

*Provided
to Asiri 27-12-95
(with
edit on 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^d 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 lines/routers/patch panels should be collocated in This room. (AL note).*

Electrical Test and Maintenance

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 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. No compressed air.

Mechanical Shop

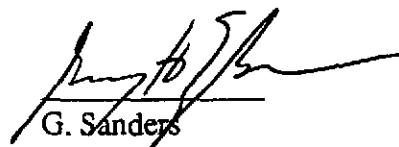
Sink and floor drains should be provided. Only small machine tools would be allowed in this area, for cleanliness consideration of Vacuum Prep, and Optical Lab (only small amounts of hydrocarbons). No compressed air.

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. Lazzarini
Integration Group Mgr


M. Coles
Facility Group Mgr


G. Sanders
Program Manager
Project

AGS:wy

cc:

W. Althouse

D. Coyne

O. Matherny

G. Stapfer

M. Zucker

Chronological File

Document Control Center

F. Asiri

J. Heefner

F. Raab

R. Vogt

B. Barish

L. Jones

G. Sanders

R. Weiss

R. Bork

A. Lazzarini

R. Savage

W. Young

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 installati on/ non-operating times), which can be switched on/off and incandescent spots w/dimm er controls to reduce the light levels during operations.

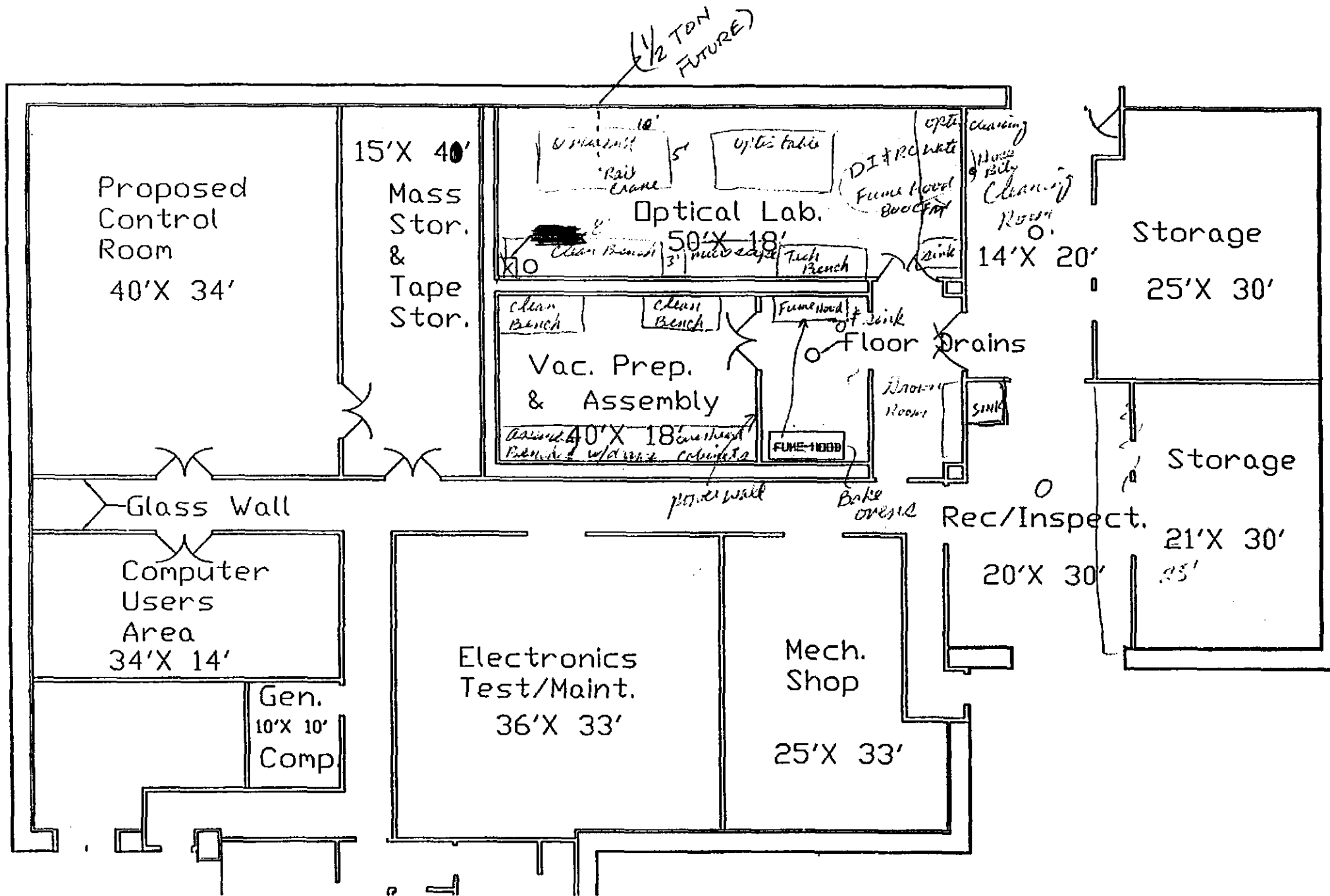
2) The power breaker panels for the electronics repair area and the control room should provide for lock outs (for lock and tag maintenance procedures). I don't know if anyone has thought about this, but it should be done for all breaker panels in the LVEA and other buildings as well.

-rolf

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

820 5159

Knee room under benches



Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

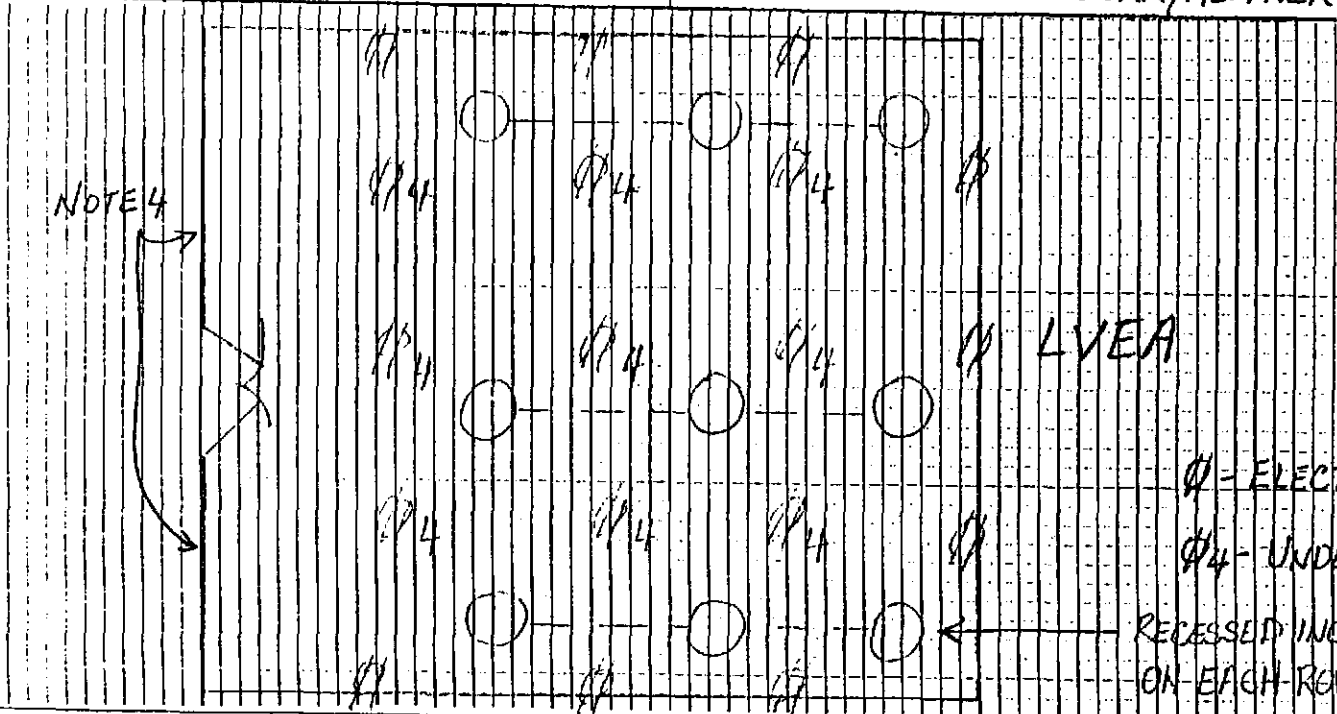
CONTROL ROOM P 1 of

PROGRAM REQUIREMENT

Room Dimensions: ~34'X40'

Room sq. ft.:

ADJACENCY REQUIREMENTS



NOTE 4

LVEA

Ø = ELECT. OUTLETS IN WALLS EVERY 10'

Ø4 - UNDER FLOOR 4 PLEX ON 10' GRID

RECESSED INCANDESCENT 3 ROWS W/DIMMER ON EACH ROW.

STRUCTURAL

General Loads
Special Loads 1500LB POINT
Special Spans

PLUMBING NONE

Hot Water Cold Water
Compressed Air NO PSI
Other Gases

ARCHITECTURAL SPECIALTIES

Floor RAISED 24", CARPETED
Walls
Ceilings 10' ABOVE FLOOR
Other

FIRE PROTECTION

MECHANICAL

Cooling Temp. OFFICE
Heating Temp. "
Humidity Control 4
Equip. Heat Gain 50KW
Special Requirement

ELECTRICAL

Grounding TECHNICAL
Ltg Type FLUORESCENT & INCANDESCENT SPOTS
FC at Task OFFICE W/DIMMERS
Power 50KW
Telephone 10 LINES
Intercom

NOTES

- 1.) ALL POWER BREAKERS TO PROVIDE LOCKOUT AND TAG
- 2.) UNDER FLOOR CONNECTIONS TO ADJACENT ROOMS. MIN. 3 FEET TO EACH ROOM.
- 3.) WALLS SHOULD BE BARE AND ARE TO BE USED AS VIDEO WALLS.
- 4.) GLASS WALL AT ENTRANCE
- 5.) PROVIDE 2 EACH 6" Ø CONDUITS TO AREA TBD IN LVEA
- 6.) PROVIDE 2 EACH 6" Ø CONDUITS TO VAC. MECH. AREA TBD.
- 7.) CDS WILL PROVIDE LAYOUT FOR CONTROL CONSOLES AND SPOT LIGHT LOCATIONS.

NORMAL OCCUPANCY 10

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

GENERAL COMPUTING P 1 of 1

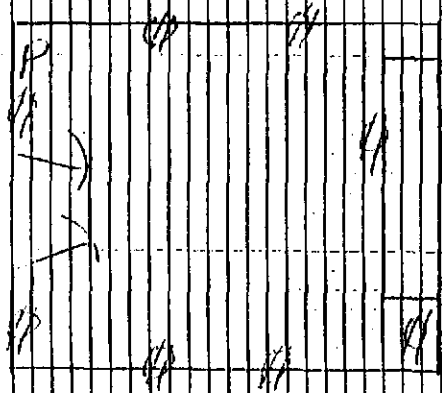
PROGRAM REQUIREMENT

Room Dimensions: 10' X 10'

Room sq. ft.: 100

ADJACENCY REQUIREMENTS

NEAR OFFICES



NETWORK
ATT 110 PUNCH DOWNS

WALL OUTLETS, 2 PER WALL
P - PHONE

STRUCTURAL

General Loads _____
Special Loads 1500 LB POINT
Special Spans _____

PLUMBING NONE

Hot Water _____ Cold Water _____
Compressed Air NO PSI _____
Other Gases _____

ARCHITECTURAL SPECIALTIES

Floor _____
Walls _____
Ceilings 10' ABOVE FLOOR
Other _____

FIRE PROTECTION

MECHANICAL

Cooling Temp. _____
Heating Temp. _____ } OFFICE
Humidity Control _____
Equip. Heat Gain _____
Special Requirement _____

ELECTRICAL

Grounding TECHNICAL
Ltg Type OFFICE
FC at Task OFFICE
Power 10KW
Telephone 1 LINE ON WALL NEAR DOOR
Intercom NO

NOTES

- 1) ALL OFFICE 10BASET CONNECTIONS ARE ROUTED INTO THIS ROOM FOR PUNCH DOWNS.
- 2) NORMAL OCCUPANCY - 0
- 3) ROOM TO BE USED FOR NETWORKING & SERVICES FOR OFFICES & GENERAL COMPUTING AT SITE.

NORMAL OCCUPANCY 0

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

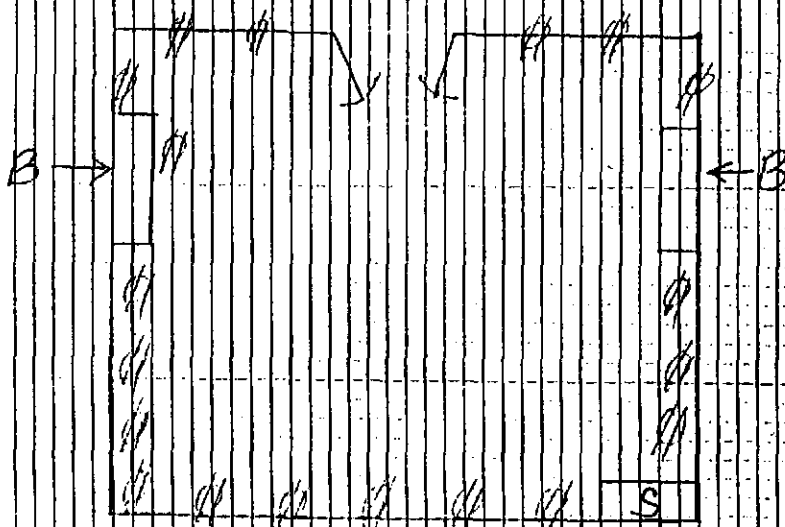
ELECT. TEST & MAINT. P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 36' x 33'

Room sq. ft.: ~1200

ADJACENCY REQUIREMENTS



- ⊘ - WALL OUTLETS ~ 5' SPACING
- B - BREAKER PANELS (NOTE 2)
- S - SINK

STRUCTURAL

General Loads _____
 Special Loads _____
 Special Spans _____

PLUMBING

Hot Water X Cold Water X
 Compressed Air NO PSI _____
 Other Gases _____

NOTES

- 1.) NORMAL OCCUPANCY - 5
- 2.) CIRCUIT BREAKER PANELS
W/ 200 AMPS SERVICE W/ 10
BREAKERS NOT FOR WALL
OUTLETS.
- 3.) PROVISIONS FOR FUTURE
CABLE TRAY HUNG FROM
10' CEILINGS.
- 4.) SINK IN CORNER.

ARCHITECTURAL SPECIALTIES

Floor NON-STATIC TILE
 Walls _____
 Ceilings NOTE 3
 Other DOUBLE DOOR ENTRANCE

FIRE PROTECTION

MECHANICAL

Cooling Temp. _____
 Heating Temp. _____ } OFFICE
 Humidity Control _____
 Equip. Heat Gain 50KW
 Special Requirement _____

ELECTRICAL

Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power NOTE 2
 Telephone 5 LINES ON WALLS
 Intercom _____

NORMAL OCCUPANCY 5

Div: _____ Group CDS

Date: _____ By: BORK/HEEFNER

AREA
COMPUTER USERS P ___ of ___

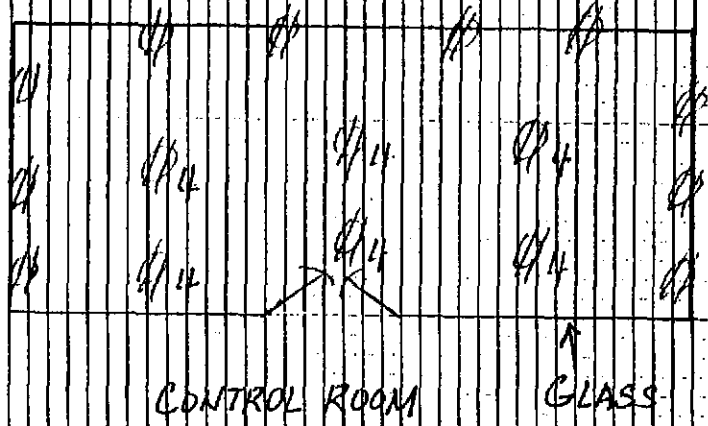
PROGRAM REQUIREMENT

Room Dimensions: 34' X 14'

Room sq. ft.: _____

ADJACENCY REQUIREMENTS

CONTROL ROOM



⊗ - WALL OUTLETS EVERY 10'

⊗ - UNDER FLOOR 4 PLEX ON 10' GRID.

STRUCTURAL
 General Loads _____
 Special Loads 1500/POINT
 Special Spans _____

PLUMBING NONE
 Hot Water _____ Cold Water _____
 Compressed Air NO PSI _____
 Other Gases _____

NOTES
 1) NORMAL OCCUPANCY - 6
 2) UNDER FLOOR CONNECTIONS TO ADJACENT CONTROL ROOM.
 3) GLASS WALL AT ENTRANCE.

ARCHITECTURAL SPECIALTIES
 Floor CARPETED, RAISED 24"
 Walls GLASS ON CONTROL ROOM SIDE
 Ceilings 10' ABOVE FLOOR
 Other _____

FIRE PROTECTION

MECHANICAL
 Cooling Temp. _____
 Heating Temp. _____ } OFFICE
 Humidity Control _____
 Equip. Heat Gain 10KW
 Special Requirement _____

ELECTRICAL
 Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power 10KW
 Telephone YES
 Intercom _____

NORMAL OCCUPANCY 6

Div:

Group

Date:

By: SIBLEY/RAAB

AREA

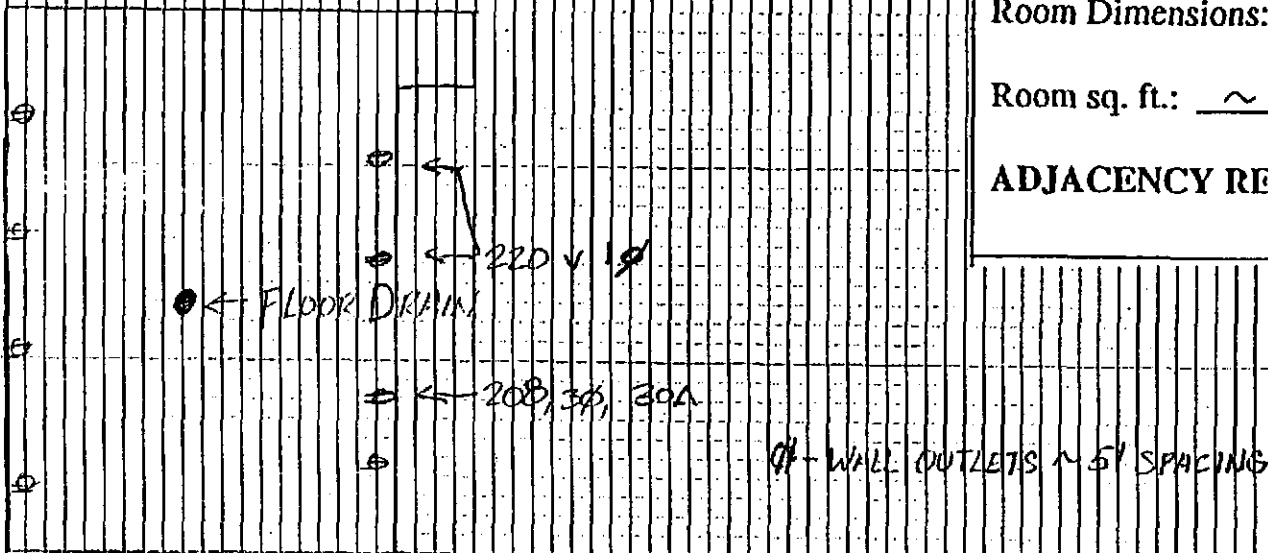
CLEANING AREA P. 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 14' x 20'

Room sq. ft.: ~ 280

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads NONE
 Special Loads NONE
 Special Spans NONE

PLUMBING

Hot Water X Cold Water X
 Compressed Air NO PSI _____
 Other Gases _____
 WATER SINK & FLOOR DRAIN

NOTES

ARCHITECTURAL SPECIALTIES

Floor SEAMLESS
 Walls DRYWALL NON-SHEADING PAINT
 Ceilings 12' SUSPENDED
 Other _____

FIRE PROTECTION

MECHANICAL

Cooling Temp. TYP OF BUILDING
 Heating Temp. _____
 Humidity Control _____
 Equip. Heat Gain _____
 Special Requirement NONE

ELECTRICAL

Grounding STANDARD
 Ltg Type _____
 FC at Task OFFICE
 Power 110V, 208V, 3ϕ, 220V
 Telephone YES
 Intercom _____

NORMAL OCCUPANCY

Div:

Group

Date: 12/1/95 By: FJR

AREA

VACUUM PREP

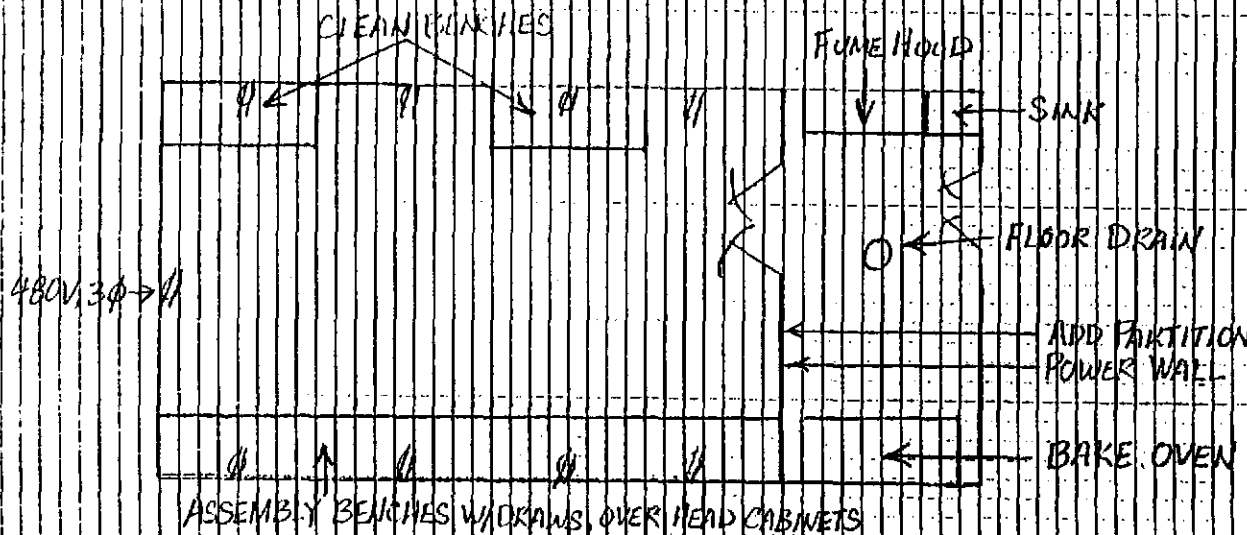
P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 40' X 18'

Room sq. ft.: 720

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads STANDARD

Special Loads _____

Special Spans _____

PLUMBING

Hot Water Cold Water

Compressed Air NO PSI _____

Other Gases FLOOR DRAIN

NOTES

- 1) ADD PARTITION
- 2) FUME HOOD 800 CFM, REVD AUTO CONTROL ON HOOD.
- 3) SINK IN FUME HOOD.

ARCHITECTURAL SPECIALTIES

Floor SEAMLESS VINYL

Walls DRYWALL, NON-SHEADING PAINT

Ceilings NON DUSTING SUSPENDED

Other _____

FIRE PROTECTION

EXTINGUISHERS

MECHANICAL

Cooling Temp. _____

Heating Temp. TYPICAL OF BUILDING

Humidity Control _____

Equip. Heat Gain _____

Special Requirement _____

ELECTRICAL

Grounding STANDARD

Ltg Type 11

FC at Task OFFICE

Power 110/220V; 480V, 3Φ, 60A

Telephone YES

Intercom YES

NORMAL OCCUPANCY

Div:

Group

Date: 12/1/95 By: FJR

AREA

OPTICAL LAB

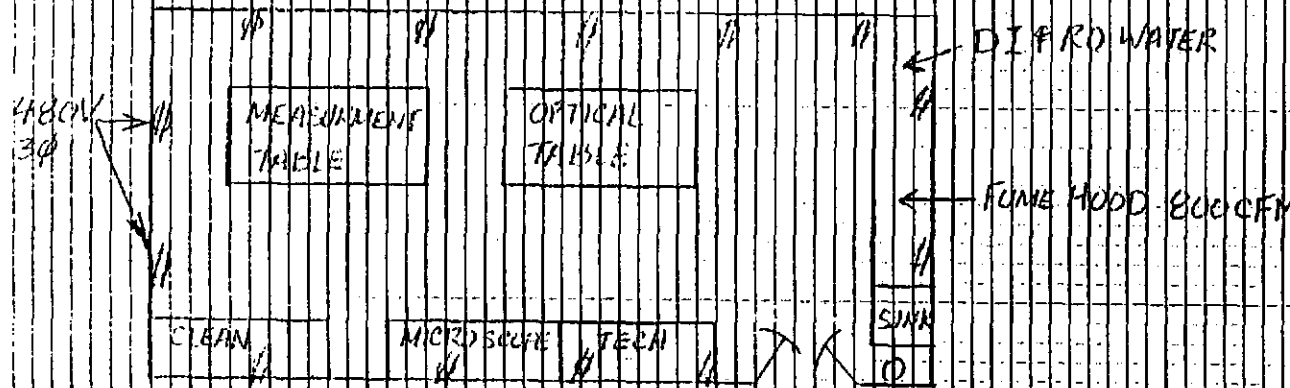
P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 50' X 18'

Room sq. ft.: 900

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads STANDARD
Special Loads
Special Spans

PLUMBING

Hot Water Cold Water
Compressed Air NO PSI
Other Gases FLOOR DRAIN

ARCHITECTURAL SPECIALTIES

Floor SEAMLESS VINYL
Walls DRYWALL, NON-SHEADING PAINT
Ceilings 12' SUSPENDED
Other

FIRE PROTECTION

EXTINGUISHERS

MECHANICAL

Cooling Temp. }
Heating Temp. } TYPICAL OF BUILDING
Humidity Control }
Equip. Heat Gain
Special Requirement

ELECTRICAL

Grounding TECHNICAL
Lig Type OFFICE
FC at Task OFFICE
Power 480V, 3Ø, 60A, 110/220V
Telephone YES
Intercom

NOTES

NORMAL OCCUPANCY

DATA

Div:

Group

Date:

By: FJR/JW/AGS

AREA

MECH. SHOP

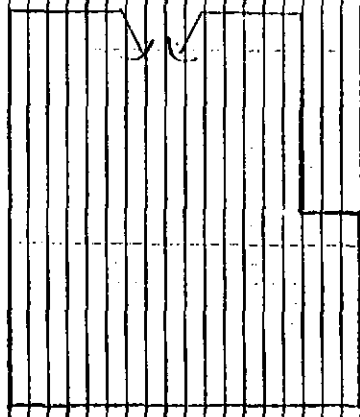
P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 25' x 33'

Room sq. ft.: ~ 825

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads STANDARD

Special Loads _____

Special Spans ↓

PLUMBING

Hot Water X Cold Water X

Compressed Air NO PSI _____

Other Gases _____

SINK & FLOOR DRAIN

NOTES

ARCHITECTURAL SPECIALTIES

Floor SEALED CONCRETE

Walls _____

Ceilings _____

Other _____

FIRE PROTECTION

MECHANICAL

Cooling Temp. _____

Heating Temp. _____ } STANDARD

Humidity Control _____

Equip. Heat Gain _____

Special Requirement _____

ELECTRICAL

Grounding _____

Ltg Type _____

FC at Task 25-30 F

Power 480V, 208V, 110V, 60A - No

Telephone YES

Intercom _____

SPECIFIC LOCATIONS

NORMAL OCCUPANCY

Div: Group CDS

Date: By: BORK/HEEFNER

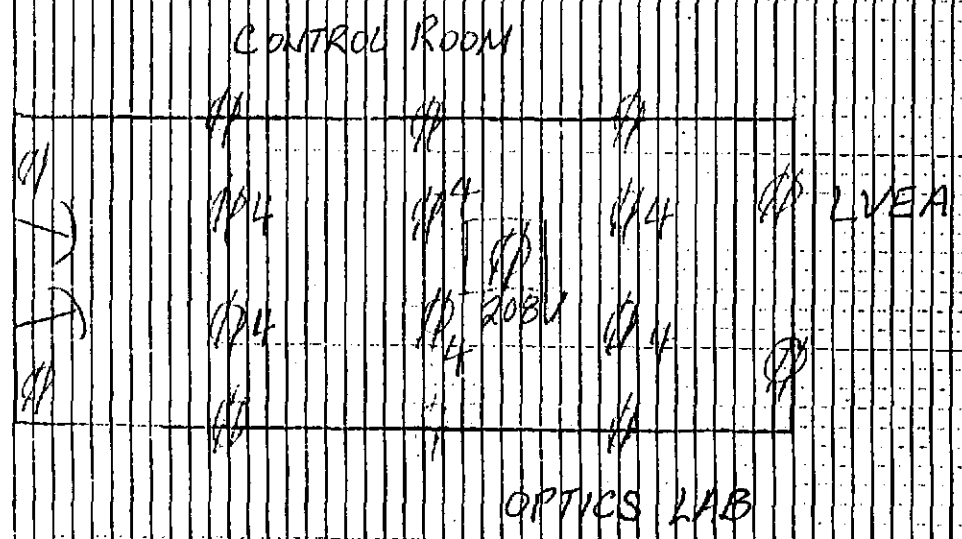
AREA MASS STORAGE & TAPE P 1 of 2

PROGRAM REQUIREMENT

Room Dimensions: 15' x 41'

Room sq. ft.: ~600

ADJACENCY REQUIREMENTS - CONTROL ROOM



⊙ ELECT OUTLETS ~10FT ON WALLS
 ⊙ 4 PLEX BOXES
 ⊙ 1 208V, 3Ø

STRUCTURAL
 General Loads _____
 Special Loads 1500 LB POINT
 Special Spans _____

PLUMBING NONE
 Hot Water _____ Cold Water _____
 Compressed Air NO PSI _____
 Other Gases _____

NOTES
 1.) NORMAL OCCURPANCY - 0
 2.) UNDER FLOOR CONNECTIONS TO ADJACENT CONTROL ROOM. MIN. 3 FEET WIDE.

ARCHITECTURAL SPECIALTIES
 Floor RAISED FLOOR 24"
 Walls _____
 Ceilings 10' ABOVE FLOOR
 Other _____

FIRE PROTECTION

MECHANICAL
 Cooling Temp. OFFICE
 Heating Temp. _____
 Humidity Control _____
 Equip. Heat Gain 20KW
 Special Requirement _____

ELECTRICAL
 Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power TECHNICAL POWER 20KW
 Telephone 2 LINES NEAR DOOR
 Intercom NO

NORMAL OCCUPANCY 0

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

MASS STORAGE TAPE P 2 of 2

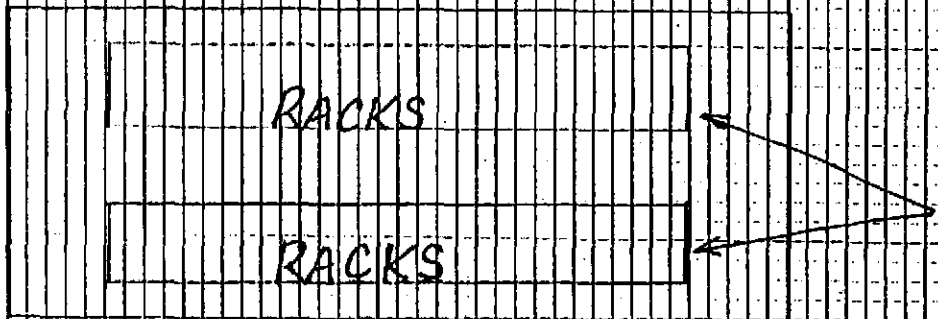
PROGRAM REQUIREMENT

Room Dimensions: 15' x 41'

Room sq. ft.: ~ 600

ADJACENCY REQUIREMENTS

- CONTROL ROOM



FUTURE CABLE TRAYS & POWER
UNDER RACK ROWS

STRUCTURAL

General Loads _____
Special Loads _____
Special Spans _____

PLUMBING

Hot Water _____ Cold Water _____
Compressed Air _____ PSI _____
Other Gases _____

NOTES

RACKS ARE 8' HIGH AND
NEED CLEARANCE FOR FRONT
AND REAR ACCESS

ARCHITECTURAL SPECIALTIES

Floor _____
Walls _____
Ceilings _____
Other _____

FIRE PROTECTION

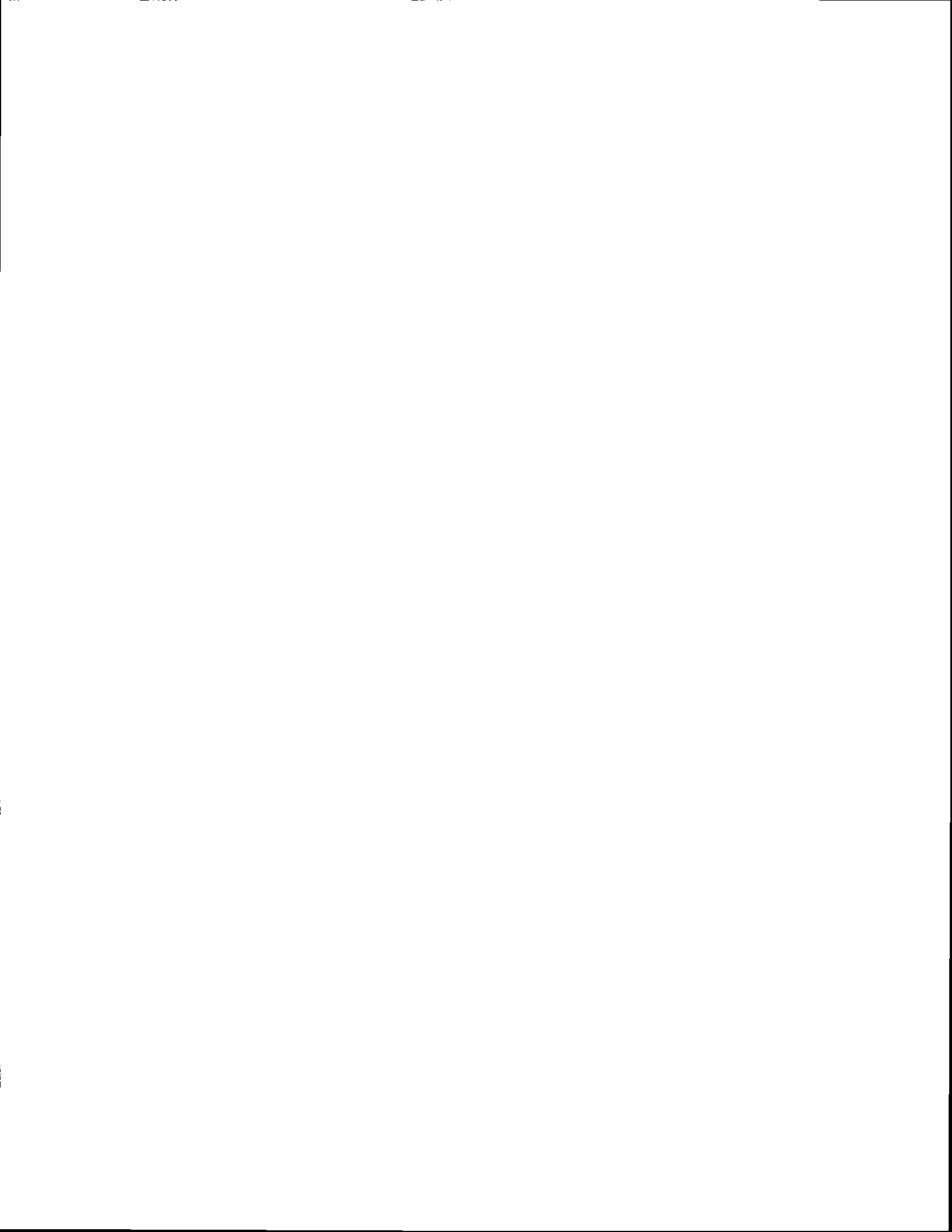
MECHANICAL

Cooling Temp. _____
Heating Temp. _____
Humidity Control _____
Equip. Heat Gain _____
Special Requirement _____

ELECTRICAL

Grounding _____
Ltg Type _____
FC at Task _____
Power _____
Telephone _____
Intercom _____

NORMAL OCCUPANCY 0



CALIFORNIA INSTITUTE OF TECHNOLOGY
Laser Interferometer Gravitational Wave Observatory (LIGO) Project

To/Mail Code: Dist. via M. Coles *MC*
From/Mail Code: A. Sibley *AS*
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 Maintenance

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

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O. Matherny

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G. Sanders

G. Stapfer

R. Vogt

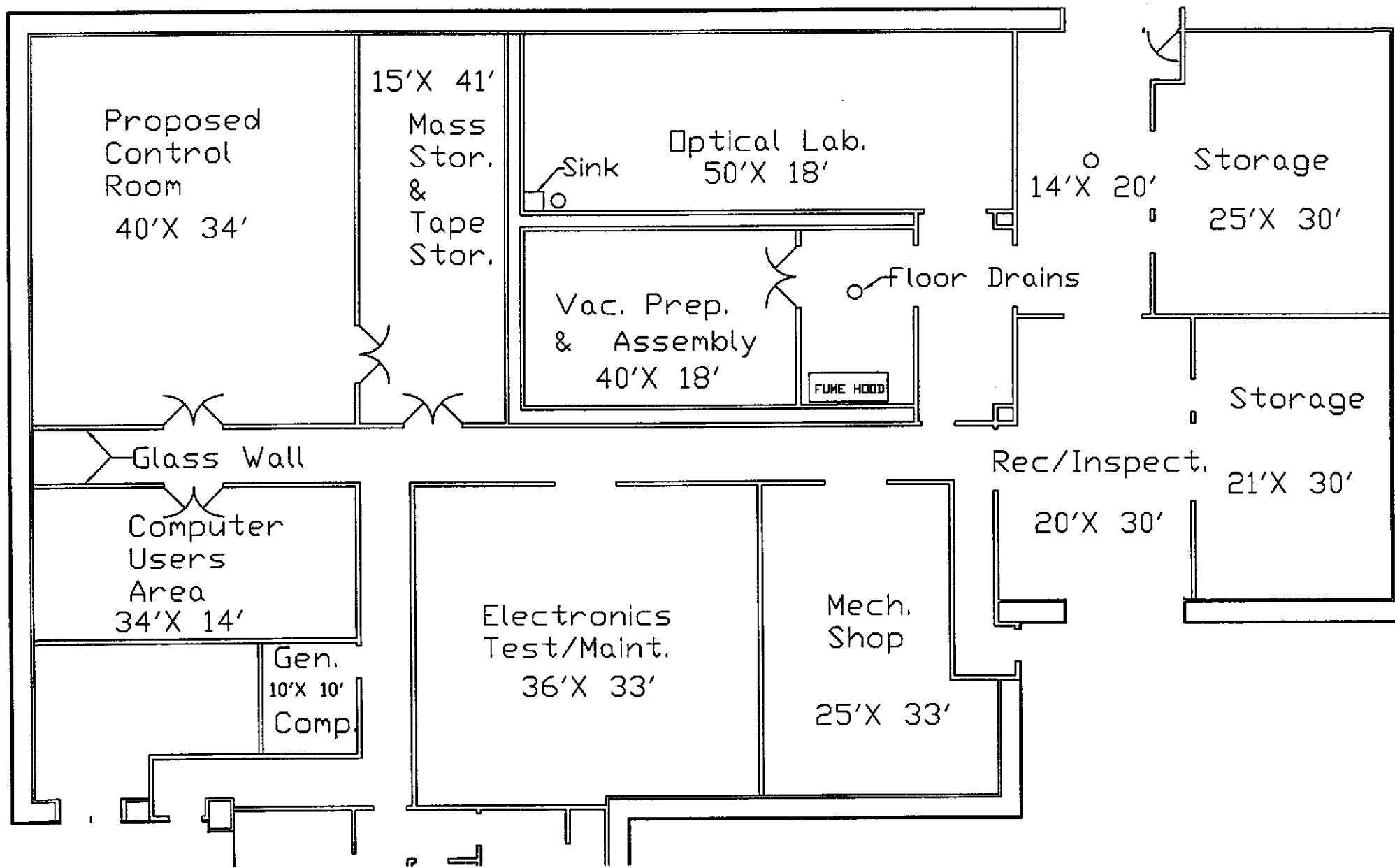
R. Weiss

W. Young

M. Zucker

Chronological File

Document Control Center



WED #

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

MASS STORAGE & TAPE P 1 of 2

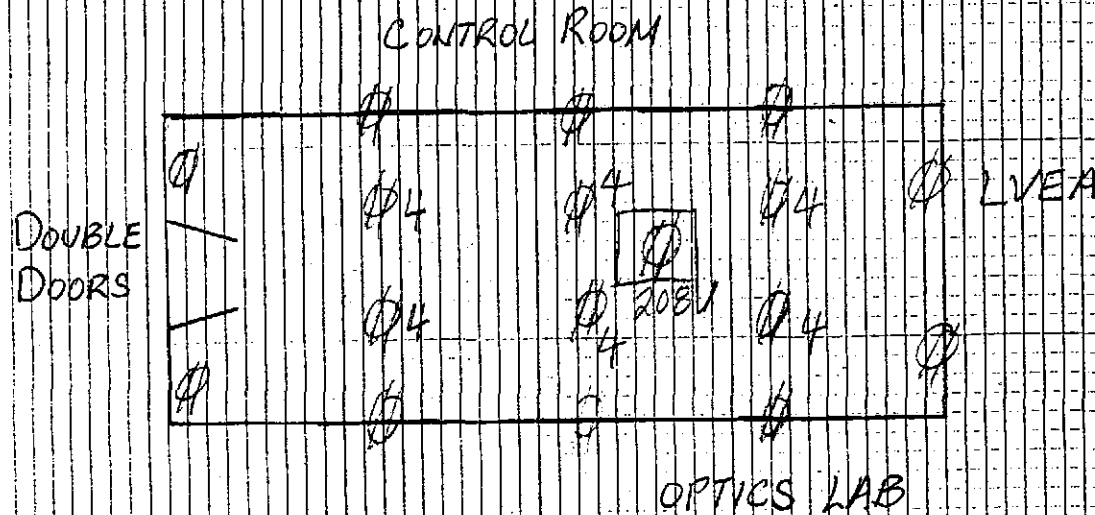
PROGRAM REQUIREMENT

Room Dimensions: 15' x 41'

Room sq. ft.: ~600

ADJACENCY REQUIREMENTS

- CONTROL ROOM



⊙ ELECT OUTLETS ~ 10 FT ON WALLS
 ⊙ 4 PLEX BOXES
 ⊙ 1 208V, 3Ø

STRUCTURAL

General Loads _____
 Special Loads 1500 LB POINT
 Special Spans _____

PLUMBING NONE

Hot Water _____ Cold Water _____
 Compressed Air _____ PSI _____
 Other Gases _____

NOTES

1.) NORMAL OCCUPANCY - 0
 2.) UNDER FLOOR CONNECTIONS TO ADJACENT CONTROL ROOM. MIN. 3 FEET WIDE.

ARCHITECTURAL SPECIALTIES

Floor RAISED FLOOR 24"
 Walls _____
 Ceilings 10' ABOVE FLOOR
 Other _____

FIRE PROTECTION - NOT IN SPEC.

- HALON REPLACEMENT UNDER FLOOR
 - CEILING SPRINKLERS

MECHANICAL

Cooling Temp. OFFICE
 Heating Temp. _____
 Humidity Control _____
 Equip. Heat Gain 20KW
 Special Requirement _____

ELECTRICAL

Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power TECHNICAL POWER 20KW
 Telephone 2 LINES NEAR DOOR
 Intercom ND

NORMAL OCCUPANCY 0

DATA

WCD #

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

MASS STORAGE TAPES P 2 of 2

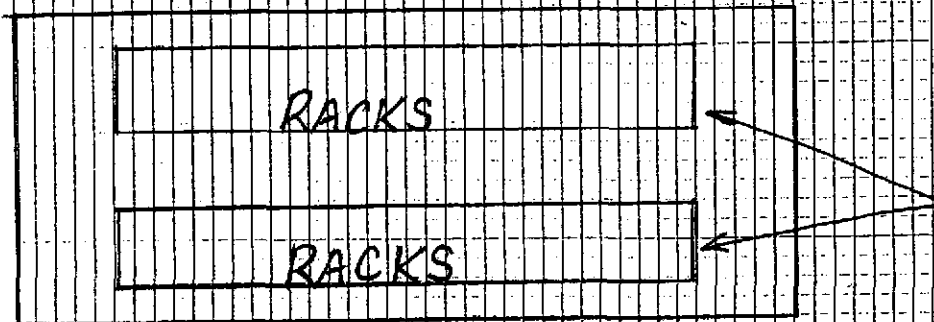
PROGRAM REQUIREMENT

Room Dimensions: 15' x 41'

Room sq. ft.: ~ 600

ADJACENCY REQUIREMENTS

- CONTROL ROOM



FUTURE CABLE TRAYS & POWER
UNDER RACK ROWS

STRUCTURAL

General Loads _____
Special Loads _____
Special Spans _____

PLUMBING

Hot Water _____ Cold Water _____
Compressed Air _____ PSI _____
Other Gases _____

NOTES

RACKS ARE 8' HIGH AND
NEED CLEARANCE FOR FRONT
AND REAR ACCESS

ARCHITECTURAL SPECIALTIES

Floor _____
Walls _____
Ceilings _____
Other _____

FIRE PROTECTION

MECHANICAL

Cooling Temp. _____
Heating Temp. _____
Humidity Control _____
Equip. Heat Gain _____
Special Requirement _____

ELECTRICAL

Grounding _____
Ltg Type _____
FC at Task _____
Power _____
Telephone _____
Intercom _____

NORMAL OCCUPANCY 0

DATA

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 fluorescent (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 -----

820 5159

WED #

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

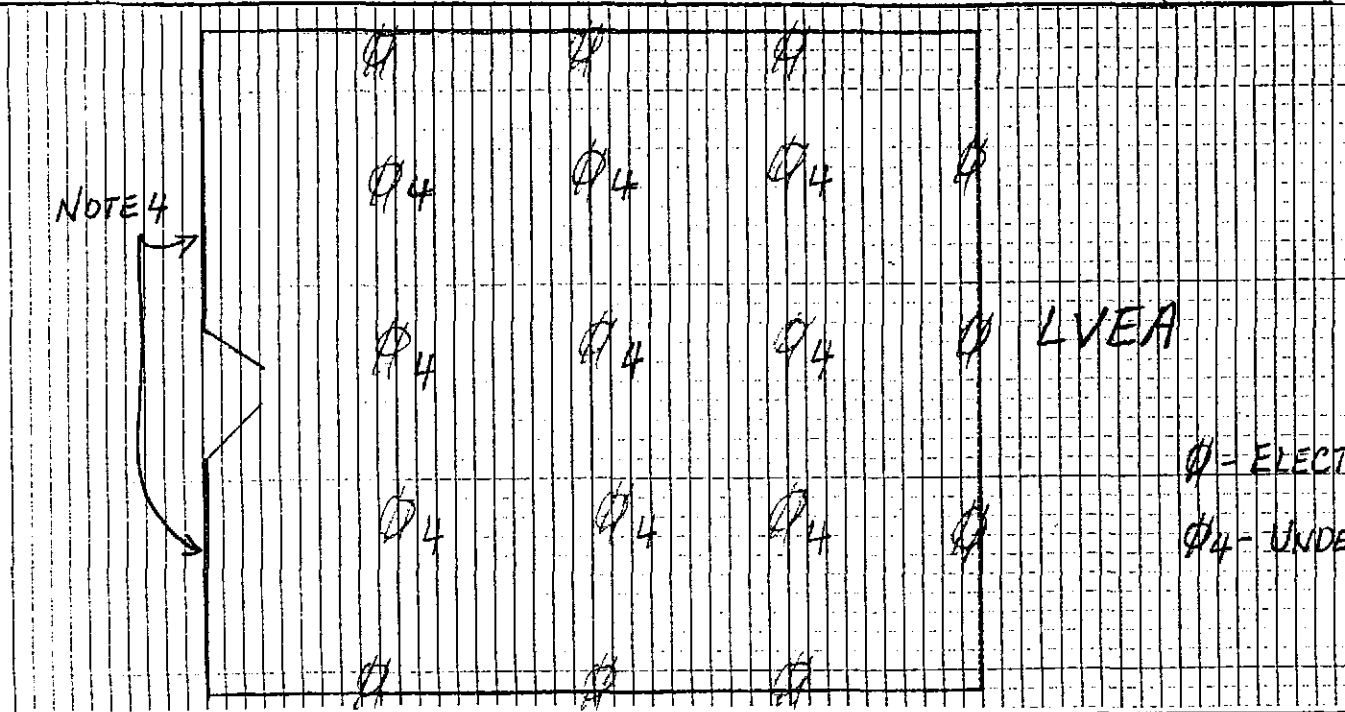
CONTROL ROOM P 1 of

PROGRAM REQUIREMENT

Room Dimensions: ~34'X40'

Room sq. ft.:

ADJACENCY REQUIREMENTS



Φ - ELECT. OUTLETS IN WALLS EVERY 10'
 Φ4 - UNDER FLOOR 4 PLEX ON 10' GRID

STRUCTURAL
 General Loads
 Special Loads 1500LB POINT
 Special Spans

ARCHITECTURAL SPECIALTIES
 Floor RAISED 24", CARPETED
 Walls
 Ceilings 10' ABOVE FLOOR
 Other

MECHANICAL
 Cooling Temp. OFFICE
 Heating Temp. "
 Humidity Control "
 Equip. Heat Gain 50KW
 Special Requirement

PLUMBING NONE
 Hot Water Cold Water
 Compressed Air PSI
 Other Gases

FIRE PROTECTION - NOT IN SPEC.
 - HALON REPLACEMENT UNDER FLOOR
 - CEILING SPRINKLERS

ELECTRICAL
 Grounding TECHNICAL
 Ltg Type FLUORESCENT & INCANDESCENT SPOTS
 FC at Task OFFICE W/DIMMERS
 Power 50KW
 Telephone 10 LINES
 Intercom

DATA

- NOTES**
- 1.) ALL POWER BREAKERS TO PROVIDE LOCKOUT AND TAG
 - 2.) UNDER FLOOR CONNECTIONS TO ADJACENT ROOMS. MIN. 3 FEET TO EACH ROOM.
 - 3.) WALLS SHOULD BE BARE AND ARE TO BE USED AS VIDEO WALLS.
 - 4.) GLASS WALL AT ENTRANCE
 - 5.) PROVIDE 2 EACH 6" Φ CONDUITS TO AREA TBD IN L'VEA
 - 6.) PROVIDE 2 EACH 6" Φ CONDUITS TO VAC. MECH. AREA TBD.
 - 7.) CDS WILL PROVIDE LAYOUT FOR CONTROL CONSOLES AND SPOT LIGHT LOCATIONS.
- NORMAL OCCUPANCY 10**

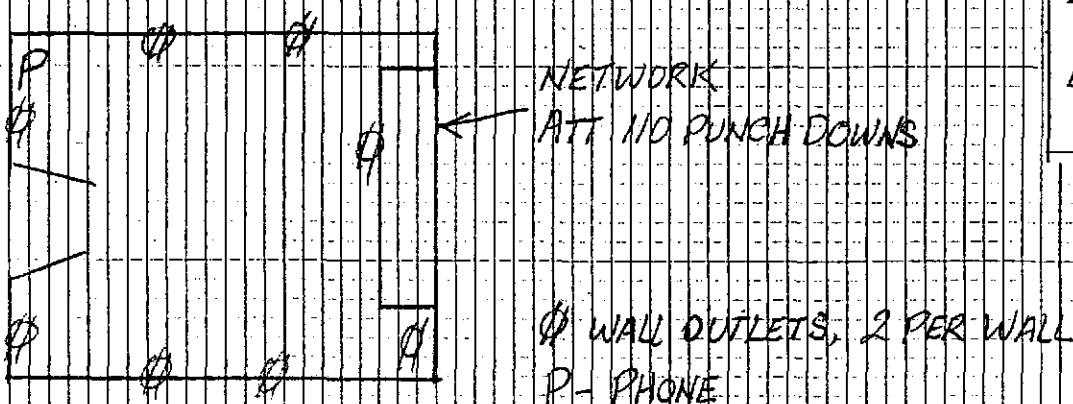
PROGRAM REQUIREMENT

Room Dimensions: 10' x 10'

Room sq. ft.: 100

ADJACENCY REQUIREMENTS

NEAR OFFICES



STRUCTURAL

General Loads _____
 Special Loads 1500 LB POINT
 Special Spans _____

PLUMBING NONE

Hot Water _____ Cold Water _____
 Compressed Air _____ PSI _____
 Other Gases _____

NOTES

- 1) ALL OFFICE 10 BASE T CONNECTIONS ARE ROUTED INTO THIS ROOM FOR PUNCH DOWNS.
- 2) NORMAL OCCUPANCY - 0
- 3) ROOM TO BE USED FOR NETWORKING & SERVICES FOR OFFICES & GENERAL COMPUTING AT SITE.

ARCHITECTURAL SPECIALTIES

Floor _____
 Walls _____
 Ceilings 10' ABOVE FLOOR
 Other _____

FIRE PROTECTION - NOT IN SPEC. SPRINKLERS

MECHANICAL

Cooling Temp. _____
 Heating Temp. } OFFICE
 Humidity Control }
 Equip. Heat Gain _____
 Special Requirement _____

ELECTRICAL

Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power 10 KW
 Telephone 1 LINE ON WALL NEAR DOOR
 Intercom NO

DATA

NORMAL OCCUPANCY 0

WDB #

Div:

Group CDS

Date:

By: BORK/HEEFNER

AREA

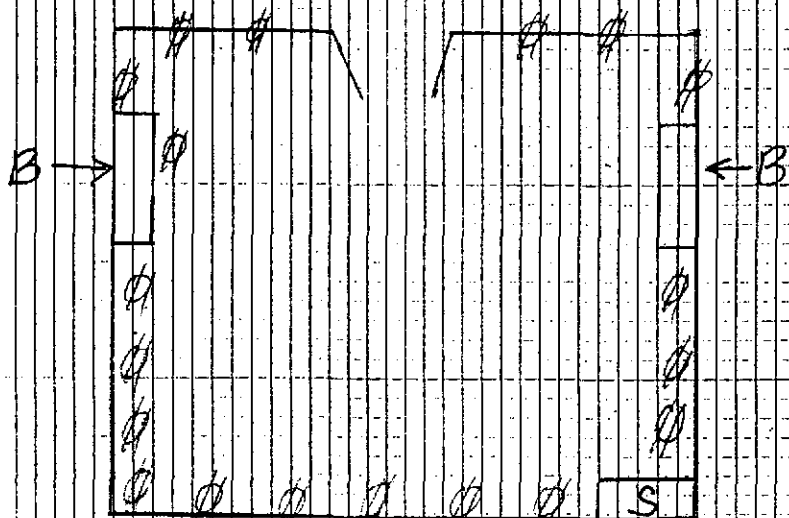
ELECT. TEST & MAINT. P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 36' x 33'

Room sq. ft.: ~1200

ADJACENCY REQUIREMENTS



- ⊘ - WALL OUTLETS ~ 5' SPACING
- B - BREAKER PANELS (NOTE 2)
- S - SINK

STRUCTURAL

General Loads _____
 Special Loads _____
 Special Spans _____

PLUMBING

Hot Water X Cold Water X
 Compressed Air _____ PSI _____
 Other Gases _____

NOTES

- 1.) NORMAL OCCUPANCY - 5
- 2.) CIRCUIT BREAKER PANELS
W/ 200 AMPS SERVICE W/ 10
BREAKERS NOT FOR WALL
OUTLETS.
- 3.) PROVISIONS FOR FUTURE
CABLE TRAY HUNG FROM
10' CEILINGS.
- 4.) SINK IN CORNER.

ARCHITECTURAL SPECIALTIES

Floor NON-STATIC TILE
 Walls _____
 Ceilings NOTE 3
 Other DOUBLE DOOR ENTRANCE

FIRE PROTECTION - NOT IN SPEC.

SPRINKLERS

MECHANICAL

Cooling Temp. _____
 Heating Temp. _____ } OFFICE
 Humidity Control _____
 Equip. Heat Gain 50KW
 Special Requirement _____

ELECTRICAL

Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power NOTE 2
 Telephone 5 LINES ON WALLS
 Intercom _____

DATA

NORMAL OCCUPANCY 5

WELD #

Div: Group CDS

Date: By: BORK/HEEFNER

AREA
COMPUTER USERS P ___ of ___

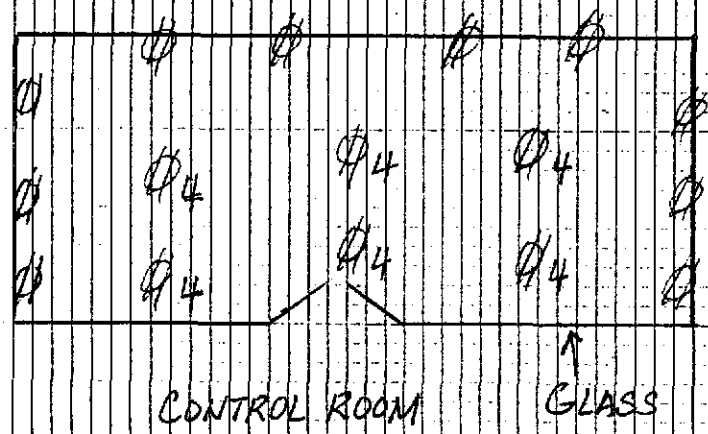
PROGRAM REQUIREMENT

Room Dimensions: 34' X 14'

Room sq. ft.: _____

ADJACENCY REQUIREMENTS

CONTROL ROOM



⊖ - WALL OUTLETS EVERY ~ 10'
 ⊖ - UNDER FLOOR 4 PLEX ON 10' GRID.

STRUCTURAL
 General Loads _____
 Special Loads 1500/POINT
 Special Spans _____

PLUMBING NONE
 Hot Water _____ Cold Water _____
 Compressed Air _____ PSI _____
 Other Gases _____

NOTES
 1) NORMAL OCCUPANCY - 6
 2) UNDER FLOOR CONNECTIONS TO ADJACENT CONTROL ROOM.
 3) GLASS WALL AT ENTRANCE.

ARCHITECTURAL SPECIALTIES
 Floor CARPETED, RAISED 24"
 Walls GLASS ON CONTROL ROOM SIDE
 Ceilings 10' ABOVE FLOOR
 Other _____

FIRE PROTECTION - NOT IN SPEC.
SPRINKLERS

MECHANICAL
 Cooling Temp. _____
 Heating Temp. _____ } OFFICE
 Humidity Control _____
 Equip. Heat Gain 10KW
 Special Requirement _____

ELECTRICAL
 Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power 10KW
 Telephone _____
 Intercom _____
DATA

NORMAL OCCUPANCY 6

Div:

Group

Date:

By: SIBLEY/RAAB

AREA

CLEANING AREA

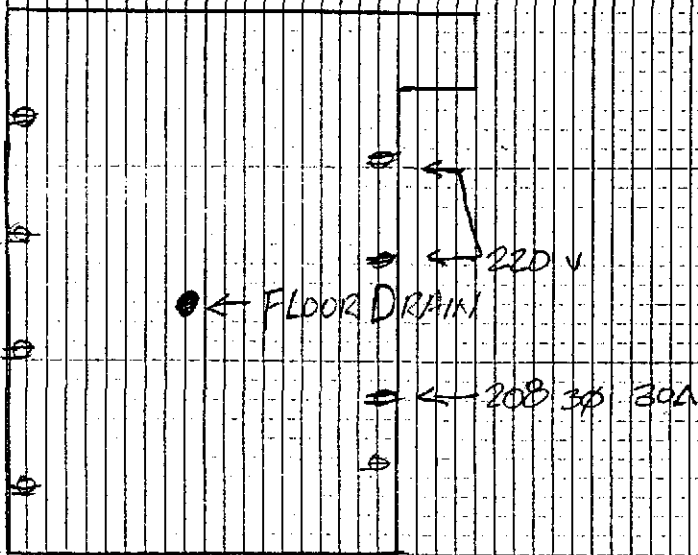
P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 14' x 20'

Room sq. ft.: ~ 280

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads NONE
 Special Loads NONE
 Special Spans NONE

PLUMBING

Hot Water X Cold Water X
 Compressed Air _____ PSI _____
 Other Gases _____
 WATER SINK & FLOOR DRAIN

NOTES

1.) VIDEO MONITOR TO CR

ARCHITECTURAL SPECIALTIES

Floor SEAMLESS
 Walls DRYWALL NON-SHEADING PAINT
 Ceilings 12' SUSPENDED
 Other _____

FIRE PROTECTION

MECHANICAL

Cooling Temp. TYP OF BUILDING
 Heating Temp. _____
 Humidity Control _____
 Equip. Heat Gain _____
 Special Requirement NONE

ELECTRICAL

Grounding STANDARD
 Ltg Type _____
 FC at Task OFFICE
 Power 110V, 208V, 3φ, 220V
 Telephone YES
 Intercom _____
 DATA _____

NORMAL OCCUPANCY

WED #

Div:

Group

Date:

By: FJR/AGS

AREA

OPTICS LAB

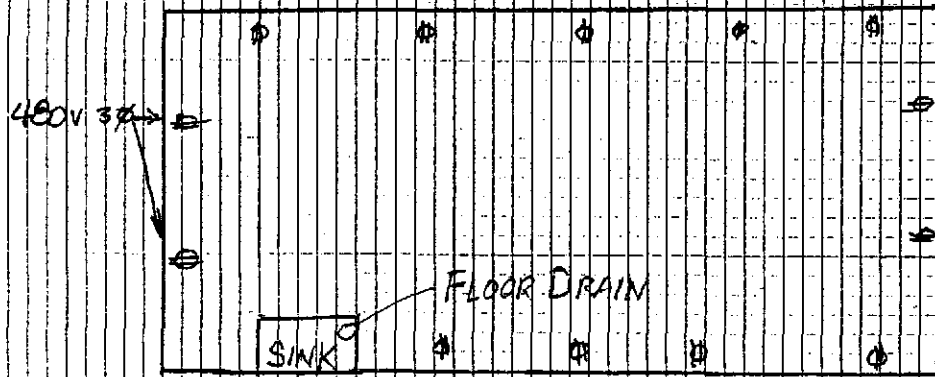
P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 50'x18'

Room sq. ft.: 900

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads STANDARD
 Special Loads V
 Special Spans 4

PLUMBING

Hot Water X Cold Water X
 Compressed Air _____ PSI _____
~~Other Gases~~ FLOOR DRAIN

NOTES

FUTURE IS MSF/RO H₂O
PLANT CAN BE ACCOMMODATED
W/ MAKEUP H₂O FROM SINK

ARCHITECTURAL SPECIALTIES

Floor SEAMLESS VINYL
 Walls DRYWALL, NON-SHEADING PAINT
 Ceilings 12' SUSPENDED
 Other _____

FIRE PROTECTION

EXTINGUISHERS

MECHANICAL

Cooling Temp. _____
 Heating Temp. _____
 Humidity Control _____
 Equip. Heat Gain _____
 Special Requirement _____

ELECTRICAL

Grounding TECHNICAL
 Ltg Type OFFICE
 FC at Task OFFICE
 Power 480, 3φ, 60A 110/220V
 Telephone _____
 Intercom _____

NORMAL OCCUPANCY

DATA

WEB #

Div: _____ Group _____

Date: _____ By: FJR/AGS

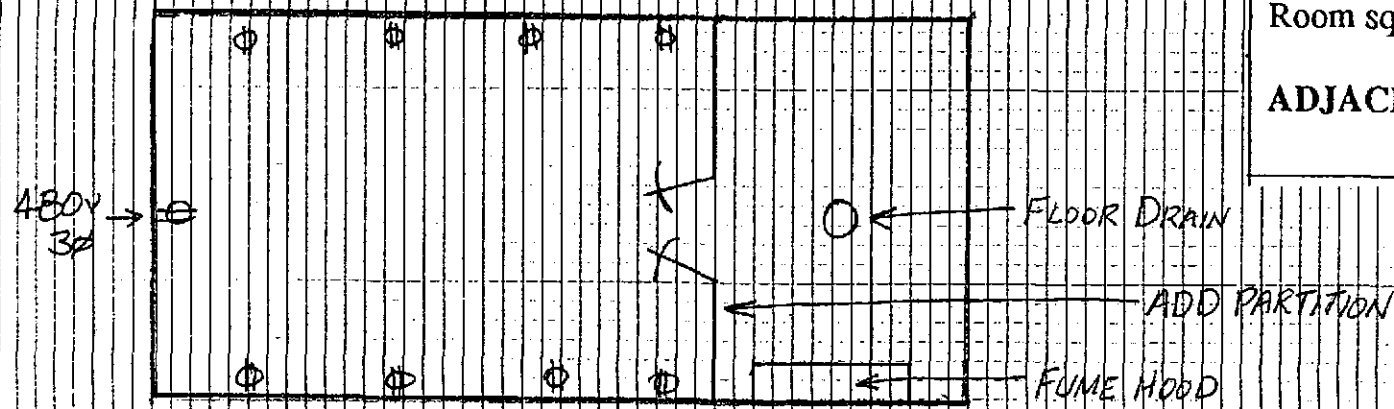
AREA VACUUM PREP P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 40' x 18'

Room sq. ft.: 720

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads NONE
Special Loads "
Special Spans "

PLUMBING

Hot Water X Cold Water X
Compressed Air NO PSI _____
Other Gases NONE

NOTES

- 1) ADD PARTITION
- 2) FUME HOOD 800 CFM
- 3) REQ'D AUTO CONTROL ON HOOD SINK IN FUME HOOD.

ARCHITECTURAL SPECIALTIES

Floor SEAMLESS VINYL
Walls DRYWALL, NON-SHEADING PAINT
Ceilings NON DUSTING SUSPENDED
Other _____

FIRE PROTECTION

EXTINGUISHERS

MECHANICAL

Cooling Temp. BUILDING STANDARD
Heating Temp. "
Humidity Control "
Equip. Heat Gain _____
Special Requirement _____

ELECTRICAL

Grounding STANDARD
Ltg Type "
FC at Task OFFICE
Power 110-220V, 1φ; 480V, 3φ 60A, 1 ONLY
Telephone YES
Intercom YES

NORMAL OCCUPANCY

DATA

WDB #

Div:

Group

Date:

By: FJR/JW/AGS

AREA

MECH. SHOP

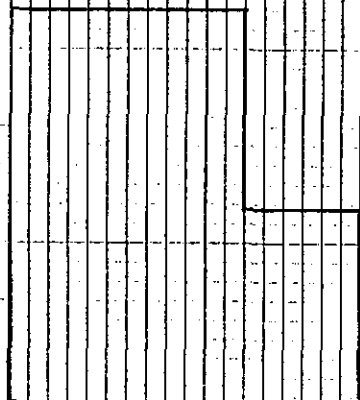
P 1 of 1

PROGRAM REQUIREMENT

Room Dimensions: 25' x 33'

Room sq. ft.: ~ 825

ADJACENCY REQUIREMENTS



STRUCTURAL

General Loads _____
 Special Loads _____
 Special Spans _____

PLUMBING

Hot Water X Cold Water X
 Compressed Air _____ PSI _____
 Other Gases _____
SINK & FLOOR DRAIN

NOTES

ONLY SMALL MACHINE TOOLS
IN THIS AREA.
ALL LARGE MACHINE TOOLS
LATHS, MILLS, ETC. WOULD BE
PLACED IN MAINTANCE BUILDING.

ARCHITECTURAL SPECIALTIES

Floor SEALED CONCRETE
 Walls _____
 Ceilings _____
 Other _____

FIRE PROTECTION

MECHANICAL

Cooling Temp. _____
 Heating Temp. _____
 Humidity Control _____
 Equip. Heat Gain _____
 Special Requirement _____

ELECTRICAL

Grounding _____
 Ltg Type _____
 FC at Task 25-30 F
 Power 480V, 208V, 110V, 60A - NO
 Telephone _____
 Intercom _____
 DATA _____

SPECIFIC LOCATIONS

NORMAL OCCUPANCY