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Provided
(with
the HNOLOGY elit - p. 2)

CALIFORNIA INSTITUTE OF TECHNOLOGY

Laser Interferometer Gravitational Wave Observatory (LIGO) Project

To/Mail Code: Dist. via M. Coles

From/Mail Code: A. Sibley

Phone/FAX: 395-3046/304-9834

Refer to: LIGO-E950098- A-F Date: December 19, 1995

Subject: OPERATIONS SUPPORT BUILDING (OSB) REQUIREMENTS

The requirements and facility layouts of the Operations Support Building (OSB) from the Parsons design drawing were not complete. After meeting with each of the LIGO technical groups, a set of requirements were collected from the CDS, Detector, and Vacuum Equipment groups. The following is a summary of their requirements:

# Mass Storage and Tape Room

Significant highlights of this area are the raised flooring with connection to control room. CDS does not require forced air in this space, specific requirement for utilities are detailed on sheet 1 of 2. CDS would like to have all computer, disk and tape drives in this area along with Tape Storage. CDS does not require fire resistant storage.

#### Control Room

CDS has requested an increase in area for this room. A glass wall would be placed on the wall adjacent to the hall for visitor viewing of the control room during operations with minimal disruptions. Also, raised floor connecting LVEA mass storage. The Control room lighting would be fluorescent lights with on/off switches and incandescent spot lights in three (3) equally spaced rows with dimmer control on each row. See Sheet.

# Computer Users Room

A raise floor with minimum of three (3) feet wide (or six (6) square feet) connection to control room. CDS requests a glass wall for this room. Also, an increase in the width of the area between the Control Room and this area will help in accommodating visitors.

# General Computing Room

This room was left out of OSB floor plan. Proposed new location (by CDS) is in the utility room area. This area must be environmentally controlled and the walls are bare for General Computing installation of patch boards. General Computing network: 1) Four (4) each Category 5, network connections in each office wiring back to 110 patch board in General Computing Room, 2) One (1) each Category 5 network connection every ten (10) feet in all shops, common areas with wires

back to General Computing Room. 3) Minimum of two (2) each 4 plex Category 5 connections in Conference Room with wiring back to General Computing Room. 4) Minimum of ten (10) Category 5 connections from General Computing Room to Mass Storage and Tape Room. Then coil cable up under floor minimum of twenty-five (25) feet coil. See requirement sheet for utility detail. Note That telephone (ines portos) patch panels should be colocated in This room. (At note).

## Electrical Test and Maintance

Only unique requirement is the capability to attach cable tray to ceiling. Electric utility in this area should be plentiful (120V, and 208V, 3 phase) and would be lock and tag.

# Cleaning Area

A source of water should be provided in this area along with a sink and floor drain. Electric utilities should be standard 110/220V, 208V, 3 phase, 30A, distribution.

# Optical Lab

Other than wall finishes and deionized water (DI) plant this is just an open area to be populated with work/clean benches. A future source of 15M ohms DI/RO filtered water should be accommodated by providing a floor drain and a sink which would provide make up water. No compressed air.

# Vacuum Prep

Proposed partition is added in this area. The reason for that is a furne hood (800 cfm) is not easily compatible with a clean area. Additionally a floor drain and sink in the hood are required. Automatic control of furne hood flow should be provided. No compressed air.

# Mechanical Shop

Sink and floor drains should be provided. Only small machine tools would be allowed in this area, for cleanliness consideration of Vacuum Prep. and Optical Lab (only small amounts of hydrocarbons). No compressed air.

General Note: All circuit breakers would be lock and tag. All rooms should be required network connections to the General Computing room. All work benches should have knee room space under benches.

Approval

A. Lazzárini

Integration Group Mgr

M. Coles

Facility Group Mgr

G. Sanders

Program Manager

Project

# AGS:wy

cc:

B. Barish W. Althouse F. Asiri R. Bork D. Coyne J. Heefner L. Jones A. Lazzarini R. Savage O. Matherny F. Raab G. Sanders G. Stapfer R. Weiss W. Young R. Vogt

M. Zucker

Chronological File

Document Control Center

From coles@ligo.caltech.edu Thu Sep 14 13:47 PDT 1995 From: coles@ligo.caltech.edu (Mark Coles) To: sibley@ligo.caltech.edu Subject: additional OSB comments from Rolf Date: Thu, 14 Sep 95 13:48:31 PDT

---- Begin Included Message ----

From rolf@ligo.caltech.edu Thu Sep 14 11:55:17 1995 Date: Thu, 14 Sep 95 11:50:26 PDT From: rolf@ligo.caltech.edu (Rolf Bork)

To: coles\_m@ligo.caltech.edu

Subject: OSB

Cc: sibley\_a@ligo.caltech.edu

Content-Length: 599

Mark,

We thought of a few extra things since our meeting yesterday on the OSB.

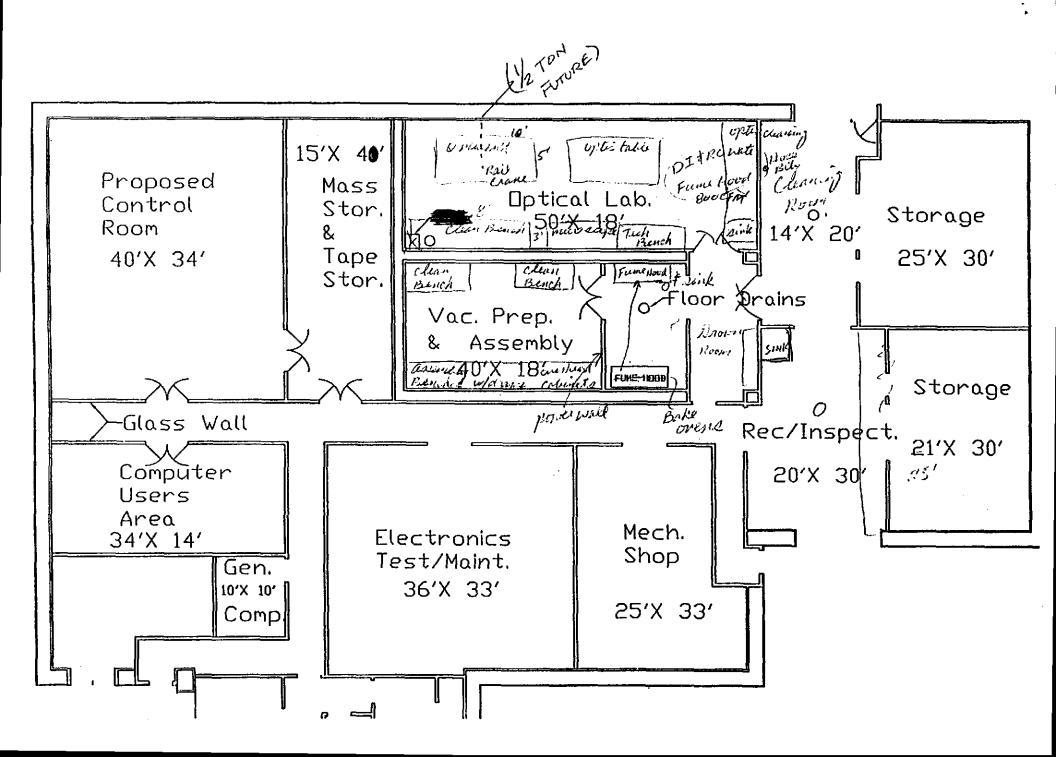
- 1) Lighting in Control room: We want both flourescent (for use during installation/ non-operating times), which can be switched on/off and incandescent spots w/dimmer controls to reduce the light levels during operations.
- 2) The power breaker panels for the electronics repair area and the control room should provide for lock outs (for lock and tag maintenance procedures). I don't know if anyone has thought about this, but it should be done for all breaker panels in the LVEA and other buildings as well.

-rolf

---- End Included Message ----

Se0 5159

# Knee Room under benches



V) 1243 #			l AREA i
Div: Group CDS	Date:	By: BORK/HEEFNER	CONTROL ROOM P_L of
Note 4  Note 4		A LIZA M = ELECT. M4 - UNDE	PROGRAM REQUIREMENT  Room Dimensions: ~34'x40'  Room sq. ft.:  ADJACENCY REQUIREMENTS
STRUCTURAL General Loads Special Loads /50018 Point Special Spans	PLUMBING Work Hot Water Compressed Air Other Gases		NOTES 1.) ALL POWER BREAKERS TO PROVIDE LOCKOUT AND TAG 2.) UNDER FLOOR CONNECTIONS TO ADJACENT ROOMS. MIN. 3
ARCHITECTURAL SPECIALTIES Floor RAISED 24", CARPETED Walls Ceilings 10' ABOVE FLOOR Other	FIRE PROTECTION	ON	FEET TO EACH ROOM.  3) WALLS SHOULD BE BARE AND  ARE TO BE USED AS VIDEO  WALLS.  4.) GLASS WALL AT ENTRANCE
MECHANICAL Cooling Temp	ELECTRICAL Grounding <u>TECHA</u> Ltg Type <u>FLUORESC</u> FC at Task <u>OFFICE</u> Power <u>50KM</u> Telephone <u>10 Lines</u> Intercom	ENT \$ INCANDESCENT SPOTS W/DIMMERS	5) PROVIDE 2 EACH 6" © CONDUITS  TO AREA TBD IN LVEA  6) PROVIDE 2 EACH 6" © CONDUITS  TO VAC. MECH. AREA TBD.  7) CDS WILL PROVIDE LAYOUT FOR  CONTROL CONSOLES AND SPOT  LIGHT LOCATIONS.  NORMAL OCCUPANCY 1/7

Div: Group CDS	Date: By: BORK/HEEFNER	GENERAL COMPUTING P_1 of 1
STRUCTURAL	WETUTORK ATT NO PUNCH DOWNS WAY DITTETS, 2 PER WAY P-PHONE	PROGRAM REQUIREMENT  Room Dimensions: _/O'X/O'  Room sq. ft.: _/OO  ADJACENCY REQUIREMENTS  **NEAR OFFICES**  **JUNE OF THE STATE OF TH
General Loads Special Loads Special Spans  ARCHITECTURAL SPECIALTIES Floor Walls	PLUMBING HONE  Hot Water Cold Water  Compressed Air No PSI  Other Gases  FIRE PROTECTION	NOTES  DAIL OFFICE 10 BASET CONNECTIONS  ARE ROUTED INTO THIS ROOM FOR  PUNCH DOWNS.  2) NORMAL OCCUPANCY - O  3) ROOM TO BE USED FOR  NETWORKING & SERVICES FOR  DEFICES & GENERAL COMPUTING
Ceilings _/O   ABOVE FLOOR Other  MECHANICAL Cooling Temp Heating Temp Homidity Control Equip. Heat Gain Special Requirement	ELECTRICAL Grounding TECHNICAL Ltg Type OFFICE FC at Task OFFICE Power IOKW Telephone LINE ON WALL NEAR DOOR	_AT SITE.

Div: Group CDO	Date:	D	AREA
Div: Group CDS	Date:	BY: BORK/HEEFNER	ELECT. TEST & MAINT. P_L of _L
B -> M	A A A A A A A A A A A A A A A A A A A	# B	PROGRAM REQUIREMENT  Room Dimensions: 36'×33'  Room sq. ft.: ~1200  ADJACENCY REQUIREMENTS
STRUCTURAL General Loads	PLUMBING Hot Water X		VTLETS N 5 'SPACING  (ER PANELS (WOTE 2))  NOTES  1.) NORMAL OCCUPANCY - 5
Special Loads Special Spans ARCHITECTURAL SPECIALTIES	Other Gases	PSI	2.) CIRCUIT BREAKER PANELS  W/ 200 AMPS SERVICE W/ID  BREAKERS NOT FOR WALL  OUTLETS.
Floor NoN-STATIC TILE Walls Ceilings NOTE 3 Other Double Door Entrance	FIRE PROTECT		3.) PROVISIONS FOR FUTURE  CABLE TRAY HUNG FROM  10' CEILINGS. 4.) SUK IN CORNER.
MECHANICAL Cooling Temp. Heating Temp. JOFFICE Humidity Control Equip. Heat Gain Special Requirement	ELECTRICAL GroundingTech Ltg TypeOFFI FC at TaskOFFI PowerNoTE 2 Telephone _5 LINE Intercom	CE CE S ON WALLS	NORMAL OCCUPANCY 5

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Div: Group CDS	Date: By: BORK/HEEFNER	COMPUTER USERS P_of_
STRUCTURAL General Loads Special Loads Special Spans		PROGRAM REQUIREMENT  Room Dimensions: 34'X /4'  Room sq. ft.:  ADJACENCY REQUIREMENTS  CONTROL ROOM  OUTLETS EVERY A 10' GRID.  NOTES  NOTES  NORMAL DCCUPANCY - G  2) UNDER FLOOR CONNECTIONS  TO ADJACENT CONTROL ROOM.
ARCHITECTURAL SPECIALTIES FloorCARPETED, RAISED 24" WallsGLASS ON CONTROL ROOM SIDE CeilingsID' ABOVE FLOOR Other MECHANICAL Cooling Temp Heating Temp Heating Temp Heating Temp Special Requirement	FIRE PROTECTION  ELECTRICAL Grounding _Techn/cal Ltg Type OFFICE FC at Task _OFFICE Power /OKW Telephone YES Intercom	3) GLASS WALL AT ENTRANCE.  NORMAL OCCUPANCY 6

Div: Group	Date	<b>~</b> ~ 1 ~	AREA
Group	Date:	By: SIBLEY/RAAB	CLEANING AREA P_L of _L
	220 V	3.304	PROGRAM REQUIREMENT  Room Dimensions: 14' × 20'  Room sq. ft.: ~ 280  ADJACENCY REQUIREMENTS
STRUCTURAL General Loads None Special Loads None Special Spans None	PLUMBING Hot WaterX Compressed Air Other Gases WATER SINK F FL	_Cold WaterX NO PSI OOR DRAIM	NOTES
ARCHITECTURAL SPECIALTIES FloorSEAMLESS WallsDRYWALL Non-SHEADING PAINT Ceilings12' SUSPENDED Other	FIRE PROTECTION	ON	
MECHANICAL Cooling Temp	ELECTRICAL Grounding STAUL Ltg Type FC at TaskOFFI Power/IOV, 20 Telephone YESIntercom	CE 084,30, 220V	NORMAL OCCUPANCY

Div:	Group	Date: /2/1/95	By: FJR	AREA Page P 1 of 1
Div:	Group	Date: 12/1/95  Fun	By: FJR  WE HOULD  AND FAIRTITION  ROWER WALL	VACUUM PREP P of PROGRAM REQUIREMENT Room Dimensions:
STRUCTURAL General LoadsS Special Loads Special Spans		PLUMBING Hot Water Compressed Air Other Gases Floor	Cold Water	NOTES 1) ADD PARTITION 2) FUME HOOD BOO CFM, REN'D AUTO CONTROL ON HOOD. 3) SINK IN FUME HOOD.
Floor <u>SEAMLES</u> Walls <u>DRYWALL</u>	ION-SHEADING PAINT ISTING SUSPENDED	FIRE PROTECTI  EXTINGUISHER		
MECHANICAL Cooling Temp.	TYPICAL OF BUILDING	ELECTRICAL Grounding STAND Ltg Type 11 FC at Task OFFICE Power 110/220V; Telephone YES Intercom YES	E 480v,3ø,60A	NORMAL OCCUPANCY

Div; Group	Date: 12/1/95 By: FJR	AREA OPTICAL LAB P_Of
STRUCTURAL General Loads STANDARD Special Spans  ARCHITECTURAL SPECIALTIES Floor SEAMLESS VINAL Walls DRYWALL, NON-SHEADING PAINT Ceilings 12'SUSPENDED Other  MECHANICAL	PLUMBING Hot Water Cold Water Compressed Air NO PSI Other Gases Floor Drain  FIRE PROTECTION  EXTINGIIISHERS	PROGRAM REQUIREMENT  Room Dimensions: 50'X 18'  Room sq. ft.: 900  ADJACENCY REQUIREMENTS  NOTES
Cooling Temp	ELECTRICAL Grounding Technical Ltg Type OFFICE FC at Task OFFICE Power 480y30, 60A, 110/220V Telephone YES Intercom	NORMAL OCCUPANCY

Div: Group		Date:	By: FJR/JW/AGS	AREA	Pof
STRUCTURAL General LoadsSTAUDAK Special Loads Special Spans	20	PLUMBING Hot WaterX	Cold WaterX	MECH. SHOP  PROGRAM REQUING Room Dimensions:  Room sq. ft.: ~ 8  ADJACENCY REQUING ROOM SQ. ft.: ~ 8  ADJACENCY REQUING ROOM SQ. ft.: ~ 8  NOTES	IREMENT  25' × 33'  25
ARCHITECTURAL SPECTION SEALED CONCRETE Walls Ceilings Other  MECHANICAL Cooling Temp. Heating Temp. Humidity Control Equip. Heat Gain Special Requirement	DARD	Ltg Type FC at Task _25- Power _480V. Telephone _YES		Specific Locat	`

Div: Group o po	<b>T</b>		AREA
Div: Group CDS	Date:	By: BORK/HEEFNER	MASS STORAGE & TAPE P of
Double Doors  STRUCTURAL	PLUMBING N	WEA WEA	PROGRAM REQUIREMENT  Room Dimensions:
General Loads Special Loads Special Spans  ARCHITECTURAL SPECIALTIES Floor  RAISED FLOOR 24"	Hot Water Compressed Air _ Other Gases  FIRE PROTEC	Cold WaterPSI PSI	1.) NORMAL OCCURPANCY - O  2.) UNDER FLOOR CONNECTIONS  TO ADJACENT CONTROL ROOM,  MIN. 3 FEET WIDE.
Walls Ceilings _ID' ABOVE FLOOR Other			
MECHANICAL Cooling Temp	ELECTRICAL Grounding <u>Tech</u> Ltg Type <u>OFFIC</u> FC at Task <u>OFF</u> Power <u>TechNIC</u> Telephone <u>2 LIN</u> Intercom <u>ND</u>	ICE AL POWER 20KM	NORMAL OCCUPANCY O

Div:	Group CDS	Date:	By: BORK/HEEFNER	AREA Meso Screen trace P 2 of 2
STRUCTURAL General Loads Special Loads	RACKS	PLUMBING Hot Water		MASS STORAGE TAPE P 2 of 2 PROGRAM REQUIREMENT  Room Dimensions: 15'x 41'  Room sq. ft.: ~600  ADJACENCY REQUIREMENTS - CONTROL ROOM  ARMA TRAYS & POWER  ACK ROWS  NOTES  RACKS ARE 8'HIGH AND
ARCHITECTUME Floor Walls Ceilings Other MECHANICAL Cooling Temp Heating Temp Humidity Control	RAL SPECIALTIES	FIRE PROTECTION  ELECTRICAL  Grounding  Ltg Type  FC at Task  Power	ON	NEED CLEARANCE FOR FRONT  AND REAR ACCESS  NORMAL OCCUPANCY O

# CALIFORNIA INSTITUTE OF TECHNOLOGY

Laser Interferometer Gravitational Wave Observatory (LIGO) Project

To/Mail Code: Dist. via M. Coles

From/Mail Code: A. Sibley

Phone/FAX: 395-3046/304-9834

Refer to: LIGO-E950098-00-F Date: November 17, 1995

Subject: OPERATIONS SUPPORT BUILDING (OSB) REQUIREMENTS

The attached are a set of proposed alterations and clarifications to the OSB as currently carried by RMP. Please review the content for appropriateness and any additional requirements. RMP has been approached on an informal basis with only these initial opinion solicited concerning the feasibility and cost of these changes. RMP has agreed that the alterations would have a small impact. If you feel anyone was not included in distribution that would have an interest please include them. Forward any comments etc. to myself or Bill Young by 11/29/95.

The requirements and facility layouts of the Operations Support Building (OSB) from the Parsons design drawing were not complete. After meeting with each of the LIGO technical groups, a set of requirements were collected from the CDS, Detector, and Vacuum Equipment groups. The following is a summary of their requirements:

#### Tape Mass Storage

Significant highlights of this area are the raised flooring with connection to control room. CDS does not require forced air in this space, specific requirement for utilities are detailed on sheet 1 of 2. CDS would like to have all computer, disk and tape drives in this area along with Tape Storage. CDS does not feel that the requirements for fire resistant storage is necessary.

#### Control Room

CDS has requested an increase in area for this room. A glass wall would be placed on the wall adjacent to the hall for visitor viewing of the control room during operations with minimal disruptions. Also, raised floor connecting LVEA mass storage. See Sheet.

## Computer Users Room

Also raise floor with connection to control room. CDS request a glass wall for this room. Also, an increase in the width of the area between the Control Room and this area will help in accommodating visitors.

# **General Computing**

CDS believes this has been left out of OSB floor plan. Suggested new location is in utility room area. This area would be environmentally controlled and the wall bare for CDS installation of patch boards. See requirement sheet for utility detail.

#### **Electrical Test and Maintance**

Only unique requirement is the capability to attach cable tray to ceiling. Electric utility in this area should be plentiful (120V-220V).

#### Cleaning Area

A source of water should be provided in this area along with a sink and floor drain. Electric utilities should be standard 110V, 208V, 3 phase, distribution.

# Optical Lab

Other than wall finishes and DI plant this is just an open area to be populated with work/clean benches. A future source of 15M ohms DI/RO filtered water should be accommodated by providing a floor drain and a sink which would provide make up water.

# Vacuum Prep

Proposed partition is added in this area. The reason for that is a fume hood (800 cfm) is not easily compatible with a clean area. Additionally a floor drain and sink in the hood are required. Automatic control of fume hood flow should be provided.

## Machine Shop

Sink and floor drains should be provided. Only small machine tools (drill press, very small lath, etc.) would be allowed in this area, for cleanliness consideration of Vacuum Prep. and Optical Lab (only small amounts of hydrocarbons).

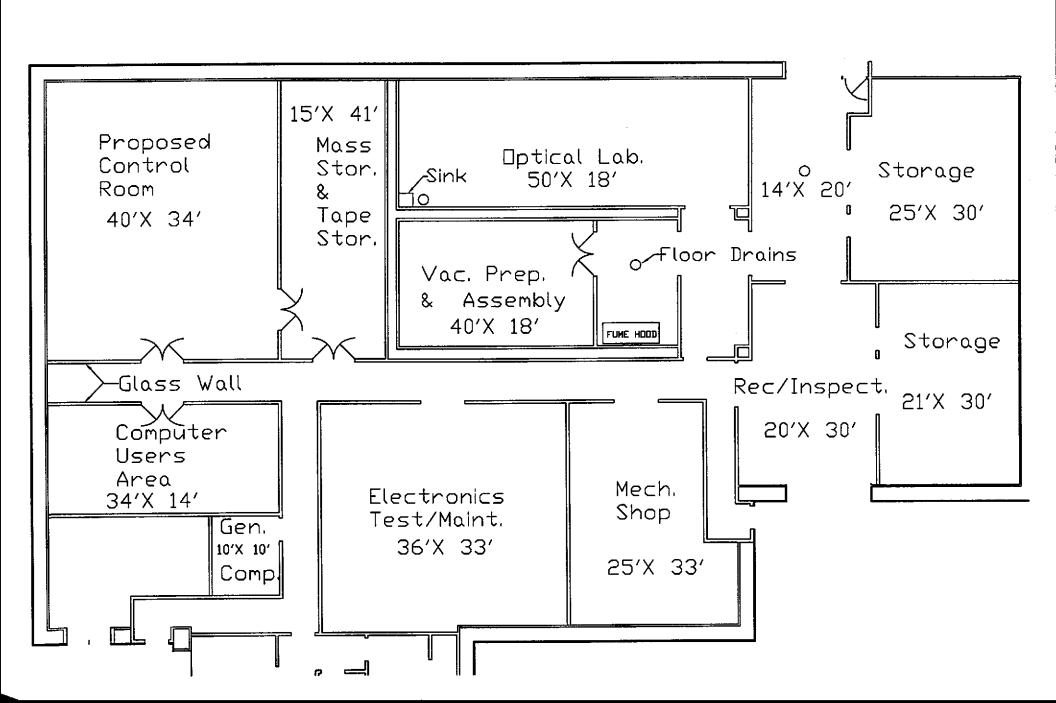
# AGS:wy

cc:

+ + + -			
W. Althouse	F. Asiri	B. Barish	R. Bork
D. Coyne	J. Heefner	L. Jones	A. Lazzarini
O. Matherny	F. Raab	G. Sanders	G. Stapfer
R. Vogt	R. Weiss	W. Young	M. Zucker

Chronological File

Document Control Center



WED#		1		AREA
Div:	Group CDS	Date:	By: BORK/HEEFNER	MASS STORAGE FTAPEP 1 of 2
Double Doors	CONTROL ROLL			PROGRAM REQUIREMENT  Room Dimensions: 15'x 41'  Room sq. ft.: ~600  ADJACENCY REQUIREMENTS  - CONTROL ROOM  TOUTLETS - 10FT ON MALLS  284 BOXES
CORPLOSION		PLUMBING	Aloute	
STRUCTURA General Loads	AL S		Cold Water	1.) NORMAL OCCURPANCY - O
	1500 LB POINT		Air PSI	
Special Spans		Other Gases		2.) UNDER FLOOR CONNECTIONS
1				TO ADJACENT CONTROL ROOM.
Floor <u>RAIS</u> Walls Ceilings <u>ID</u>	TURAL SPECIALTIES  PED FLOOR 24"  ABOVE FLOOR	- HALON K	TECTION - NOT IN SPEC. REPLACEMENT UNDER FLOOR SPRINKLERS	MIN. 3 FEET WIDE.
MECHANIC	CAL	ELECTRIC	AL	
1	O. OFFICE		TECHNICAL	
	),	Ltg Type		
Humidity Co	ntrol	FC at Task_		
Equip. Heat C	Gain <u>20KW</u>	Power <u>TEC</u>	HNICAL POWER 20KW	
Special Requ	irement	Intercom/	2 LINES NEAK DOOR	NORMAL OCCUPANCY O
		DATA		İ

WED# Div:	Group	CDS .	Date:	By: BORK/HEEFNER	MASS STORAGE TAPE P 2 of 2
STRUCTU	RAL	RACKS	PLUMBING	LWDER R	PROGRAM REQUIREMENT  Room Dimensions:
General Loa	ds		Hot Water	Cold Water	RACKS ARE 8'HIGH AND NEED CLEARANCE FOR FRONT
_			Other Gases		AND REAR ACCESS
Floor Walls Ceilings _	CTURAL SP		FIRE PROTECTION	ON	
Heating Ten Humidity C	np np ontrol		Ltg Type FC at Task		
Special Req			Telephone		NORMAL OCCUPANCY O

From coles@ligo.caltech.edu Thu Sep 14 13:47 PDT 1995 From: coles@ligo.caltech.edu (Mark Coles) To: sibley@ligo.caltech.edu Subject: additional OSB comments from Rolf Date: Thu, 14 Sep 95 13:48:31 PDT

---- Begin Included Message -----

From rolf@ligo.caltech.edu Thu Sep 14 11:55:17 1995

Date: Thu, 14 Sep 95 11:50:26 PDT

From: rolf@ligo.caltech.edu (Rolf Bork)

To: coles\_m@ligo.caltech.edu

Subject: OSB

Cc: sibley\_a@ligo.caltech.edu

Content-Length: 599

Mark,

We thought of a few extra things since our meeting yesterday on the OSB.

- 1) Lighting in Control room: We want both flourescent (for use during installation/ non-operating times), which can be switched on/off and incandescent spots w/dimmer controls to reduce the light levels during operations.
- 2) The power breaker panels for the electronics repair area and the control room should provide for lock outs (for lock and tag maintenance procedures). I don't know if anyone has thought about this, but it should be done for all breaker panels in the LVEA and other buildings as well.

-rolf

---- End Included Message -----

800 5159

VV 1245 #F			_	AREA -
Div:	Group CDS	Date:	By: BORK/HEEFNER	CONTROL ROOM P_L Of
		4		PROGRAM REQUIREMENT
				Room Dimensions: ~34'X40'
NOTE4		44		Room sq. ft.:
			NLVEA	ADJACENCY REQUIREMENTS
	T	414		
			# # ELECT.	OUTLETS IN WALLS EVERY 10'
	4	74	A4-UNDE	R FLODR 4 PLEX ON 101 GRID
STRUCTURA		PLUMBING No		NOTES
General Loads	IFACIR POUT		_ Cold Water	1.) ALL POWER BREAKERS TO PROVIDE
Special Loads	1500LB POINT	_	PSI	LOCKOUT AND TAG
Special Spans		Other Gases		2.) UNDER FLOOR CONNECTIONS TO ADJACENT ROOMS. MIN. 3
				FEET TO EACH ROOM.
	TURAL SPECIALTIES		ION - NOT IN SPEC.	3) WALLS SHOULD BE BARE AND
	ED 24", CARPETED	1 _	MENT UNDER FLOOR	ARE TO BE USED AS VIDEO
Walls	/ nant Time	- CEILING SPRIN	KLEKS	WALLS.
7	' ABOVE FLOOR			#.) GLASS WALL AT ENTRANCE
Other				5) PROVIDE 2 EACH 6" \$ CONDUITS
MECHANIC	AL	ELECTRICAL		TO AREA TBD IN LVEA
Cooling Temp		Grounding TECH		6) PROVIDE 2 EACH 6" O CONDUITS
	. <u>U</u>		CENT \$ IN CANDESCENT SPOR	TO VAC. MECH. AREA TBD.
	trol <u>Y</u>	FC at Task _OFFIC		7) CDS WILL PROVIDE LAYOUT FOR
	iain <i>50KW</i>	Power 50KW		CONTROL CONSOLES AND SPOT
Special Requir	rement	Telephone 10 LIME		LIGHT LOCATIONS.
		Intercom		NORMAL OCCUPANCY 10
		DATA		1

WEB #			AREA .
Div: Group CDS	Date:	By: BORK/HEEFNER	GENERAL COMPUTING P _ Of _
			PROGRAM REQUIREMENT  Room Dimensions: 10'×10'
			Room sq. ft.: //OO
	A = A + A	TETWORK DOWNS	ADJACENCY REQUIREMENTS  NEAR OFFICES
		WALL OUTLETS, 2 PER WA	
STRUCTURAL	PLUMBING	NONE	NOTES
General Loads	Hot Water	Cold Water	WALL OFFICE 10 BASET CONNECTIONS
Special Loads 15001B POINT	Compressed.	Air PSI	ARE ROUTED INTO THIS ROOM FOR
Special Spans	Other Gases		PUNCH DOWNS.
			2) NORMAL OCCUPANCY - O
ARCHITECTURAL SPECIALTIES	FIRE PROT	TECTION - NOT IN SPEC.	3) ROOM TO BE USED FOR
Floor	- SPRINKLE	•	NETWORKING & SERVICES FOR
Walls	- STRINKE		OFFICES & GENERAL COMPUTING
Ceilings 10 ABOVE FLOOR Other			AT SITE.
MECHANICAL	ELECTRIC	AL	
Cooling Temp.	_ Grounding _	TECHNICAL	
Heating Temp. OFFICE	_ Ltg Type		
Humidity Control )	FC at Task		
Equip. Heat Gain	Power	· ·	
Special Requirement		LINE ON WALL NEAR DOOR	NORMAL OCCUPANCY O
	DATA	lo	HORMAD OCCUPANCI

WEB #				AREA
Div:	Group CDS	Date:	By: BORK/HEEFNER	ELECT. TEST \$ MAINT. P of
				PROGRAM REQUIREMENT  Room Dimensions: 36'×33'
			# B	Room sq. ft.: ~ /200  ADJACENCY REQUIREMENTS
			Ø - WALL O	V74E73 7 5 SPACMG
			<u> </u>	KER PANELS (NOTE 2)
STRUCTURAL		PLUMBING		
•		<u> </u>	Cold WaterX	1.) NORMAL OCCUPANCY - 5
Special Loads		Compressed Air_	PSI	2.) CIRCUIT BREAKER PANELS
Special Spans _		Other Gases		W/200 AMPS SERVICE W/ID
				BREAKERS NOT FOR WALL
ARCHITECTU	JRAL SPECIALTIES	FIRE PROTECT	TION - NOT IN SPEC	OUTLETS
Floor NON-ST	•	1		0) 00
Walls		SPRINKLERS		3.) PROVISIONS FOR FUTURE
Ceilings				CABLE TRAY HUNG FROM
Other _Double	DOOR ENTRANCE			4.) SINK IN CORNER.
MECHANICA Cooling Temp.		ELECTRICAL Grounding TEC	uine <b>n</b> )	- SANCE IN CONNEX.
Heating Temp.		Ltg Type OFF		
Humidity Contr		FC at Task OFF		
Equip. Heat Gai		Power NOTE		
Special Require			ES ON WALLS	
		Intercom		NORMAL OCCUPANCY 5
		DATA		

WEB#		}		AREA
Div:	Group CDS	Date:	BY: BORK/HEEFNER	COMPUTER USERS P of
STRUCTURAL General Loads Special Loads Special Spans	1500/BPOINT	PLUMBING NO Hot Water		PROGRAM REQUIREMENT  Room Dimensions: 34'× 14'  Room sq. ft.:  ADJACENCY REQUIREMENTS  CONTROL ROOM  OUTLETS EVERY A 10'  ER FLOOR APPLEX ON TO GRID.  NOTES  I) NORMAL DCCUPANCY - 6  2) UNDER FLOOR CONNECTIONS  TO ADJACENT CONTROL ROOM.
Floor <u>CARPE</u> Walls <u>GLASS</u> of Ceilings <u>/D</u>	IRAL SPECIALTIES ED, RAISED 24" N CONTROL ROOM SIDE ABOVE FLOOR	FIRE PROTECTION SPRINKLERS	ON - NOT IN SPEC.	3) GLASS WALL AT ENTRANCE.
MECHANICAL Cooling Temp Heating Temp Humidity Contro Equip. Heat Gain Special Requirer	OFFICE  10 JOKW	ELECTRICAL Grounding TECHNA Ltg Type OFFIC FC at Task OFFIC Power /OKW Telephone Intercom DATA	2E 2E	NORMAL OCCUPANCY 6

Div:	Carra	1.		AREA
DIV.	Group	Date:	By: SIBLEY/RAAB	CLEANING AREA P 1 of 1
STRUCTURA General Loads Special Loads	<b>1 L</b>			PROGRAM REQUIREMENT  Room Dimensions: 14' × 20'  Room sq. ft.: ~ 280  ADJACENCY REQUIREMENTS  NOTES  1.) VIDEO MONITOR TO CR
Special Spans		Other Gases	_	
Floor SEA Walls DRYM Ceilings 1	FURAL SPECIALTIES MLESS VALL NON-SHEADING PAINT 2' SUSPENDED	FIRE PROTECTION		
Heating Temp. Humidity Con Equip. Heat G	AL  TYP OF BUILDING  trol ain  rement NONE	FC at Task OFFI Power 1/0V, 20	CE 0811.3¢, 220V	NORMAL OCCUPANCY

WEB#			AREA -
Div: Group	Date:	By: FJR/AGS	OPTICS LAB P of
STRUCTURAL General Loads	_   Compressed Air _	Cold Water X PSI	PROGRAM REQUIREMENT  Room Dimensions: 50'x 18'  Room sq. ft.: 900  ADJACENCY REQUIREMENTS  NOTES  FUTURE 15 MP / RO H20  GANT CAN BE ACCOMIDATED  W/ MAKEUR H20 FROM SINK
ARCHITECTURAL SPECIALTIES  Floor SEAMLESS VINAL  Walls DRYWALL, NON-SHEADING PAIN Ceilings 12' SUSPENDED  Other  MECHANICAL Cooling Temp. TYPICAL OF BUILDS  Humidity Control Equip. Heat Gain Special Requirement	ELECTRICAL  Grounding <u>Tech</u> Ltg Type <u>off</u> FC at Task <u>off</u> Power <u>480</u> , 39	HERS  NICAL ICE ICE B. 60A NOIZZOV	NORMAL OCCUPANCY

Div: Group	Date:	Dw =====	AREA
	Date.	By: FJR/AGS	VACUUM PREP P_L of_L
			PROGRAM REQUIREMENT  Room Dimensions: 40 × 18   Room sq. ft.: 720
			ADJACENCY REQUIREMENTS
4807->		FLOOR DRAW  ADD I  FUME HOOD	PARTITION
STRUCTURAL	PLUMBING		NOTES
General Loads NONE	Hot WaterX	Cold Water	1) ADD PARTITION
Special Loads Y	Compressed Air Other Gases NONE	<i>NO</i> PSI	2) FUME HOOD 800 CFM 3) REQ'D AUTO CONTROL ON HOOD SINK IN FUME HOOD.
ARCHITECTURAL SPECIALTIES Floor <u>SEAMLESS VINAL</u> Walls <u>DRYWALL, NON-SHEADING PAINT</u> Ceilings <u>Non Dusting Suspended</u> Other	FIRE PROTECTIO		
MECHANICAL Cooling Temp	ELECTRICAL Grounding STAND Ltg Type V FC at Task OFFIC Power 1/0-220 V, Telephone YES Intercom YES	Ε 1φ; 480V, 3φ 60A, 1 οΝίζ	NORMAL OCCUPANCY

WEB#	}		AREA -
Div: Group	Date:	By: FJR/JW/AGS	MECH. SHOP P_L of_L
		The section of the	PROGRAM REQUIREMENT  Room Dimensions:25'x33'  Room sq. ft.: _~ 825  ADJACENCY REQUIREMENTS
STRUCTURAL	PLUMBING		NOTES
General Loads	Hot Water X	_ Cold WaterX	DNLY SMALL MACHINE TOOLS
Special LoadsSpecial Spans	Other Gases	PSI	IN THIS AREA.
	SINK & FLOOR	DRAW	ALL LARGE MACHINE TOOLS  LATHS, MILLS, ETC. WOULD BE
ARCHITECTURAL SPECIALTIES	FIRE PROTECTI	····	PLACED IN MAINTANCE BUILDING
Floor SEALED CONCRETE Walls Ceilings Other	-		
MECHANICAL Cooling Temp. Heating Temp. Humidity Control Equip. Heat Gain Special Requirement	Ltg Type FC at Task <u>25-3</u> Power <u>480V, 20</u>	08V, 110V. 60A - NO	Specific Locations
1 1 1	Intercom DATA		NORMAL OCCUPANCY