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Medical Equipment Planning for Healthcare Facilities

June 11, 2019

Suraj S. Soudagar, MS, MBA, LEED AP
IMEG, Corp.





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Medical Equipment Planning for Healthcare Facilities

June 11, 2019

Moderator: Gregg D. Ostrow, AIA





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HC 101 Series

As part of the Academy's multi-channel, on-line approach, these sessions provide emerging and experienced professionals with convenient and economical opportunities to develop their chosen area of interest.

The HC 101 series provides new members of healthcare centric practices with exposure to healthcare design fundamentals



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In order to receive 1 AIA LU/HSW credit, each attendee must complete the webinar survey at the conclusion of the presentation.

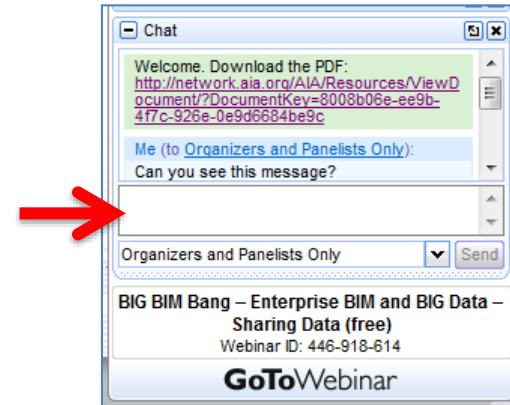
A link will be provided in the chat box and included in a follow-up email one (1) hour after the webinar to the individual who registered your site.

Questions?

Submit a question to the moderator via the chat box.

Content-related questions will be answered during the Q&A portion, at the end of the presentation, as time allows. Any questions not answered during Q&A, will be answered and posted online within two (2) weeks.

Tech support questions will be answered by AIA staff promptly.





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**Suraj S. Soudagar, MS, MBA, LEED AP
IMEG, Corp.**

Associate Principal/ Project Executive

Experience

15 Years

Education

University of Mumbai – Mumbai, India

BS Instrumentation Engineering 2001

University Illinois Chicago

MS Bioengineering 2003

St. Ambrose University

MBA 2015


Accreditations

LEED Accredited Professional 2009

Affiliations

Association for the Advancement of Medical Instrumentation
(AAMI)

Clinical Engineering Association of Illinois



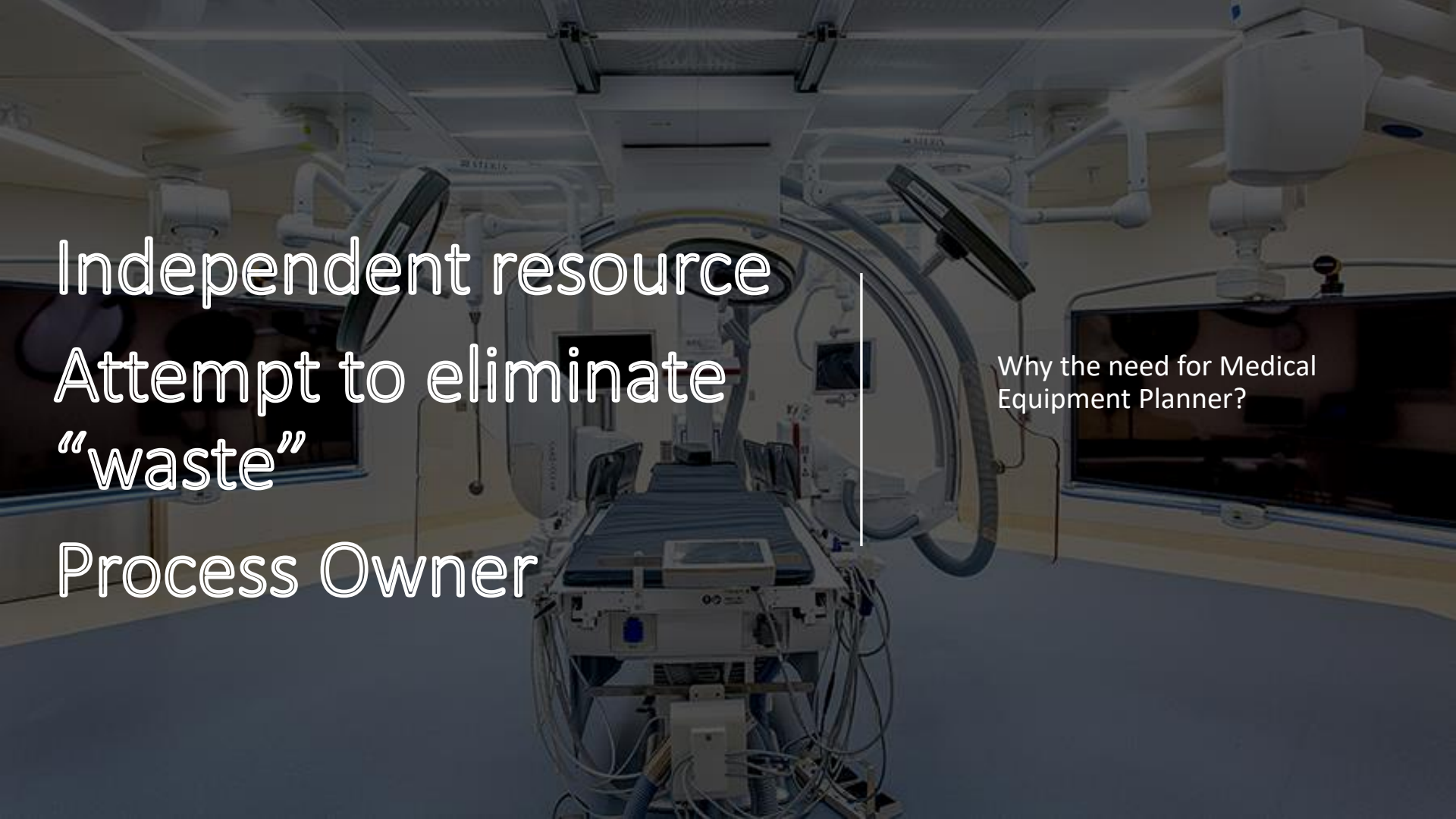
Why The Need for a Medical Equipment Planner?

- MEDICAL EQUIPMENT REPRESENTS 25-35 PERCENT OVERALL PROJECT COSTS
- PROPAGATION OF NEW TECHNOLOGIES
- SORTING OUT “FACT” FROM “FICTION”
- ACHIEVING BALANCE



Background

- Varied
- Technical
- Consultant

A dimly lit operating room with a surgical table in the center, surrounded by various medical equipment and monitors.

Independent resource
Attempt to eliminate
“waste”
Process Owner

Why the need for Medical
Equipment Planner?

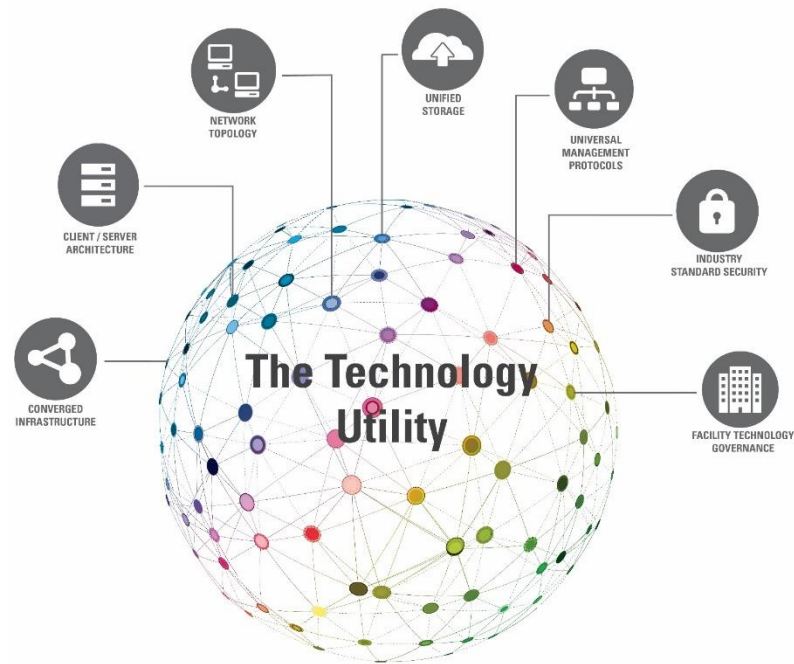
A photograph of two men in a construction setting. The man on the left is wearing a blue hard hat, a grey suit, a white shirt, and a blue tie. He is holding a large set of architectural blueprints. The man on the right is wearing a white hard hat and a blue button-down shirt. He is gesturing with his hands while looking at the blueprints. The background shows the wooden framework of a building under construction.

Why The Need for a Medical Equipment Planner?

CONVERGENCE

INTEGRATED HEALTHCARE TECHNOLOGY

Internet of Things



MEDICAL EQUIPMENT PLANNING

Role of the Medical Equipment Planner



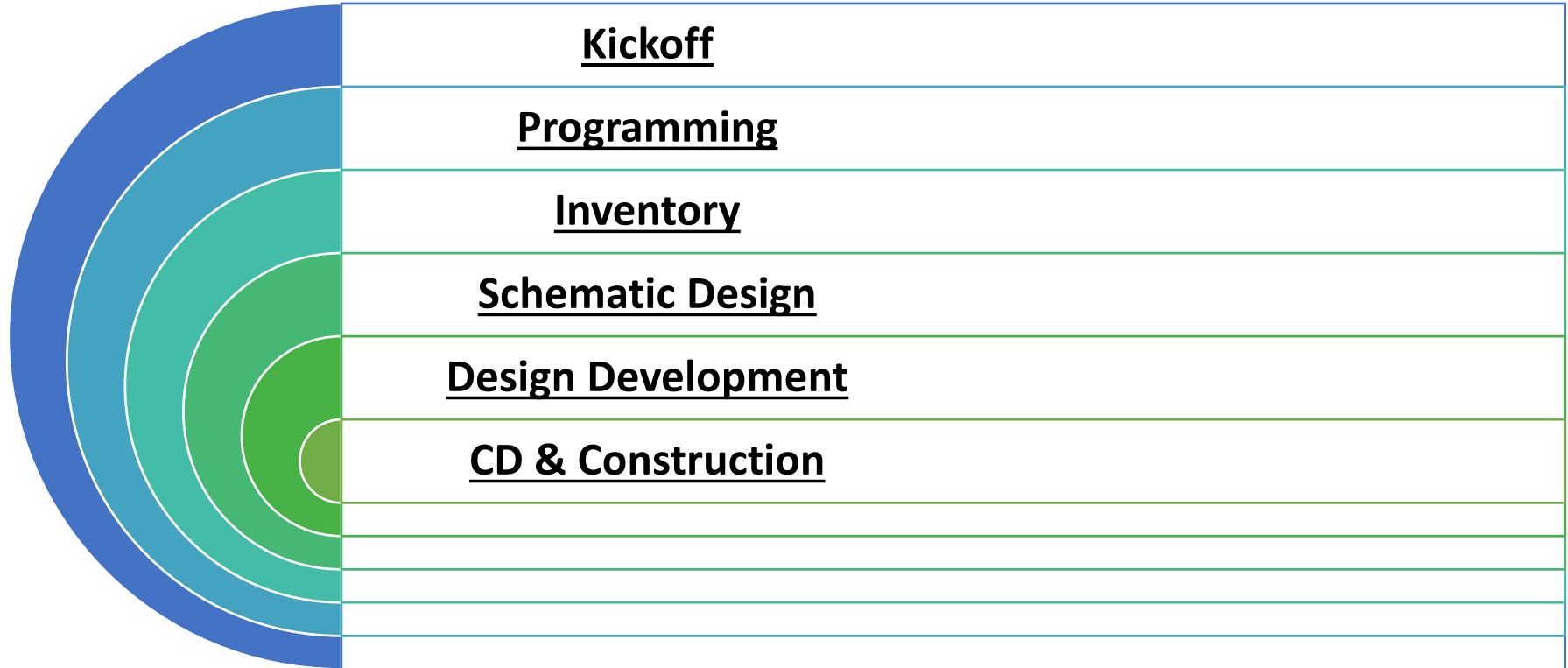


MEDICAL EQUIPMENT PLANNING

FF&E Categories



Comprehensive Approach



Comprehensive Approach




















PLANNING TOOLS AND DELIVERABLES

Patient/Person-Centered, Lean

Responsibility Matrix

 Advocate Lutheran General Hospital			 Owner's Design and Construction / Program Manager	 Architect	 Equipment Planner	 Low-Voltage Engineer	 Hospital Clinical Engineer	 Certification Manager	 Vendor	Notes
Revised 10/6/2018			 SPECIALTY	 MEG	 MEG	 MEG	 MEG	 MEG	 MEG	
Line #	Functional Category	Equipment Category	Specialty	Specialty	Specialty	Specialty	Specialty	Specialty	Specialty	
162		Analyzer, Blood Gas	X		X	X	X		X	
163		Analyzer, Glucose	X		X	X	X		X	
164		Balanc, Lab	X		X	X	X		X	
165		Baseline	X		X	X	X		X	
166		Bonnet, Phototherapy	X		X	X	X		X	
167		Pump, Breast	X		X	X	X		X	
168		Cabine, Bedside		X	X					
169		Defibrillators	X		X	X	X		X	Confirm if Interior Designer or Architect
170		Electric Beds	X		X	X	X		X	
171		Feeding Pump	X		X	X	X		X	
172		Glove Box Holder	X		X	X	X			X
173		Hanging Unit	X		X	X	X			X
174		Headwall - only graph	X		X	X	X		X	X
175		Headwall - Architecturally integrated		X	X				X	X
176		Humidifier	X		X	X	X		X	X
177		Inflation Pump	X		X	X	X		X	
178		IV Stands	X		X	X	X		X	X
179		Location, Bed, Wall Mt.	X		X	X	X			X
180		Medical Games, Built-in		X	X				X	X
181		Monitor, Physiologic	X		X	X	X			X
182		Oto/Ophthalmoscopes, Wall-Mounted	X		X	X	X			X
183		Otoscopy/Ophthalmoscope Dual Set	X		X	X	X			X
184		Overbed Table	X		X	X	X		X	Confirm if Interior Designer or Medical Equipment
185		Oxygen, Air Flowmeters, Blenders, Detachable	X		X	X	X			X
186		Patient Arm/Slide Chairs		X	X				X	X
187		Patient Monitor Brackets (Physiologic or Vitals)	X		X	X	X			X
188		PDA Pump	X		X	X	X			X
189		Radiometer, Phototherapy	X		X	X	X		X	
190		Reassurators, Infant	X		X	X	X		X	
191		SpO2 Computer	X		X	X	X		X	
192		SpO2/oximeters, Wall-Mounted	X		X	X	X		X	
193		Stethoscope, Patient	X		X	X	X			X
194		Swivel Pump	X		X	X	X			X
195		Traction Regulators, Detachable	X		X	X	X			X
196		Ultrasonic Pump	X		X	X	X			X
197		Venous, Vial	X		X	X	X			X
198		Vital Signs Monitoring Systems	X		X	X	X			X
199		Warmer, Bedside	X		X	X	X		X	

Information Flow



- Best-in-Class planning tool
- 24/7 access anywhere – anytime
- Supports collaboration, transparency & visibility

More than
40,000 products
2,000 suppliers

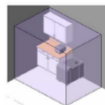
EQUIPMENT CURRENTLY PLANNED

\$33,508,742,085

61 NEW Products This Week
[View All](#)



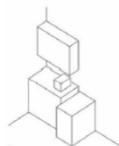
Level 00



Level 500



Level 100



Level 200

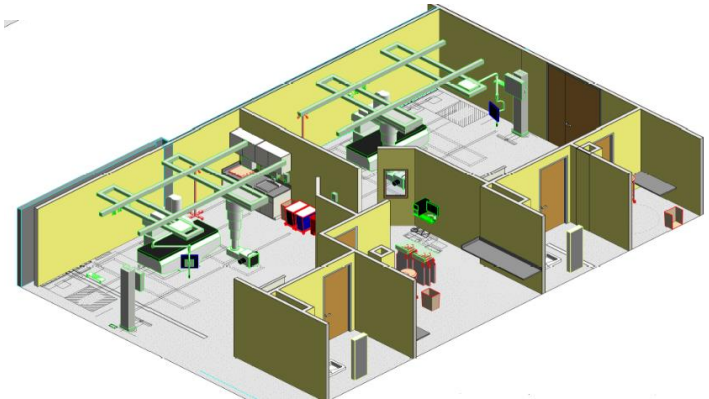
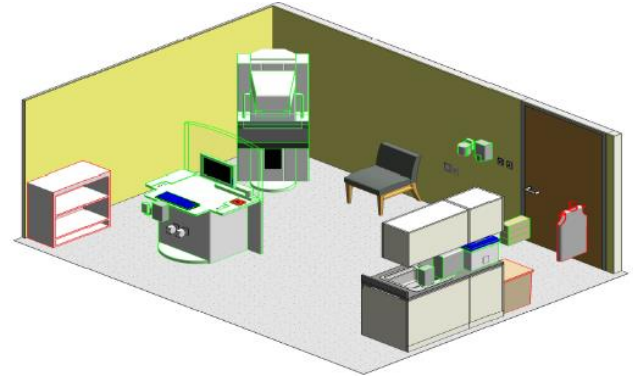
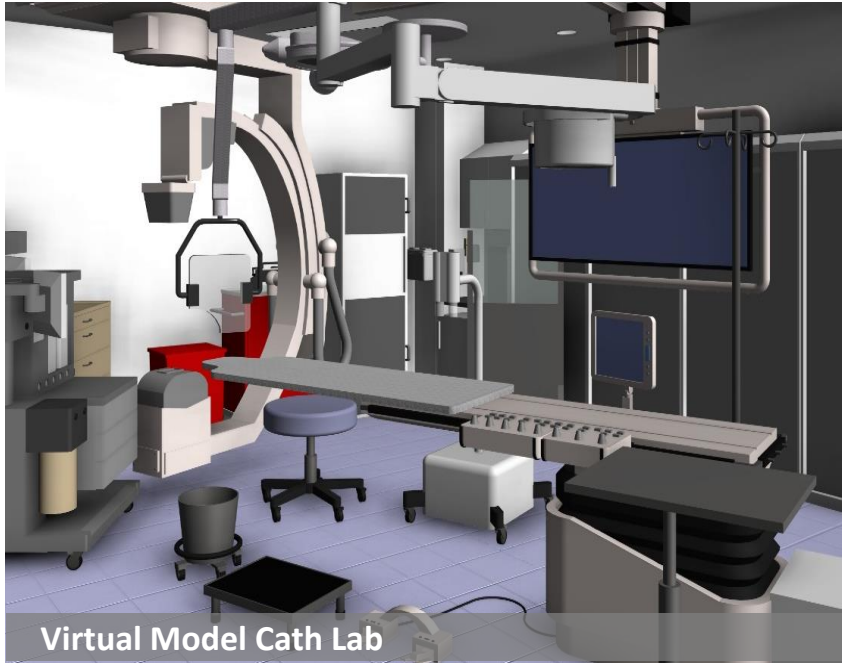


Level 400

Building Information Modeling (BIM)

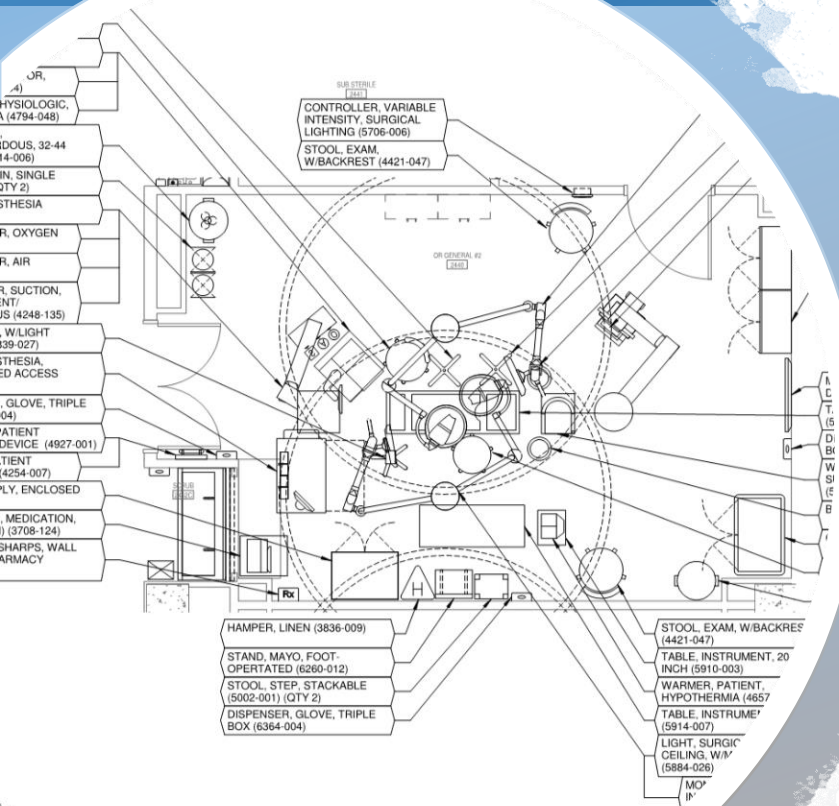
PLANNING TOOLS AND
DELIVERABLES

BIM Collaboration



Budget Report

Department Name [Dept Id]			Working Budget Equipment
Level 1 - CardioDiagnostics			2,797,792.01
Level 1 - Intervntional Prep/Recovery			1,418,992.67
Level 1 - Registration			9,502.00
Level 2 - Cath/IR			9,302,150.15
Level 3 - PACU			1,891,584.63
Level 3 - Pre-Op Recovery			1,202,317.96
Level 3 - Surgery Public Waiting			535.00
Level 3 - Surgery Suite			10,467,512.75
Level 5 - CCU/CSU			2,254,137.87
Equipment (E):			29,344,525.04
Deductions (D):			
	Discounts	0.000	0.00
	Re-use	0.000	0.00
	Deductions Subtotal		0.00
Equip Subtotal (E-D):			29,344,525.04
Additions (A):			
	Freight		0.00
	Installation		0.00
	Storage		0.00
	Fees		0.00
	Tax	0.000*	0.00
	Inflation	0.000	0.00
	Contingency	0.000	0.00
	Additions Subtotal		0.00
Other Funds (O):			0.00
Wkg Budget(E-D+A-O):			29,344,525.04
Approved Budget:			0.00
Variance: Unfav/(Fav):			29,344,525.04



PLANNING TOOLS AND DELIVERABLES

CAD / 3D / BIM

Description		Manufacturer		
Q/C	AC Model	Vendor		
Room	Room#: NT-189	Room Sign:	Area/Phase:	Room
1 Q/C 1	Dispenser, Disinfectant Wipes, Wall Mount Sani Bracket (1 ea) P010901	Professional Disposables International-PDI (P010901) Professional Disposables International-PDI (P010901)	Project Released	
1 Q/C 1	Dispenser, Glove, Quadruple Box SP Glove Box Stand S1389-33	Cardinal Health Durable Medical Equipment (S1389-33) Cardinal Health Durable Medical Equipment (S1389-33)	Project Released	Phase Unass
1 Q/C 1	Dispenser, Hand Sanitizer, Wall Mount SDS Dispenser (4" Deep)	STERIS Corporation (4D40-Q5) GOJO Industries (4D40-Q5)	Project Draft (New)	Phase Unass
1 Q/C 1	Dispenser, Paper Towel, Surface Mount Slimroll 10442	Kimberly-Clark Professional (10442) Kimberly-Clark Professional (10442)	Project Draft (New)	Phase Unass
1 Q/C 1	Dispenser, Soap, Wall Mounted SDS Dispenser (4" Deep)	STERIS Corporation (4D40-Q5) STERIS Corporation (4D40-Q5)	Project Draft (New)	Phase Unass
1 Q/C 1	Disposal, Sharps, Wall Mount SharpSafety In Room 85161H	Medtronic - Covidien Kendall Products (85161H) Medtronic - Covidien Kendall Products (85161H)	Project Draft (New)	Phase Unass
1 Q/O 3	Flowmeter, Oxygen FM-15UO-DHPT (Power Take-Off)	Amvex Corporation (FM-15UO-DHPT) Ohio Medical (FM-15UO-DHPT)	Project Released	
1 Q/O 3	Hamper, Linen ContinuCart CX9	Centurion Medical Products (CX9) Centurion Medical Products (CX9)	Project Draft	
	Regulator, Suction, Intermittent/Continuous 251-907	Ohio Medical (6707-1251-907) Ohio Medical (6707-1251-907)		

PLANNING TOOLS AND DELIVERABLES

Room by Room Equipment List

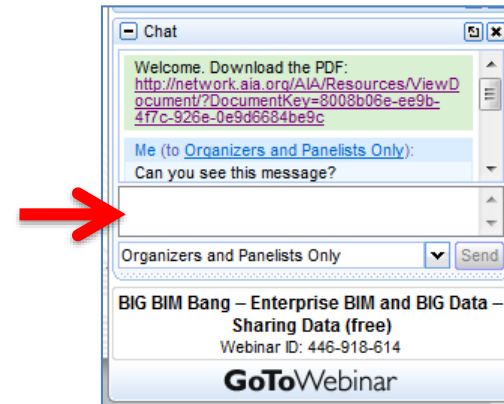


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Question Reminder

Submit your questions and comments
via the chat box.



Specification Item Detail

Atta ID	Qty F/I	Description Model Spec Remarks / Item Notes	Manufacturer / Vendor	Arch Sg. Spat. Sg.	Department Room Name Room #	Item Status Arch Code Custom Code	Water		Vacuum		(lbs) Mounting Max Weight Ship Weight	(in) Width Depth Height	Electrical/Mechanical		
							Cold Hot Treated	Drain Steam Gas	Dental Medical Vent	Volts Amp Hz			Plug Type		
													BTU/hr Ded. Circ.	Data Cnct. Emrg. Pwr.	
3803-065	1 O/O	Flowmeter, Oxygen FM-15UO-DHPT (Power Take-Off)	Amvex Corporation (FM-15UO-DHPT) Ohio Medical (FM-15UO-DHPT)	No No	Level 1 - CardioDiagnostics Echo Procedure Room NT-189	Released 3 Phase 2 [2]	No No No	No No Yes	No No No	W 1 1	1.25 3.50 5.50	N/A N/A N/A	N/A N/A No No		
Dimensions reflect standard flowmeter. Dimensions vary depending on connections selected.															
3803-065	1 O/O	Flowmeter, Oxygen FM-15UO-DHPT (Power Take-Off)	Amvex Corporation (FM-15UO-DHPT) Ohio Medical (FM-15UO-DHPT)	No No	Level 1 - CardioDiagnostics EKG Room NT-187	Released 1 Phase 2 [2]	No No No	No No Yes	No No No	W 1 1	1.25 3.50 5.50	N/A N/A N/A	N/A N/A No No		
Dimensions reflect standard flowmeter. Dimensions vary depending on connections selected.															
3803-065	1 O/O	Flowmeter, Oxygen FM-15UO-DHPT (Power Take-Off)	Amvex Corporation (FM-15UO-DHPT) Ohio Medical (FM-15UO-DHPT)	No No	Level 1 - CardioDiagnostics Inject Room NT-189	Released 3 Phase 2 [2]	No No No	No No Yes	No No No	W 1 1	1.25 3.50 5.50	N/A N/A N/A	N/A N/A No No		
Dimensions reflect standard flowmeter. Dimensions vary depending on connections selected.															
7050-003	1 O/C	Dispenser, Glove, Quadruple Box SP Glove Box Stand S1389-3333)	Cardinal Health Durable Medical Equipment (S1389-3333) Cardinal Health Durable Medical Equipment (S1389-3333)	Yes No	Level 1 - CardioDiagnostics EKG Room NT-147	Released 1 Phase 2 [2]	No No No	No No No	No No No	W 2 2	11.50 4.00 19.00	N/A N/A N/A	N/A N/A No No		
Dimensions reflect standard flowmeter. Dimensions vary depending on connections selected.															
7050-003	1 O/C	Dispenser, Glove, Quadruple Box SP Glove Box Stand S1389-3333)	Cardinal Health Durable Medical Equipment (S1389-3333) Cardinal Health Durable Medical Equipment (S1389-3333)	Yes No	Level 1 - CardioDiagnostics Echo Procedure Room NT-189	Released 1 Phase 2 [2]	No No No	No No No	No No No	W 2 2	11.50 4.00 19.00	N/A N/A N/A	N/A N/A No No		
Dimensions reflect standard flowmeter. Dimensions vary depending on connections selected.															
7050-003	1 O/C	Dispenser, Glove, Quadruple Box SP Glove Box Stand S1389-3333)	Cardinal Health Durable Medical Equipment (S1389-3333) Cardinal Health Durable Medical Equipment (S1389-3333)	Yes No	Level 1 - CardioDiagnostics Inject Room NT-197	Released 1 Phase 2 [2]	No No No	No No No	No No No	W 2 2	11.50 4.00 19.00	N/A N/A N/A	N/A N/A No No		
Dimensions reflect standard flowmeter. Dimensions vary depending on connections selected.															

Decorations: Light, Surgical, Single, Ceiling with Motor Arm & Drum

Article ID: 6536-0403

Coiling mounted single surgical light with monitor arm and anesthesia boom. Lighthead is equipped with a sterilizable control handle that allows surgeon control of lighthead positioning, focus and intensity. 5 Kosmos™ LED pods, each with 7 LEDs and 12 f-stop focus control mounted LEDs. Max system output is 100,000 lux. Adjustable color temperature of 4,100 - 4,500K. 360 deg. rotation. Single light boom: 30 inch upper light arm with a 10 inch drop. Monitor arm boom: 51 inch upper arm and 36 inch lower arm with a 3 inch drop. Anesthesia arm boom: 61 inch upper arm and 39-1/2 inch lower arm with 7 inch drop. Anesthesia head accommodates up to 2 shelves, 16 gas outlets and 14 medical outlets.

Arch Sig: Yes	Spatially Sig: No	Volts: 120	Watts: *
Arch Code: 1 Fixed	ADA: No	Hz: 60	Amps: 20
Custom Code: Phase 2 [J]	Antimicrobial: No	Phase: Single	BTU/hr: N/A
Furnish Install: QV	Type: Medical	KVA: N/A	Def. Circuit: Yes
	Green: No	Emul. Power: No	Plug Type: Hardwire

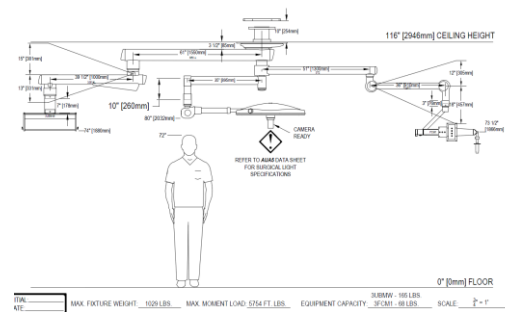
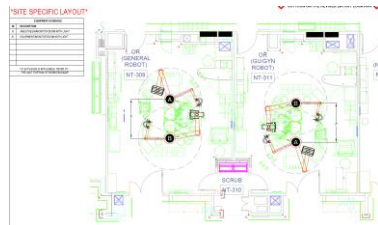
Voltage: 120	Watts: *
Hr: 60	Amps: 20
Phase: Single	BTU/hr: N/A
KVA: N/A	Def. Circuit: Yes
Emer. Power: No	Plug Type: Hardwire

Utility and Technology Requirements	
Width: 187.50 in (4763 mm)	Left: N/A
Depth: 187.50 in (4763 mm)	Right: N/A
Height: *	Front: N/A
Max Weight: 1029 lbs (466.5 kg)	Back: N/A
Mounting: Ceiling	Top: N/A
	Bottom: N/A
Water - Cold: No	Gasess: Yes
Water - Hot: No	Drain: No
Water - Treated: No	Shower: No
Vent: No	Vacuum - Dental: No
Tech Connect: Yes	Vacuum - Medical: Yes

Water - Cold: No	Gasless: Yes
Water - Hot: No	Drain: No
Water - Treated: No	Sleam: No
Vent: No	Vacuum - Dental: No
Tech Connect: Yes	Vacuum - Medical: Yes

Specification:
Structural
Electrical
Plumbing
Mechanical

Department	Room#	Room	Funding Source	Room Status	Qty	Room Notes
Level 3 - Surgery Suite	NT-316	Operating Room (Tribune)	Project	Purchased	1	
Level 3 - Surgery Suite	NT-314	Operating Room, General Surgery	Project	Purchased	1	
Level 3 - Surgery Suite	NT-309	OR (General Robot)	Construction	Purchased	1	
Level 3 - Surgery Suite	NT-311	OR (GU/GYN Robot)	Project	Purchased	1	
Level 3 - Surgery Suite	NT-325	OR (Same Day Add-On)	Project	Purchased	1	



MAX. FIXTURE WEIGHT: 1029 LBS MAX. MOMENT LOAD: 5754 FT. LBS EQUIPMENT CAPACITY: 3/8" CM1 - 68 LBS SCALE: $\frac{1}{4}'' = 1'$

MAX. FIXTURE WEIGHT: 1025 LBS. MAX. MOMENT LOAD: 5754 FT. LBS. EQUIPMENT CAPACITY: 3FCM1 - 68 LBS. SCALE: $\frac{3}{4} = 1"$

MAX. FIXTURE WEIGHT: 1025 LBS. MAX. MOMENT LOAD: 5754 FT. LBS. EQUIPMENT CAPACITY: 3FCM1 - 68 LBS. SCALE: $\frac{3}{4} = 1"$



Realized Visualization

PLANNING TOOLS AND DELIVERABLES



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Time for Questions and Comments





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CES Reminder

The URL to the webinar survey <https://www.research.net/r/AAH1905> will be emailed to the individual who registered your site.

The survey closes **Friday, June 14, 2019** at 12:30am ET.

For questions, please email knowledgecommunities@aia.org



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HEALTH FACILITY PLANNING, DESIGN & CONSTRUCTION**

MARCH 17-20, 2019 | PHOENIX, AZ

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U40 List: Healthcare Design's Best Under 40 [✓](#) [✕](#) [ⓘ](#)

The U40 List is nomination oriented recognition to celebrate individuals making a significant contribution to the advancement of health facilities design. Each year up to two individuals will be selected to have their names added to the distinguished U40 List. The nominees will receive a travel stipend to attend the Summer Leadership



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Upcoming Webinars

Date	Series	Topic
7/9	Beyond the Basics	Pre-Post areas of Ambulatory Surgery
8/13	Case Studies	Guided by Transformation: Building a Framework for Behavioral Health
9/10	Master Studio Series	TBD

Dates & topics are subject to change