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Managing Metamorphosis, Building for Change

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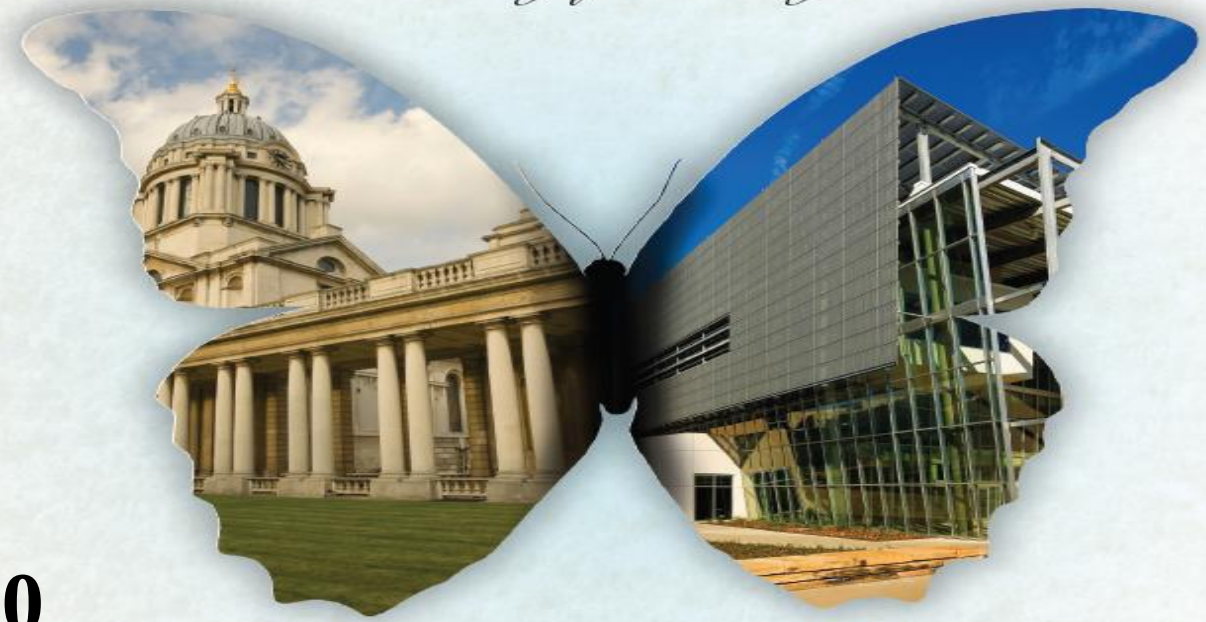

Session: 100310

Date: Friday, October 3, 2014

Time: 9:45 am – 10:45 am

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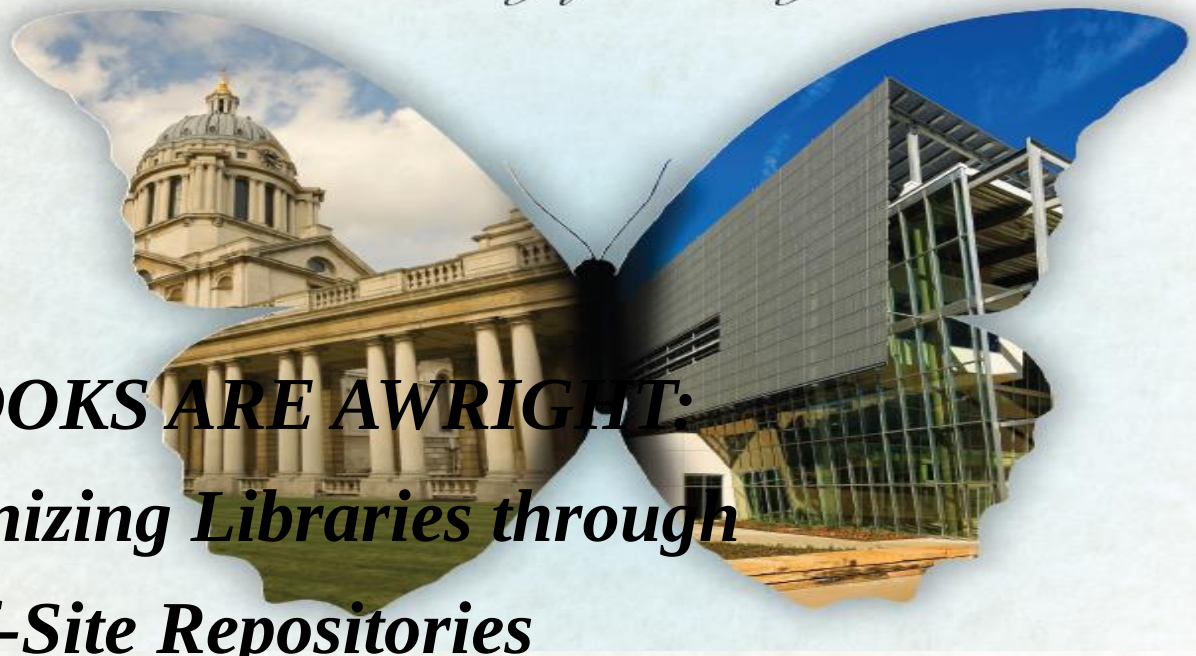

THE BOOKS ARE AWRIGHT: Revolutionizing Libraries through Off-Site Repositories

Presented by:

- **Wyoma vanDuinkerken, Director of the Joint Library Facility – Texas A&M University - Riverside Campus**

- **Daniel Kornberg, Principal – Harrison Kornberg Architects**

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The Books are Alright:

Development of the Joint Library Facility

Texas A&M University Riverside Campus

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Outline

- Part 1 **Libraries and Change**
- Part 2 **TAMUS and UTS: Resources in Common**
- Part 3 **Library Storage – A Primer**
- Part 4 **JLF – Planning and Execution**
- Part 5 **Lessons Learned**

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Libraries are Changing

Part 1

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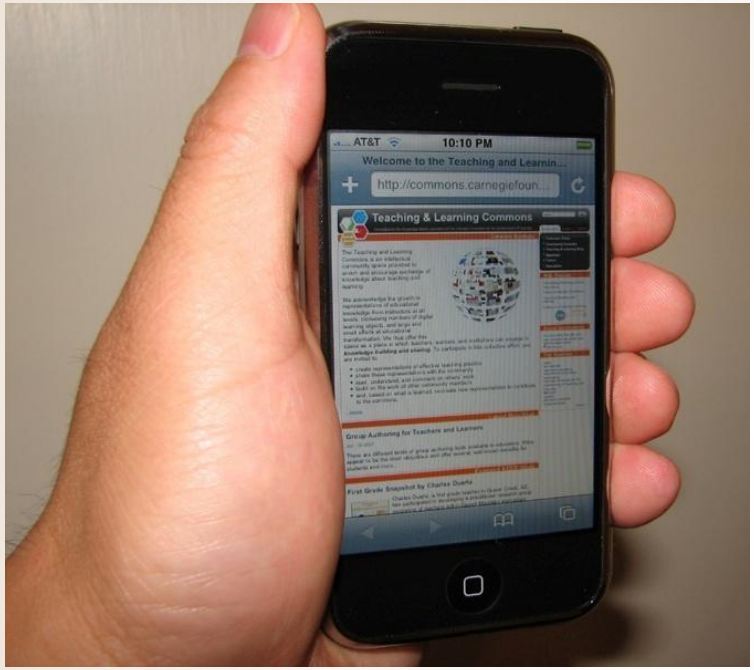
It’s a Digital World



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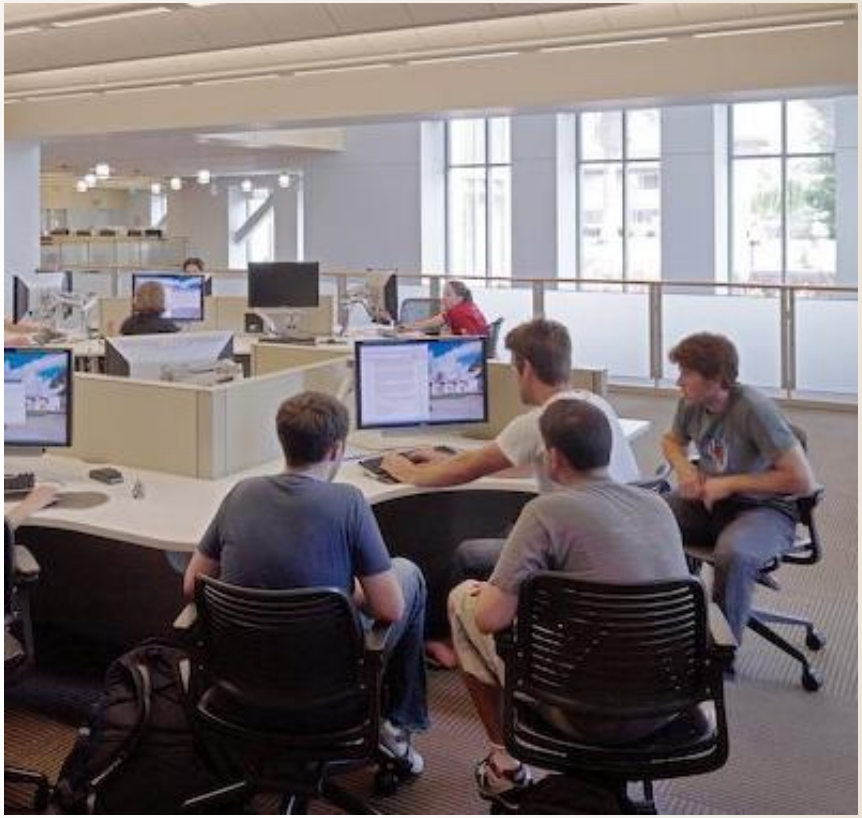

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Everything but Rows of Stacks



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High Density Storage

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Resources in Common

Part 2

9 Universities
6 Health Science Institutions

11 Universities
7 State Agencies

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Definition of R I C

An item deposited in the shared storage facility shall be marked as a **Resource in Common (RIC)** when a Texas A&M System library or a University of Texas System Library discards one copy of that item from its local collection and registers the item as a RIC.

Lost and missing items are not eligible for RIC designation. The RIC designation, once made, is permanent and remains with the item thereafter regardless of its future location.*

* **Definition taken and adapted from the: Texas A&M Libraries and The University of Texas Libraries Memorandum of Understanding related to library resources in common.** August 23, 2006 (revised November 12, 2008)

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Vision of R I C

- Libraries would save money by avoiding future campus construction costs
- Item stored in the joint facility **may** be designated by the non-owning library as a “resource in common” in order to avoid storing an additional copy
- This “resource in common” may be treated as if it were owned by multiple libraries
  - Counted in the statistical reports of both libraries
  - Borrowed by members of both university systems

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Benefits of R I C

- Reduce the need to construct new facilities
- Reduce the cost of storage / maintenance:
  - Stacks Cost = **$4.26 / yr / volume** *
  - HD Storage Cost = **$0.86 / yr / volume** *
- Free up space in stacks
- Build collaboration between both systems
- Increase access to material
- Improved preservation

* Paul N. Courant and Matthew Nielsen (2010)

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Planning and Involvement

Taskforce for **Technology and Access Infrastructure**

Taskforce for **Policies and Procedures**

User Team for **Design and Construction**

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Library Storage: A Primer

Part 3

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Storage

Conventional Stacks

Compact Shelving

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High Density

Compact High Density

Automated High Density (ASRS)

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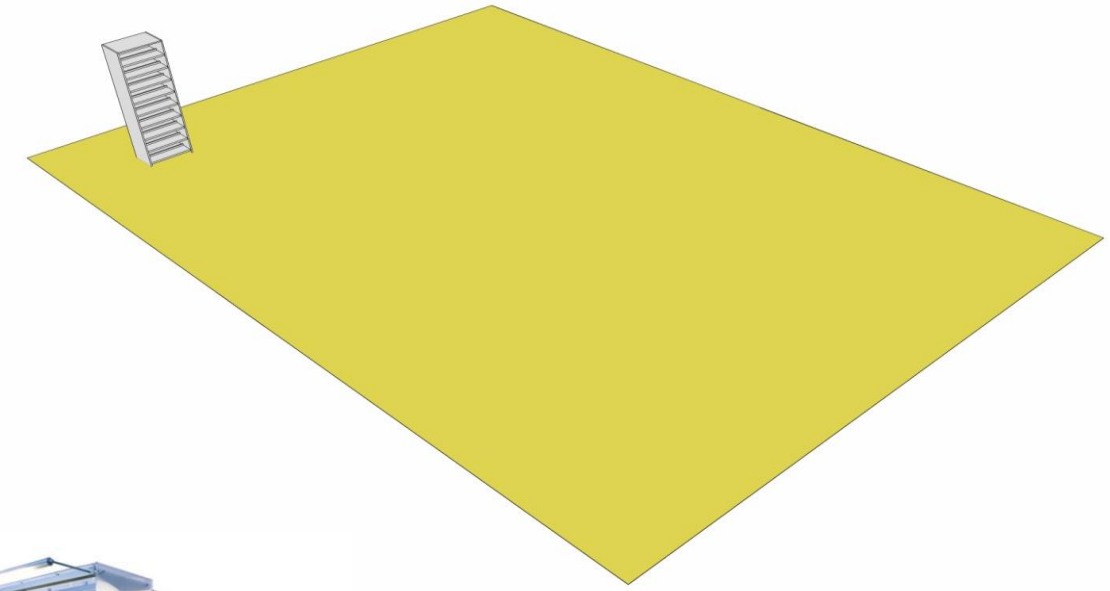

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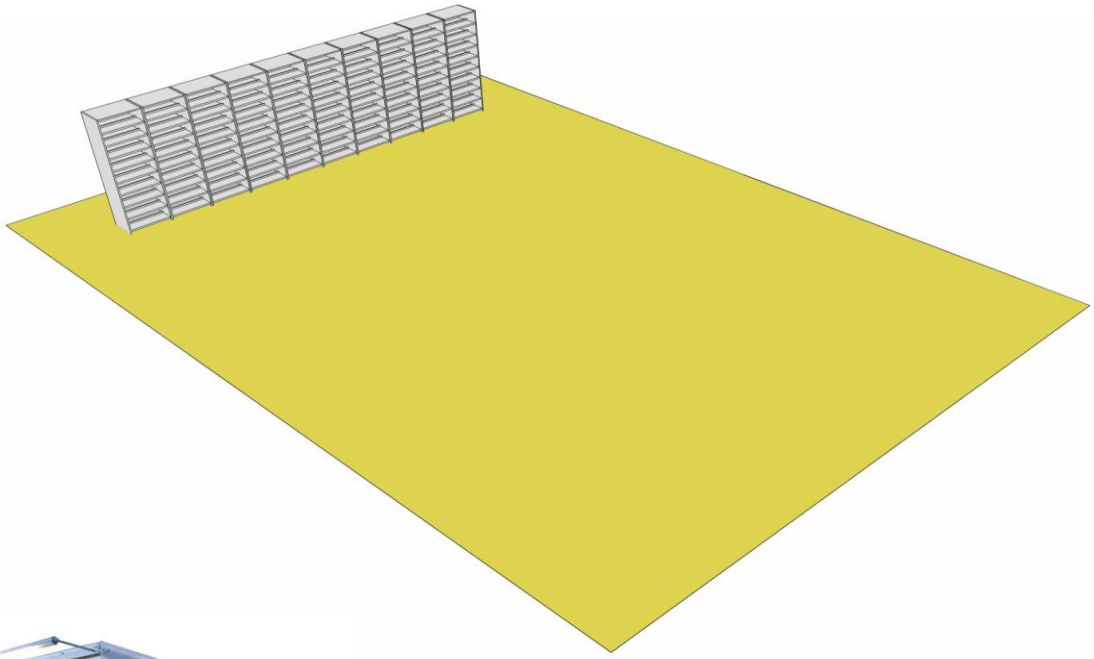

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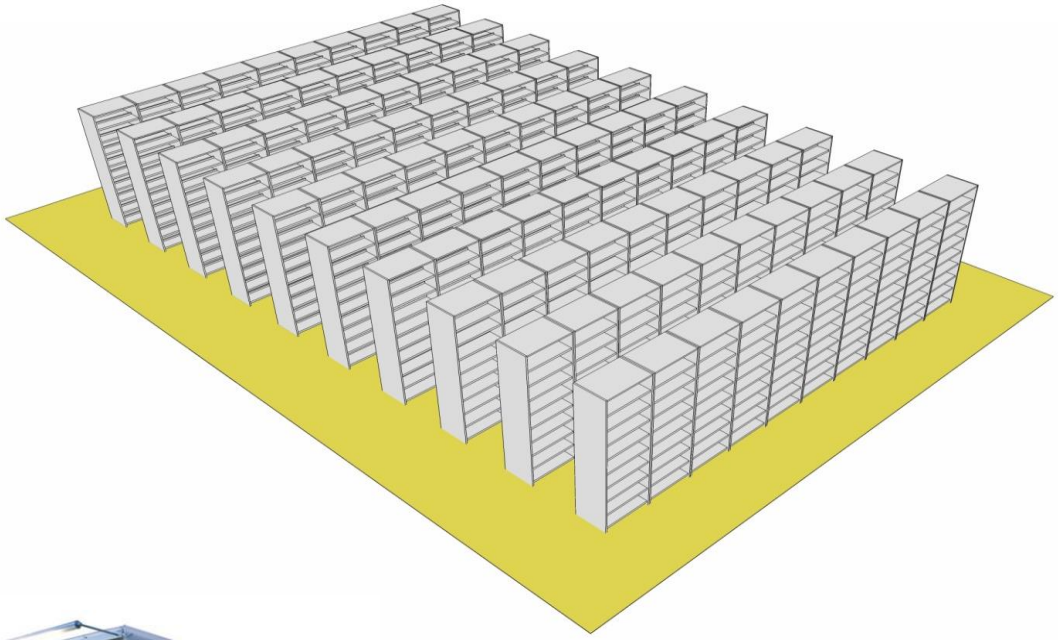

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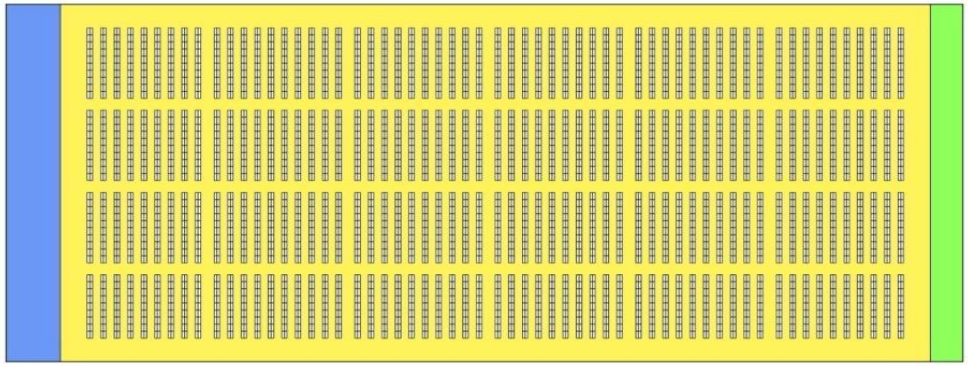

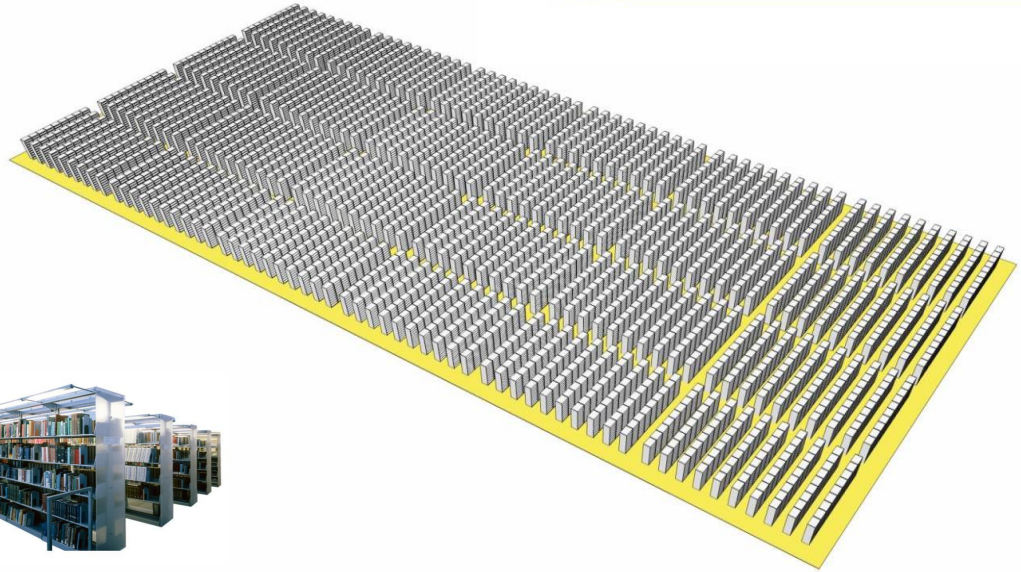

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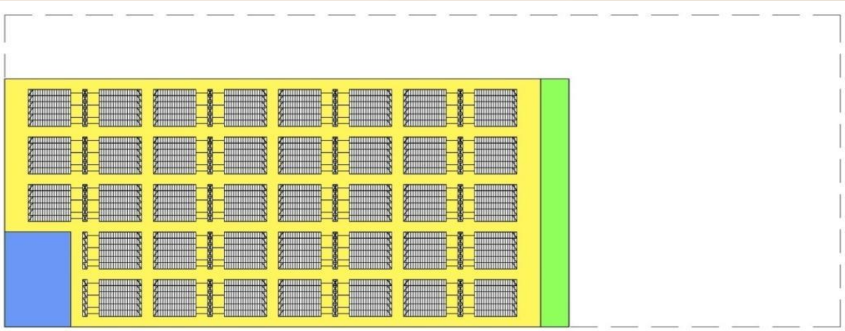
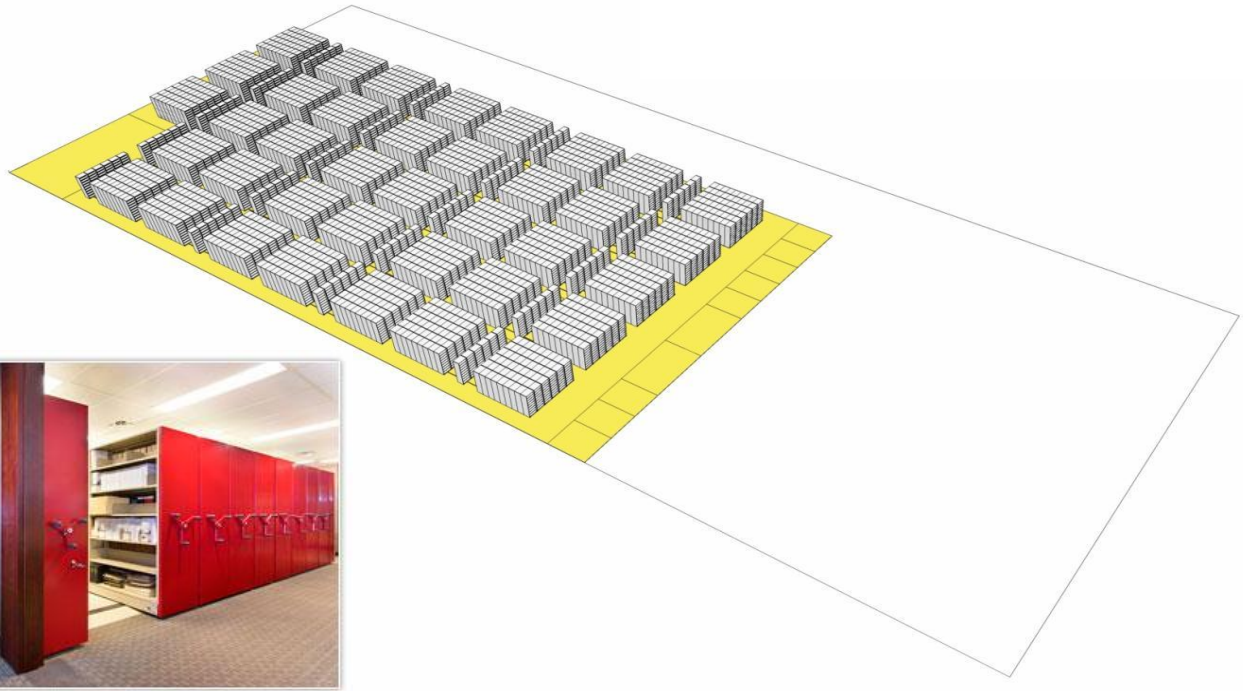
Compact Shelving





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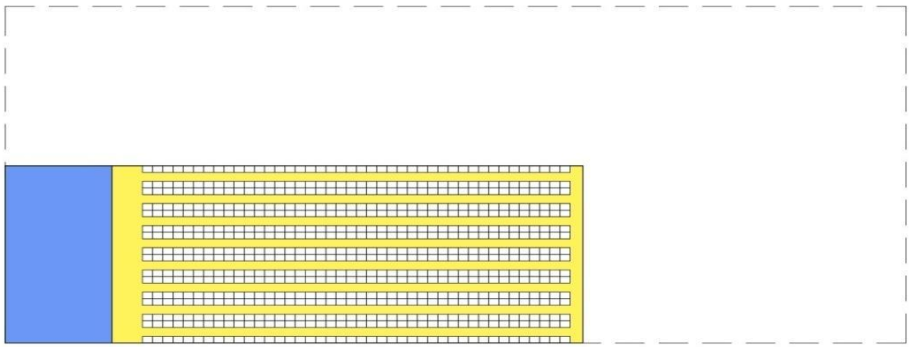
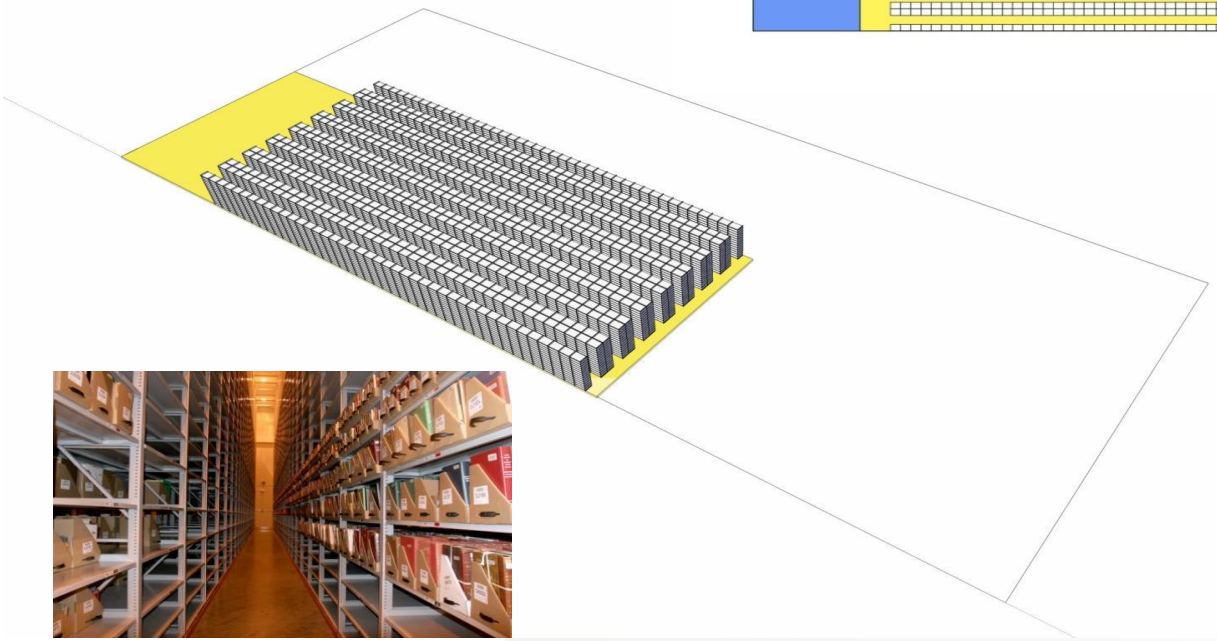
20’ Tall High Density Shelving (Manual Pick)





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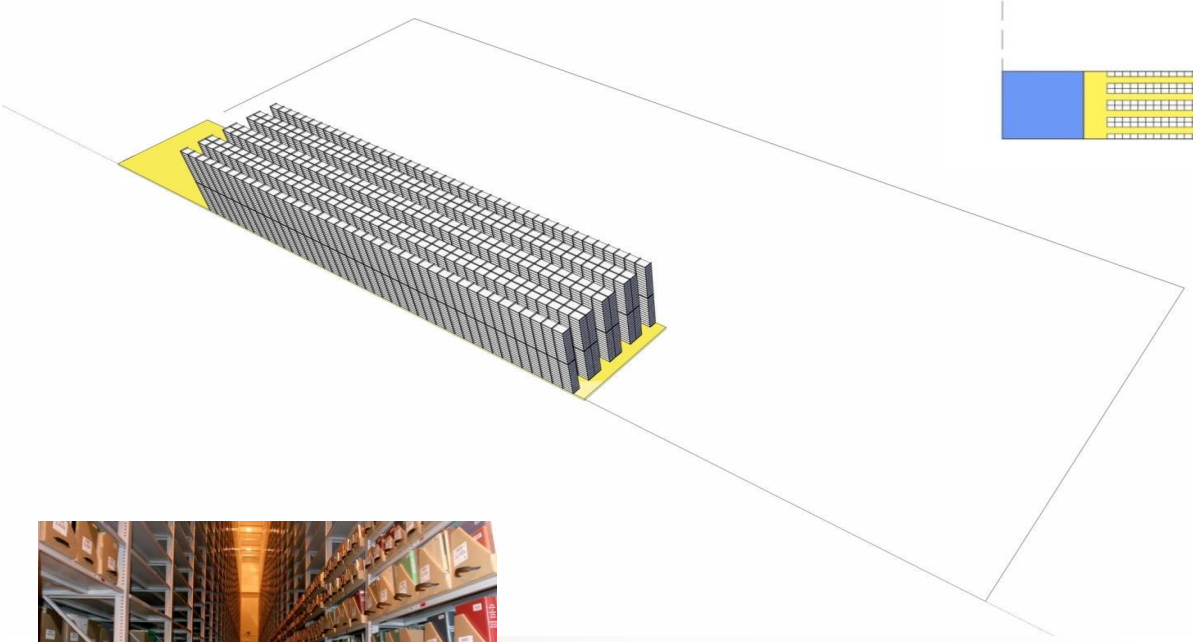
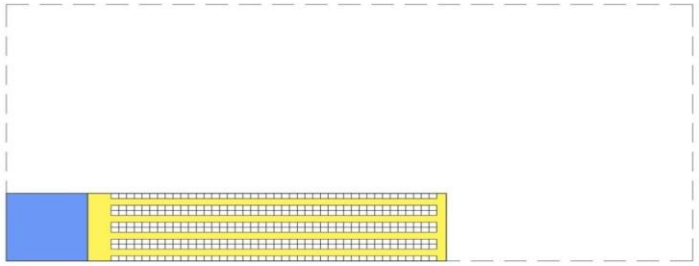
35’ Tall High Density Shelving (Manual Pick)





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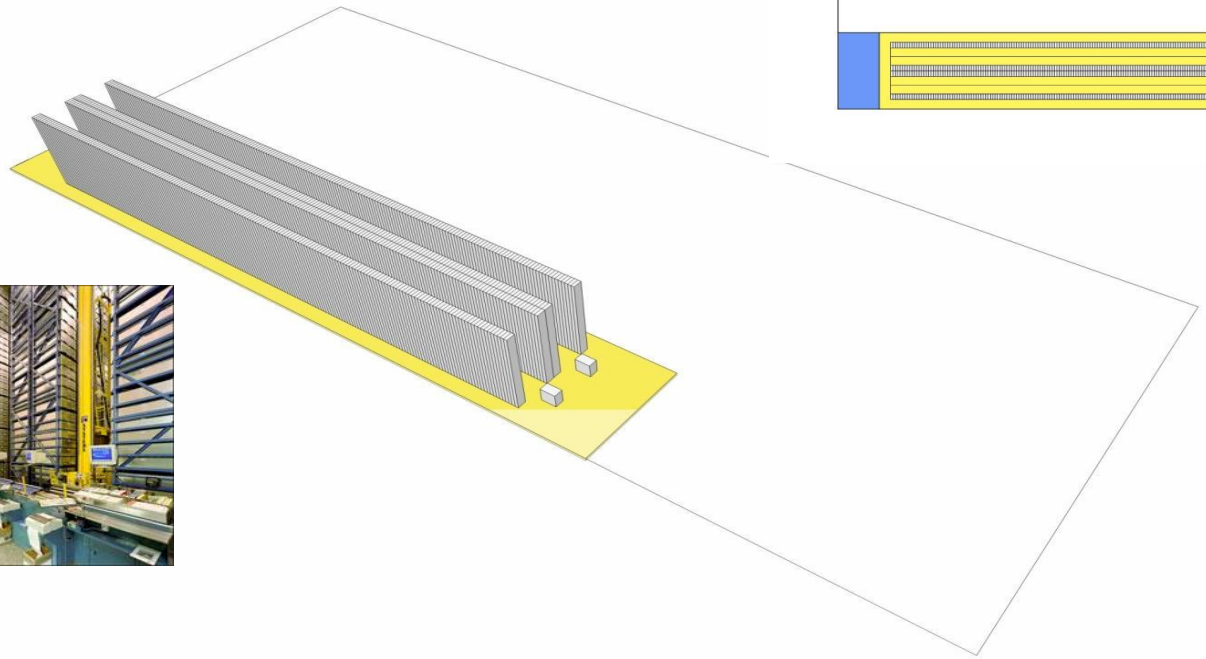
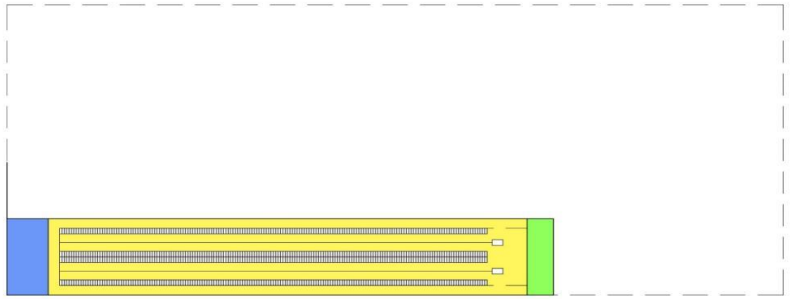
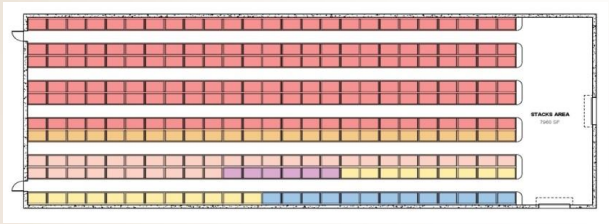
ASRS

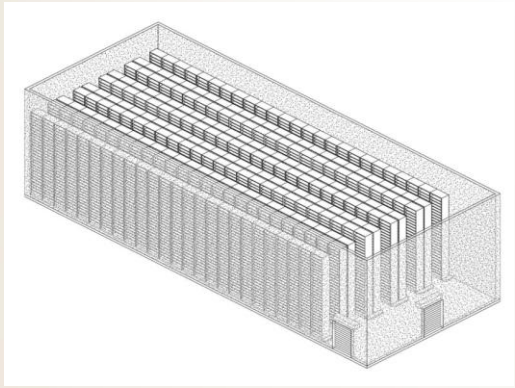




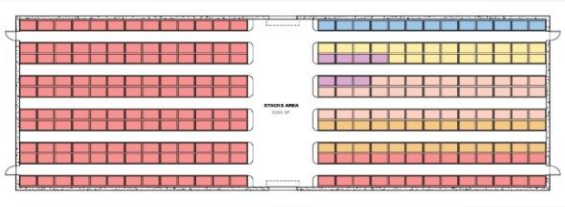
Plan Geometry Matters

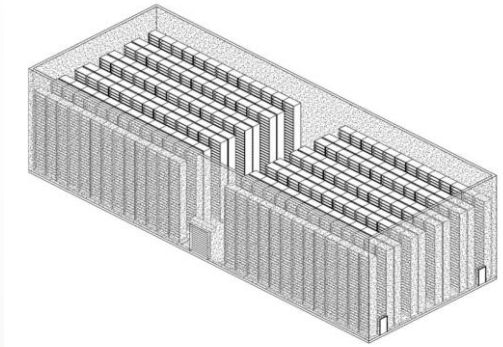
Option 1 – 7960 sf



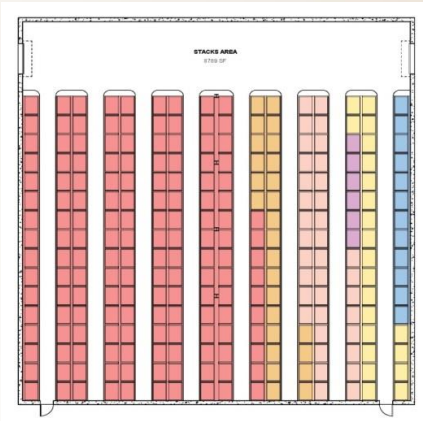


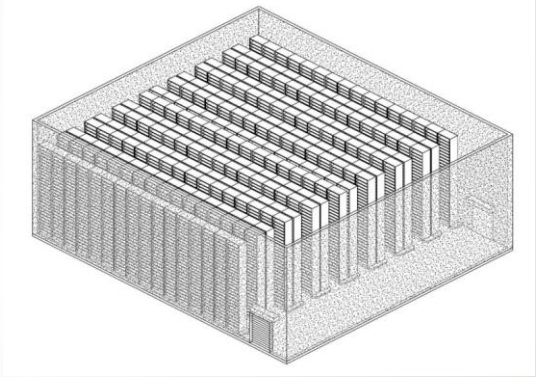
Option 2 – 8260 sf





Option 3 – 8790 sf





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On The Shelf

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On The Shelf

Organize by Size

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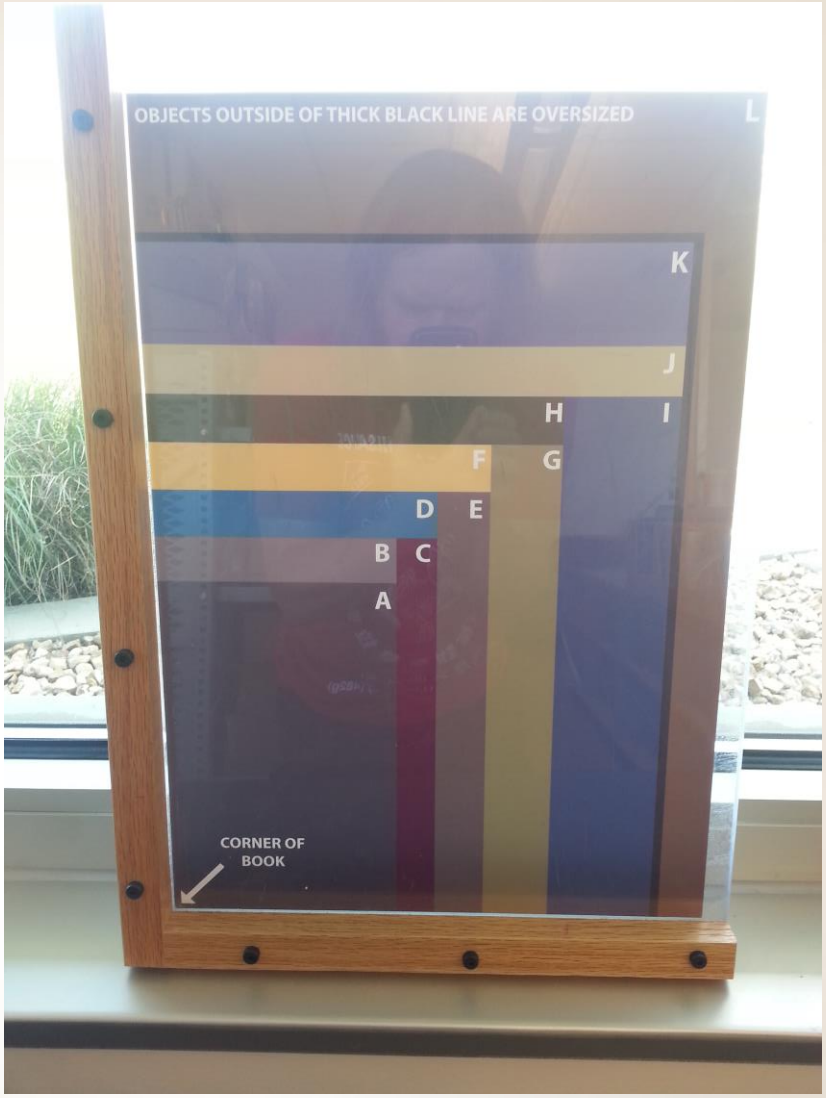
Height Matters



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Efficient Use of Volume

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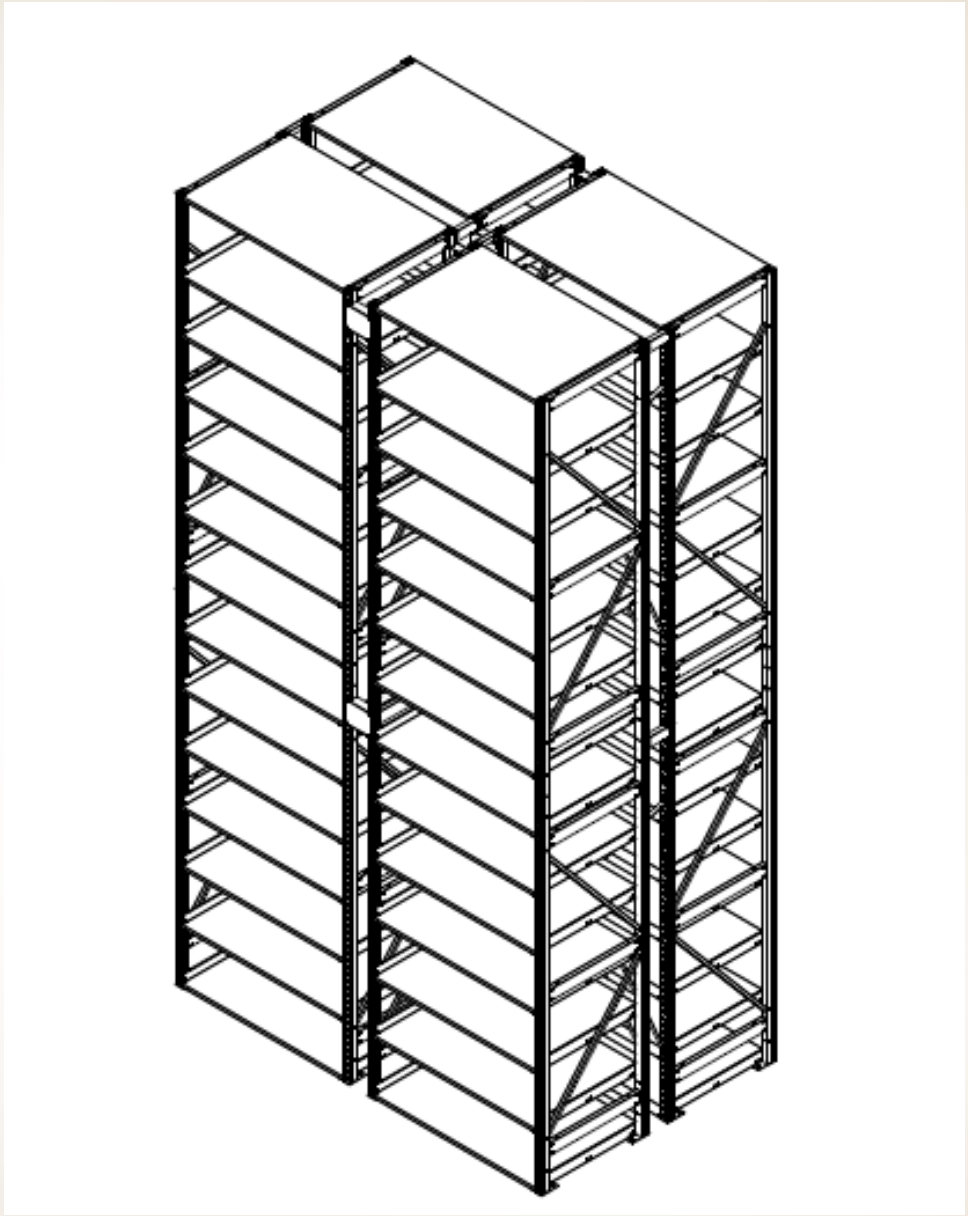
Typical Shelving Module



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Shelf Height

- Code Issues / Sprinklers
- Pickers
- Slab

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Volume Distribution by Size

Tray Type	Clr. Shelf Ht. (In.)	% of Total Books	# of Books	Est. Books per Tray	Est. # of Trays
AL	9	3.63%	36,392	20	1,820
AH	10	9.30%	93,343	20	4,667
BL	10	0.54%	5,409	20	270
BH	12	46.91%	470,798	20	23,540
CL	12	12.27%	123,189	18	6,844
CH	14	7.42%	74,493	18	4,138
DL	14	17.60%	176,611	15	11,774
DH	16	1.02%	10,246	15	683
EL	16	0.84%	8,406	8	1,051
EH	18	0.31%	3,118	8	390
G	6	0.08%	813	1	813
H	6	0.07%	686	1	686
K	6	0.02%	159	1	159
		100%	1,003,662	Trays:	56,835

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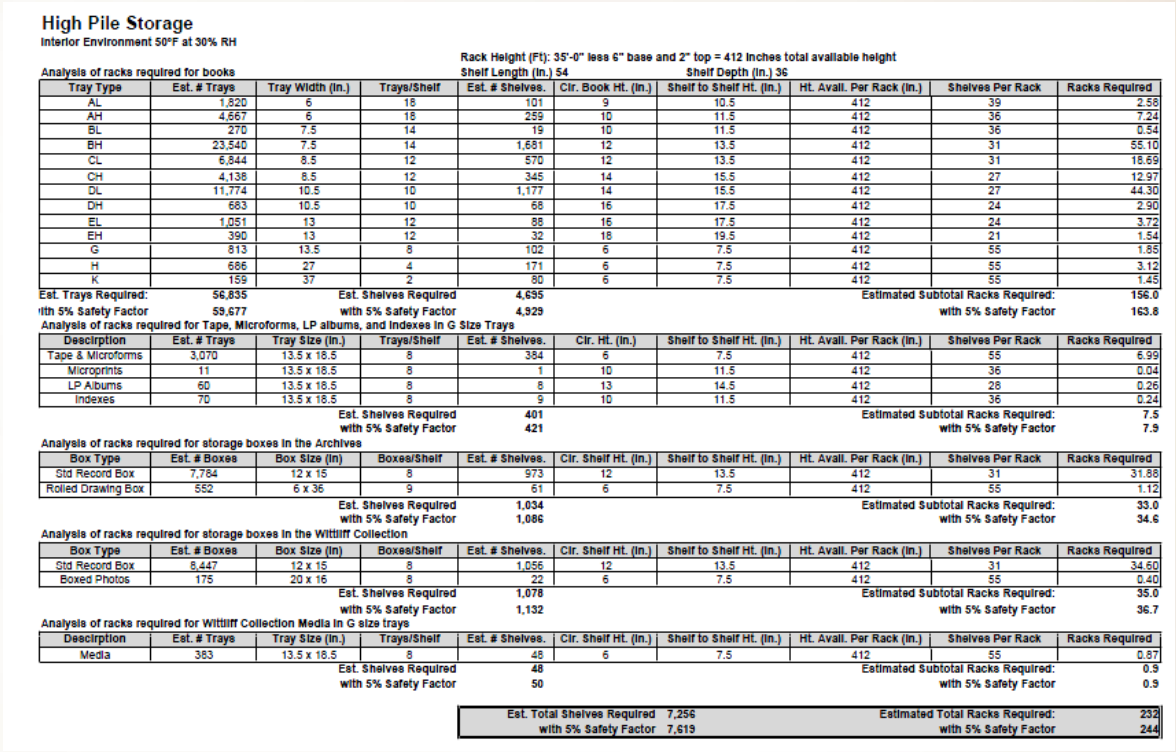
Volume Distribution by Size



High Pile Storage

Interior Environment 50°F at 30% RH

Rack Height (Ft): 35'-0" less 6" base and 2" top = 412 inches total available height

Analysis of racks required for books — Shelf Length (In.) 54 — Shelf Depth (In.) 36

Tray Type	Est. # Trays	Tray Width (In.)	Trays/Shelf	Est. # Shelves.	Clr. Book Ht. (In.)	Shelf to Shelf Ht. (In.)	Ht. Avail. Per Rack (In.)	Shelves Per Rack	Racks Required
AL	1,820	6	18	101	9	10.5	412	39	2.58
AH	4,667	6	18	259	10	11.5	412	36	7.24
BL	270	7.5	14	19	10	11.5	412	36	0.54
BH	23,540	7.5	14	1,681	12	13.5	412	31	55.10
CL	6,844	8.5	12	570	12	13.5	412	31	18.69
CH	4,138	8.5	12	345	14	15.5	412	27	12.97
DL	11,774	10.5	10	1,177	14	15.5	412	27	44.30
DH	683	10.5	10	68	16	17.5	412	24	2.90
EL	1,051	13	12	88	16	17.5	412	24	3.72
EH	390	13	12	32	18	19.5	412	21	1.54
G	813	13.5	8	102	6	7.5	412	55	1.85
H	686	27	4	171	6	7.5	412	55	3.12
K	159	37	2	80	6	7.5	412	55	1.45
Est. Trays Required:	56,835		Est. Shelves Required	4,695				Estimated Subtotal Racks Required:	156.0
ıth 5% Safety Factor	59,677		with 5% Safety Factor	4,929				with 5% Safety Factor	163.8

Analysis of racks required for Tape, Microforms, LP albums, and Indexes in G Size Trays

Description	Est. # Trays	Tray Size (In.)	Trays/Shelf	Est. # Shelves.	Clr. Ht. (In.)	Shelf to Shelf Ht. (In.)	Ht. Avail. Per Rack (In.)	Shelves Per Rack	Racks Required
Tape & Microforms	3,070	13.5 x 18.5	8	384	6	7.5	412	55	6.99
Microprints	11	13.5 x 18.5	8	1	10	11.5	412	36	0.04
LP Albums	60	13.5 x 18.5	8	8	13	14.5	412	28	0.26
Indexes	70	13.5 x 18.5	8	9	10	11.5	412	36	0.24
			Est. Shelves Required	401				Estimated Subtotal Racks Required:	7.5
			with 5% Safety Factor	421				with 5% Safety Factor	7.9

Analysis of racks required for storage boxes in the Archives

Box Type	Est. # Boxes	Box Size (In)	Boxes/Shelf	Est. # Shelves.	Clr. Shelf Ht. (In.)	Shelf to Shelf Ht. (In.)	Ht. Avail. Per Rack (In.)	Shelves Per Rack	Racks Required
Std Record Box	7,784	12 x 15	8	973	12	13.5	412	31	31.88
Rolled Drawing Box	552	6 x 36	9	61	6	7.5	412	55	1.12
			Est. Shelves Required	1,034				Estimated Subtotal Racks Required:	33.0
			with 5% Safety Factor	1,086				with 5% Safety Factor	34.6

Analysis of racks required for storage boxes in the Wittliff Collection

Box Type	Est. # Boxes	Box Size (In)	Boxes/Shelf	Est. # Shelves.	Clr. Shelf Ht. (In.)	Shelf to Shelf Ht. (In.)	Ht. Avail. Per Rack (In.)	Shelves Per Rack	Racks Required
Std Record Box	8,447	12 x 15	8	1,056	12	13.5	412	31	34.60
Boxed Photos	175	20 x 16	8	22	6	7.5	412	55	0.40
			Est. Shelves Required	1,078				Estimated Subtotal Racks Required:	35.0
			with 5% Safety Factor	1,132				with 5% Safety Factor	36.7

Analysis of racks required for Wittliff Collection Media in G size trays

Description	Est. # Trays	Tray Size (In.)	Trays/Shelf	Est. # Shelves.	Clr. Shelf Ht. (In.)	Shelf to Shelf Ht. (In.)	Ht. Avail. Per Rack (In.)	Shelves Per Rack	Racks Required
Media	383	13.5 x 18.5	8	48	6	7.5	412	55	0.87
			Est. Shelves Required	48				Estimated Subtotal Racks Required:	0.9
			with 5% Safety Factor	50				with 5% Safety Factor	0.9

Est. Total Shelves Required	7,256	Estimated Total Racks Required:	232
with 5% Safety Factor	7,619	with 5% Safety Factor	244

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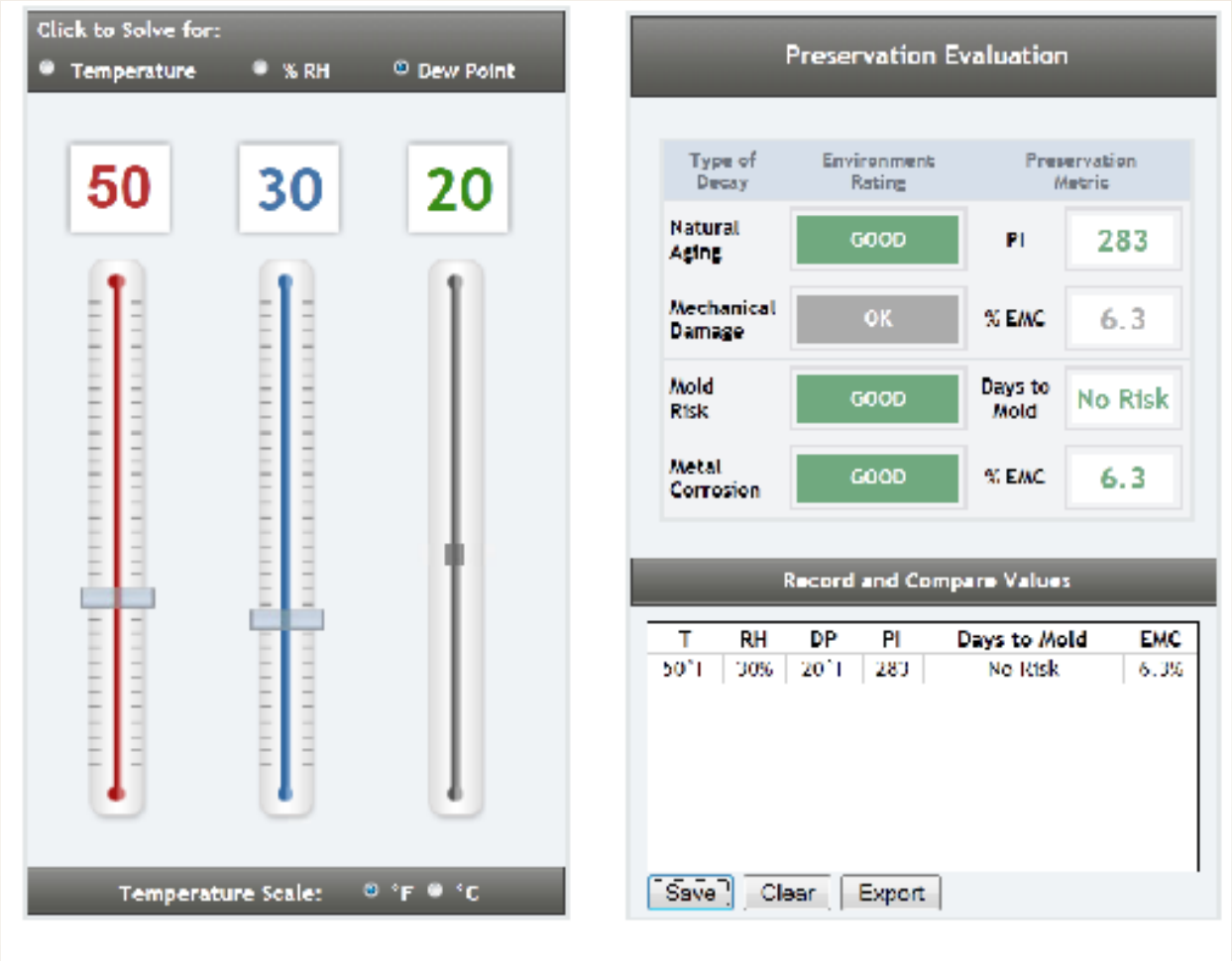
Survey Materials

- Types of Bound Volumes
- Periodicals
- Fiche and Microfiche
- Art, Artifacts
- Photography

What (else) do Storage Facilities store?

Temperature and Humidity



Preservation Index Calculator

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Preservation Index Values

% RH \ Temperature (°F)	32	37	42	47	52	57	62	67	72	77	82	87	92
5	2634	1731	1147	767	516	350	240	165	114	80	56	40	28
10	2234	1473	979	656	443	302	207	143	99	70	49	35	25
15	1897	1255	837	562	381	260	179	124	86	61	43	30	22
20	1613	1070	716	482	328	224	155	107	75	53	37	27	19
25	1373	914	613	414	282	194	134	93	65	46	33	23	17
30	1170	781	525	356	243	168	116	81	57	40	29	21	15
35	998	668	451	307	210	145	101	71	50	35	25	18	13
40	852	572	387	264	182	126	88	62	43	31	22	16	12
45	729	491	333	228	157	109	76	54	38	27	19	14	10
50	624	421	287	197	136	95	66	47	33	24	17	12	9
55	535	362	247	170	118	82	58	41	29	21	15	11	8
60	459	312	213	147	102	72	51	36	26	18	13	10	7
65	394	269	184	128	89	62	44	31	22	16	12	9	6
70	339	232	160	111	77	54	39	28	20	14	10	8	6
75	292	200	138	96	67	48	34	24	17	13	9	7	5
80	251	173	120	84	59	42	30	21	15	11	8	6	4
85	217	150	104	73	51	36	26	19	14	10	7	5	4
90	187	130	90	63	45	32	23	16	12	9	6	5	3
95	162	112	79	55	39	28	20	15	11	8	6	4	3

PI Values, in Years

Figure 2. Preservation Index (PI) Values (showing predicted lifetime, in years, of short-lived organic materials at various combinations of temperature and relative humidity conditions)

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Envelope Issues

- Thermal Performance (R Value)
- Vapor Transmission
- Integrity

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Lighting Considerations:

- Initial Cost
- Replacement
- Quick Start
- Sensors and Controls

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HVAC Considerations:

- Performance
- Life Cycle Costs
- Separate Systems for Special Collections
- Redundancy
- Back-up Power

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Fire Suppression Considerations:

- Wet vs. Dry Pipe
- In Rack vs. Overhead (re shelving)
- Separate Systems for Special Collections

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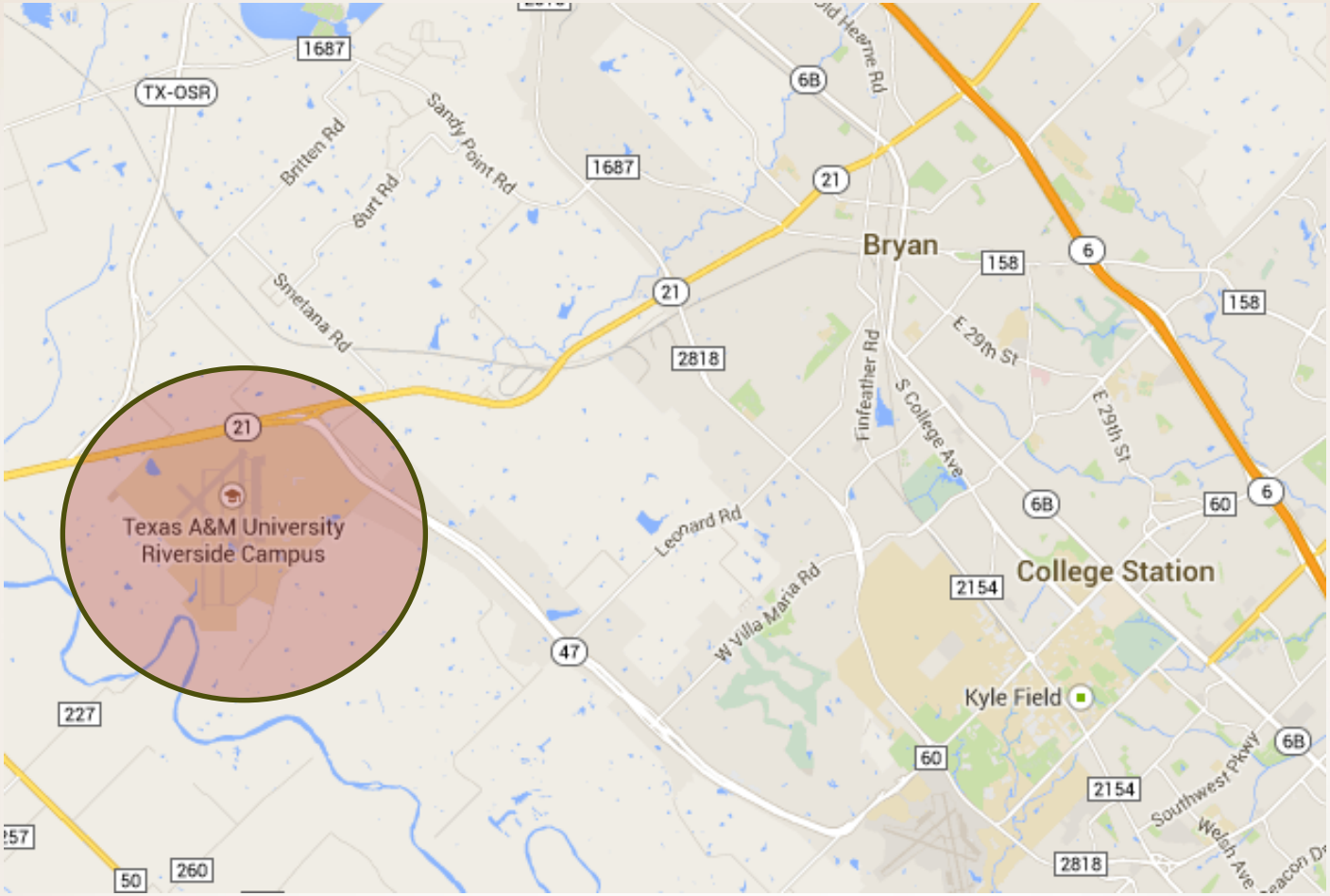
Joint Library Facility

Part 4

Location



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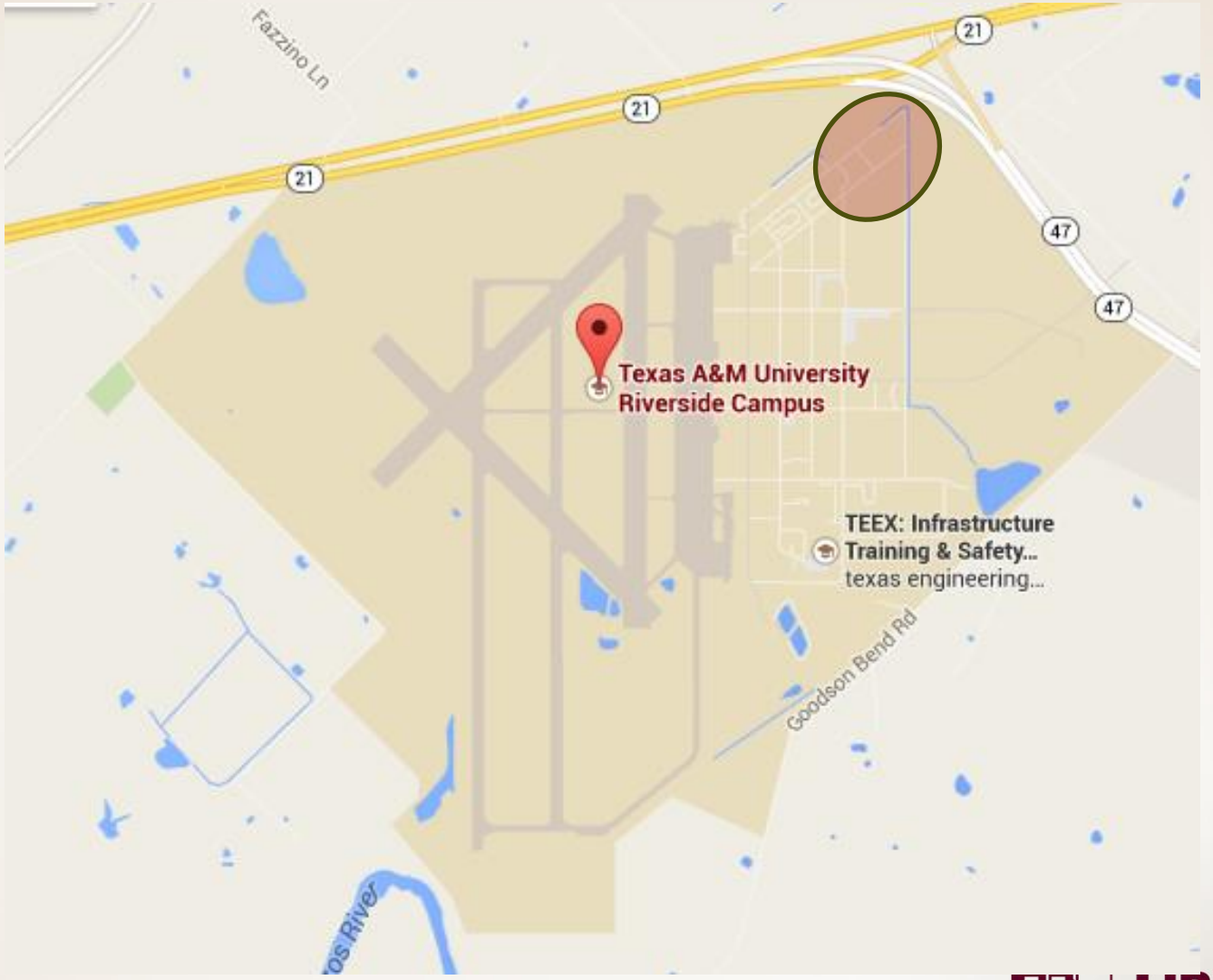
Location



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Location

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Site

LIBRARIES
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Site

LIBRARIES
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Shelf Height = 20 Feet

- Safety
- Training
- Pick Rates
- Fire Suppression

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Mobile vs Fixed

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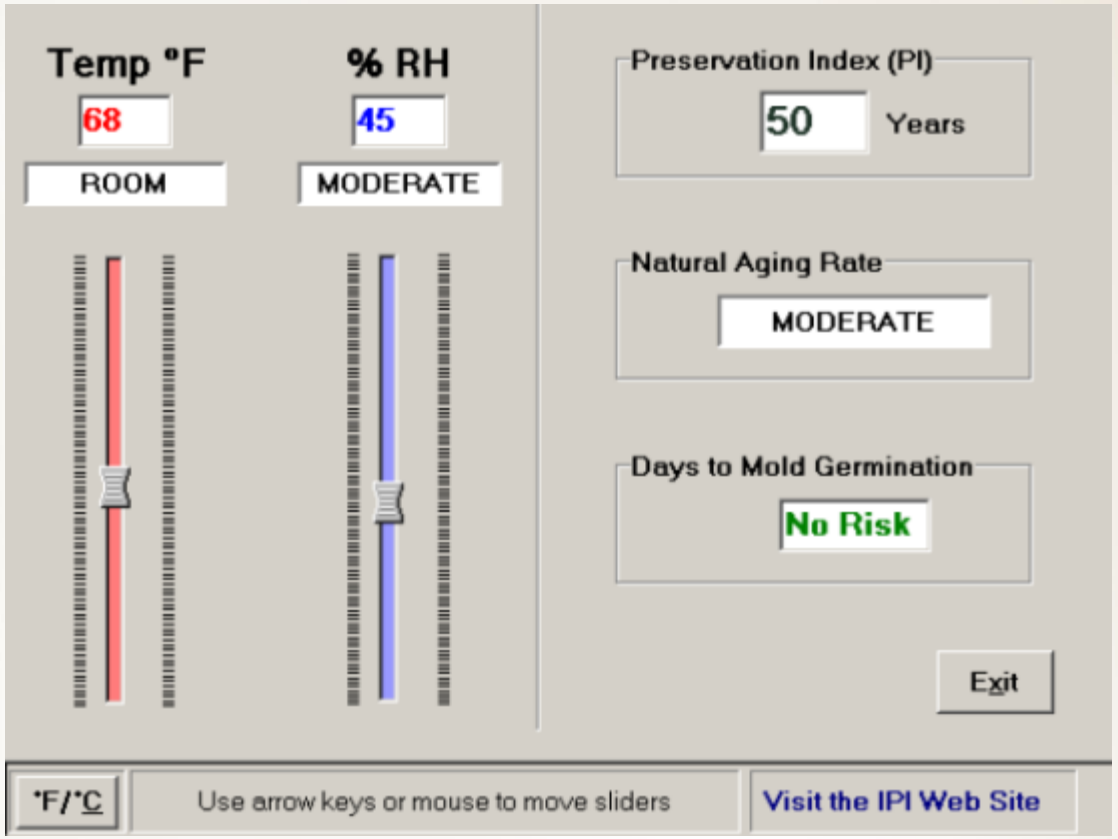

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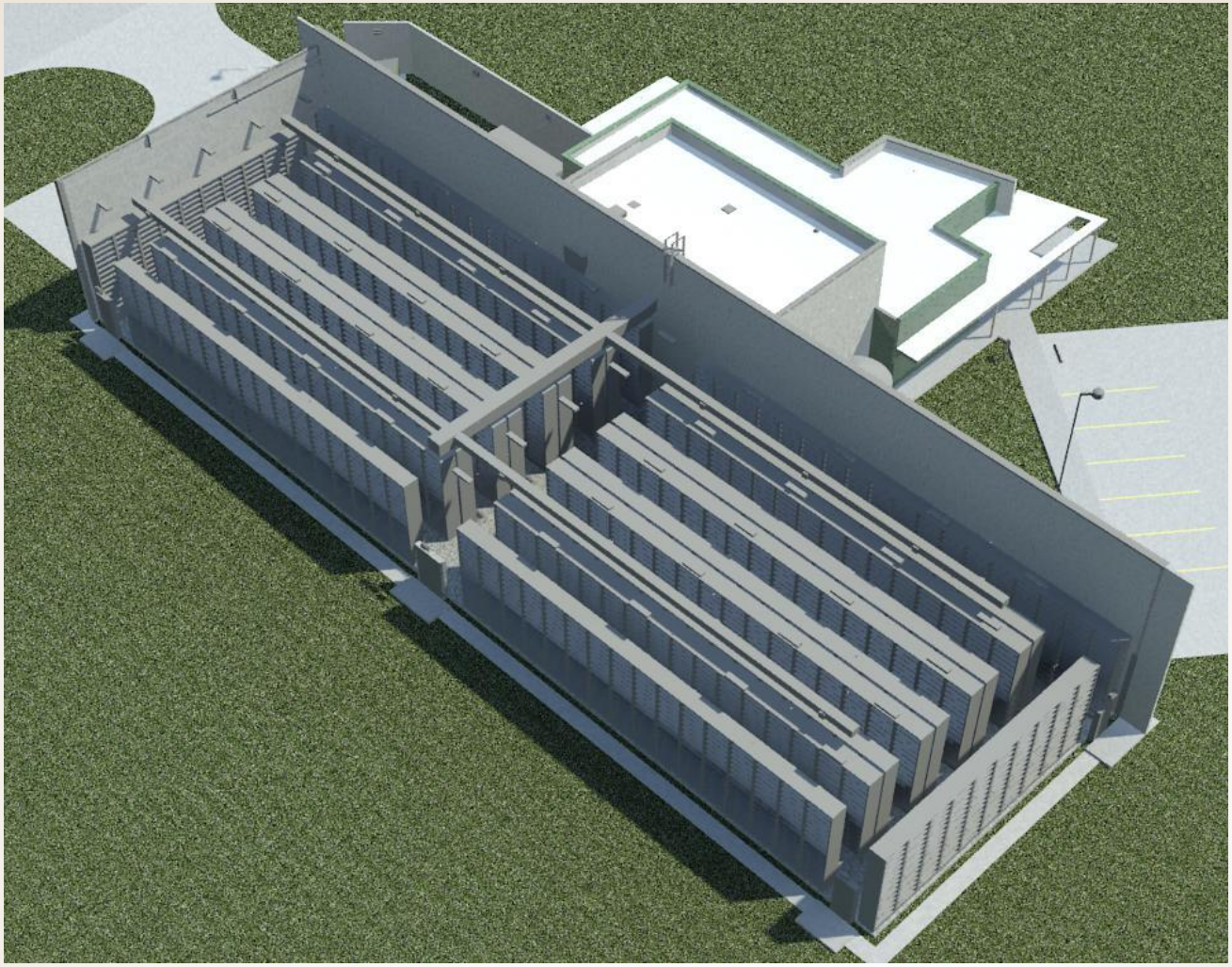

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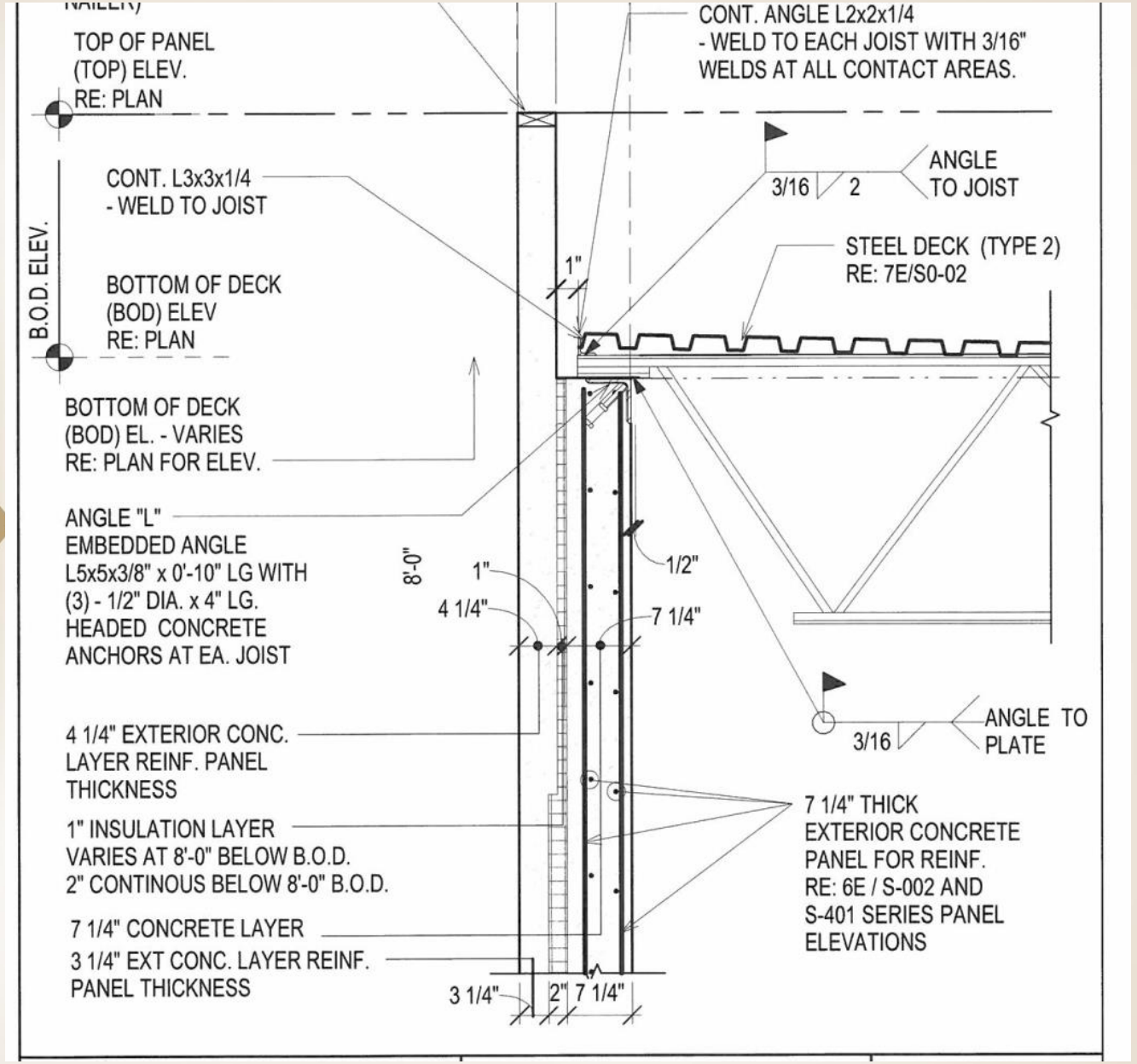
Structure and Envelope



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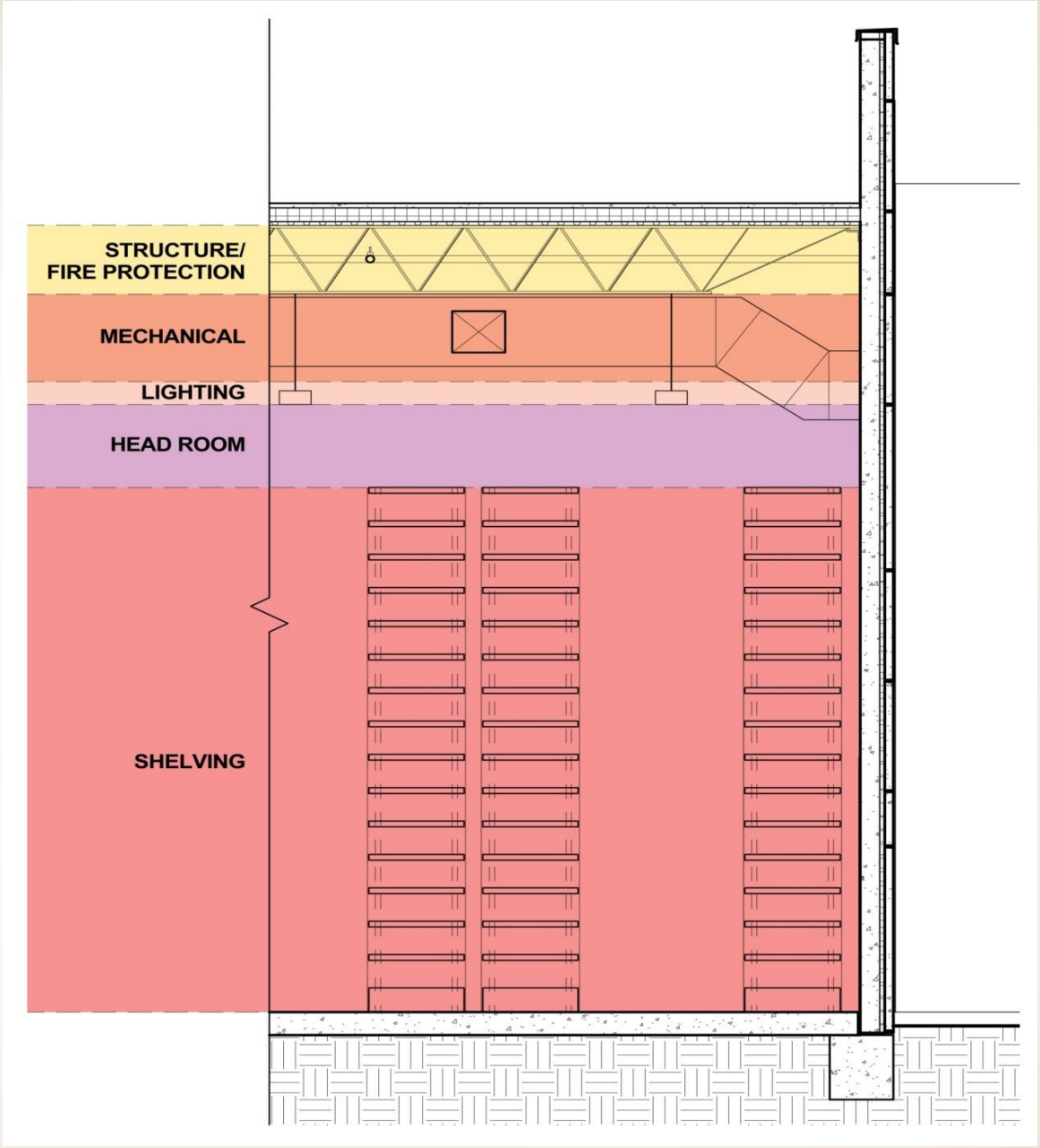
Vertical and Horizontal Organization



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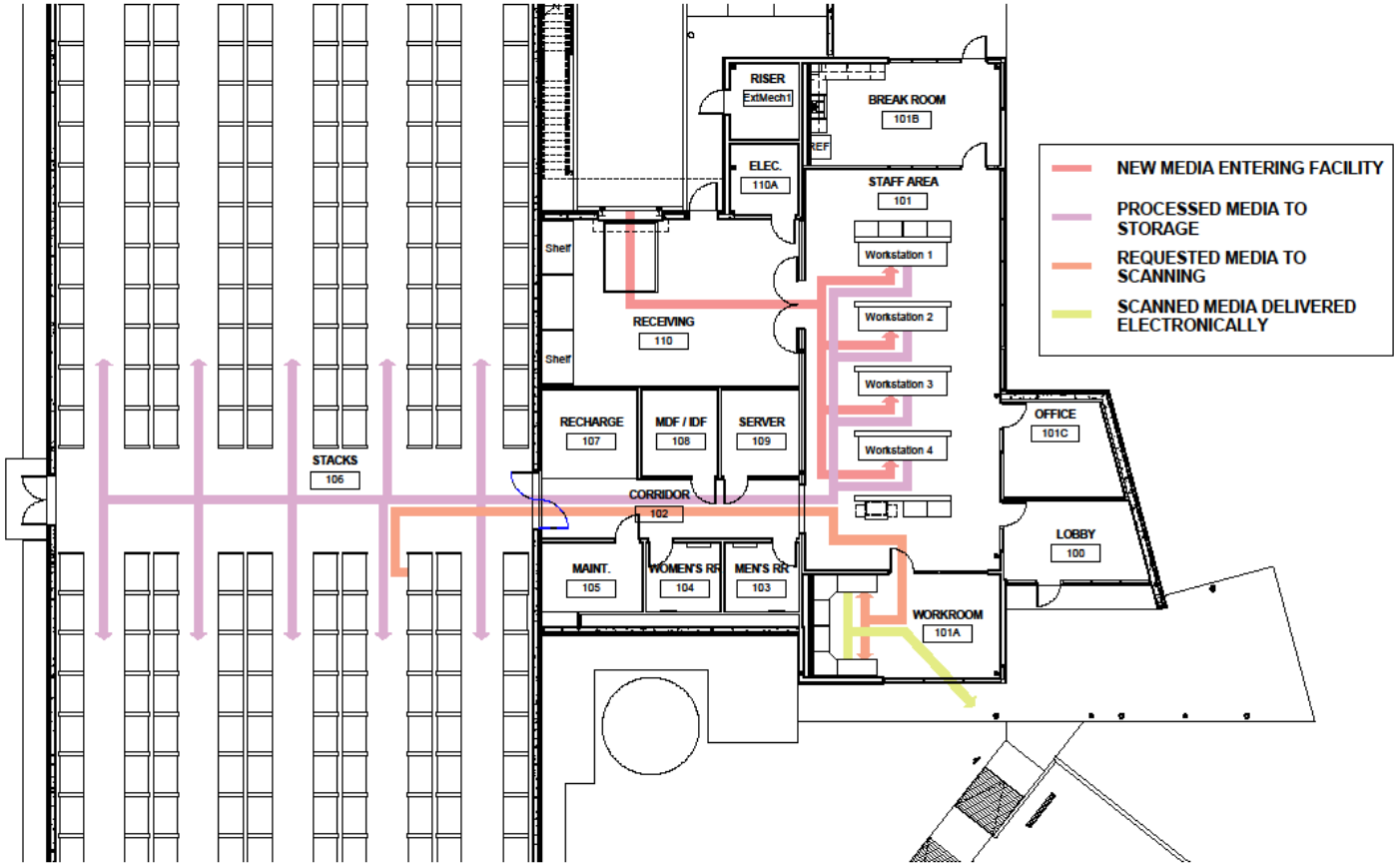

Workflow

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Processing Room

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Hardware / Software

GENERATION FIFTH
APPLICATIONS INC.
collections are infinite. space is finite.

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Lessons Learned

Part 5

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Cheap Land is Cheap for a Reason

Site Development

- Roads
- Drainage
- Topography

Utilities

- Electricity
- Data
- Water – potable and fire suppression

Other Uses on the Site

- Warehouses
- Police Training
- Gun Range

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Concrete Challenges

Tilt Wall Color

Doors in Tilt Wall

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Water Conservation

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Equipment Troubles

Pick Wisely

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Pick Wisely

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Hardware / Software

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You Will Have 18-Wheelers

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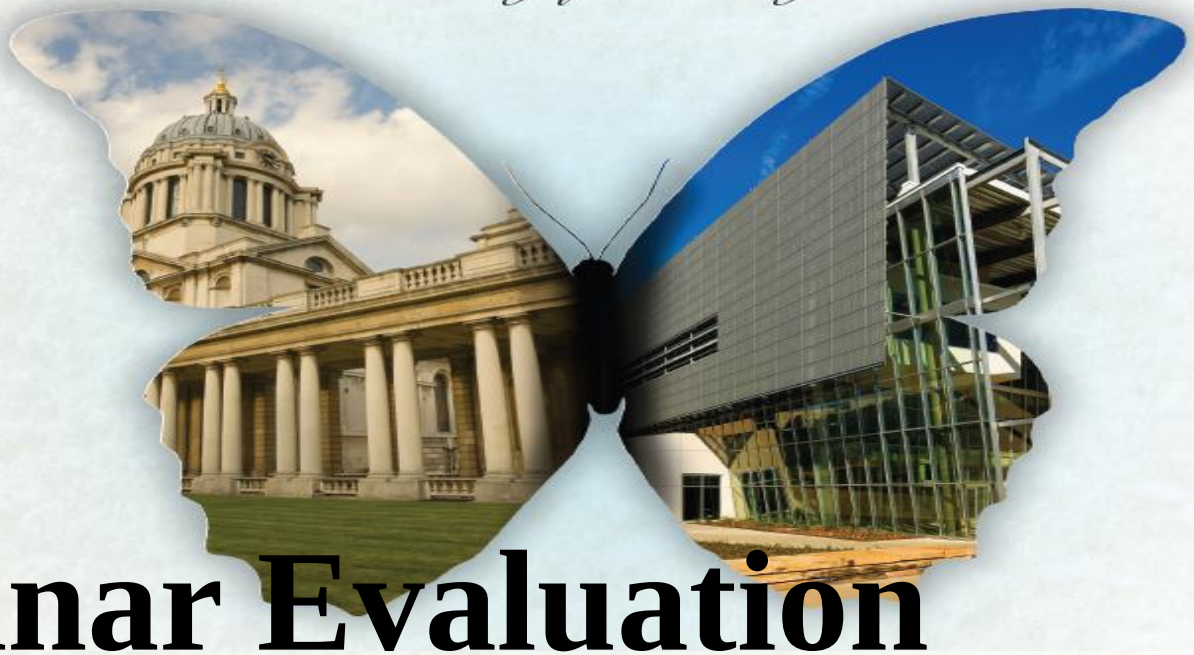
Questions?

ASSOCIATION OF
Texas College & University Facilities
PROFESSIONALS

Managing Metamorphosis, Building for Change



Seminar Evaluation

We hope you enjoyed this session…

Please take a moment to complete the evaluation form.

Thank you!

CONTINUING EDUCATION AIA