or Telecommunications Service
720	Shop
725	Shop Service
730	Central Storage
735	Central Storage Service
740	Vehicle Storage
745	Vehicle Storage Service
750	Central Service
755	Central Service Support
760	Hazardous Materials Storage
770	Hazardous Waste Storage
775	Hazardous Waste Service

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- PROCESS
- IMPORTANCE
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HEALTH SPACES

810	Patient Bedroom
815	Patient Bedroom Service
820	Patient Bath
830	Nurse Station
835	Nurse Station Service
840	Surgery
845	Surgery Service
850	Treatment/Examination Clinic
855	Treatment/Examination Clinic Service
860	Diagnostic Service Laboratory
865	Diagnostic Service Laboratory Support
870	Central Supplies
880	Public Waiting
890	Staff On-Call Facility
895	Staff On-Call Facility Service

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- PROCESS
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RESIDENTIAL SPACES

910	Sleep/Study Without Toilet or Bath
919	Toilet or Bath
920	Sleep/Study With Toilet or Bath
935	Sleep/Study Service
950	Apartment
955	Apartment Service
970	House

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- PROCESS
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NON-ASSIGNABLE AND UNCLASSIFIED SPACES

000	Unclassified Facilities
050	Inactive Area
060	Alteration or Conversion Area
070	Unfinished Area
WWW	Circulation Area
W01	Bridge/Tunnel
W02	Elevator
W03	Escalator
W04	Loading Dock
W05	Lobby
W06	Public Corridor
W07	Stairway
XXX	Building Service Area
X01	Custodial Supply Closet
X02	Janitor Room
X03	Public Rest Room
X04	Trash Room
YYY	Mechanical Area
Y01	Central Utility Plant
Y02	Fuel Room
Y03	Shaft
Y04	Utility/Mechanical Space



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- PROCESS
- IMPORTANCE
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MANAGING THE INVENTORY

Correct Classifications/Consistency
 Unclassified Spaces
 Multipurpose or Multi Use
 Level of Public Access
 Unique Sub-codes
 Don't Confuse User with Use



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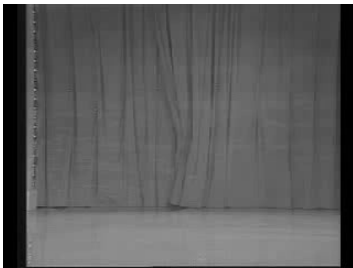


- PROCESS
- IMPORTANCE
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WAYS TO MANAGE SPACE

Team vs Office
 FM vs. Other
 Space Requests
 Perceptions Regarding Costs
 Evaluations
 Lease Back Programs

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- PROCESS
- IMPORTANCE
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USE OF GUIDELINES


- ❖ University Space Planning Guidelines by Bariether & Schillinger
- ❖ WICHE Higher Education Facilities Planning and Management Manuals
- ❖ CEPPI Space Planning Guidelines for Institutions of Higher Education

- ❖ Association of Physical Plant Administrators
- ❖ Mandated Guidelines

❖ CREATE YOUR OWN


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PROGRAM VS. SPACE



- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
- MANAGEMENT
- PROGRAM NEEDS**
- ANALYSIS
- TRENDS


Classroom Buildings
 Research Centers
 Libraries
 Residence Halls
 Clinics
 Day Care Centers
 Bookstores




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OUTDOOR SPACE



- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
- MANAGEMENT
- PROGRAM NEEDS**
- ANALYSIS
- TRENDS



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RE-EVALUATING PROGRAM NEEDS



- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
- MANAGEMENT
- PROGRAM NEEDS**
- ANALYSIS
- TRENDS



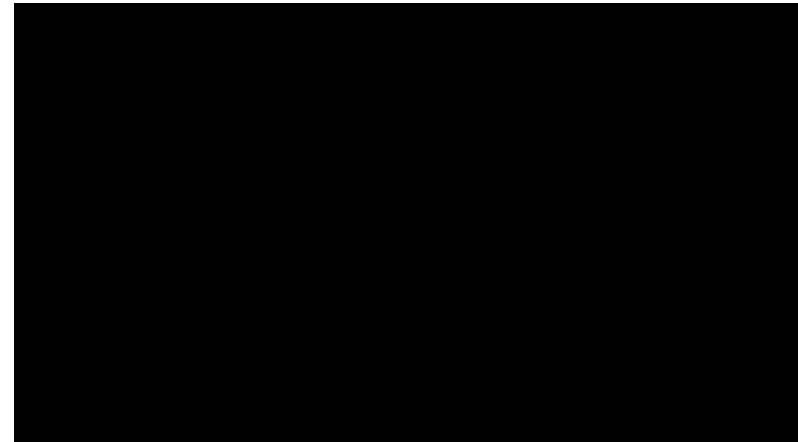
STEVEN JOHNSON
 Writer and Semiotics Expert, Steve Johnson

Where do Good Ideas Come From?

http://www.ted.com/talks/steven_johnson_where_good_ideas_come_from.html

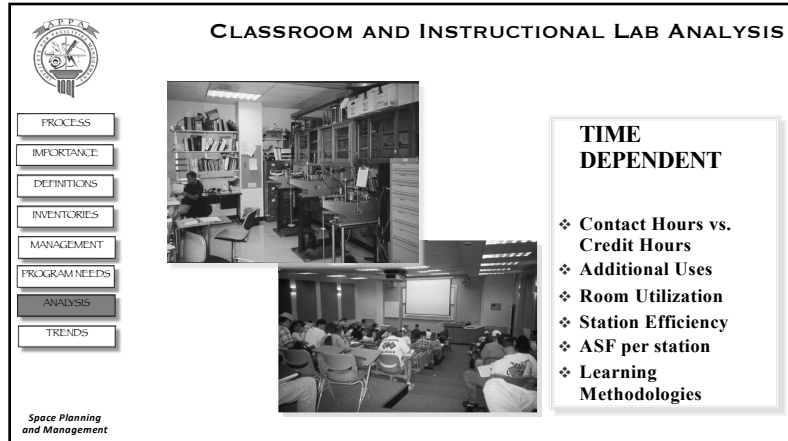
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CLASSROOM AND INSTRUCTIONAL LAB ANALYSIS



PPPS

- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
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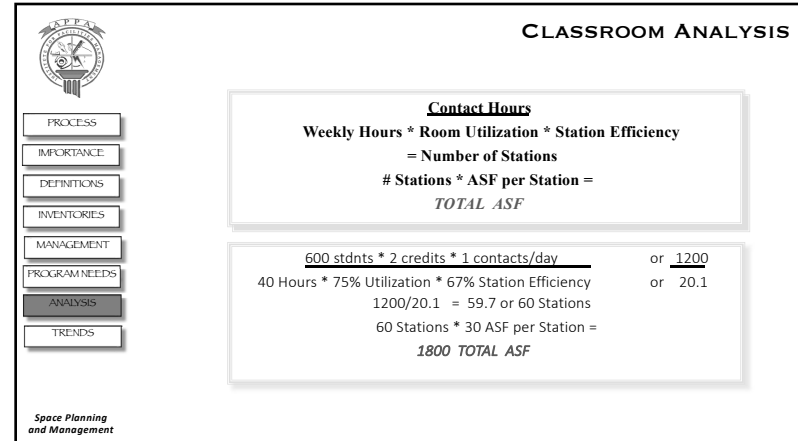
TIME DEPENDENT

- ❖ Contact Hours vs. Credit Hours
- ❖ Additional Uses
- ❖ Room Utilization
- ❖ Station Efficiency
- ❖ ASF per station
- ❖ Learning Methodologies

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CLASSROOM ANALYSIS



PPPS

- PROCESS
- IMPORTANCE
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Contact Hours

Weekly Hours * Room Utilization * Station Efficiency
= Number of Stations
Stations * ASF per Station =
TOTAL ASF

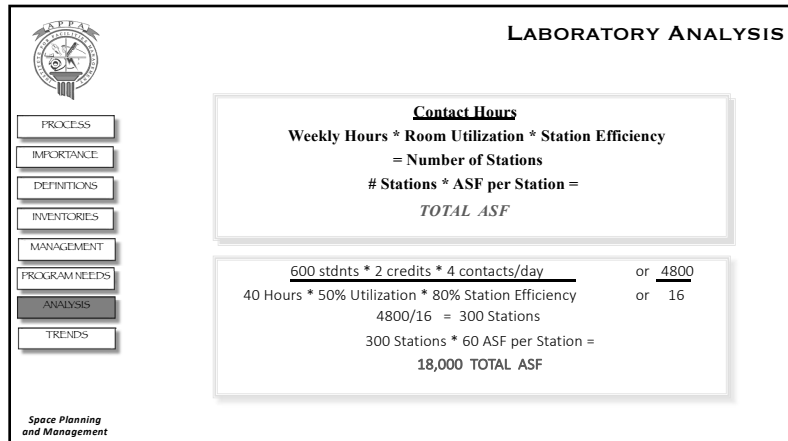
$\frac{600 \text{ stdnts} * 2 \text{ credits} * 1 \text{ contacts/day}}{40 \text{ Hours} * 75\% \text{ Utilization} * 67\% \text{ Station Efficiency}}$ or $\frac{1200}{20.1}$

1200/20.1 = 59.7 or 60 Stations
60 Stations * 30 ASF per Station =
1800 TOTAL ASF

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LABORATORY ANALYSIS



PPPS

- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
- MANAGEMENT
- PROGRAM NEEDS
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- TRENDS

Contact Hours

Weekly Hours * Room Utilization * Station Efficiency
= Number of Stations
Stations * ASF per Station =
TOTAL ASF

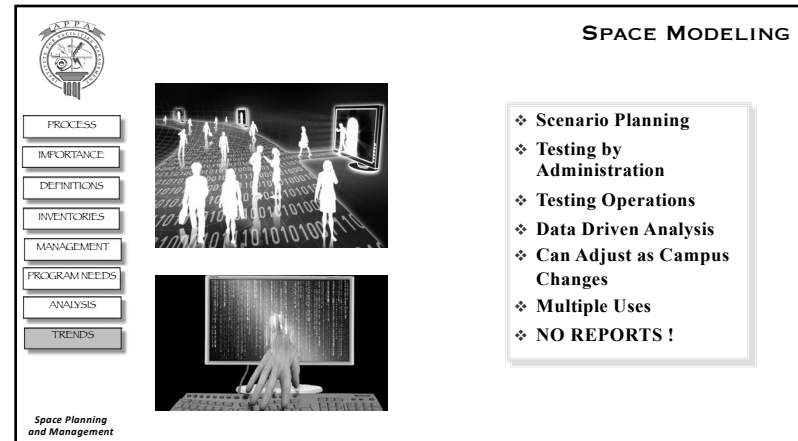
$\frac{600 \text{ stdnts} * 2 \text{ credits} * 4 \text{ contacts/day}}{40 \text{ Hours} * 50\% \text{ Utilization} * 80\% \text{ Station Efficiency}}$ or 4800

4800/16 = 300 Stations
300 Stations * 60 ASF per Station =
18,000 TOTAL ASF

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SPACE MODELING




PPPS

- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
- MANAGEMENT
- PROGRAM NEEDS
- ANALYSIS
- TRENDS

- ❖ Scenario Planning
- ❖ Testing by Administration
- ❖ Testing Operations
- ❖ Data Driven Analysis
- ❖ Can Adjust as Campus Changes
- ❖ Multiple Uses
- ❖ **NO REPORTS!**

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TEACHING AND LEARNING PEDAGOGIES

PROCESS

IMPORTANCE

DEFINITIONS

INVENTORIES

MANAGEMENT



PROGRAM NEEDS

ANALYSIS

TRENDS



Grouping/Pods

Group learning spaces promote a combination of lecture based instruction with the capability of breaking out into small groups. Spaces promote a variety of pedagogies in class period. Project teaming and discussion occur periodically during a class period.


Computer

Instructional space that requires the use of computers for the majority of the class period. Computer classes can be used by a variety of programs. Space can also double as open lab time when classes are not being held. Hardware and software's are typically common amongst many programs.

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TEACHING AND LEARNING PEDAGOGIES

PROCESS

IMPORTANCE

DEFINITIONS

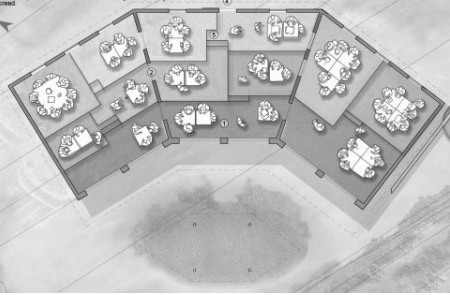
INVENTORIES

MANAGEMENT

PROGRAM NEEDS


ANALYSIS

TRENDS



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TEACHING AND LEARNING PEDAGOGIES

PROCESS

IMPORTANCE

DEFINITIONS

INVENTORIES

MANAGEMENT



PROGRAM NEEDS

ANALYSIS

TRENDS


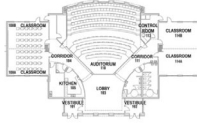
Flexible/Adaptable/Multi-Environment

Adaptable Spaces are those that can be configured in a variety of ways. These spaces are meant to support change within the hour. They are not conducive to any one type of pedagogy


Lecture Breakout

A space where a large lecture would meet for part of the class time, then break out into private spaces, possibly meeting again as a large lecture before completing the class period.

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TEACHING AND LEARNING PEDAGOGIES

PROCESS

IMPORTANCE

DEFINITIONS

INVENTORIES

MANAGEMENT


PROGRAM NEEDS

ANALYSIS

TRENDS



Table Based

This is similar to a lecture space but has a large table, per person, for private and quiet (not teaming or group work) work when not lecturing.



Telepresence (video conference)

Smaller classrooms with video-conference capabilities. These spaces require connectivity with other locations on a continuous basis (almost every class period)


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TEACHING AND LEARNING PEDAGOGIES


Presentation

This space is a sharable classroom with tools to train/teach proper presentation skills. Recording capability and feedback from the audience is essential.



Movement

This classroom is for instruction that requires physical movement of students but is not unique enough to be considered a laboratory. This can be seen in the arts, humanities, fitness, and other programs.



Space Planning and Management


PROCESS
IMPORTANCE
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TEACHING AND LEARNING PEDAGOGIES

Audio Visual Simulation

Pedagogy utilizes either visual or audio simulation as the primary pedagogical tool. A physical simulation is considered a laboratory. These spaces are sharable.



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PROCESS
IMPORTANCE
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TRENDS

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ONLINE EXPLOSION

M O O C

MASSIVE OPEN ONLINE COURSE

FOCUS ON SCALABILITY (X)

FOCUS ON COMMUNITY AND CONNECTIONS (C)

What is massive?
• 100?
• 1,000?
• 10,000?
• 100,000?

Open registration?

Local cohorts?

Self-paced?

Start/end dates?

College credits?

Badges?

Role of the instructor?

Learning community?

Open content?

Free of charge?

Affordable?

Real-time interaction?

Scripted assessments and feedback?

Space Planning and Management

PROCESS
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TRENDS

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RESEARCH APPROACH

Driving Demographics (Amount of Activity) \$ or People

Data Required

Program Input

Activity Type

Core 1 Soft

Core 2 Special but Shared

Custom Specialized Not shared

Space Metrics

NEEDS

Space Plan

Master Plan

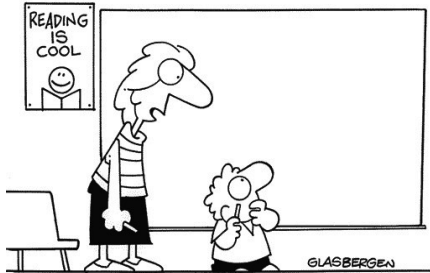
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PROCESS
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PROGRAM NEEDS
ANALYSIS
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STUDENT EXPECTATIONS

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“There aren't any icons to click. It's a chalk board.”

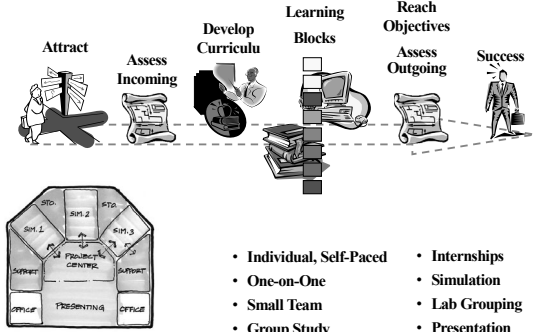
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- PROCESS
- IMPORTANCE
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- INVENTORIES
- MANAGEMENT
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- ANALYSIS
- TRENDS

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STUDENT CENTERED



Attract Assess Incoming Develop Curricula Learning Blocks Reach Objectives Assess Outgoing Success


- Individual, Self-Paced
- One-on-One
- Small Team
- Group Study
- Clinical
- Internships
- Simulation
- Lab Grouping
- Presentation
- Learning Resources

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- PROCESS
- IMPORTANCE
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SPACE AND BUILDING SIMULATION



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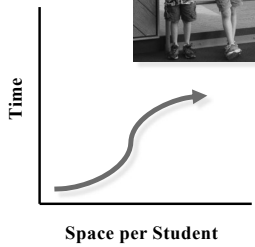
- PROCESS
- IMPORTANCE
- DEFINITIONS
- INVENTORIES
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SPACE PER STUDENT IS RISING

- ❖ Additional Tools
- ❖ Reduced Class Sizes
- ❖ Computers at Stations
- ❖ Imaging and Projections Systems
- ❖ Collaborative Spaces
- ❖ Higher Percentage of Experiential
- ❖ Academic Support Programs

Does Web Based Instruction Balance the Increase in Space?



Time

Space per Student

Space Planning and Management

- PROCESS
- IMPORTANCE
- DEFINITIONS
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- PROGRAM NEEDS
- ANALYSIS
- TRENDS

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OUTSIDE SPACE ASSETS

Navigation menu: PROCESS, IMPORTANCE, DEFINITIONS, INVENTORIES, MANAGEMENT, PROGRAM NEEDS, ANALYSIS, TRENDS

Diagram 1: Program needs (Driven by the above) showing a flow from program needs to space planning.

Diagram 2: Aerial view of a parking lot with cars.

Diagram 3: Site plan with vegetation analysis and a circular diagram.

Text: *Space Planning and Management*

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THANK YOU

Navigation menu: PROCESS, IMPORTANCE, DEFINITIONS, INVENTORIES, MANAGEMENT, PROGRAM NEEDS, ANALYSIS, TRENDS

Flowchart: Program, People, Resources, Plans leading to MASTER PLAN, SPACE, LONG RANGE PLANS, PROJECT PLANS, and IMPLEMENTATION (DESIGN AND CONSTRUCTION).

Text: *Space Planning and Management*

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PROJECT PLANNING

ISSUES/WHY

PROCESS

PLAYERS


FEASIBILITY


PROGRAMMING

FOLLOW-UP

TRENDS

FORT WORTH, TEXAS
JANUARY 2023






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Project Planning

1



THE IMPORTANCE OF PROJECT PLANNING

ISSUES/WHY

PROCESS

PLAYERS


FEASIBILITY

PROGRAMMING

FOLLOW-UP


TRENDS

- Define Scope of Work
- Obtain Funding
- Set Expectations
- Prepare for Design
- Test Options



Project Planning

2



WHEN DO YOU START THE PROJECT PLAN?

ISSUES/WHY

PROCESS



PLAYERS

FEASIBILITY

PROGRAMMING

FOLLOW-UP


TRENDS

- Master Planning/Process
- Priority in Capital Plan
- Gift Donations
- Emergency
 - Mother Nature
 - Regulatory
 - System/Building Failure
- Program Driven Request

Project Planning

3



PROCESS

ISSUES/WHY

PROCESS

PLAYERS

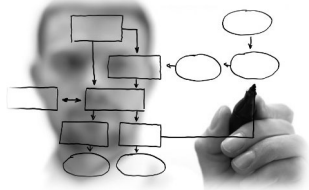
FEASIBILITY

PROGRAMMING

FOLLOW-UP

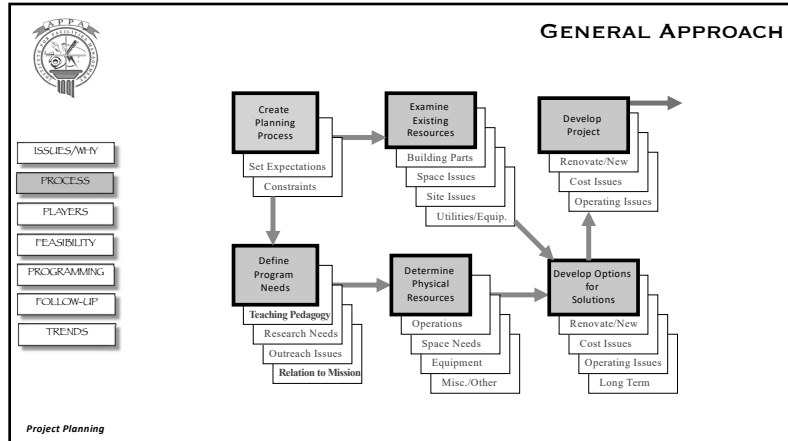
TRENDS

- Approach/Action Plan
- Set Expectations/Objectives
- Establish Planning Team
 - Lead Team
 - Supplemental Expertise
 - Clients
- Use of Consultants
 - Planners
 - Architects/Engineers
- Collect and Create Data



Project Planning

4



5

WHO SHOULD BE INVOLVED?

- Stakeholders
 - Occupant
 - Program
 - Donor
- Owners
 - Administration
 - State
 - Other (Board/Community)
- Professionals
 - Project Manager/Planner
 - Architects/Engineers
 - Specialty
 - FM Staff
 - Other Staff (IT, Security, etc.)

Project Planning

6

ADMINISTRATION/OWNER

**FOR SALE BY OWNER:
STREET PARKING AVAILABLE!**

Project Planning

7

PLANNER

Project Planning

8

CONSULTANT OR IN HOUSE - ARCHITECT

Loose Parts by Bilpin & Blazek

How to tell you picked the wrong architecture school

ISSUES/WHY
PROCESS
PLAYERS
FEASIBILITY
PROGRAMMING
FOLLOW-UP
TRENDS

Project Planning

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UNIVERSITY PROJECT MANAGER

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TO THE OPTIMIST,
THE GLASS IS HALF FULL.

TO THE PESSIMIST,
THE GLASS IS HALF EMPTY.

TO THE PROJECT MANAGER,
THE GLASS IS TWICE AS
BIG AS IT NEEDS TO BE.

"That's our new mission statement."

ISSUES/WHY
PROCESS
PLAYERS
FEASIBILITY
PROGRAMMING
FOLLOW-UP
TRENDS

Project Planning

10

TWO LEVELS OF PLANNING

I. Introduction
Approach and Process
Players/Stakeholders

II. Program Information
Program Description
Strategic Objectives/Relation to College and University Strategic Plan
Demographics
Other Program Information

III. Program Needs
Existing Location
Space Issues
Existing Required
Impact on Other Programs
Adjacency Considerations
Qualitative Issues
Other Issues

IV. Planned Improvements
Project Description
Building Issues
Major Equipment Issues
Site Issues

V. Implementation
Project Budget
Funding
Construction Approach
Schedule

VI. University Significance
Relation to University Master Plan
Effect on Other Facilities/Programs
Abandonment, Transfer or Demolished
Space
Alternatives Explored
External Forces Justifying Approval
Consequences of Not Being Approved

Operational Objectives
Justifications, Outcomes, Unique Considerations
Qualitative Issues
"Soft" Data
Other Data
Detailed Space Requirements
Room/Space Descriptions

Architectural Considerations
Landscape Considerations
Site Considerations
Structural Considerations
Mechanical Considerations
Electrical Considerations
Technology Considerations
Equipment Considerations
Utilities and Infrastructure Issues

Design Approach
Source of Funds
Schedule of Expenditures/Financing Plan

Space Opportunities/Backfill
Change in Operating Costs
Personnel/Resources
Maintenance Considerations
Utility Considerations
Renewal and Replacement Considerations
Emergency Management Considerations

UNPREPARED

Checklist

90% of project problems, are due to a lack of planning, not design.

1 2

ISSUES/WHY
PROCESS
PLAYERS
FEASIBILITY
PROGRAMMING
FOLLOW-UP
TRENDS

Project Planning

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FEASIBILITY

HEH, WAAAY! A MINUTE, WHEN I FLIP THE BLUEPRINTS SIDEWAYS...


THE REAL SECRET OF THE PYRAMID

- Description of Program
- Operational Strategies
- History or Program
- Program Trends
- Relation to Role and Mission
- Relation to Outside Programs

ISSUES/WHY
PROCESS
PLAYERS
FEASIBILITY
PROGRAMMING
FOLLOW-UP
TRENDS


Project Planning

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FEASIBILITY


- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS

- People
- Business/Program
- Facility Conditions
- Research Components
- Business Relationships
- Regulatory Issues



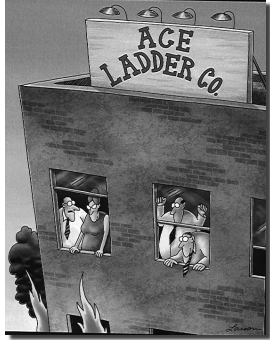
Project Planning

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FEASIBILITY


- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS

- Space Requirements
- Unique or Special Features
- Health and Life Safety Issues
- Accreditation Issues




Project Planning

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FEASIBILITY


- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS

- Master Plans
- Long Range Plans
- Other Projects
- Community Issues
- Private Sector
- State & Federal Issues



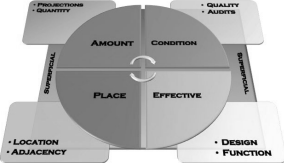
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REFINE THE SPACE NEEDS

- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS

- Quantitative Issues
- Qualitative Issues
- Obsolescence Issues
- Adjacency Issues
- Information Issues



Project Planning

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SPACE ADJACENCIES

- Bubble Diagrams
- Space Matrix

Project Planning

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SPACE DESCRIPTIONS

- Space Details
- Diagrams/Sketches
- Physical Issues
- Equipment

Project Planning

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BUILDING ISSUES

- Architectural Issues
- Mechanical/Electrical Issues
- Technology Issues
- Equipment Requirements
 - Fixed
 - Movable
 - Operational Costs
 - Replacement Issues
- Other Issues

Project Planning


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SITE ISSUES

- Relationship to other Programs
- Access Issues
- Security Issues
- Parking
- Pedestrian
- Bicycles
- Utility Issues
- MP Issues

Project Planning


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- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS


Project Planning

PROPOSED SOLUTIONS



- Project Descriptions
- Schematic Design
- Budget Estimates
- Life Cycle Costs
 - Staffing
 - Utilities Costs
 - Maintenance Costs
 - Repair and Replacement Budget
- Project Alternatives


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- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS


Project Planning

ESTABLISHING THE BUDGET



- Average Cost of Facilities
- Breakout of Costs per Building Type
- Professional Fees
- Site Costs
- Equipment and Furniture
- Contingencies


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- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS


Project Planning

IMPLEMENTATION



- Scheduling
- Funding
- Staging
- Construction Delivery Method
- M & O

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- ISSUES/WHY
- PROCESS
- PLAYERS
- FEASIBILITY
- PROGRAMMING
- FOLLOW-UP
- TRENDS

Project Planning

LIFE CYCLE COST ANALYSIS

Year	Utilities	Control	Maintenance	Liability/Risk Management	CM Staffing Needs	Facilities Staffing Needs	IN \$100 MIL FI TOTAL
1	\$ 135,136	\$ 85,033	\$ 11,195	\$ 6,884	\$ 38,368.00	\$ 133,775	\$ 327,691
2	\$ 135,902	\$ 86,511	\$ 11,795	\$ 7,231	\$ 39,316.00	\$ 135,906	\$ 340,651
3	\$ 134,568	\$ 84,053	\$ 12,343	\$ 7,589	\$ 40,264.00	\$ 137,509	\$ 343,760
4	\$ 138,145	\$ 86,793	\$ 12,900	\$ 7,946	\$ 41,212.00	\$ 139,034	\$ 348,178
5	\$ 145,052	\$ 90,542	\$ 13,458	\$ 8,304	\$ 42,160.00	\$ 141,055	\$ 354,459
6	\$ 152,960	\$ 95,044	\$ 14,016	\$ 8,662	\$ 43,108.00	\$ 143,076	\$ 361,357
7	\$ 159,922	\$ 107,085	\$ 14,574	\$ 9,020	\$ 44,056.00	\$ 145,097	\$ 368,305
8	\$ 167,834	\$ 113,093	\$ 15,132	\$ 9,378	\$ 45,004.00	\$ 147,118	\$ 375,253
9	\$ 176,113	\$ 118,473	\$ 15,690	\$ 9,736	\$ 45,952.00	\$ 149,139	\$ 382,201
10	\$ 184,938	\$ 124,132	\$ 16,248	\$ 10,094	\$ 46,900.00	\$ 151,160	\$ 389,149
11	\$ 194,385	\$ 129,977	\$ 16,806	\$ 10,452	\$ 47,848.00	\$ 153,181	\$ 396,097
12	\$ 204,505	\$ 136,025	\$ 17,364	\$ 10,810	\$ 48,796.00	\$ 155,202	\$ 403,045
13	\$ 214,311	\$ 143,297	\$ 17,922	\$ 11,168	\$ 49,744.00	\$ 157,223	\$ 410,000
14	\$ 223,922	\$ 146,702	\$ 18,480	\$ 11,526	\$ 50,692.00	\$ 159,244	\$ 417,000
15	\$ 234,279	\$ 147,375	\$ 19,038	\$ 11,884	\$ 51,640.00	\$ 161,265	\$ 424,000

Repair and Replacement Cost

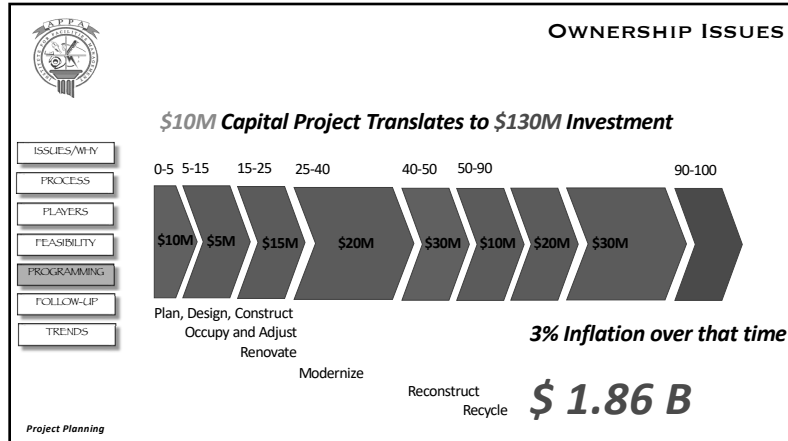
Project	Year	Repair & Replacement Cost
Project	Year 1	\$ 100,000
Project	Year 2	\$ 100,000
Project	Year 3	\$ 100,000
Project	Year 4	\$ 100,000
Project	Year 5	\$ 100,000
Project	Year 6	\$ 100,000
Project	Year 7	\$ 100,000
Project	Year 8	\$ 100,000
Project	Year 9	\$ 100,000
Project	Year 10	\$ 100,000
Project	Year 11	\$ 100,000
Project	Year 12	\$ 100,000
Project	Year 13	\$ 100,000
Project	Year 14	\$ 100,000
Project	Year 15	\$ 100,000

OWNERSHIP ISSUES

c. Life Cycle Cost

Year	Prepaid & Reserve	Major Reserve B	Operating B	Energy	Salvage Value	Total	Present Value	Present Value
1	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
2	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
3	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
4	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
5	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
6	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
7	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
8	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
9	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
10	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
11	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
12	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
13	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
14	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
15	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
16	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
17	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
18	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
19	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
20	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
21	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
22	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
23	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
24	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
25	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
26	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
27	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
28	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
29	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000
30	\$1,000,000	\$100,000	\$100,000	\$100,000	\$100,000	\$1,400,000	\$1,000,000	\$1,000,000

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PITFALLS AND ISSUES

- Insufficient Space Planning (non-assignable spaces)
- Costs
- Buy-in
- Review Process
- Change in Players
- Program Creep
- Growth Issues
- Time Constraints
- Technology

Project Planning

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CONTINUOUS IMPROVEMENT

- Process Review
- Budget Review
- Facilities Operations
- 11 Month Inspection
- Long Range Plan Updates

Darn Space Guidelines!

A Lack of Direction?

Project Planning

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TRENDS AND CONSIDERATIONS

- ICL's Model
- Flexibility
- 100 year shells
- Public Private Partnerships
- Architect, Contractor Partnerships
- Schematic Design

Project Planning

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THANK YOU

ISSUES/WHY
PROCESS
PLAYERS
FEASIBILITY
PROGRAMMING
FOLLOW-UP
TRENDS



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