

**ASC CONSTRUCTION MANAGEMENT COMPETITION
RENO, NEVADA
FEBRUARY 8 – FEBRUARY 11, 2006**

**REGION 7
RESIDENTIAL DIVISION PROBLEM**

**UCI EAST CAMPUS STUDENT APARTMENTS
IRVINE, CALIFORNIA**

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(TO BE DISTRIBUTED LATER) |

SECTION 1 PROBLEM INSTRUCTIONS

UCI East Campus Student Apartments Irvine, California

Problem Premise

Your team (Company) is a general contracting firm that has been selected to build this Project. The judges are the "Owners" of the Project. They will review your proposal (as outlined below) and will schedule an interview with your company.

1. Project Description

The project consists of four hundred eighty-eight (488) apartment units for the University of California, Irvine, Student Housing. It is made up of forty-two apartment buildings, five ancillary buildings and on-grade parking. Three of the ancillary buildings contain study rooms and laundry facilities for the students; one is a maintenance building. The fifth building is a recreation building which includes a pool and spa, fitness center, computer room and e-mail stations, multimedia conference center, state-of-the-art mini-theatre and game room. It also features an outdoor BBQ and fireplace, basketball and volleyball courts.

2. Proposal

The proposal consists of the following sections:

- A. Phasing and Scheduling
- B. Staging and Logistics
- C. Estimating
- D. Plan Reading and Project Engineering

Please make sure all forms are filled out completely and correctly and are turned in on time.

See individual sections for further instructions.

THE "OWNER UPGRADE" PORTION OF SECTION 3 MUST BE TURNED IN AT 8:30 PM; THE ENTIRE REMAINDER OF THE PROPOSAL MUST BE TURNED IN NO LATER THAN 11:00 P.M. THURSDAY, FEBRUARY 9, 2006.

NOTE: Ten percent (10%) will be deducted for proposals up to 10 minutes late. Proposals turned in more than 10 minutes late will receive no points. Only two (2) members from each team will be allowed at the problem turn-in session.

3. Oral Interviews

The oral interviews will begin Friday morning, February 10, and will proceed at approximately 30-minute intervals (schedule to be provided). Be prepared to give a seven-to eight-minute oral presentation. The remaining time will be utilized for questions from the judges. The specific issues to be addressed in your presentation will be announced at a

later time. You should be prepared to answer questions about all aspects of the Project and your proposal.

Visual Aids/Oral Interview Presentation Material

All presentation materials for ALL teams must be turned in at 9:30 a.m. on Friday, February 10. Materials not turned in at this time (other than your personal notes, etc.) WILL NOT be allowed in the Oral Interviews. An easel and an overhead projector will be provided. Should any Company desire to use additional presentation tools such as a computer presentation using PowerPoint, the CD or other storage device containing the presentation must be submitted at the 9:30 a.m. Friday deadline. (This will be returned for your use at the time of your presentation.) In addition, your team must be able to set up your presentation in a two-minute period to allow adequate time for the interview.

4. Miscellaneous

- A. Question and Answer Period – Question and answer sessions will be held at 9:30 a.m. and 2:00 p.m. on Thursday, February 9. At least one individual from each team **must** attend.
- B. RFI's – All Requests for Information must be submitted on the form provided on Page 4. Answers to those questions that the judges feel are appropriate will be provided to all students in the form of addenda.
- C. Oral Interview Schedules – At 9:30 a.m. on Friday, February 10, the schedule for the Oral Interviews will be determined by random drawing. At least one member from each team must be present.
- D. Problem Recap Presentation – At 6:30 p.m. Friday, February 10, the judges will make a presentation on the actual project.

4. General

All answers are to be on forms provided in this booklet. **Forms may be copied, but are not to be altered in any way.**

All materials turned in to the judges must contain the SCHOOL NAME. The company or mascot name IS NOT SUFFICIENT.

Only ONE copy of each requested item is required. Do not submit your materials in binders, notebooks, etc. Submit only requested information. Only the staging plan and schedule will be returned to you for your presentations. **If you will need a copy of any other sections for your presentation, be sure to keep one for your use.**

5. Schedule Recap

Thursday, February 9

- | | |
|-----------|---------------------------|
| 7:30 A.M. | Problem Distribution |
| 9:30 A.M. | Question & Answer Session |

2:00 P.M. Question & Answer Session
8:30 P.M. Turn in Owner-Upgrade Portion of Section 3
11:00 P.M. Turn in Remainder of Problem

Friday, February 10

9:30 A.M. Turn-in Presentation Materials /Draw for Orals
11:15 P.M. Orals Begin
6:30 P.M. Problem Recap Presentation

Remember...

- ◆ **STAY ORGANIZED**
 - ◆ **BE FLEXIBLE**
 - ◆ **BE READY FOR LAST MINUTE CHANGES**
- and*
- ◆ **HAVE FUN!**



Oral Interviews

In your oral interviews with Morley Builders on February 10, your 8 minute presentation must cover each of the following items:

- Phasing, staging and logistics
- Section 3: Explain your recommended upgrades and your reasoning for choosing the specific upgrades over other options.
- Section 4, Question 9: Explain how you are going to approach and deal with the situation
- Section 4, Question 20: Explain how and why you would deal with this situation

REQUEST FOR INFORMATION

SCHOOL NAME: _____

RFI No.: _____ TIME SUBMITTED: _____

PROJECT: UCI East Campus Student Apartments

SENT TO: The Judges

DESCRIPTION: _____

LOCATION: _____

SPEC REF: _____ SHEET NO: _____

OTHER: _____

INFORMATION REQUESTED: _____

SIGNATURE DATE

CHECK HERE IF ADDITIONAL COMMENTS ARE ATTACHED TO THIS FORM:

SCORE SHEET

UCI EAST CAMPUS STUDENT APARTMENTS Irvine, California

I. PROPOSAL PORTION

2A PHASING AND SCHEDULING
Logical phasing scheme that satisfies Owner's requirements Logical layout and sequence Accuracy of answers to questions
16%

2B STAGING AND LOGISTICS
Correct location of required components
11%

3 ESTIMATING
Bid Breakdown Accuracy of Direct and Indirect Costs Completeness/accuracy of subcontractor bid analysis Owner Upgrades & Kitchen Reconfiguration Accuracy of quantity takes-offs Completeness of components for each system Correct pricing for upgrades
26%

4 PLAN READING & PROJECT ENGINEERING
Accuracy of responses
21%

WRITING SKILLS
Proper format Grammar, punctuation, spelling Organization and clarity Logical, persuasive
7%

II. PREQUALIFICATION BROCHURE & ORAL INTERVIEW

A. PREQUALIFICATION BROCHURE Required elements present Applicability to Project Neatness, professional appearance
B. ORAL INTERVIEW Demonstration of knowledge of Project (presentation not "canned") Focus on key project issues Response to judges' questions about written portion of problem Response to judges' questions about presentation Ability to handle "zingers" -- "thinking on your feet" Presentation Skills Participation by all team members
19%

PENALTY
Penalty for late Proposal
Deduct 10%

Section 2A Phasing and Scheduling

UCI East Campus Student Apartments Irvine, California

Premise

The entire project was originally scheduled to complete before the fall quarter of 2008. However, due to the late start of the project, this is no longer feasible. The Owner still needs some buildings released before the fall 2008 quarter, with the remainder to open in phases coinciding with school year quarters. The criteria are as follows:

Phase I (Fall Quarter—October 1, 2008)

Release 16 undergraduate buildings

Complete the Maintenance Building (or build temporary structure)

Phase II (Winter Quarter—January 1, 2009)

Release eight (8) undergraduate buildings

Phase III (Spring Quarter—April 1, 2009)

Release eight (8) undergraduate buildings

With the release of each phase, residents must have access to adequate parking spaces and laundry/commons facilities. In addition, the ten (10) graduate buildings may be released as a part of any phase, but should be released all at once. Construction will commence October 1, 2006.

Assignment

1. Detailed Schedule

As a preconstruction exercise, the Owner has requested a detailed schedule of the Recreation Building. Prepare a detailed bar chart schedule of the building from the start of rough framing. Use only the activities listed in Exhibit 2A-1. The schedule must clearly indicate the early start and early finish dates for all activities, activity durations and all logic ties between activities. Separate the schedule into two categories—interior and exterior. Clearly identify the critical path activities. Assume a five-day work week with no holidays and a hypothetical *January 1, 2005* start date.

2. Summary Schedule

Your company must establish a phasing scheme that is most effective and practical in terms of logistics, access, and construction efficiency, as well as with regard to optimizing resident living. Create a bar chart summary schedule to illustrate your phasing scheme. Organize the activities into Phases I, II, and III. List each building as one activity using the durations shown below.

Residence Building Type A	200 days
Residence Building Type B	240 days
Residence Building Type C	210 days
Residence Building Type D	220 days

In addition, include the following activities in the summary schedule where appropriate.

Graduate Building parking area	15 days
Palo Verde & Arroyo Road Paving	15 days
Undergraduate Building parking area 1	15 days
Undergraduate Building parking area 2	15 days
Undergraduate Building parking area 3	15 days
Underground Utility Mains	45 days
Riparian area protection	40 days
Commons/Laundry Building	150 days each
Maintenance Building	160 days
Recreation Building	300 days

Criteria to consider:

- Allow at least two (2) weeks at the end of each phase for final Owner punch-out and correction. Indicate this activity, as well as finish milestones.
- The concrete contractor will work one crew that can produce building slabs at the following rates:
 - Bldg. A – 5 days
 - Bldg. B – 8 days
 - Bldg. C – 6 days
 - Bldg. D – 7 days
 - Recreation Building – 8 days
 - All other buildings – 5 days
- The paving contractor can mobilize two separate crews, if required to complete all the paving on the project.
- The Riparian area must be protected during all phases of construction from both vehicular and foot traffic. This work should be completed before the commencement of rainy season around mid to late November.
- Observe the following holidays: New Year's Day, MLK Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and day after, and Christmas Day.

3. Answer the following questions regarding hypothetical situations. **Do not incorporate these issues on your schedules.**

1. The Owner experienced water damage and mold issues in past projects and has requested that your firm test the entire building exterior for water infiltration. Explain how you propose to do this, when it should occur in the construction sequence and how it would impact the critical path of the Recreation Building.

2. The cabinets and casework for the Recreation Building, which were ordered from overseas, have been delayed in route for one month. The manufacturer informed you of this one week before they were to arrive on site for installation. Explain how this will impact your schedule and what you can do to minimize the impacts.

Items to be turned in

Detailed schedule of Recreation Building
Summary bar chart phasing schedule
Answer to scheduling questions (Use page 3 of this section)

Exhibit 2A-1

Detailed Schedule Activities

Appliances	10 days
Cabinets and casework	25 days
Doors and frames	18 days
Drywall, prelim and production	58 days
Exterior paper/metal lath/trim	14 days
Exterior scaffold - erect	9 days
Exterior scaffold - remove	17 days
Fabricate and install stairs	17 days
Fabricate elevator	48 days
Flooring and tile work	44 days
Install elevator	20 days
Install roofing	13 days
Install windows 1st floor	28 days
Install windows 2nd floor	14 days
Insulation	5 days
Interior paint and wall coverings	40 days
Interior paint prime	10 days
Lobby waterwall construction	35 days
MEP finishes	35 days
MEP rough-in	81 days
Mini-theater & Mtg room casework	14 days
Plaster brown coat	3 days
Plaster finish coat	27 days
Plaster scratch coat	2 days
Rough framing	38 days
Stamped concrete @ Arcade	30 days
Stock roof	2 days
Wood ceilings and trim	29 days

Section 2B Staging and Logistics

UCI East Campus Student Apartments Irvine, California

Staging Plan

Prepare a Staging Plan for each phase of work to be submitted to the University, Architect and Building Department for approval. The Staging Plan should outline the contractor's perceived site logistics and be consistent with the Phasing Plan developed in Section 2A. As well, the "Construction Issues" listed in this section must be incorporated into the preparation of the Staging Plan.

The Staging Plans may include, but not be limited to, the following items:

- Fire road construction as required by local Fire Department
- Protection of Riparian Area
- Temporary fencing
- Temporary construction gates
- Temporary traffic barricades
- Pedestrian protection
- Project team offices
- Parking areas for construction personnel
- Subcontractor storage and staging areas
- Long-term storage
- Path of travel for mobile crane

Items to be turned in

Three separate Staging Plans (one for each Phase)
Detailed section of canopy

Staging and Logistics – Construction Issues

UCI East Campus Student Apartments Irvine, California

1. The project is being built in open space on university property. The site is bound by Culver Drive to the east and open space to the south, west and north. Existing single family homes are across the street and Culver Drive acts as a thoroughfare in and out of that development.
2. Arroyo Drive and Palo Verde Road are private streets which are to be constructed as a part of this project. The site will be accessible to vehicle traffic from the north only and the Arroyo Drive improvements are to be temporarily barricaded south of the project site. The site is not to be accessible from Culver Drive until such time as all phases of work are complete.
3. The site must be secured after the construction of Palo Verde Road until such time as all three phases of work have been completed.
4. The Riparian Area must be protected prior to commencement of any of the phases of construction. Protection shall remain in place until all phases of work have been completed.
5. Prior to the commencement of building construction a temporary fire road must be constructed and is to be maintained throughout the project duration. At a minimum the road is to be constructed of a compacted gravel base no less than 6" thick and compacted to 90% relative compaction.
6. Fire Department requires that hydrant facilities be available at all construction areas prior to commencement of wood framing. No temporary fire facilities are allowed.
7. All underground utilities must be installed and in place prior to concrete foundations. That includes rough-in of all utilities; sewer, water, fire water, storm drain and electricity. No saw-cutting or coring will be allowed. Note that gas can be "stubbed" to the building at a later date.
8. Based on historical data and long-range weather forecasts there is a prediction for substantial rainfall in the coming year. The university has requested that storm drain improvements in Arroyo Drive and Palo Verde Road be installed as early as possible for use during winter months to avoid potential delays and assist in site remediation on a continual basis.

9. Forty-foot (40') trailers will be used on site (within the property lines of the project) to house your project team. Site offices will be accessible at all times for use by construction personnel, deliveries, mail delivery and project meetings.
10. Upon completion of each phase, it will be necessary to provide security between student housing and construction areas. The university has requested that construction fencing be in place to clearly isolate the student population from on-going construction activities.
11. Due to the close proximity of the housing and parking lot facilities the university has requested protection of pedestrian walkways adjacent to on-going construction. Canopies shall be at least 8' tall with a ceiling and shall be lighted at all times. In addition to locating of canopies, the Building Department has requested that you provide a detailed section of canopy construction.
12. It will be necessary to provide a separate gated construction entrance off of Arroyo Drive for future phases of work. This entrance will be for use by construction and university maintenance personnel and will be off-limits to students and/or public access.
13. Construction personnel are to park on site during construction of all phases of work. However, upon completion of each respective phase the associated parking areas will be turned over to the University for student use. Based on the subcontractor parking requirements there is a need for at least 150 parking stalls at all times.
14. Staging and stockpiling of material and equipment is to be done within the limits of the property line. No offsite storage or staging is allowed. Based on the amount of manpower and material required it is anticipated that this area be no less than 27,500 square feet per phase.
15. Trusses for the entire project have been purchased and will be delivered in one (1) single delivery. Due to the size of this shipment it will be necessary to store material onsite for use during respective stages of work. The truss manufacturer has advised the project team that a contiguous area no less than 50,000 square feet will be required to store and stage trusses.
16. A mobile crane will be used for framing and roof construction. The crane will require access to all buildings and will be used during all phases of work. According to the specifications, there is a requirement for a 24' turning radius and a 15' wide clear path of travel.

Section 4
Plan Reading and Project Engineering

UCI East Campus Student Apartments
Irvine, California

How to Complete this Section

Read the questions carefully and write the answers in the space provided. All of the answers can be obtained by using the construction documents, the cut sheets, product data and information provided in this section. All dimensions and quantities should be calculated without the use of any waste or overage factors. Be sure to show ALL your work; partial credit will be considered even if the final answer is incorrect. Use attached sheets 2-8 for your answers.

Exhibits Included in this Section

- Exhibit 4-1 (2 pages)
- Exhibit 4-2.1 (1 page)
- Exhibit 4-2.2 (1 page)
- Exhibit 4-2.3 (1 page)
- Exhibit 4-3.1 (1 page)
- Exhibit 4-3.2 (1 page)
- Exhibit 4-3.3 (1 page)
- Exhibit 4-3.4 (1 page)
- Exhibit 4-4 (3 pages)
- Exhibit 4-5 (1 page)
- Exhibit 4-6.1 (1 page)
- Exhibit 4-6.2 (1 page)
- Exhibit 4-7 (4 pages)
- Exhibit 4-8.1 (3 pages)
- Exhibit 4-8.2 (1 page)

Items to be turned in

- Completed sheets 1 – 8
- Response to question # 9
- Response to question # 20

- c. Referring to sheet D-7, what trades other than storefront would be affected to coordinate the installation?

2. In accordance with the Structural Plans and Exhibits 4-1 provide the following information:

a. Slab on Grade thickness: _____

b. Total Number of Shear Walls in a typical Building Type A: _____

c. List the shear wall types that occur on the first floor of Bldg Type A: _____

d. Assuming an ATS Hold-down system, provide the rod diameter for a No. 33 Hold-down: _____

e. What is the plywood thickness of a No. 12 shear wall? _____

3. What is the overall door jamb thickness (throat size) of a typical bedroom door No. 2? _____

a. Provide a detail (section cut) of this scenario.

4. Are any windows required to have an STC rating? If so, please specify location:

5. What is the typical window and door header height as indicated on the drawings?

6. In reference to the trim on the exterior elevations, provide the following:

a. What is the trim material: _____

b. What is the typical size of the trim around the jamb & head of a window?

c. Explain the installation sequence of the trim and provide the detail reference(s):

7. Provide the following information regarding the Community Center (Recreation) Building:

a. What occupancy type is indicated? _____

b. What is the construction classification? _____

c. What is the total square footage of the Fitness Room? _____

d. What size is the mirror on the fitness room wall? _____

8. Assume the Architectural drawings govern where the drop ceilings (soffits) occur.

a. Does unit type 4 architectural floor plan (Exhibit 4-2.1) provide sufficient soffits for the mechanical equipment in accordance with Exhibit 4-2.2? If not, mark up and attach Exhibit 4-2.3 indicating additional soffit locations necessary to accommodate all mechanical equipment. _____

b. Mechanical drawings call for some of the duct to run in the joist bays per detail G on Exhibit 4-3.1. Does the direction of the duct run per the Mechanical unit type 3 (Exhibit 4-3.2) coincide with the direction of the joists per the Structural Drawings (Exhibit 4-3.3)? If not, more soffits will be required at these locations. If necessary, mark up and attach Exhibit 4-3.4 indicating any additional soffit locations. _____

9. The Owner is being pressured to remove the unsightly mildew on the studs and joists. The University and Owner are not only concerned with the potential health hazards of this mildew, but of its possible effect on the integrity of the building structures themselves. However, because of the good relationship your company has established with the Owner, all are confident the removal work you and your subcontractor are performing will cause these fears will to subside.

The framing is only 25% complete and already the framing subcontractor has requested reimbursement of \$75,000 for actual costs spent removing the mildew. In addition, both time and material are being expended by your company to assist the framing subcontractor with the removal process. These costs are not included in the \$75,000. Furthermore, as this work was not anticipated, no budget for the work was included in the G-Max Contract with the Owner or in the framing subcontract.

Your company has used this framing subcontractor on many jobs and has a great relationship with them. On every occasion, including this current project, they have come through on very tight schedules. This track record has helped to ease your company's concerns regarding the \$100,000 per day liquidated damage clause in your contract with the Owner. When you signed the framing subcontractor up, the lumber prices were very high. Since the framing has commenced, the market has softened significantly; the subcontractor, therefore, is realizing a large savings on the lumber. The Owner is not aware of these savings. Considering both your relationship with the Owner and subcontractor, how do you resolve this situation? Do you ask the Owner for a change order to recover the costs for both the framing subcontractor and your company? Does your company absorb all the costs? Do you ask the subcontractor to absorb some cost?

Prepare a letter to your Project Manager to explain how you are going to approach and deal with this situation.

10. What Detail would you use for a One Hour Party Wall Condition? _____

a. Are Sound Attenuation Blankets required? _____

11. Your Cabinet & Countertop subcontractor wants to verify a few items prior to fabricating. Provide the following:

a. Height of a typical island countertop: _____

- b. Height of the island countertops at the ground floor: _____
- c. Location and quantity of removable base cabinets at the kitchen sink: _____

- d. Provide a list of units (addresses) where the kitchen sink base cabinet will be removed:

12. What doors are required to have an undercut? _____
- a. What size is the undercut? _____
13. Specify the two locations where you would find the typical eave overhang dimension:

- a. Do the two locations specify the same dimension? _____
- b. Provide the dimension(s): _____
14. Provide the pitch of the roof and the typical roofing material: _____

15. Using Exhibit 4-4 provide the following information:
- a. What circuit are the outlets in Bedroom No. 1 assigned to? _____
- b. What is the maximum wattage for the living room light fixture? _____
- c. How many smoke detectors are in this unit? _____
- d. At what height are you to mount the receptacle near the sink of Bath 2? _____

16. Using Exhibit 4-5 provide the following information:
- a. How many area drains (sump boxes) are shown around Building 615? _____
 - b. Is point A indicated on Exhibit 4-5 at a higher or lower elevation than Building 615 finish floor? _____
 - c. Approximately how many feet of 8 inch PVC drain pipe is shown on the Exhibit?

17. Using Exhibit 4-6.1 provide the following information:
- a. What size is the main Building drain line? _____
 - b. How many Building drain lines are there? _____
 - c. What waste vent number is designated for the lavatories of Bath No.1? _____

 - d. How many total fixtures are provided in a Undergraduate Unit Type 3? _____
 - e. A Water Closet has considered a three (3) drain unit fixture. Using Exhibit 4-6.2 what is the total Fixture Unit count for the Waste Vent Riser No. 16?

 - f. Also using Exhibit 4-6.2 what is the vent pipe size of Waste Vent Riser No. 16?

18. In accordance with Specification Section 09250 (Exhibit 4-7) answer the following question:
- a. What type of Gypsum Wallboard is required at the walls of the bathrooms? _____

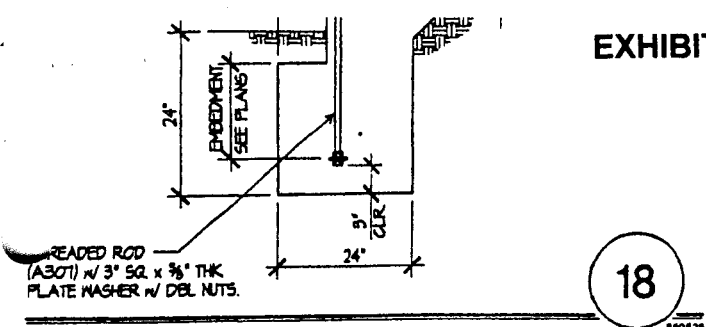
 - b. At what location(s) are "bullnose" corner beads required? _____

 - c. What type of Texture Finish is required? _____

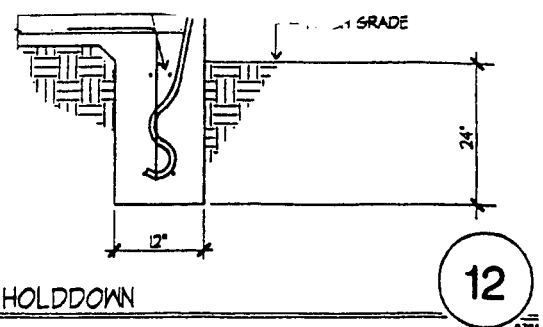
19. The Owner has requested various Telecommunication outlets be installed in the project. Using the appropriate symbols and the furniture layout (from Exhibits 4-8.1) mark the locations of the following information on Exhibit 4-8.2:
- a. Every bedroom shall have one (1) Video outlet, and one (1) Voice/Data outlet, both mounted 18" AFF.
 - b. Every living room shall receive one (1) combination Data/Video outlet mounted 18" AFF.
 - c. One (1) Voice outlet shall be mounted above the island countertop at 52" AFF.
20. The Owner has hired a consultant to review waterproofing issues, both as shown on the plans and the actual jobsite installations. In the Consultant's opinion the window installations are sub-par. His biggest concern is the sequence of installation of the self-adhering waterproofing membrane at the window jambs. Although the Consultant's installation sequence is different from the Contract Documents, the Owner would like you to adhere to it. To do this would require the removal and reinstallation of approximately 100 windows at various Buildings, some of which have been plastered. To remove and reinstall the windows, your subcontractor is asking for \$500 per window. Potential costs to replace windows damaged during the removal, or costs related to the plaster, are not included. The Owner has made it clear to you that he does not want to pay for this re-work. To make matters worse, your company's history has shown the existing installation sequence (which is shown on the Architect's drawings) has resulted in minimal leaks compared to the installation sequence being requested by the Consultant.

Please prepare a draft letter to your Owner stating your company's stance on this issue.

EXHIBIT 4-1



18

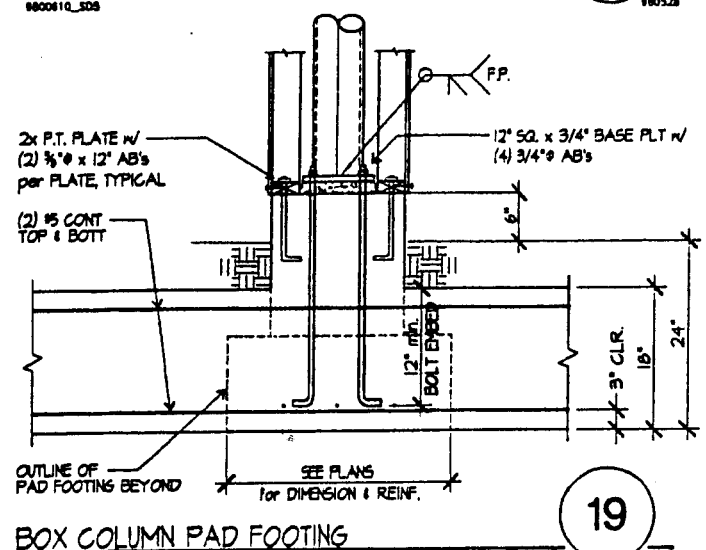


12

'MTT/HTT' HOLDDOWN

MTT-HTT

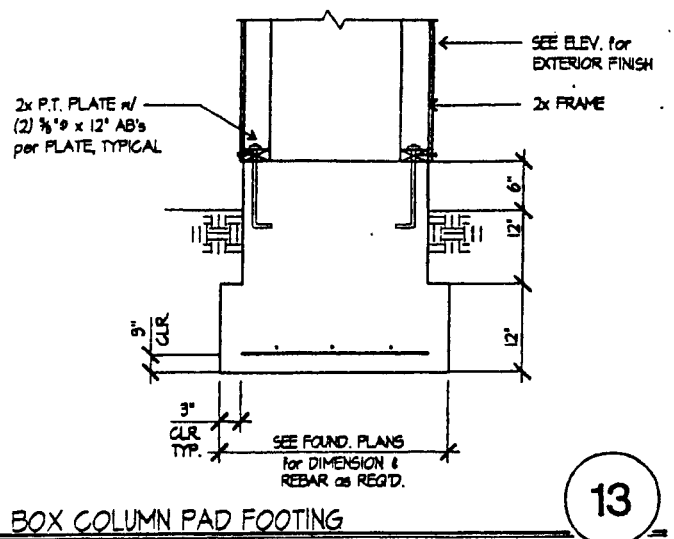
9704



19

BOX COLUMN PAD FOOTING

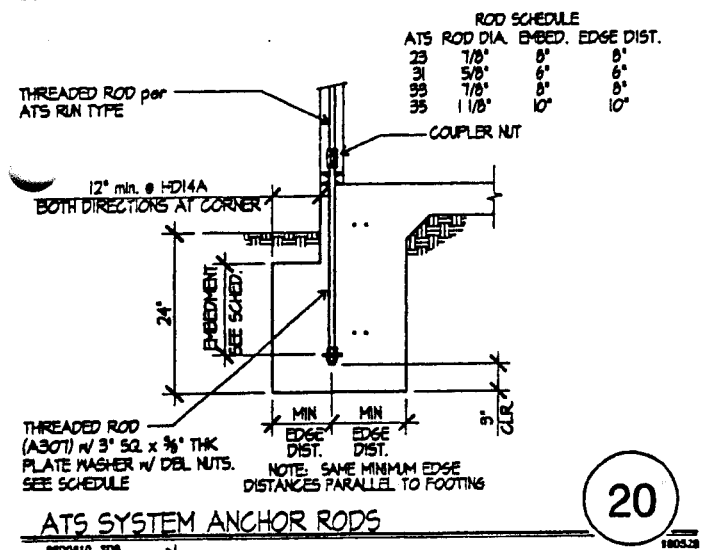
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13

BOX COLUMN PAD FOOTING

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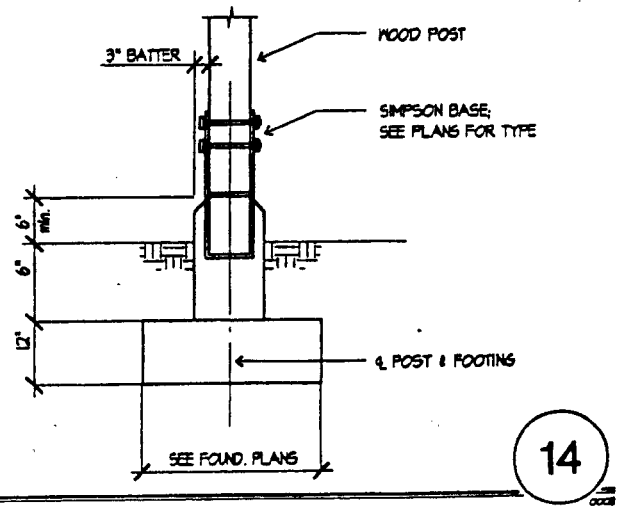


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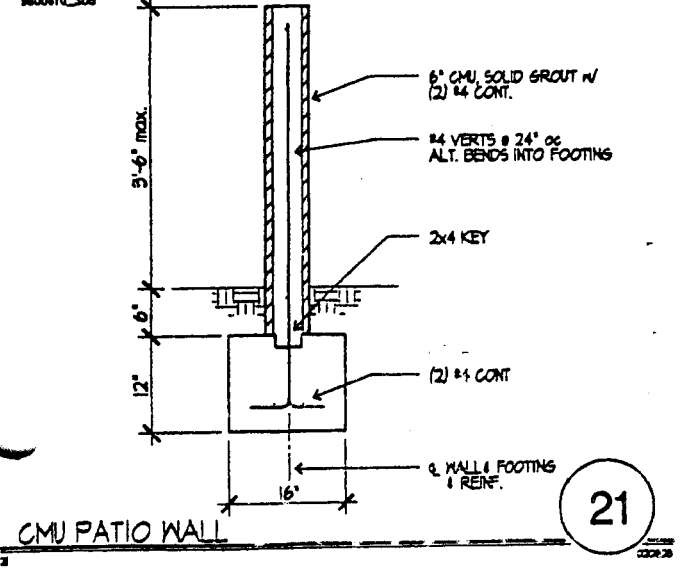
ATS SYSTEM ANCHOR RODS

9800410_308

1803.28



14

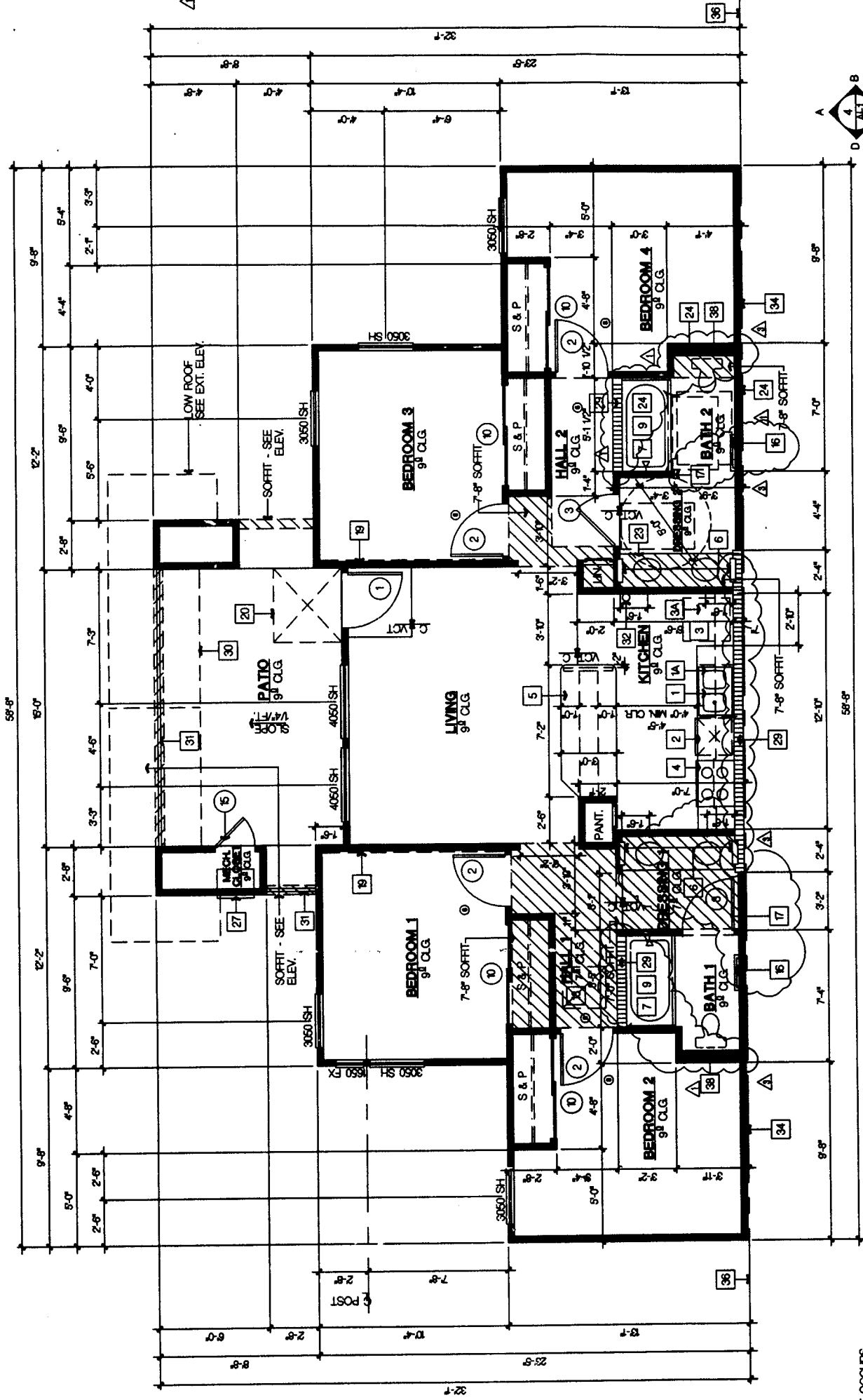


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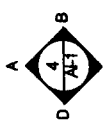
CMU PATIO WALL

00028

00028



SEE OCCUPERS

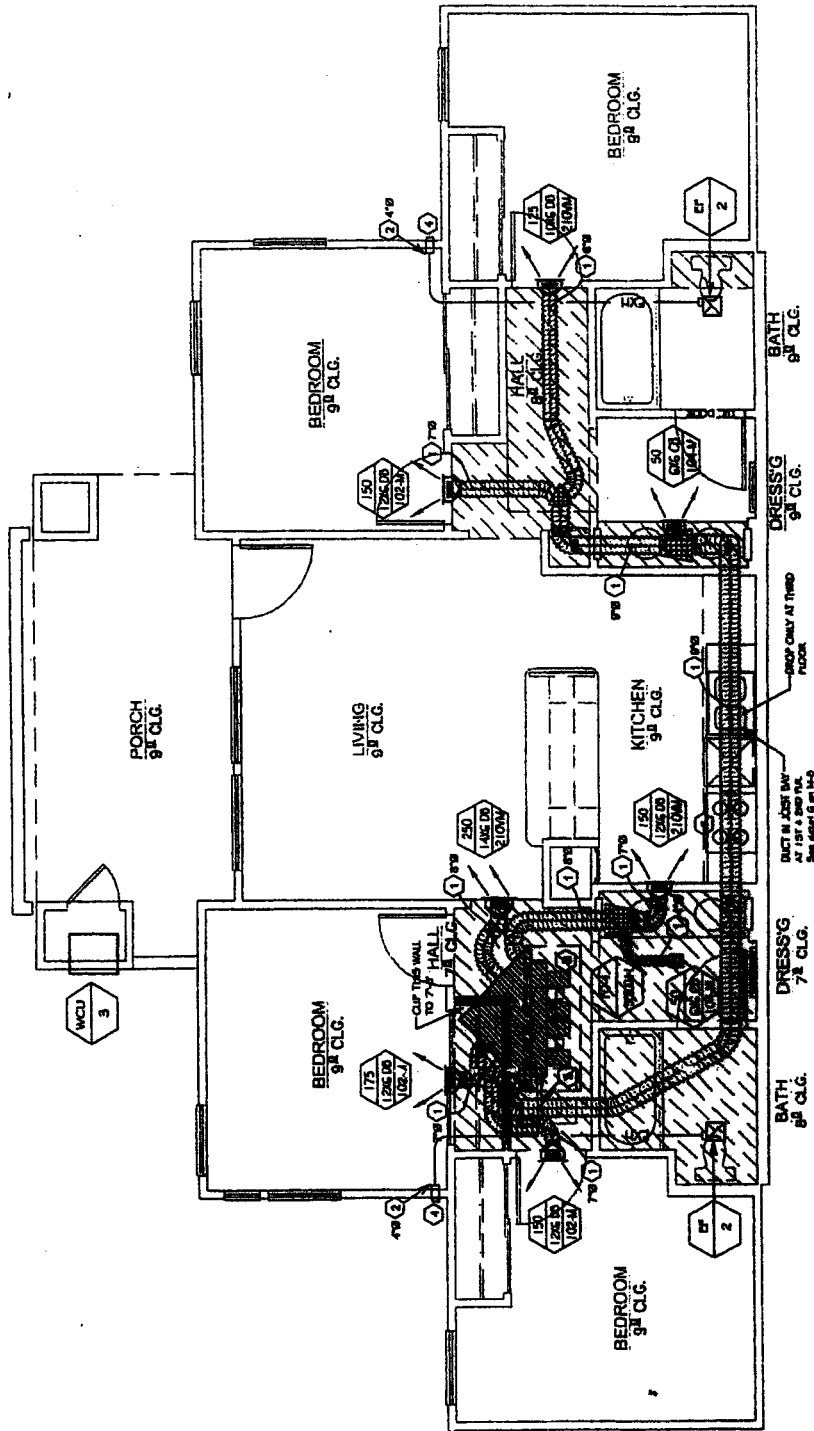


INTERIOR ELEVATIONS

ACCESSIBLE GROUND FLOOR UNIT 4A (ADAPTABLE)

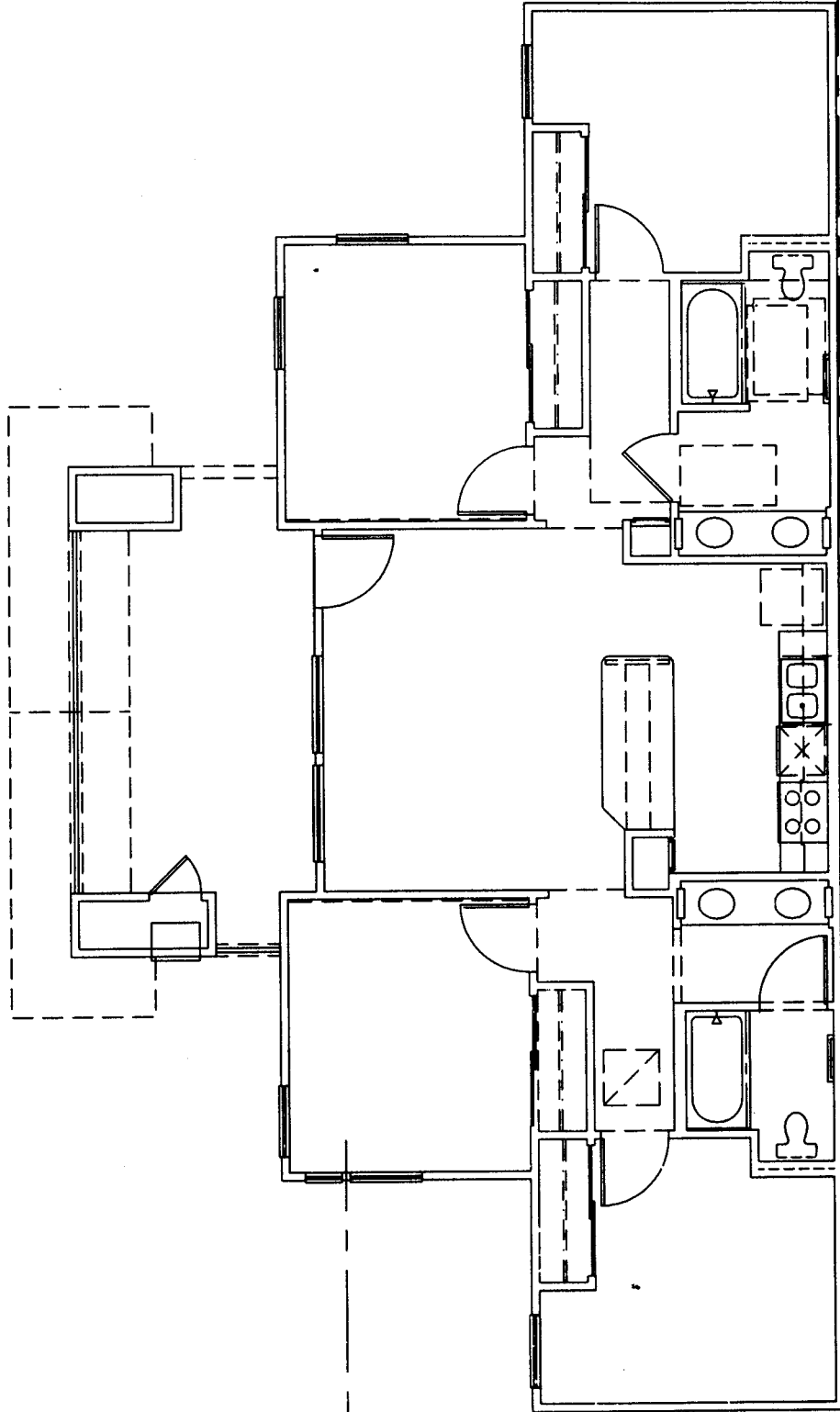
SCALE: 1/4" = 1'-0"

EXHIBIT 4-2.2

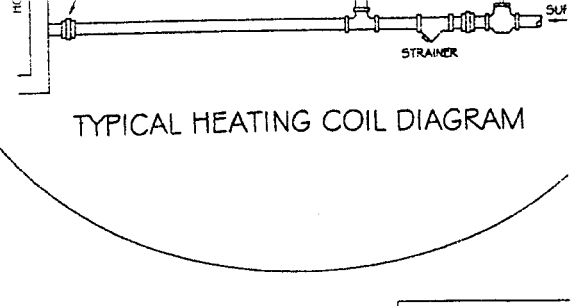
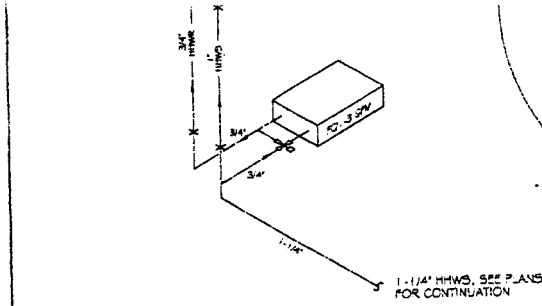
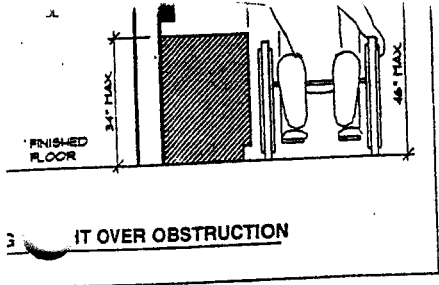


SCALE: 1/4" = 1'-0"

PLAN 4 FIRST FLOOR



IF OCCURS

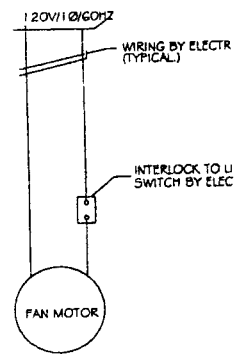
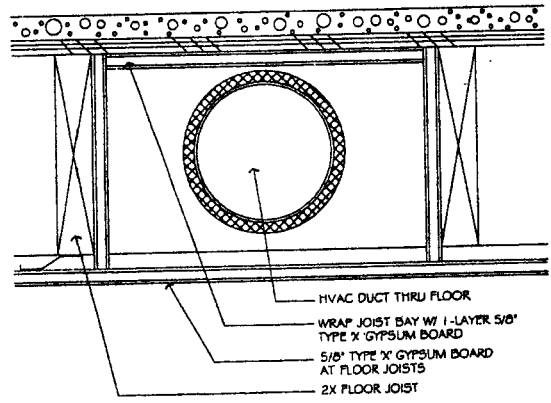
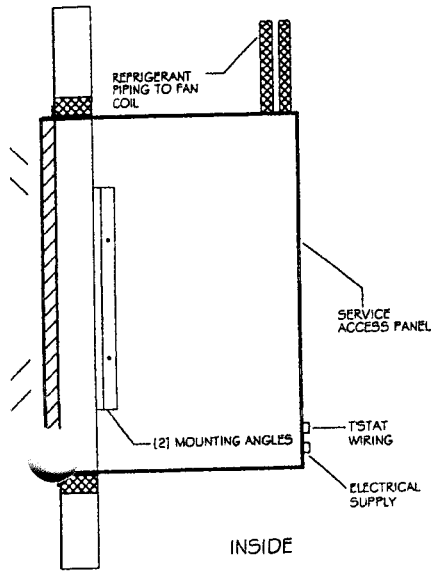


NOTE:
MECHANICAL CONTRACTOR TO
AND CIRCUIT SETTER FOR PLUMB
INTO BOILER LOOP.

STAT HEIGHT

(L)

TYPICAL HOT WATER SUPPLY AND RETURN DIAGRAM



HE-WALL CONDENSING UNIT

SCALE NONE

(H)

1-HOUR DUCT ENCLOSURE

SCALE NONE

(G)

EXHAUST FAN WIRING

FAN COIL	FRAMED ACCESS DIM.
18HBC-HWQ-E	24" X 55-3/4"
24HBC-HWQ-E	24" X 61-3/4"
30HBC-HWQ-E	24" X 69-3/4"
36HBC-HWQ-E	24" X 69-3/4"

PROVIDE AUTOMATIC SHUT-OFF SWITCH IN USE OF
RUNNING SECONDARY DRAIN LINE.

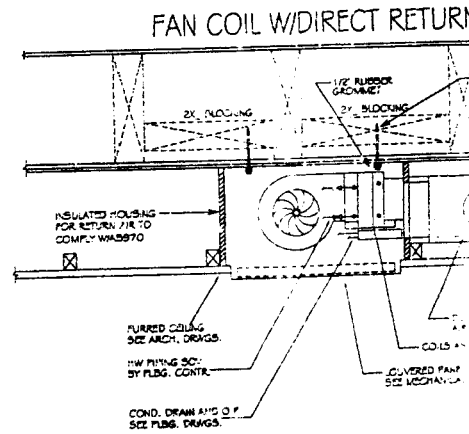
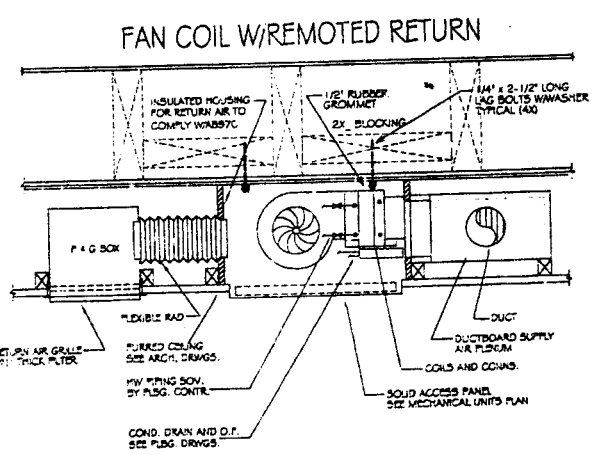
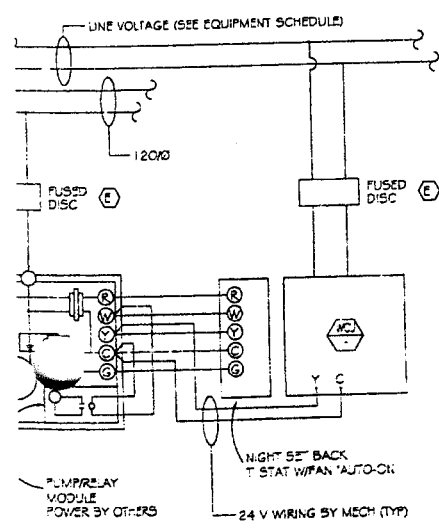
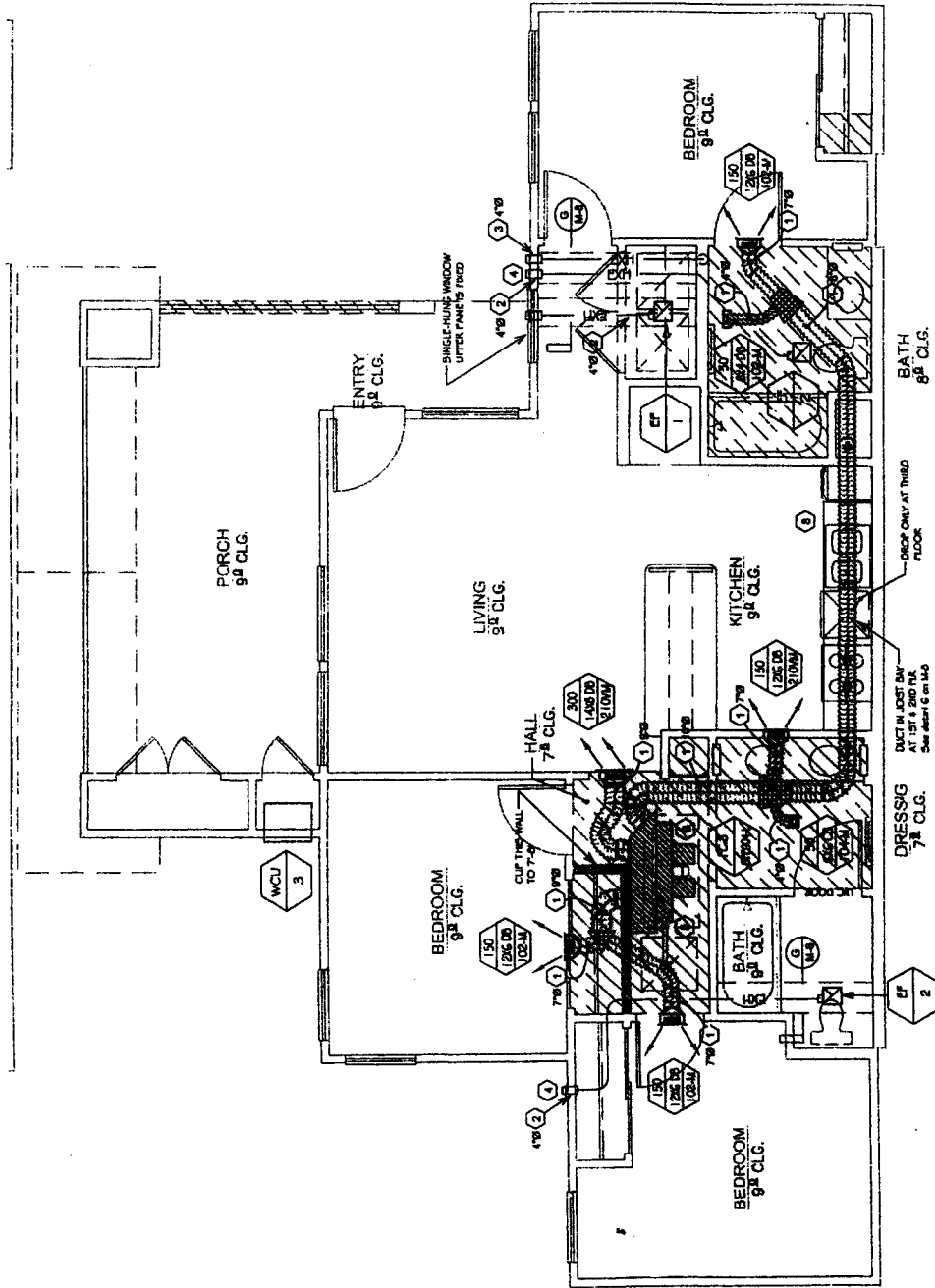
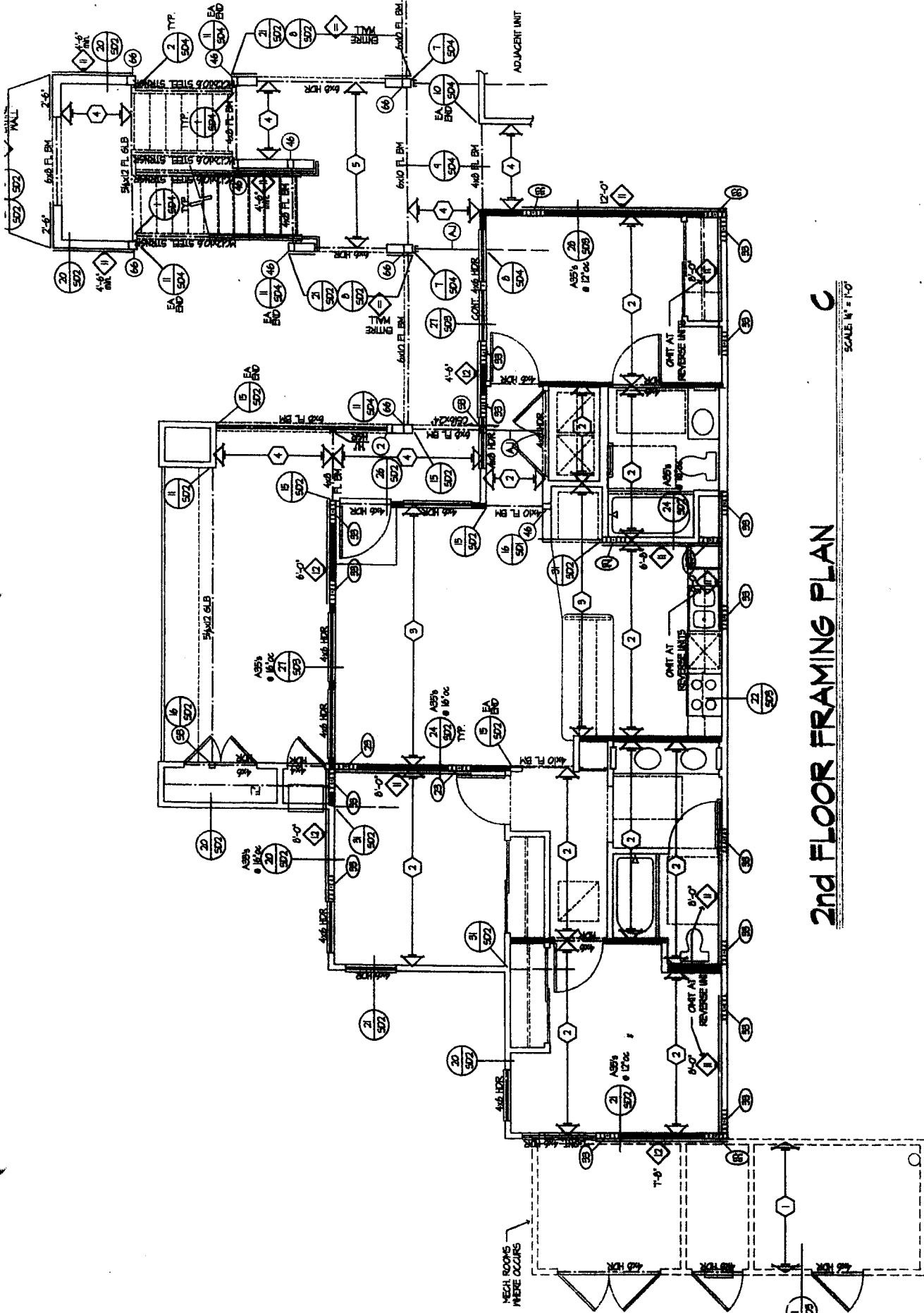


EXHIBIT 4-3.2





2nd FLOOR FRAMING PLAN

SCALE: 1/4" = 1'-0"

C

EQUIPMENT SHALL BE LISTED BY A RECOGNIZED TESTING LABORATORY.

TELEPHONE WIRE AND CABLE INSTALLATION, SPlicing, Rerouting, AND EQUIPMENT SHALL BE IN CONFORMITY WITH THE REQUIREMENTS AND SUBJECT TO APPROVAL OF THE SERVING COMPANY. SIZE TELEPHONE CABINETS TO HOUSE CABLING, SPlicing, AND WIRING. PROVIDE TELEPHONE CONDUIT SYSTEM SEPARATE AND INDEPENDENT FROM ALL OTHER SYSTEMS.

NON-CURRENT CARRYING METALLIC PARTS OF ALL ELECTRICAL VIT AND ENCLOSURES, INCLUDING CONDUITS, SUPPORTS, MOTOR FRAMES, SWITCHBOARD ENCLOSURES, CONTROL ETC., WHICH ARE INSTALLED OR CONNECTED UNDER THIS CONTRACT, SHALL BE PROPERLY GROUNDED BY CONNECTION TO THE BUILDING SYSTEM, REGARDLESS OF WHETHER OR NOT THESE CONNECTIONS ARE SHOWN ON THE DRAWINGS. THE GROUNDING INSTALLATION SHALL HAVE PROVISIONS FOR BOTH SYSTEM AND EQUIPMENT GROUNDS AS DEFINED BY THE "NEC" THESE GROUNDING SYSTEMS ARE TO BE EFFECTIVELY INSULATED FROM EACH OTHER EXCEPT AT THE SERVICE CONNECTION. GROUNDING SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF "NEC" AND THE "NESC". LOCAL REQUIREMENTS OF THE INSPECTION AUTHORITY HAVING JURISDICTION SHALL GOVERN IN ALL MATTERS OF INTERPRETATION. IF WATER SERVICE IS USED FOR GROUNDING POINT, IT SHALL BE ASCERTAINED THAT THE WATER PIPING IS ELECTRICALLY CONTINUOUS AT JOINTS AND IS OF CONDUCTING MATERIAL. WATER PIPING WITH SWEATED JOINTS IN ELECTRICAL PATH SHALL HAVE SUCH JOINTS BONDED. WHERE GROUND CABLES ENTER AND LEAVE FERROUS CONDUITS, THEY SHALL BE MECHANICALLY CONNECTED TO THE END OF THE RACEWAY. WHERE GROUND CABLE PASSES THROUGH FERROUS FLOORING OR FRAMING, CONNECTION SHALL BE MADE TO SUCH METAL.

CONTRACTOR SHALL KEEP ALL PARTS OF THE BUILDING AND SITE FREE FROM ANY ACCUMULATIONS OF RUBBISH OR WASTE MATERIALS USED BY HIS WORKMEN, AND SHALL REMOVE SUCH ACCUMULATIONS FROM THE BUILDING, SITE AND PROPERTY. JOB SITE SHALL BE CLEANED AT THE END OF EACH WORKING DAY.

THOROUGHLY CLEAN ALL PARTS OF THE EQUIPMENT AND MATERIAL STALLED UNDER THIS SECTION. SURFACES OF EXPOSED CONDUIT SHALL BE CLEANED OF CEMENT, PLASTER, DIRT, RUST, GREASE, AND OTHER FOREIGN MATTER, AND BE LEFT IN CONDITION SUITABLE TO THE CONTRACTOR AND ACCEPTABLE FOR PAINTING. EQUIPMENT FURNISHED WITHOUT SHOP APPLIED FINISH SHALL BE FIELD PAINTED. CONCEALED SURFACES OF METAL RACKS, FRAMES, AND BOXES SHALL BE PAINTED BEFORE MOUNTING. AFTER TESTS HAVE BEEN COMPLETED, CLEAN ALL LIGHTING FIXTURES AND EQUIPMENT WITH SOAP AND WATER, LEAVING EVERYTHING IN WORKING ORDER AT THE COMPLETION OF THE ELECTRICAL WORK.

WIRING AND CONNECTIONS SHALL BE TESTED FOR CONTINUITY, SHORTS, OPEN CIRCUITS, AND OTHER DEFECTS BEFORE ANY JOINTS OR FIXTURES ARE CONNECTED THEREON. CABLES SHALL BE CHECKED FOR CONTINUITY, SHORTS, INSULATION RESISTANCE, AND PROPER PHASING.

INSULATION SHALL BE TESTED BEFORE AND AFTER INSTALLATION, AND BEFORE ENERGIZING. RUBBER INSULATION SHALL BE TESTED FOR ACCEPTANCE BY APPLYING DIRECT CURRENT POTENTIAL NOT OVER 3 TIMES THE RATIO OF DIRECT CURRENT TO 60X OF EQUIVALENT RMS ALTERNATING CURRENT FACTORY TEST VOLTAGE FOR 5 MINUTES. VARNISHED CAMBRIC, PAPER, AND OTHER INSULATION SHALL BE TESTED IN THE MANNER DIRECTED BY AND UP TO THE LIMITS RECOMMENDED BY THE MANUFACTURER. INSULATION RESISTANCE SHALL BE TESTED BY MEGGER OF NOT LESS THAN 800 VOLTS OUTPUT FOR CIRCUITS 480 VOLTS AND LESS. ANY CIRCUIT SHOWING AN INSULATION RESISTANCE OF LESS THAN 1 MEGOHM SHALL BE INVESTIGATED AND THE WEAK POINT CORRECTED. RECTIFY OR REPLACE ANY CIRCUIT DEFECTIVE OR GROUNDED AND WIRE-BY-WIRE TEST.

ENTIRE SYSTEM SHALL BE PLACED IN PROPER OPERATING CONDITION.

OVERLOAD DEVICES SHALL BE ADJUSTED AND SET TO SUIT THE LOADS WHICH THEY CONTROL. LOADS ON ALL PARTS OF SYSTEMS SHALL BE BALANCED, INsofar AS IS PRACTICAL. ALL CHANGES SHALL BE MADE THAT ARE NECESSARY FOR ADJUSTING, SETTING AND BALANCING. PHASE ROTATION AT ALL BUSES, PANELS, SWITCHBOARD ETC., SHALL BE CHECKED TO SEE IF IT CONFORMS WITH RECOGNIZED STANDARDS. RELAY EQUIPMENT IN MEDIUM VOLTAGE SWITCHBOARD SHALL BE CHECKED OUT WITH LOAD SIMULATOR EQUIPMENT AND RELAY SETTING SHALL BE ADJUSTED TO PROVIDE COORDINATION WITH OTHER DEVICES IN THE LINE. GROUND TESTS SHALL BE MADE WITH THE 3 ELECTRODE "AC" OR "DC" VOLTAGE DROP METHOD TO ESTABLISH INITIAL READINGS FOR RECORDS, AND TO ASCERTAIN THAT THEY MEET DESIGN AND CODE REQUIREMENTS. CONTROL CIRCUITS SHALL BE CHECKED OUT FOR PROPER FUNCTIONING AND FAIL-SAFE QUALITIES. RECEPTACLES SHALL BE CHECKED OUT FOR CORRECT AND CONSTANT PHASE POSITION, AND GROUNDED RECEPTACLES SHALL BE TESTED FOR LOCATION AND EFFECTIVENESS OF GROUNDED PIN. LIGHTING SWITCHING SHALL BE TESTED FOR CORRECT OPERATIONS ESPECIALLY WHERE 3 AND 4 WAY OPERATION IS DESIGNATED. CONTROL DEVICES SUCH AS LIMIT SWITCHES, LEVEL CONTROLS, PRESSURE CONTROLS, THERMOSTATS, ETC., SHALL BE SET FOR OPERATING CONDITIONS. RUNNING LOADS OF MOTORS SHALL BE CHECKED AGAINST NAMEPLATE DATA. OVERLOADS SHALL BE REPORTED.

PARTMENT UNITS/BUILDINGS INTERIOR WIRING.

- ALL INTERIOR WIRING SHALL BE DONE IN ROMEX
- THE USE OF PLASTIC J-BOXES SHALL BE PERMITTED.

ITE LIGHTING, COMMUNITY CENTER, GRADUATE ACCILIARY BUILDING, UNDERGRADUATE ACCILIARY BUILDING AND MAINTENANCE BUILDING

ALL WIRING FOR THE COMMERCIAL BUILDINGS INDICATED ABOVE SHALL BE IN DONE CONDUIT AND COMPLY WITH THE NEC AND NOTES ABOVE FOR CONDUIT INSTALLATION

- ONLY METAL J-BOXES SHALL BE PERMITTED.

ABBREVIATIONS

IT ONLY.	MC	MOMENTARY CONTACT ACTION
LUTION PANEL	NEC	NATIONAL ELECTRICAL CODE.
AGENCY.	N/L	NIGHT LIGHT.
EXHAUST FAN	NIC	NOT IN CONTRACT
EXISTING	NIS	NOT TO SCALE.
FIRE ALARM	PNL	PANEL BOARD
FLUORESCENT.	PEC	PHOTO ELECTRIC CELL
GROUND	SA	SATIN ALUMINUM.
HORSEPOWER RATING	SSS	SATIN STAINLESS STEEL.
JUNCTION BOX	HQA	HAND OFF AUTOMATIC
KILO AMPERES	TEL	TELEPHONE
KILOWATT	TSC	TIME SWITCH CONTROL
KILO-VOLT AMP	TRANS	TRANSFORMER
LIGHTING	TL	TWIST-LOCK CONSTRUCTION

SYMBOLS REPRESENT EQUIPMENT AND OUTLET BOXES TO WHICH CONDUIT AND WIRE IS RUN FOR CONNECTION TO FIXTURES AND DEVICES.

GENERAL DESCRIPTION

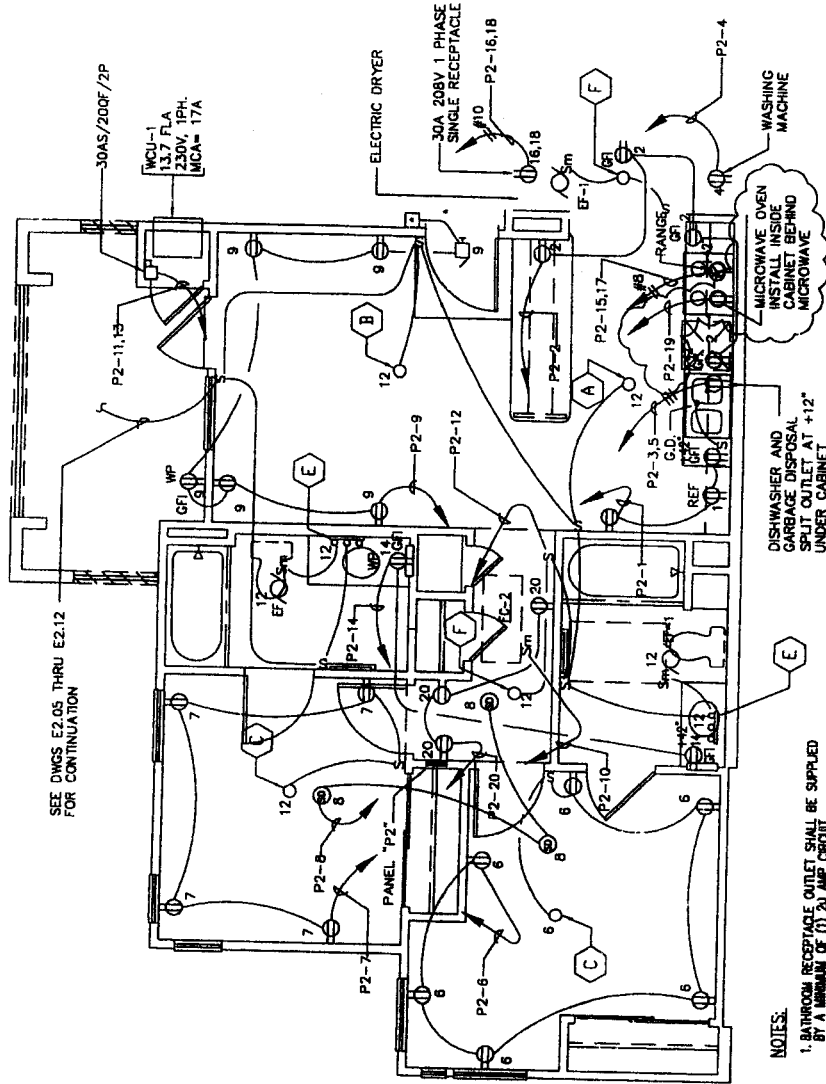
- 2'x4' FLUORESCENT LAMP FIXTURE
- FLUORESCENT LAMP FIXTURE WITH EMERGENCY BATTERY PACK
- 2'x2' FLUORESCENT LAMP FIXTURE
- 4' LONG FLUORESCENT LAMP FIXTURE
- FLUORESCENT FIXTURE MOUNTED ON CEILING SURFACE (USE 1-1/2" SPACERS ON COMBUSTIBLE CEILING)
- FLUORESCENT FIXTURE SUSPENDED BELOW CEILING (MOUNT AT DESIGNATED HEIGHT ABOVE FLOOR)
- FLUORESCENT FIXTURE RECESSED IN CEILING (SEE GENERAL NOTE #10)
- FLUORESCENT STRIP LIGHT WITH SEPARATE BALLAST (CONCEAL BALLAST IN ACCESSIBLE ENCLOSURE)
- REPRESENTS FIXTURE TYPE WITH EMERGENCY BATTERY PACK
- INCANDESCENT OR HID FIXTURE RECESSED IN CEILING (KEEP J-BOX ACCESSIBLE FROM WITHIN FIXTURE)
- INCANDESCENT OR HID, WALL WASH RECESSED FIXTURE (AIM AS DIRECTED)
- INCANDESCENT OR HID FIXTURE WALL MOUNTED (CONFORM HEIGHT OF OUTLET)
- RECESSED LOW VOLTAGE INCANDESCENT LIGHT FIXTURE WITH MR16 LAMP
- WELL LIGHT
- BOLLARD
- LOW LEVEL EXIT SIGN +7" AFF.
- LIGHTED EXIT SIGN, CEILING, WALL MOUNTED OR RECESSED (ARROW SHOWS DIRECTION TO LEGAL EXIT)
- LUMINAIRE ON POST TOP, SEE DETAIL (ANCHOR FIXTURE AGAINST ROTATION)
- INCANDESCENT CLUSTER OF ADJUSTABLE REFLECTOR LAMPS (AIM AS DIRECTED)
- DOUBLE SOCKET, SWIVEL BASE FLOOD LIGHT. (AIM AS DIRECTED)
- DOTTED SYMBOL IS EXISTING ITEM, OR FURNISHED BY OTHER (SEE SPECIFICATION FOR DIRECTIONS)
- STEP LIGHT
- TRACK WITH LIGHT FIXTURES
- EXTENSION CORD GROUNDED REEL LIGHT WITH 25' 3/16 SO CORD AND VAPOR PROOF HAND HELD LAMP.
- SWITCH, FLUSH IN WALL, TOGGLE, SINGLE-POLE S.T. +42" (SUBSCRIPT DENOTES UNIT CONTROLLED)
- SWITCH, FLUSH IN WALL, TOGGLE, TWO-POLE S.T. +42"
- SWITCH, FLUSH IN WALL, THREE WAY +42" (CONNECT TO MATING SWITCH FOR 3-WAY USE)
- SWITCH, FLUSH IN WALL, FOUR WAY +42" (CONNECT TO MATING SWITCHES FOR 3-4 WAY USE)
- SWITCH, FLUSH IN WALL, KEY OPERATED
- SWITCH, FLUSH IN WALL, MOMENTARY CONTACT, A.P.S.T.
- SWITCH, FLUSH IN WALL, WITH PILOT LIGHT (ENGRAVE PLATE WITH ITEM CONTROLLED)
- TIMER SWITCH
- JUNCTION BOX, WITH COVER
SIZE PER CODE SECTION 370-6 AND 370-18 (MINIMUM 4" SQUARE)
4" x 1-1/4" SQUARE 8 1/2 CU.
4" x 1-1/2" SQUARE 9 1/2 CU.
4" x 2-1/8" SQUARE 13 1/2 CU.
4-11/16" x 1-1/4" SQUARE 11 1/2 CU.
4-11/16" x 1-1/2" SQUARE 13 1/2 CU.
4-11/16" x 2-1/8" SQUARE 18 1/2 CU.
- JUNCTION BOX, WALL MOUNTED, WITH COVER, +15" (CONFORM LOCATION, SEE GEN. NOTE #9)
- JUNCTION BOX, FLUSH IN FLOOR, ADJUSTABLE HEIGHT COVER (SUBSCRIPTS: M=METAL, P=PROJECTOR, C=CONTROLS)
- JUNCTION BOX, FLUSH IN FLOOR, ADJUSTABLE HEIGHT COVER (WITH 90 CLOSE ELBOW AND FLUSH FLOOR COUPLING)
- JUNCTION BOX, FOR DATA OUTLET.
- JUNCTION BOX IN FLOOR FOR CONNECTION TO OUTLETS IN PREWIRED PARTITION WALLS.
- DUPLEX RECEPTACLE, FLUSH IN FLOOR, W.T. J-BOX (HUNGED BRASS COVER: 15 AMP, 120 VOLT)
- SINGLE RECEPTACLE, FLUSH IN WALL, GROUNDING TYPE +15" (15 AMP, 120 VOLT, COVER PLATE SPECIFIED)
- DUPLEX RECEPTACLE, FLUSH IN WALL, GROUNDING TYPE +15" (15 AMP, 120 VOLT, COVER PLATE SPECIFIED)
- DOUBLE DUPLEX RECEPTACLE, FLUSH IN WALL (15A, 120V.)
- DUPLEX RECEPTACLE, MOUNTED AT CEILING, (FOR SHOW WINDOW CONNECTION 20A, 120V, 3W)
- DUPLEX RECEPTACLE, WITH GROUND FAULT INTERRUPTER (15 AMP, 120 VOLT, 3W)
- SHADING DENOTES ONE-HALF RECEPTACLE SWITCHED +15" (MARK PLATE WITH ROUND RED DOT)
- POWER RECEPTACLE, MULTI-POLE, NEUTRAL & GROUND (ENGRAVE PLATE WITH VOLTAGE)
- POWER RECEPTACLE, IN SURFACE BOX, MTD. +15" (15A, 120V.)
- DUPLEX RECEPTACLE, WITH ISOLATED GROUND
- MULTI-OUTLET ASSEMBLY
- EXTENSION CORD REEL RECEPTACLE WITH 3/16 SO CORD AND 15 AMP, 120 VOLT RECEPTACLE.
- CABLE TRAY
- TRANSIENT VOLT SUPPRESSION SYSTEM
- FIELD INSTALLED DEVICE PANEL, PROVIDE 75VA 120V POWER FOR EACH UNIT

MOUNTING HEIGHTS IN SYMBOL LIST APPLY UNLESS OTHERWISE NOTED ON DRAWINGS.

GENERAL DESCRIPTION

- CONDUIT STUB-UP WITH COUPLING FLUSH IN FLOOR (TO PERMIT FUTURE REMOVAL)
- CONDUIT RUN EXPOSED, ALIGN WITH STRUCTURE (ATTACH TO SUPPORTS' NOT TO EXCEED SFT. APART)
- CONDUIT CONCEALED IN OR UNDER FLOOR; OR UNDERGROUND (CONFORM DEPTH; GRADE TO DRAW INTO PULL BOXES)
- 3/4" CONDUIT WITH 2#12 WIRES
- 3/4" CONDUIT WITH 3#12 WIRES
- 3/4" CONDUIT WITH 4#12 WIRES
- 3/4" CONDUIT WITH 5#12 WIRES
- 1" CONDUIT WITH 6#12 WIRES
- NUMBER INDICATES GAUGE OF WIRE IN CODE SIZED CONDUIT.
- CONDUIT-ONLY WITH #12 TW COPPER PULL-WIRE (3/4" MINIMUM SIZE, UNLESS NOTED OTHERWISE)
- HOMERUN TO CIRCUITS #1 & #3 NO PANEL "A" (CROSSMARKS INDICATE NUMBER OF WIRES)
- CONDUIT DROPPING DOWN FROM RUN
- CONDUIT RISING UP FROM RUN
- GROUND CONNECTION WITH ACCESSIBLE CLAMP (TO COLD WATER PIPE OR DRIVEN GROUND ROD)
- UFER GROUND
- CONDUIT FOR TELEPHONE SYSTEM
- 3/4" C.O. FOR DATA OUTLET
- CONDUIT FOR FIRE ALARM SYSTEM
- RACEWAY ON SURFACE WITH DEVICES AS INDICATED (CONFORM HEIGHT, PAINT TO MATCH WALL)
- BUZZER IN FLUSH BOX, CONFORM HEIGHT
- BELL SURFACE OR RECESSED AS DESCRIBED (SUBSCRIPT DENOTES BELL DIAMETER INCHES)
- COMBINATION VOICE/DATA OUTLET FLUSH IN WALL MOUNT +15" AFF. OR AS NOTED. PROVIDE 3/4"C.O. FROM OUTLET INTO ACCESSIBLE FLOOR SPACE AND CAP.
- COMBINATION VOICE/DATA OUTLET IN MODULAR FURNITURE.
- VOICE OUTLET FLUSH IN WALL MOUNT AT +15" AFF. FOR 25 P.A. PROVIDE AND INSTALL 1" C.O. FROM OUTLET INTO ACCESSIBLE FLOOR SPACE AND CAP.
- VOICE OUTLET FLUSH IN WALL MOUNT AT INDICATED HEIGHT.
- VOICE OUTLET FLUSH IN WALL, FOR PAY PHONE.
- DATA OUTLET FLUSH IN WALL MOUNT AT +15" AFF. OR AS NOTED. PROVIDE 3/4"C.O. FROM OUTLET INTO ACCESSIBLE FLOOR SPACE AND CAP.
- VOICE CABLE IN CONSOLE.
- DATA CABLE IN CONSOLE.
- FLOOR VOICE OUTLET.
- FLOOR DATA OUTLET.
- DISCONNECT SWITCH AND FUSE.
- CIRCUIT BREAKER OF POLES, VOLTS, TRIP-AMPS NOTED (CONFORM INTERRUPTING CAPACITY NEEDED)
- TERMINAL CABINET WITH HINGED DOOR, LOCK BARRIERS (PROVIDE TERMINALS & 3/4" PLYWOOD BACKBOARD)
- TERMINAL BOARD OF 3/4" THICK PLYWOOD ON WALL (SIZE AS NOTED, PAINT TO MATCH WALL)
- TELEVISION CABLE OUTLET, FLUSH IN WALL +12" (SEE SPECS. FOR JACK & TERMINATING IMPEDANCE)
- CLOCK OUTLET, FLUSH IN WALL, CONFORM HEIGHT (MASTER CONTROLLED 120 VOLT 60 CYCLE SYNCHRONOUS)
- PUSH-BUTTON FLUSH IN WALL, MOMENTARY CONTACT (ENGRAVE PLATE DESCRIBING PURPOSE)
- INCANDESCENT LAMP DIMMER, 1500W OR AS NOTED (LUTRON NOVA Y SERIES)
- LOW VOLTAGE LAMP DIMMER (LUTRON MMV-1000 WITH ELV1-1000)
- FLUORESCENT LAMP DIMMER (LUTRON I), 1500VA OR AS NOTED (LUTRON FDB SERIES) TO BE USED WITH H-LUMINE DIMMING BALLAST
- COMPACT FLUORESCENT LAMP DIMMER (LUTRON I), 1500VA OR AS NOTED (LUTRON FDB SERIES) TO BE USED WITH H-LUMINE DIMMING BALLAST
- VOLUME CONTROL L-PAD, FLUSH IN WALL +42" (ENGRAVE PLATE)
- MICROPHONE OUTLET, 3-POLE, RECESSED, LOCKING TYPE (PROVIDE MATING PLUG)
- THERMOSTAT, OUTLET, WALL MOUNTED, +10" (LOCATE SYMMETRICALLY WITH OTHER DEVICES)
- PULL BOX WITH SCREW HELD METAL COVER PLATE (DIMENSIONS & CODE-SIZED UNLESS NOTED)
- CARBON MONOXIDE SENSOR.
- METHANE DETECTOR
- SECURITY SPEAKER
- BRANCH PANELBOARD, WALL MOUNTED, SEE SCHEDULE
- DISTRIBUTION SUB-SWITCHBOARD, SEE SCHEDULE
- MAIN SWITCHBOARD, POWER OR LIGHT, FLOOR STANDING, ENCL. (SEE ONE LINE DIAGRAM & LOAD SCHEDULE)
- CONTROL PANEL WITH DEVICES SHOWN OR DESCRIBED (MOUNT DEVICES INDEPENDENT FROM HINGED COVER)
- MOTOR STARTER WITH THERMAL OVERLOADS (POLES, NOTED, HORSEPOWER RATED)
- MANUAL MOTOR-STARTER, MAGNETIC, THERMAL OVERLOADS, 3-P (PROVIDE AUXILIARY CONTACTS & CONTROL TRANSFORMER)
- STOP-START PUSH-BUTTON WITH PILOT LIGHT
- DISCONNECT SWITCH, MANUAL, EXC. H.P. RATED ("F" MEANS FUSED TO AMPERE RATING MARKED)
- FAN CEILING OR WALL MOUNTED (SUPPORT FROM REINFORCED BRACKET PLATE)
- OUTLET FOR MOTOR; CONFORM DIRECTION OF ROTATION (PROVIDE FLEXIBLE CONNECTION TO J-BOX +42W MOTOR)

EXHIBIT 4-4



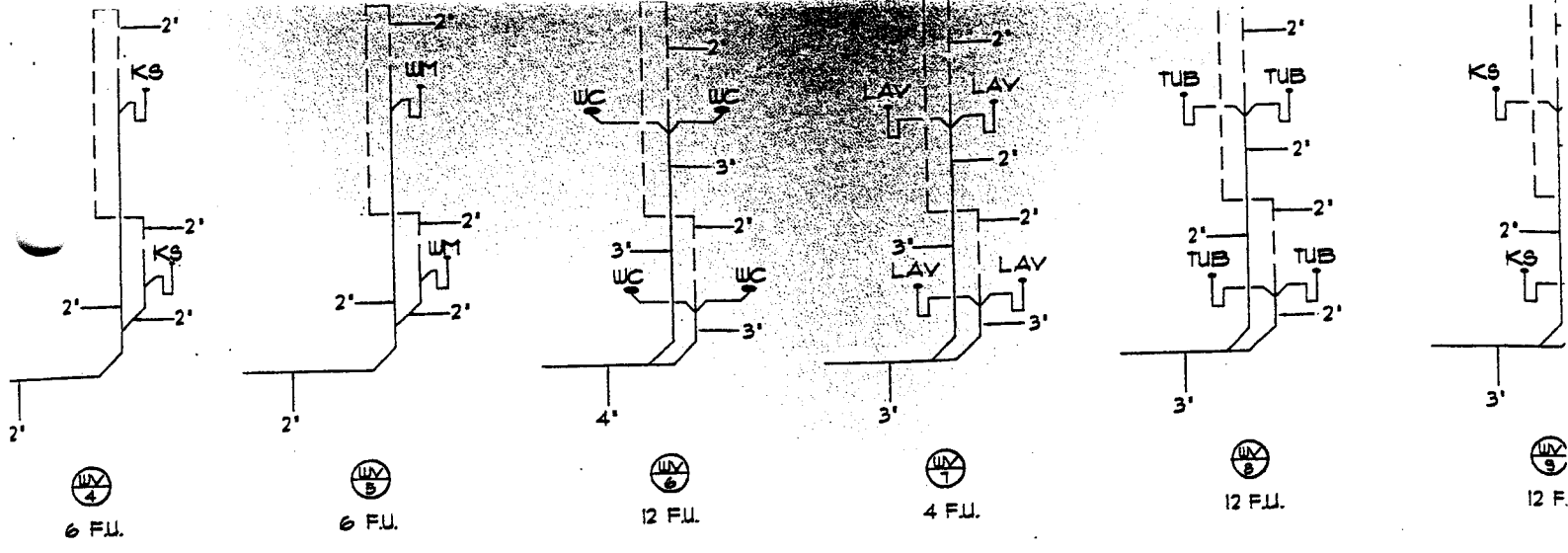
SEE DWGS E2.05 THRU E2.12 FOR CONTINUATION

NOTES:

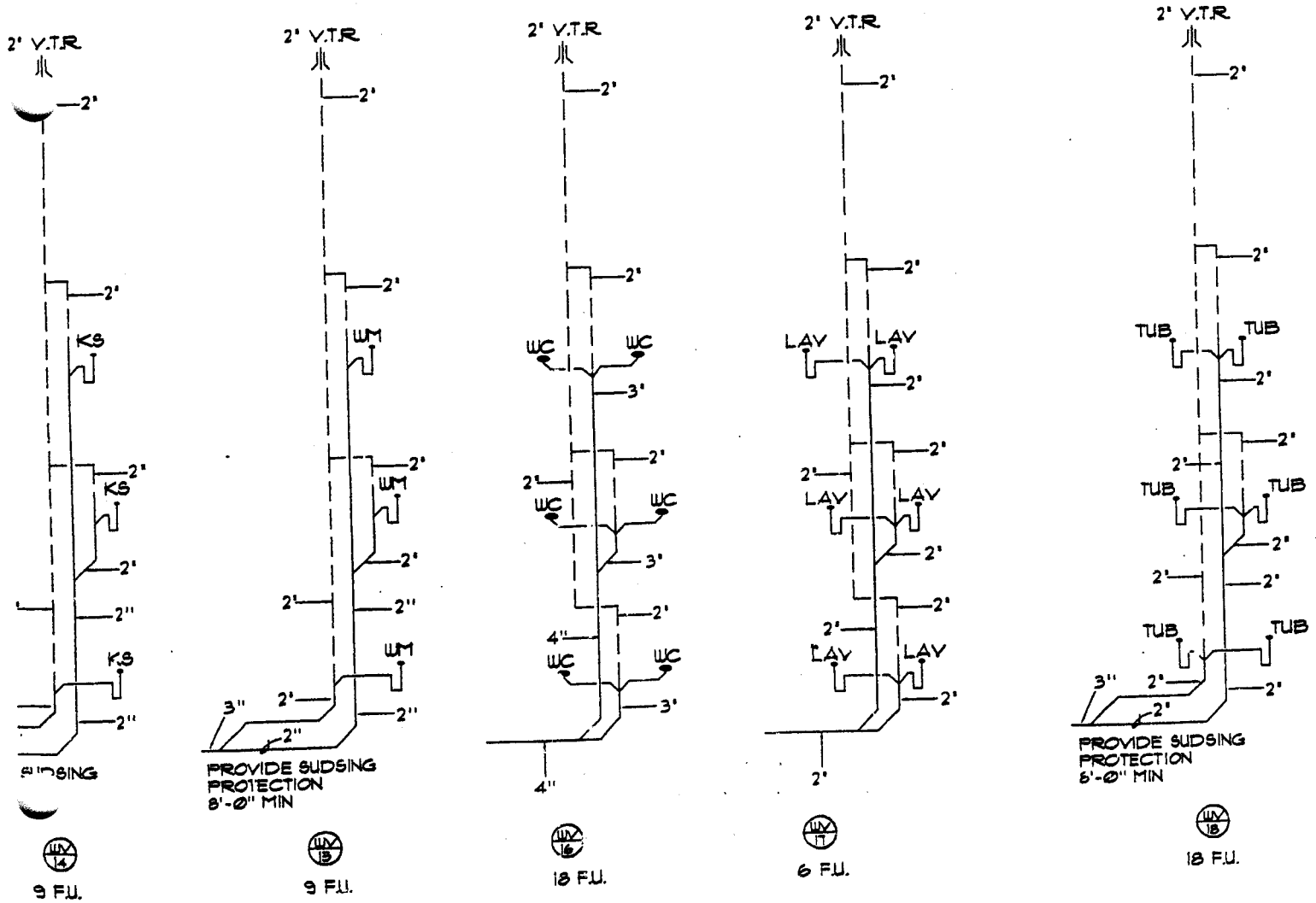
1. BATHROOM RECEPTACLE OUTLET SHALL BE SUPPLIED BY A MINIMUM OF (1) 20 AMP CIRCUIT.
2. PROVIDE SWITCH ABOVE COUNTER TO CONTROL KITCHEN LIGHTS AND ALL LOCATIONS. VERIFY LOCATIONS OF HANDICAP UNITS WITH ARCHITECT.
3. ALL TELEPHONE CABLE WITHIN UNITS & HOME RUNS TO BACKBOARD TO BE PAR CAT 3.
4. PER NEC (99) 210-12, PROVIDE ARC-FAULT CIRCUIT INTERRUPTER ON ALL OUTLETS IN DWELLING UNIT BEDROOMS.
5. PROVIDE STROBE ON ALL UNIT SMOKE DETECTORS IN 8 HANDICAP UNITS. VERIFY LOCATION OF HANDICAP UNITS WITH ARCHITECT.

30AS/25AF/7P

UNIT "P2"



NOTE: PROVIDE FOR SUDSING ON ALL THREE STORY KITCHEN SINKS, TUBS, & WASH. MACHINES
WASTE & VENT RISER DIAGRAMS



SECTION 09250

GYPSUM WALLBOARD

PART 1 - GENERAL

1.01 DESCRIPTION: Division 1 applies to this Section. Provide gypsum wallboard complete as indicated, specified, and required.

A. **Work In This Section:** Principal items include:

1. Gypsum wallboard finish on walls and ceilings.
2. Interior tile backer board.
3. Joint, edge, corner, and fastener finishing.
4. Sound insulation in gypsum wallboard partitions.
5. Sound and airsealing Work of this Section.
6. Skimcoat finish where scheduled.
7. Elevator shaft wall system.

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B. **Related Work Not In This Section:**

1. Wood stud support framing.
2. Thermal insulation.
3. Painting.

BENCHMARK

1.02 SUBMITTALS: Refer to Section 01300 for procedures.

A. **Product Data:** Submit covering wallboard installations, including accessories, finishing, sealing, and manufacturer's written installation instructions with copies of Code approvals for each wall, ceiling, and shear wall system.

B. **Samples:** Submit such Samples as Owner and/or Architect may request.

1.03 JOB CONDITIONS: Make a detailed inspection of areas and surfaces to be enclosed or covered by gypsum drywall and arrange for correction of defective workmanship or materials. Ascertain that other Work enclosed by drywall has been inspected and approved before starting installation; otherwise, uncover as directed at no extra cost to Owner.

PART 2 - PRODUCTS






















2.01 MATERIALS:

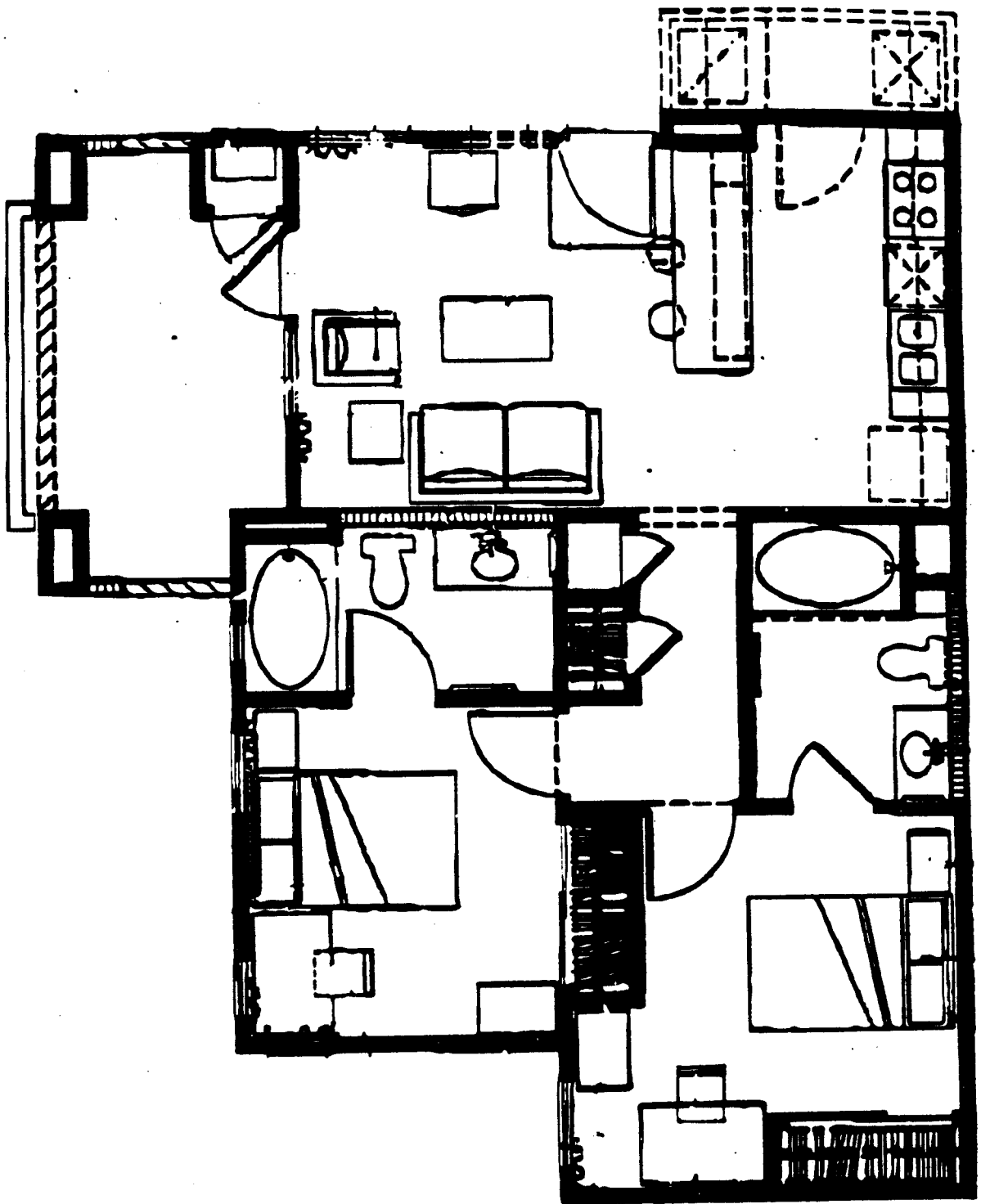
A. **Gypsum Wallboard:** ASTM C36, provide 5/8" Type X gypsum board, tapered edges for exposed surfaces, regular grade by the Code. For walls in toilets and bathrooms, and where indicated, provide Type W/R or Type X W/R water resistant boards as required by the jurisdiction and where recommended by the Gypsum Association.


BENCHMARK

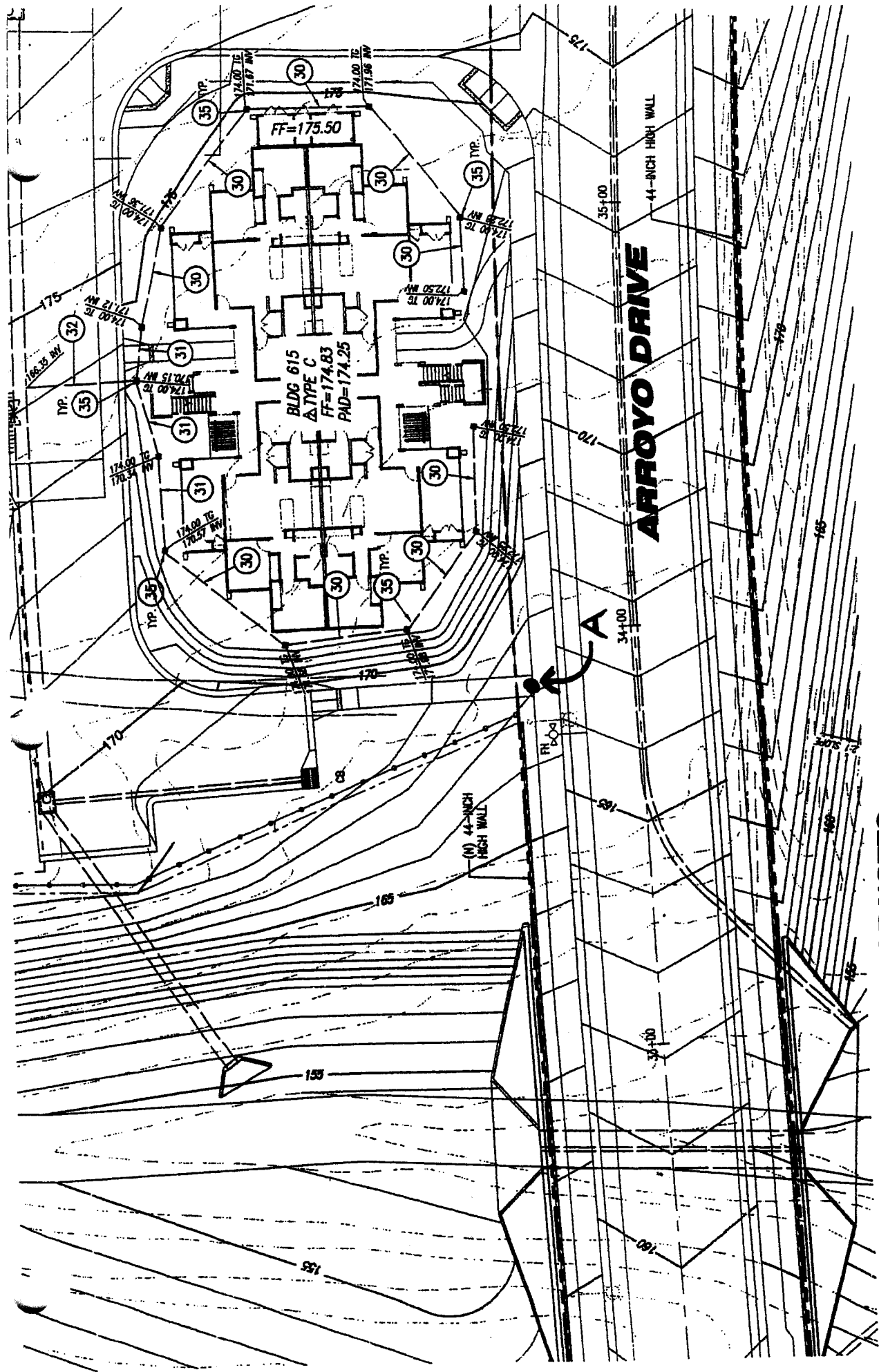
- D. Openings:** Accurately cut and fit the wallboard at openings. At door and other openings, cut wallboard to continue across area above opening head; do not cut board to both jambs and fill in area over openings with separate pieces. Make the dimension from joint over head of an opening to jamb of openings 6" minimum. Stagger joints on opposite side of partition. Maximum opening around electrical outlets 1/8" calked.
- E. Single Layer Walls:** Place wallboard horizontally with long dimension across the studs or in one-piece vertical heights, vertical joints centered on supports and staggered on walls so as not to occur on opposite sides of same stud. Secure to each stud and tack with screws keeping screws 3/8" from edges.
- F. Multi-Layer Walls:** Apply first layer same as for single layer walls, all joints in subsequent layers staggered with respect to first layer.
- G. Ceilings:** Apply wallboard with long dimension at right angles to the framing, end joints staggered and centered over framing. Use boards of maximum practical length to minimize end joints and properly support around cutouts and openings. Secure with screws or nails.
- 3.02 JOINT TREATMENT AND FINISHING:** Apply tape bedding compound, tape, and at least three coats of finishing cement on exposed joints, and other joints as required for sound insulating or fire-rated construction. Apply joint cement and two or more layers of finishing cement over screw or nail heads. Treat all inside corners with joint cement, tape, and finishing cement. Treat all outside corners with corner beads and finishing cement. Provide metal casing beads at all edges of gypsum wallboard which abut ceiling, wall, or column finish, and elsewhere as required, such as openings, offsets, etc. Make all exposed joints, trims, and attachments non-apparent following application of paint or other finishes; if the joints and fasteners are apparent, correct defects as directed with no extra cost to Owner. Seal the raw edges of plumbing openings and of boards that have been cut to fit with manufacturer's recommended sealant brushed on. When entire installation is completed and prior to installation of finish materials by other trades, correct and repair broken, dented, scratched, or otherwise damaged wallboard surfaces.
- 3.03 AIR SEALING:** Seal connections between shaft walls, ducts, plenums, and building structure airtight with specified calking compound or tape and cement, including vertical shafts.
- 3.04 SOUND INSULATED PARTITIONS:** Install sound insulation continuously between studs from finish floor to top of wall in which it occurs. Where cutouts are made for J-boxes, conduit, piping, and like items, back wall insulation with insulation so that one additional layer of insulation at least 24" wide and high is placed in back of cutout. Snugly fit in place free of gaps or holes. Calk between the wallboard edges and floors, walls, and at structures above other than acoustical ceilings with calking compound, forming a complete perimeter seal. Calk around outlet boxes and other penetrations in same manner. Where resilient channels occur a separate fastener will attach the RC channel to the framing member. The gypsum wallboard will be attached to the RC channel and will at no time fasten directly to a framing member.

VOICE, DATA & VIDEO SYMBOLS

	VOICE OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE
	VOICE OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE. X-NUMBER OF CABLE TERMINATIONS PER LOCATION AS INDICATED
	VOICE OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +52" A.F.F. UNLESS NOTED OTHERWISE
	VOICE OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +8" ABOVE COUNTER OR SPLASH UNLESS NOTED OTHERWISE
	PUBLIC TELEPHONE OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED HEIGHT AS SPECIFIED
	VOICE OUTLET, NO INSTRUMENT, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE
	VOICE OUTLET, KEYNOTE (1) APPLIES
	POWER/COMMUNICATIONS POLE WITH X-NUMBER OF VOICE TERMINATIONS PER LOCATION
	VOICE OUTLET, CABLE TYPE AS SPECIFIED, FLUSH FLOOR MOUNTED
	VOICE OUTLET, CABLE TYPE AS SPECIFIED, SURFACE MOUNTED MONUMENT
	DATA OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE
	DATA OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE. X-NUMBER OF CABLE TERMINATIONS PER LOCATION
	DATA OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +8" ABOVE COUNTER OR SPLASH UNLESS NOTED OTHERWISE
	DATA OUTLET, KEYNOTE (1) APPLIES
	POWER/COMMUNICATIONS POLE WITH X-NUMBER OF DATA TERMINATIONS PER LOCATION
	DATA OUTLET, CABLE TYPE AS SPECIFIED, FLUSH FLOOR MOUNTED
	DATA OUTLET, CABLE TYPE AS SPECIFIED, SURFACE MOUNTED MONUMENT
	VOICE AND DATA OUTLET WITH 1 VOICE RUN AND 1 DATA RUN, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE.
	VOICE AND DATA OUTLET WITH X-NUMBER OF VOICE TERMINATIONS AND Y-NUMBER OF DATA TERMINATIONS, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE
	VOICE AND DATA OUTLET WITH 1 VOICE RUN AND 1 DATA RUN, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE.
	VOICE AND DATA OUTLET, CABLE TYPE AS SPECIFIED, MOUNTED +8" ABOVE COUNTER OR SPLASH UNLESS NOTED OTHERWISE

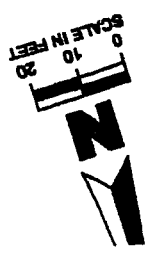


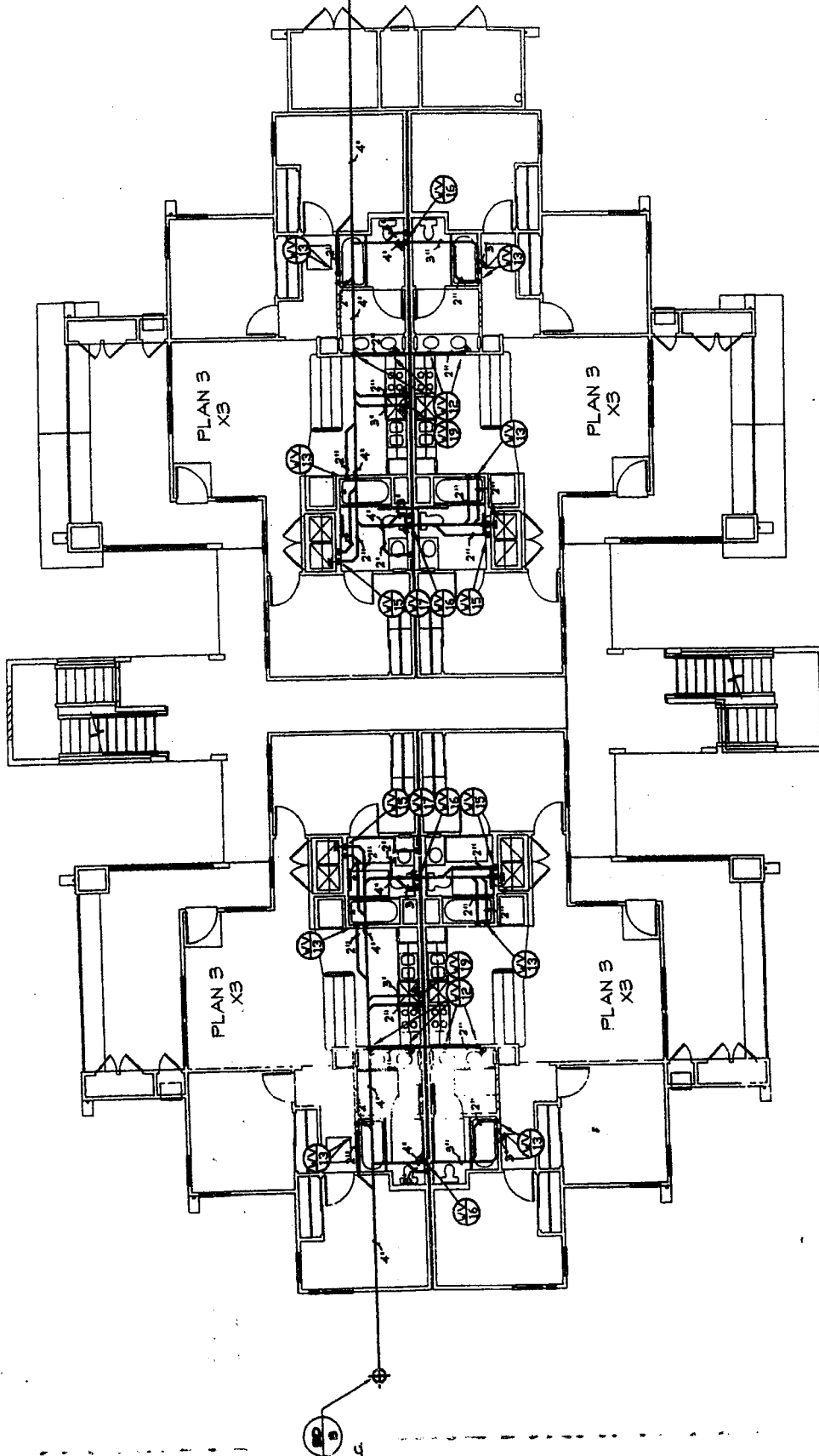
Type	Description	Manufacturer	Catalog /	Lamp Qty.	Lamp Type	Max. Watt.	Volts	Max. HL	Remarks
Not used									
WDF1	Recessed compact fluorescent steplight with integral ballast	Lightech or approved equal by: Bego AAL	SL-8160-PL13-(Inch)	1	Philips PL-S 13/827	15	120		Buildings Finish TBD.
WDF2	Recessed compact fluorescent steplight with integral ballast and emergency battery pack	Lightech or approved equal by: Bego AAL	SL-8113-PL13-battery pack	2	Philips PL-S 13/827	30	120		Community center Finish TBD. 
WDF3	Recessed compact fluorescent steplight with integral ballast	Lightech or approved equal by: Bego AAL	SL-8105-PL13-	1	Philips PL-S 13/827	15	120		Community Center Pool Finish TBD.
WDF4	Indirect/semi-indirect two-lamp trackcase wall-mount	Cerulite or approved equal by: Stalite Prudenital	AW-Sp-TR-2-C-(volts)-SU-WA-DB	4 per ft run	Philips F32T8/850	124	120		Community Center Study Rooms
Dimming controls for Clubhouse									
	Provide four-scene preset wall box dimming system for rooms with dimming	Lightech or approved equal by: Lutron Lutron	Multisite/Multiset Pro Series						Dimmer banks for each room should have multi-ganged face plates
A	Surface-mounted linear fluorescent with wrap-around lens, integral electronic ballast	Energycon or approved equal	Floating Cloud 15213-218	2	Philips F32T8/830	64	120		Kitchen
B	Surface-mounted compact fluorescent decorative luminaires with frosted diffuser, brushed nickel finish and an electronic ballast	Teron or approved equal	Thousand Oaks TDS213E-8N-120V-W/UPS	2	Philips PL-C 13W/827/4P/616	32	120		Living Room
C	Surface-mounted compact fluorescent decorative luminaires with frosted diffuser, brushed nickel finish and an electronic ballast	Teron or approved equal	Thousand Oaks TDS213E-8N-120V-W/UPS	2	Philips PL-C 13W/827/4P/616	32	120		Bedroom
D	Surface-mounted compact fluorescent luminaires with frosted diffuser, brushed nickel finish and an electronic ballast	Teron or approved equal	Firestone FE213E-8N-120V-W/UPS	2	Philips PL-C 13W/827/4P/616	32	120		Bathroom
D1	Surface-mounted compact fluorescent luminaires with frosted diffuser, white finish and an electronic ballast	Teron or approved equal	Eagle 13W E WH	1	Philips PL-C 13W/827/4P/616	16	120		Walk-in Closet



DRAINAGE NOTES:

- (30) PROVIDE AND INSTALL 4-INCH PVC SDR 35 DRAINAGE PPE.
- (31) PROVIDE AND INSTALL 6-INCH PVC SDR 35 DRAINAGE PPE.
- (32) PROVIDE AND INSTALL 8-INCH PVC SDR 35 DRAINAGE PPE.
- (33) PROVIDE AND INSTALL 10-INCH PVC SDR 35 DRAINAGE PPE.
- (34) PROVIDE AND INSTALL CLEWOUT (SEE SHEET 4, DETAIL 12 OR SHEET 6, DETAIL 7).
- (35) PROVIDE AND INSTALL NEW 12-INCH X 12-INCH SQUARE SLUMP BOX (USE 400) AND 12-INCH EXTENSION GULLET AND 12-INCH X 12-INCH SQUARE GULLET IN CURB AREAS (MS 11212). USE (MS 11200) SQUARE GULLET IN CURB AREAS (SEE LANDSCAPE ARCHITECT'S PLANS) AND USE 1.55 4-INCH ROUND GRATE IN POOL AREA.





4" BUILDING DRAIN
 2x6 DRU 1/4" COTG
 -60 FT TO LE
 MINIMUM SLOPE 1/4" PER FT
 SEE SITE PLAN FOR P.O.C.
 TO SEWER

UCI EAST CAMP
 BUILDING I
 DF.U. TOTAL

FIXTURE	PER STUB	DF.U.
WC	12	9.0
LAV	18	1.0
TUB	12	9.0
KS	6	6.0
WY	6	6.0
DF.U. TOTALS		36.0

BLDG C
 FIRST FLOOR

UCI - East Campus - Phase 1
Student Apartments
Irvine, California

Gypsum Wallboard
09250 - 4

- 3.5 SKIM COAT FINISH: Provide where scheduled, apply USG Product that will produce a "smooth" or "knock down" texture finish as approved by Owner and/or Architect. Apply after taping and screw head finishing is dry and sanded to produce surfaces free of trowel marks or other defects.

END OF SECTION

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BENCHMARK

BENCHMARK

- B. **Interior Tile Backer Board:** For walls in toilets and where indicated on drawings or required, provide Durock or WonderBoard Tile Backer Board. Install per manufacturer's recommendations.
- C. **Screws:** ASTM C646, corrosion-resistant self-tapping bugle-head spiral threaded type, minimum 1" long except 1-5/8" for double layer walls or longer where RC channels are used, lengths to penetrate all supporting metal at least 3/8". Furnish specially hardened type screws where required by code for support.
- D. **Drywall Nails:** ASTM C514, supplied or recommended by the wallboard manufacturer, No. 13 gage 1-5/8" long, 19/64" head, Dry Tite, acid etched or No. 098 gage, 1-3/8" long annular ringed 6d, cooler nails.
- E. **Metal Trim and Corner Beads:** Of electrogalvanized steel with tapping flanges, as manufactured or recommended by drywall manufacturer, corner beads at all outside corners and "J" shaped trim members where abutting other materials. Provide "bullnose" corner beads at public areas.
- F. **Finishing Materials:** ASTM C475, joint tape, joint bedding compound, finishing cement, adhesive, and laminating compounds supplied or recommended by wallboard manufacturer.
- G. **Calking Compound:** Permanently non-hardening type as supplied or recommended by wallboard manufacturer.
- H. **Sound Insulation:** Friction fit fibrous glass batts of minimum 3-1/2" thickness unless otherwise indicated, nominal 2.80 pcf density by USG.
- I. **Resilient (RC) Furring:** ASTM C645, minimum 25 gage, hat shaped, designed for sound reduction by gypsum wallboard manufacturer.

PART 3 - EXECUTION

3.01 INSTALLATION OF GYPSUM WALLBOARD:

- A. **General:** Perform wallboard installation and finishing according to ANSI A997.1 and the wallboard manufacturer's instructions. Do not install wallboard until building is weathertight. Conform to fire-rating requirements, Building Code approvals, and requirements herein.
- B. **Temperature:** Maintain minimum 65 degrees F within building during installation. Furnish ventilation to eliminate excessive moisture.
- C. **Fasteners:** Install screws or nails so heads are below wallboard surface without breaking surface paper around the fastener. Space screws according to listed assembly requirements.



POWER/COMMUNICATIONS POLE WITH X-NUMBER OF VOICE TERMINATIONS AND Y-NUMBER OF DATA TERMINATIONS PER LOCATION



VOICE AND DATA OUTLET WITH X-NUMBER OF VOICE TERMINATIONS AND Y-NUMBER OF DATA TERMINATIONS, CABLE TYPE AS SPECIFIED, FLUSH FLOOR MOUNTED



VOICE AND DATA OUTLET, CABLE TYPE AS SPECIFIED, SURFACE MOUNTED MONUMENT



COMBINATION DATA/VIDEO OUTLET WITH 1 DATA RUN AND 1 VIDEO RUN, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE. X-NUMBER OF CABLE TERMINATIONS PER LOCATION



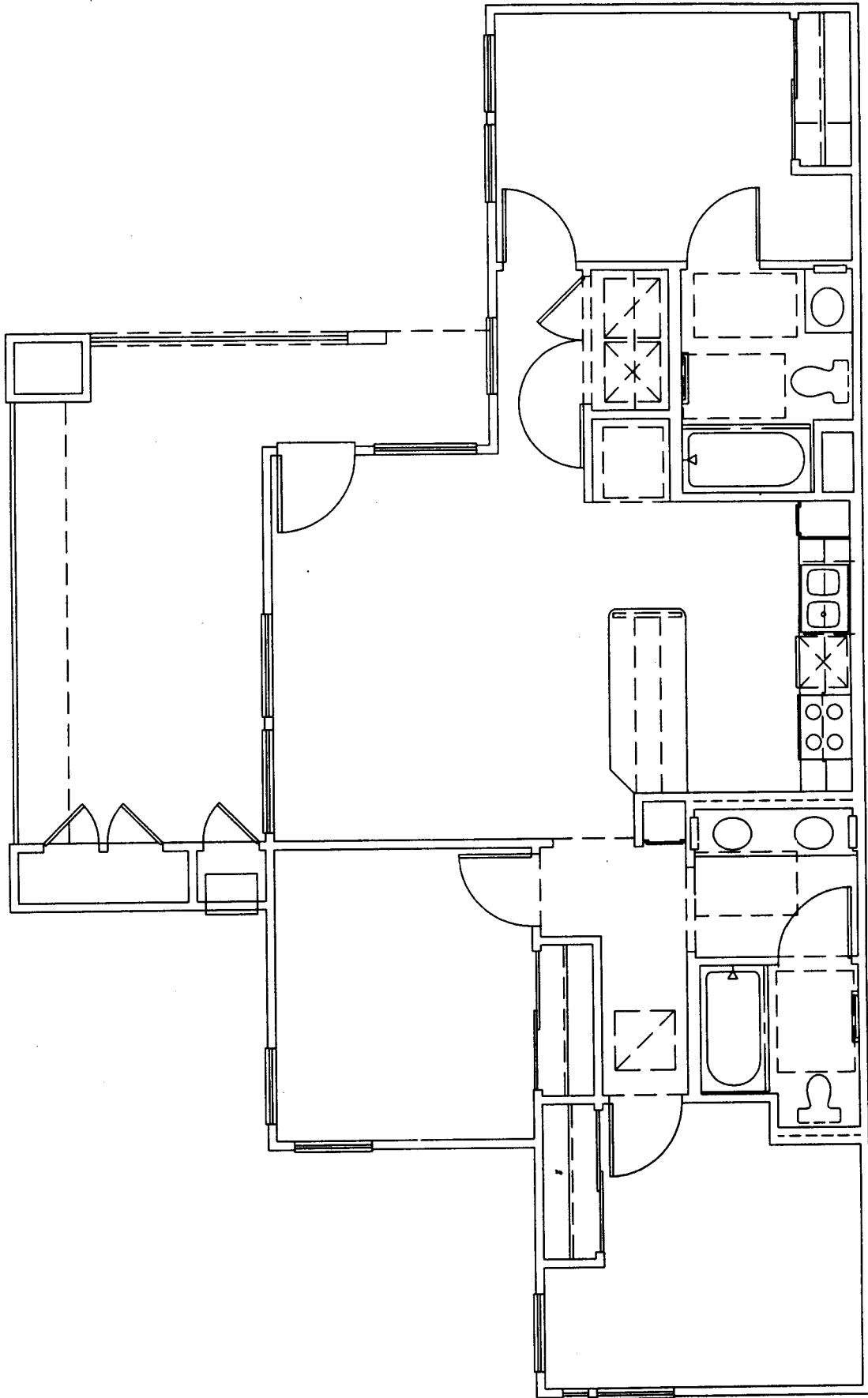
COMBINATION VOICE/DATA/VIDEO OUTLET WITH 1 VOICE RUN, 1 DATA RUN AND 1 VIDEO RUN, CABLE TYPE AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE.

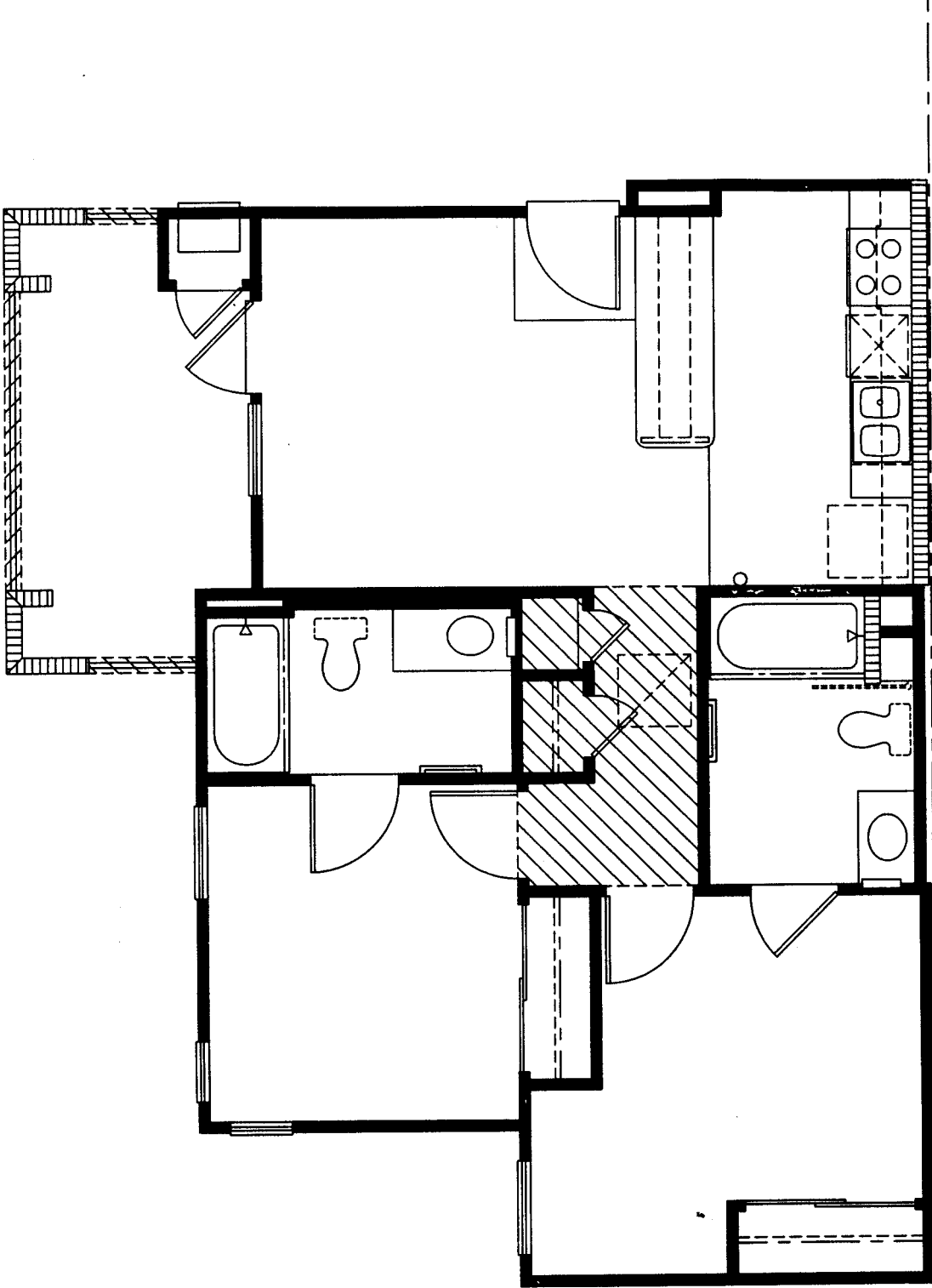


VIDEO OUTLET, CABLE TYPE AND TERMINATION AS SPECIFIED, MOUNTED +18" A.F.F. UNLESS NOTED OTHERWISE



VIDEO OUTLET, CABLE TYPE AND TERMINATION AS SPECIFIED, FLUSH FLOOR MOUNTED





UNIT 2A