

**ASC CONSTRUCTION MANAGEMENT COMPETITION  
RENO, NEVADA  
FEBRUARY 4 – FEBRUARY 7, 2004**

**RESIDENTIAL DIVISION PROBLEM**

**ARCHSTONE PLAYA DEL REY APARTMENTS  
PLAYA DEL REY, CALIFORNIA**

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# SECTION 1 PROBLEM INSTRUCTIONS

## Archstone Playa del Rey Apartments Playa del Rey, California

### Problem Premise

Your team (your "Company") is a general contracting firm that has been prequalified to submit a bid proposal on the Project. The judges are the "Owners" of the Project, and are very familiar with your Company.

After your bid proposal has been turned in, the Owners will schedule an interview with each Company. The purpose of this interview is to convince the Owners that your Company understands their Project better than any of the other companies competing for the job.

### 1. Project Description

This project consists of four two-level subterranean parking structures and five three-story apartment buildings above. The housing consists of three hundred five (305) units with community areas including a fitness center, sundeck, pool, spa and five decorative fountains.

### 2. Bid Proposal

The bid proposal consists of the following sections

- A. Staging Plan
- B. Schedule
- C. Estimate Breakdown/Contract Questions
- 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 ENTIRE BID PROPOSAL MUST BE TURNED IN NO LATER THAN 12:00 A.M.  
(MIDNIGHT) THURSDAY, FEBRUARY 5, 2004.**

NOTE: Twenty (20) points will be deducted for proposals up to 10 minutes late; thirty-five (35) points will be deducted for proposals up to 20 minutes late. Proposals turned in more than 20 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 6, and will proceed at approximately 30 minute intervals (schedule to be provided). Be prepared to give a seven to ten minute oral presentation about why your Company is the best choice to be awarded this Project based on its thorough understanding of the Project. The remaining

time will be utilized for questions from the judges. Be prepared to answer questions about all aspects of the Project and your bid proposal.

#### **Visual Aids/Oral Interview Presentation Material**

All presentation materials for ALL teams must be turned in at 11:00 a.m. on Friday, February 6. 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, a hard copy of the presentation must be submitted at the 11:00 a.m. Friday deadline. 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 5. 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 11:00 a.m. on Friday, February 6, 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 6, the judges will make a presentation on the actual project.

#### **5. 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.**

6. **Schedule Recap**

**Thursday, February 5**

7:30 A.M.	Problem Distribution
9:30 A.M.	Question & Answer Session
2:00 P.M.	Question & Answer Session
12:00 A.M. (Midnight)	Problem Turn-in

**Friday, February 6**

11:00 A.M.	Turn-in Presentation Materials /Draw for Orals
12:30 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!**

## REQUEST FOR INFORMATION

SCHOOL NAME: \_\_\_\_\_

RFI No.: \_\_\_\_\_ TIME SUBMITTED: \_\_\_\_\_

PROJECT: Archstone Playa del Rey Apartments

SENT TO: The Judges

DESCRIPTION: \_\_\_\_\_

LOCATION: \_\_\_\_\_

SPEC REF: \_\_\_\_\_ SHEET NO: \_\_\_\_\_

OTHER: \_\_\_\_\_

INFORMATION REQUESTED: \_\_\_\_\_

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\_\_\_\_\_  
SIGNATURE DATE

CHECK HERE IF ADDITIONAL COMMENTS ARE ATTACHED TO THIS FORM:

**SECTION 2  
SCORING SHEET**

**Archstone Playa del Rey  
Playa del Rey, California**

**I. PROPOSAL PORTION**

<b>3A STAGING PLAN</b>	<b>SCORE</b>
Sufficient detail & sensible layout of site Requested information included	
<b>60 Points Maximum</b>	<b>TOTAL =</b>

<b>3B SCHEDULE</b>	<b>SCORE</b>
Logical layout & sequence Requested information provided Accuracy of answers to questions	
<b>75 Points Maximum</b>	<b>TOTAL =</b>

<b>3C ESTIMATE BREAKDOWN/CONTRACT QUESTIONS</b>	<b>SCORE</b>
Estimate Breakdown: Accuracy of direct & indirect costs Completeness of concrete & allowance estimates Completeness/accuracy of general conditions estimate Accuracy of answers to contract questions	
<b>84 Points Maximum</b>	<b>TOTAL =</b>

<b>3D PLAN READING &amp; PROJECT ENGINEERING</b>	<b>SCORE</b>
Accuracy of responses	
<b>75 Points Maximum</b>	<b>TOTAL =</b>

<b>PENALTY</b>	<b>SCORE</b>
Penalty for late Proposal	
<b>Deduct 35 Points Maximum</b>	<b>TOTAL =</b>

**II. PREQUALIFICATION BROCHURE & ORAL INTERVIEW**

<b>A. PREQUALIFICATION BROCHURE</b>	<b>SCORE</b>
Required elements present Applicability to Project Neatness, professional appearance	
<b>B. CONTENT OF PRESENTATION</b> 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" Penalty for lack of participation by all team members	
<b>55 Points Maximum</b>	<b>TOTAL =</b>

## SECTION 3A STAGING PLAN

### Archstone Playa del Rey Apartments Playa del Rey, California

#### Staging Plan

Prepare a site staging plan to be submitted to the Owner and Architect for approval. Reference the attached "Construction Issues" provided in Exhibit 3A-1 for additional information relating to the Project. Use "Plan North" as noted on the documents for discussing north, south, east and west directions. The staging plan should reflect your proposed use of the Project site at the start of construction. Provide a written description on the staging plan identifying any items that may need to be relocated through the course of construction, where the items are being relocated to, and what site constraints are causing the move.

The following items should be clearly located and labeled on the site staging plan:

- Jobsite trailer
- Temporary power transformer (indicate with a dashed line from the power source)
- Temporary water (valve location(s))
- Temporary fence:
  - a. Wood panels or chain link
  - b. Gate location(s) and size. Show entrance and/or exit.
  - c. Pedestrian canopies required? (reference Table 44A – Exhibit 3A-2)
  - d. K-rail locations, if required
- Haul route
- Material storage
- Crane, concrete trucks and pumps staging
- Toilet(s)
- Tree removal
- Utility relocation
- Trash bins
- Title block with the project name, project address, and your school's name.

**FOR YOUR STAGING PLAN, USE SHEET C3.01 PROVIDED WITH THE PROBLEM**

## EXHIBIT 3A-1 CONSTRUCTION ISSUES

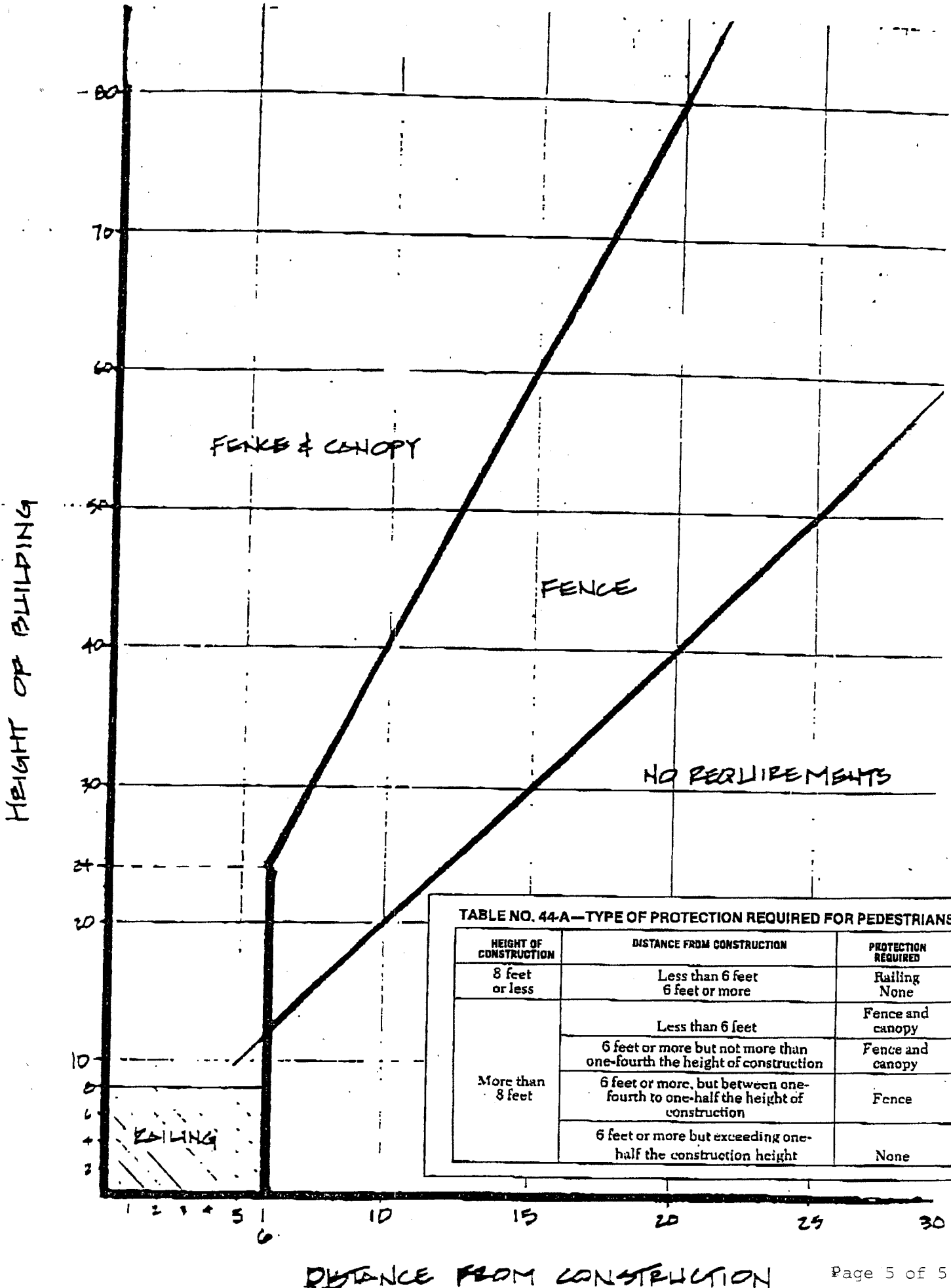
### Archstone Playa del Rey Apartments Playa del Rey, California

1. Streets on the south and east sides border the Project site and must remain operational during construction. Existing residential apartments and homes are located to the west of the Project and are separated by an alley. The north is bordered by residential units with an existing retaining wall separating the residential units and project site.
2. The City **will not** allow equipment, material or construction vehicles to permanently park in the alley separating the construction site from the existing residential housing. The City will, however, allow equipment and trucks to pass through this area provided their final destination is within the limits of construction.
3. The Fire Department will allow placement of items in the Fire Lane as long as a clear vehicle path is always available. Complete access must be available from both the alley and Manitoba Street into the Fire Lane.
4. The Project consists of five (5) buildings with one level of subterranean parking under each building. Buildings Four and Five are on the upper plateau with Buildings One, Two and Three on the lower elevation. The two building groups are separated by a common 16' wide walkway.
5. Due to jobsite constraints, storage of materials on site is limited. Material deliveries need to be hoisted from the delivery truck to their final location. In order to utilize the sidewalk, parking lane or the center section of Pershing Drive, the City of Playa del Rey requires the contractor to pay for a closure permit for each closure day. Overnight parking for all adjoining neighbors must be maintained every night. Major deliveries can be expected almost everyday from the start of footings through the completion of plaster.
6. All construction material must be stored on site.
7. There is an adjacent vacant lot west of the alley, bordering Pershing Drive, which is owned by the same owner as your project. This lot is scheduled for Phase Two construction which starts at the completion of your project.
8. The City of Playa del Rey requires that the existing trees located in the parkway adjacent to the sidewalk along Pershing Drive be protected and watered on a weekly basis. Provided that permits are obtained, the City will allow trees to be removed. If trees are removed or damaged, the City will assess a \$500 fee, plus the cost to replace the tree.
9. Temporary construction fencing and gates are required. Existing sidewalks on Manitoba Street and Pershing Drive shall remain open during construction, as well as the northwest corner of the Manitoba and Pershing intersection.



10. The City of Playa del Rey requires canopy framing based on building set back from property line or pedestrian access next to the building. Reference Exhibit 3A-2 attached.
11. Temporary power for construction is available through the Department of Water & Power. DWP has an existing power pole on the north corner of the intersection of Pershing Drive and the alley. A 600 amp, 3-phase transformer must be installed, be accessible from Pershing Drive and be fully protected. Maximum distance from the temporary power source to transformer is 350 feet. Distribution to individual 200 amp sub-panels will be made from this main transformer for each building.
12. Review existing utility structures (i.e., light and power poles, fire hydrants, etc.) for possible relocation due to either temporary or permanent entries into Project.
13. A 12' x 60' construction trailer will be used to house the project team. It must be accessible at all times for the construction workers, deliveries, emergency personnel, etc.
14. Temporary toilet requirements are 1 toilet for every 10 people. You estimate that you will have approximately 76 construction craft workers on site for the majority of the project. The toilets must be located for easy access by the workers and be readily accessible for weekly cleaning.
15. Temporary water is available from an existing fire hydrant.
16. The City of Playa del Rey requires an approved haul route and staging plan before the start of earthwork. The haul route needs to show the entrance to and exit from the Project (including use of streets, alleys, etc.) Weight restrictions do not allow for west-bound truck travel on Pershing Drive. The landfill dump is located to the east of the Project.
17. While cranes and equipment cannot be permanently located over the elevated decks, travel across the decks is permitted. Elevated decks must be re-shored to allow equipment in excess of 13 tons to travel over them. The upper weight limit of the shored slab is 20 tons.
18. The City of Playa del Rey does not allow any overnight construction usage of streets and sidewalks. All trailers and trash bins must be placed within Owner's property line. The City of Playa del Rey Public Works Department requires an approved street delineation plan prior to closing any sidewalks or street lanes.
19. The City of Playa del Rey requires K-rail protection where vehicle traffic is 10' or closer to the building.
20. Equipment specifications are as follows:
  - a. 36 meter concrete pump
    1. Outrigger spread of 14 feet
    2. Boom reach of 108 feet
    3. Total weight 62,500 pounds over 3 axles
  - b. 42 meter concrete pump
    1. Outrigger spread of 18 feet
    2. Boom reach of 180 feet
    3. Total weight 73,577 pounds over 3 axles

- c. 19 ton crane
  - 1. Outrigger spread of 16 feet
  - 2. Boom reach of 110 feet
  - 3. Total weight 50,000 pounds over 2 axles
  
- d. Trash truck with loaded bin
  - 1. Total weight 70,000 pounds over 3 axles
  - 2. Width of trash bin is 12'
  
- e. Concrete truck
  - 1. 76,500 pounds over 3 axles



## SECTION 3B SCHEDULE

### Archstone Playa del Rey Apartments Playa del Rey, California

#### Premise

The completion of the Project is critical to the Owner as it impacts the ability of the Owner to start renting units and generating income. The Owner and Architect have put together a list of construction schedule activities (see Exhibit 3B-1). Activity durations are based upon historical data and past performance. Prepare a CPM Schedule verifying that the Project can be completed within the proposed contract duration of eighteen (18) months. The Owner has three (3) schedule constraints listed below by importance:

- a. The Owner would like to receive/accept as many units as soon as possible. The Contract requires turnover of units by building area. A building area includes building structure, garage area where building sets, courtyards adjacent to buildings, and surrounding site work.
- b. The Owner requires that Building Two be delivered as soon as possible since this building contains the Leasing/Recreation Areas for the entire Project.
- c. The Owner requires that the Motor Court and Pool Areas be delivered at the same time as Building Two.

All durations in this problem are in working days (5 days per week). In addition, there will be no work performed on the following dates:

May 27, 2002	December 25, 2002
July 4, 2002	January 1, 2003
September 2, 2002	May 26, 2003
November 11, 2002	July 4, 2003
November 28, 2002	

It is the responsibility of the Project team to determine relationships between activities and lags needed. The Project team must decide which building area is to start first. Refer to Section 3A "Staging Plan" for site constraints and logistics. The following logic ties apply to all buildings unless specifically noted otherwise. Buildings One, Two, and Three will be referred to as "small" buildings and Buildings Four and Five will be referred to as "large" buildings. Also, the following relationships and schedule constraints shall be maintained:

- a. Excavation/Foundations for the building area that your team decides to start with cannot start until the survey crew is at least three (3) days ahead of this activity.
- b. Your Project budget will only allow for one earthwork subcontractor and they can only work in one building area at a time. They will start the next

building area (to be selected by your team) fifteen (15) days after the start of the first building area.

- c. Twenty (20) days after the start of excavation/foundations, the slab on grade work can start.
- d. Due to budget constraints, the concrete subcontractor will only be able to provide enough forming material to work on two P1 level decks and two Podium level decks at the same time (assume enough material for the largest decks). It is acceptable to start moving materials to the next deck five (5) days before the completion of the deck.
- e. Fifteen (15) days after the start of the slab on grade, the P1 level deck can start.
- f. Twenty-two (22) days after the start of the P1 level deck, the Podium level deck can start.
- g. Thirty (30) days into the Podium level deck work, the garage interiors and the rough framing for that building area can start.
- h. Your Project budget will only allow for one framing subcontractor. This framing subcontractor cannot work in more than two (2) separate buildings at the same time.
- i. If your team decided to start with a small building, the framing subcontractor can start the next building area after twenty (20) days. If your team decided to start with a large building, the framing subcontractor can start the next building area after thirty-five (35) days.
- j. The First Floor interior finishes can start twenty-five (25) days into the rough framing work for a small building and thirty-five (35) days into the rough framing for a large building.
- k. The Second Floor interior finishes can start twenty (20) days into the First Floor interior finishes for a small or large building.
- l. The Third Floor interior finishes can start twenty (20) days into the Second Floor interior finishes for a small or large building.
- m. If your team decided to start with a small building, the start of the Second Floor interior finishes triggers the start of the First Floor interior finishes for the next building.
- n. If your team decided to start with a large building, ten (10) days after the start of the Second Floor interior finishes the next small or large building can start.
- o. The exterior finishes can start fifteen (15) days into the Third Floor interior finishes at small or large buildings.

- p. The Pershing Drive (south) sitework must be completed before Buildings One and Two can obtain Substantial Completion. This sitework can start five (5) days after the start of the Building Two exterior finishes.
- q. The Pershing Drive (north) sitework must be completed before Buildings Two and Three can obtain Substantial Completion. This sitework can start five (5) days after the start of the Building Three exterior finishes.
- r. All the Manitoba Street sitework must be completed before Buildings One and Five can obtain Substantial Completion. This sitework can start five (5) days after Building One exterior finishes.
- s. All alley sitework must be completed before Buildings Three and Four can obtain Substantial Completion. This work can start five (5) days after Building Four exterior finishes.
- t. The pool area sitework can start five (5) days after the start of the exterior finishes for the large buildings.
- u. The motor court sitework can start at the same time as the exterior finishes for Building Two.
- v. The Contractor and Owner have only one employee each to devote to the building punchlist activity.

## Assignment/Tasks

1. Based upon the information provided in the premise above, create a complete CPM Construction Schedule showing the Project completing within the eighteen (18) month required time period.
  - a. The schedule must clearly indicate the early start and early finish dates for all activities, and all logic ties between activities.
  - b. The Owner has requested that the schedule be organized into sections for better tracking and management of each building area turnover. The Contractor is to tie the garage activities to the appropriate building area (i.e., Garage 1 activities belong with Building 1 area). Logic ties between the areas are still required to verify the Project's critical path. The required sections are as follows:
    - Building One
    - Building Two
    - Building Three
    - Building Four
    - Building Five
    - Site Work
  - c. Clearly identify all holidays on the schedule as non-work days.
  - d. The following milestones need to be included as part of your CPM Schedule: Project Start, Project Substantial Completion/TCO, and Contract Target Completion Date.
  - e. A summary bar "Hammock" of the areas needs to be added at the beginning of each section noted in Item "1.b" above.
2. Answer the schedule questions on the following two pages.
3. Items to be turned in:
  - a. CPM Schedule
  - b. Scheduling Questions

School Name \_\_\_\_\_

### SCHEDULING QUESTIONS

**Note: These questions contain hypothetical situations that are NOT to be included in your CPM schedule.**

1. Based upon the information and constraints of the staging and site logistics, which building area will be accepted by the Owner first? List the three most important reasons in order of importance why your team decided to make this building area first?

Building (circle one):      One    Two    Three    Four    Five

List Reasons:

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2. During the rough framing of the 1<sup>st</sup> Floor of the first building area to start (as selected by your team), the Owner notifies you that there will be changes to the framing. After all framing changes are completed, you notify the Owner that these framing changes have delayed the rough framing of the first building area (as selected by your team) by twenty (20) working days. This framing delay has also impacted the start of the First Floor interior finishes and the start of the next building area rough framing activity by twenty (20) workdays. The Owner has requested that the Contractor review the impact of the framing delay to each building turnover. List by building area the revised Owner acceptance date and the number of workdays impacted:

Building Area One	_____
Building Area Two	_____
Building Area Three	_____
Building Area Four	_____
Building Area Five	_____

The Owner wants your team to describe below how you will show this delay on the plot schedule:

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3. All fountain permits are to be secured by the Contractor's fountain subcontractor. Ten (10) days into the Motor Court site work, the fountain subcontractor is to install the underground utilities for the Motor Court fountains. On the tenth day, the fountain subcontractor informs the Contractor that the fountain permits are still not secured and will take eight (8) weeks to secure from the City. The permit is required for inspection of the underground utilities. The fountain subcontractor can complete his work, including the underground utilities, within twenty (20) days. The Contractor has two options: (1) Continue with the installation of the hardscape and spend \$25,000 to remove and replace hardscape areas later to install the underground utilities once the permits are secured; or (2) Wait until the permits are secured, install the underground utilities, and then complete the hardscape work. Assume liquidated damages of \$2,000 per calendar day will be assessed if Building Two is impacted. The removal and replacement of the hardscape will be performed within the twenty (20) days concurrently with the fountain subcontractor's work.

a. How will your team proceed and why?

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b. Will this impact the Building Two Owner acceptance date? \_\_\_\_\_

c. If so, by how many working days? \_\_\_\_\_

4. The Leasing Area is the only location on the entire Project for which the Owner has hired an interior designer. The interior design plans show some custom cabinets in the Leasing Area to be supplied by the Contractor and some by the Owner. All cabinets in the Leasing Area are to match. The Contractor's cabinet subcontractor hired to fabricate the cabinets for the units has reviewed the interior design plans and has determined they are not capable of producing these custom cabinets. To make the cabinets all match, the interior designer suggested that the Contractor use the same cabinet supplier that the Owner is using. This custom cabinet maker will require an additional thirty (30) workdays to fabricate and an additional ten (10) workdays to install the custom cabinets.

a. Will this affect the Building Two Owner acceptance date? \_\_\_\_\_

b. If so, by how many working days? \_\_\_\_\_

Give a brief explanation \_\_\_\_\_

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**EXHIBIT 3B-1  
LIST OF SCHEDULE ACTIVITIES**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

ACTIVITY DESCRIPTION	ACTIVITY DURATION
Building 1 First Floor Interior Finishes	45
Building 1 Exterior Finishes	75
Building 1 Owner Acceptance	0
Building 1 Punchlist	10
Building 1 Rough Framing	30
Building 1 Second Floor Interior Finishes	45
Building 1 Substantial Completion	0
Building 1 Third Floor Interior Finishes	45
Building 2 Exterior Finishes	80
Building 2 First Floor Interior Finishes	48
Building 2 Leasing Area Finishes	48
Building 2 Owner Acceptance	0
Building 2 Punchlist	13
Building 2 Rough Framing	35
Building 2 Second Floor Interior Finishes	48
Building 2 Substantial Completion	0
Building 2 Third Floor Interior Finishes	48
Building 3 Exterior Finishes	75
Building 3 First Floor Interior Finishes	45
Building 3 Owner Acceptance	0
Building 3 Punchlist	10
Building 3 Rough Framing	30
Building 3 Second Floor Interior Finishes	45
Building 3 Substantial Completion	0
Building 3 Third Floor Interior Finishes	45
Building 4 Exterior Finishes	90
Building 4 First Floor Interior Finishes	70
Building 4 Owner Acceptance	0
Building 4 Punchlist	15
Building 4 Rough Framing	55
Building 4 Second Floor Interior Finishes	70
Building 4 Substantial Completion	0
Building 4 Third Floor Interior Finishes	70
Building 5 Exterior Finishes	90
Building 5 First Floor Interior Finishes	70
Building 5 Owner Acceptance	0
Building 5 Punchlist	15
Building 5 Rough Framing	55
Building 5 Second Floor Interior Finishes	70
Building 5 Substantial Completion	0
Building 5 Third Floor Interior Finishes	70
Garage 1 Excavation/Foundations	30
Garage 1 Interior Finishes	125

**EXHIBIT 3B-1  
LIST OF SCHEDULE ACTIVITIES**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

ACTIVITY DESCRIPTION	ACTIVITY DURATION
Garage 1 P1 Level Deck	30
Garage 1 Podium Deck	40
Garage 1 Slab on Grade	20
Garage 3 Excavation/Foundations	30
Garage 3 Interior Finishes	125
Garage 3 P1 Level Deck	30
Garage 3 Podium Deck	40
Garage 3 Slab on Grade	20
Garage 4 Excavation/Foundations	25
Garage 4 Interior Finishes	110
Garage 4 P1 Level Deck	27
Garage 4 Podium Deck	35
Garage 4 Slab on Grade	18
Garage 5 Excavation/Foundations	25
Garage 5 Interior Finishes	110
Garage 5 P1 Level Deck	27
Garage 5 Podium Deck	35
Garage 5 Slab on Grade	18
Mobilization & Survey Site	5
Site Work Along Alley	50
Site Work Along Manitoba Street	50
Site Work Along Pershing Drive (North)	50
Site Work Along Pershing Drive (South)	50
Site Work Motor Court Area	50
Site Work Pool Area	120

## SECTION 3C ESTIMATE BREAKDOWN/CONTRACT QUESTIONS

### Archstone Playa del Rey Apartments Playa del Rey, California

- 1) **Estimate Summary** – Each team will be provided with a set of Contract Documents required to complete the Estimate Breakdown section. The Contract Documents provided will include a draft copy of the Partial Owner Contract, selected plans, and the required Project Specifications.

Each team has been provided with a set of subcontractor proposals for the work on this Project. Read each proposal carefully to determine the lowest complete bid for the associated work based upon inclusions, exclusions, and qualifications provided. Complete and submit the Subcontractor Bid Analysis Form (Exhibit 3C-2) for each of the respective trades being reviewed. The lowest complete bids, based upon the Subcontractor Bid Analysis, should be used to complete the total direct cost portion of the Estimate Summary Form (Exhibit 3C-1). Be sure to fill in the respective line item cost and associated subcontractor. The pre-established numbers provided in Exhibit 3C-1 will not require Subcontractor Bid Analysis.

The estimated cost breakdown must also include the indirect cost of the work. Include all indirect costs such as General Conditions Insurance, Builders Risk Insurance, Payment & Performance Bond, Fee and other required costs. All percentage calculations for the indirect costs should be determined from the subtotal of direct costs.

- 2) **Self-Performed Concrete Work Estimate** – Your company is to self-perform the structural concrete for the project. Use the following historical costs to price the concrete work. Complete and submit the Self-Performed Concrete Work Estimate Form (Exhibit 3C-3) along with your proposal. All unit prices include the installation of embeds, anchor bolts, etc. supplied by others.

Labor:

Column and wall foundations = **\$146.44/cy**  
Slab on grade = **\$2.32/sf**  
Suspended slabs (include drop heads) = **\$7.55/sf**  
Columns = **\$366.28/ea**  
Back-forming for shotcrete walls = **\$11.63/sf**

Please Note:

- When estimating suspended slab labor, assume drop panel and beam quantities are included in the square footage take-off of the slab. The \$/SF

- price factors in the additional labor required to form both the concrete drop panels and beams.
- Wall and deck block-outs for HVAC penetrations can be ignored when estimating quantities. However, block-outs for stairs and elevators should be accounted for when estimating quantities.
- All non-masonry walls are to be shotcrete.

Material:

Concrete Ready Mix = **\$56.00/cy**

Please Note:

- Quantities for concrete drop panels and beams should be included when estimating concrete quantities for suspended slabs.

**3) Allowance Estimate** – Some of the finishes indicated on the drawings have not been accepted by the Owner. Provide an allowance estimate for the following items. Complete and submit the Allowance Estimate Form (Exhibit 3C-4) along with your proposal. Note that all of the allowances listed below include the cost to furnish and install the respective items.

Residential unit countertops = **\$7.25/sf**  
Residential unit ceramic tile (Entry Floors) = **\$15.00/sf**  
Residential unit sheet vinyl flooring = **\$2.00/sf**  
Residential unit carpet = **\$15.00/sy**  
Corridor carpet = **\$17.50/sy**

**4) General Conditions Estimate** – Provide a cost breakdown for the Project General Conditions which includes supervision, temporary facilities and any other items required to complete the construction work. Submit a completed General Condition Estimate Form (Exhibit 3C-5), along with your proposal.

**5) Contract Questions** – Provide answers to the Contract Questions (Page 26 of 26). Be sure to show all work.

Items to be turned in, one copy, stapled together: 3C-1; 3C-2 (one per trade analysis); 3C-3; 3C-4; 3C-5 and 3C-6.

School Name: \_\_\_\_\_

**EXHIBIT 3C-2  
SUBCONTRACTOR BID ANALYSIS**

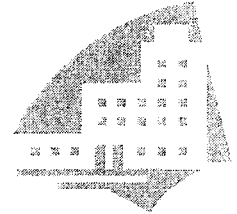
**Rough Carpentry**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

TRADE: \_\_\_\_\_

SUBCONTRACTOR	BASE BID											TOTAL

**Truss Framers**  
333 Colorado Blvd.  
Simi Valley, CA



To whom it may concern,

The following bid is for the proposed cost to perform the rough carpentry work for the Archstone Playa Del Rey Apartments project. This bid includes all the required rough carpentry items as indicated on the architectural drawings, structural drawings, and contract specifications.

**Inclusions:**

- F & I all rough carpentry per architectural and structural drawings
- Furnish only anchor bolts
- F & I trellis work
- Hoisting for own work

**Base Bid**

**\$4,175,760**

**BLDG Framing Durations**

Building 1	30 days
Building 2	35 days
Building 3	30 days
Building 4	55 days
Building 5	55 days

No more than (2) framing crews working at any given time

**Exclusions:**

- Finish Carpentry
- Spreading and Installation of Project Vinyl Windows

**Alternatives:**

- Spreading and Installation of Project Vinyl Windows

\$150/window

Thank you for your consideration and the opportunity to submit our proposal.

**Truss Framers**

**Master Framers**

1800 Jackson St.  
Cerritos, CA



RE: Finish Carpentry Bid for the Archstone Playa Del Rey Apartments

Dear Estimating Department,

The following bid is based on union installation for all rough carpentry items indicated on the architectural and structural drawings. The bid excludes framing of ceiling soffits and finish carpentry

We look forward to performing all the rough carpentry work for your project.

Furnish & Install all rough carpentry  
All Hoisting  
Spread and Install windows  
Provide Simpson ATS Holdown System in lieu of Zone 4

Schedule

BLDG 1	25 days
BLDG 2	30 days
BLDG 3	25 days
BLDG 4	50 days
BLDG 5	50 days

**BID** \$ 4,150,000.00

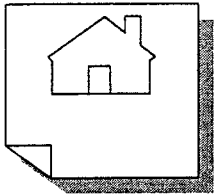
Exclusions:

- All Re-Engineering and Approval for Simpson ATS Holdown System
- (2 or more) Concurrent Framing Crews

Thank you for the opportunity to submit our proposal for your project.

Sincerely, Master Framers





## **Wood & Nail Framers**

13600 Washington Blvd  
Los Angeles, CA

Attention: Estimating Department

RE: Archstone Playa Del Rey Apartments

Thank you for extending us the opportunity to submit our quotation for the rough carpentry. We propose to furnish and install all required labor and material to frame the floors, walls, roof, FOB anchor bolts, etc., for the above mentioned project. Hoisting for our work has been included, as well as, all site and building trellis work.

### **Base Bid Rough Carpentry**

**\$4,850,000**

#### **EXCLUSIONS:**

Union Labor  
Framing of dropped ceilings  
Installation of access doors

#### **INCLUSIONS:**

Hoisting  
All Trellis Work  
Spread/Install Vinyl Windows  
Roof Pads  
(3) simultaneous crews at any given time

#### **SCHEDULE**

Building 1	20 Days
Building 2	20 Days
Building 3	20 Days
Building 4	40 Days
Building 5	40 Days

Thank you for your consideration and the opportunity to submit our proposal.

**Wood & Nail Framers**

School Name: \_\_\_\_\_

**EXHIBIT 3C-2  
SUBCONTRACTOR BID ANALYSIS**

**Finish Carpentry**

Archstone Playa del Rey Apartments  
Playa del Rey, California

**TRADE:** \_\_\_\_\_

SUBCONTRACTOR	BASE BID								TOTAL

---

## Carpentry Masters

1212 N. Main  
Burbank, CA

RE: Archstone Playa Del Rey

Dear Estimating Department,

This estimate includes the furnishing of projects doors, frames, hardware per the following:

Furnish all Project Hollow Metal Frames and Doors per Plans and Spec.

Furnish 18 Ga. Timely Door Frames and 18 Ga. HM Doors at unit entries.

Furnish all Project Hardware complete.

Furnish Wood Shelf and Pole at Unit Closets.

Furnish MDF Base at Common Areas and Unit Interiors.

Furnish All Interior Wood Trim, Pre-fit Jambs, Wood 6-Panel Hollow Core Doors.

Note:

(This price includes all necessary coordination with installer for door/frame prep., hardware coordination, and delivery coordination.

BID            \$            500,500.00

Note:

Excludes ALL Storefront Doors, Frames, Hardware, Mailbox(s), and Bath Accessories.

Thank you for the opportunity to submit our proposal for your project.

Sincerely, Carpentry Masters



Door, Sash & More  
8822 Old Hill Rd.  
Irwindale, CA

To whom it may concern,

The following bid is for the estimated cost to do the finish carpentry work for the Archstone Playa Del Rey Apartments. The installation of all the finish carpentry items is based on non-union wage rates.

Bid Break Down as Follows:

F & I Wood Shelf and Pole at all Unit Closet	\$150,000
	\$475,000
F & I All Hollow Metal Doors and Frame at Common Areas and Unit Entries	
F & I all Project Hardware	\$250,000
F & I All Project Wood Base	\$75,000
F & I Mailboxes	\$25,000
F & I Bathroom Accessories	\$80,000
<b>TOTAL</b>	<b>1,055,000</b>

Add for Union Installation (if Required).	\$75,000
Exclude Storefront	

The base bid break down for Finish Carpentry items is for accounting purposes only. None of the above pricing stands alone as an individual line item bid.

Thank you for your consideration and the opportunity to submit our proposal.

Door, Sash & More

**M&M Hardware**

4475 Grant Street  
Encino, CA

RE: Finish Carpentry Bid for the Archstone Playa Del Rey Apartments

Dear Estimating Department,

The following bid is based upon the furnish and install of all project finish carpentry items indicated on the architectural drawings.

Please feel free to consider any of the following breakdowns as stand alone pricing, we look forward to doing any or all the finish carpentry work for your project.

**Inclusions:**

1. Furnish and Install all Project Hollow Metal (H.M.) Frames and Doors. [16 Ga. Frames Throughout; 16 Ga. Doors at Exterior Locations; 18 Ga. Doors at Interior Locations]
2. Furnish and Install 18 Ga. Timely Door Frames and 18 Ga. H.M. Doors at unit entries.
3. Furnish and Install all Project Hardware complete.
4. Furnish and Install Wood Shelf and Pole at Unit Closets.
5. Furnish and Install MDF Base at Common Areas and Unit Interiors.
6. Furnish and Install all Interior Wood Trim, Pre-fit Jambs, wood 6-Panel Hollow Core Doors.

**Exclusions:**

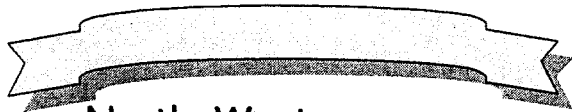
Bathroom Accessories  
Storefront Frames, Doors, and Hardware  
Postal Accessories  
Cabinetry and Countertops

**TOTAL**

**\$ 945,000**

Thank you for the opportunity to submit our proposal for your project.

Sincerely, M&M Hardware



**North-West**

9446 Howard Ave.

Hollywood, CA

Attention: Estimating Department

RE: Archstone Playa Del Rey

Thank you for extending us the opportunity to submit our quotation for the finish carpentry. We propose to furnish and install all finish carpentry items.

Base Bid Finish Carpentry \$999,450

Furnish and Install all Common Area and Unit Entry Doors and Frames per Spec.

Furnish and Install Mailboxes

Furnish and Install all Project Hardware complete.

Furnish and Install Wood Shelf and Pole at Unit per Plan.

Furnish and Install Base at Common Areas and Unit Interiors.

Furnish and Install all Interior Wood Base, Doors, Frames, and Casings.

Furnish and Install all Toilet Accessories.

**Note:** All Storefront Doors, Frames, and Hardware is Excluded.

**North-West**

School Name: \_\_\_\_\_

**EXHIBIT 3C-2  
SUBCONTRACTOR BID ANALYSIS**

**Fireplaces**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

TRADE: \_\_\_\_\_

SUBCONTRACTOR	BASE BID								TOTAL



**Fire Places & More**  
234 Duraflame Rd.  
Manhattan Beach, CA

RE: Archstone Playa Del Rey Apartments

To whom it may concern,

The following bid is for includes delivery and installation of fire places at subject project.

Bid Break Down as Follows:

Furnish & Install Heatilator G136E gas fireplaces with mesh screen, ceramic logs, operable glass, grating, Caulking and galvanized flue vent termination kit & flashing through roof  
Mantel & Surround per plans & specifications. \$735/EA  
(including sales tax and delivery charges)

Exclusions:

Gas Lines to fire places.  
Electrical Point of connection

Thank you for your consideration and the opportunity to submit our proposal.

**James Flaming**





**Fire Place Masters**

9446 Mantle Lane  
Hollywood, CA

Attention: Estimating Department

**RE: Playa Del Rey Apartments  
Playa Del Rey, CA**

Thank you for extending us the opportunity to submit our quotation for the fire places. We propose to furnish and install fire places per plans & specifications:

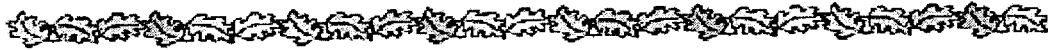
Base Bid Furnish & Install Fire places per Spec. section 10300	\$68,900
Add to Furnish and install Fire Place Surrounds	\$7,400
Add to Furnish and install three-piece pre-fab mantels	\$10,280

Inclusions:

- Delivery and installation.
- Roof flashing & vent kits as required.
- Fire Place screens
- Gas Fire Place Logs
- Mesh Screens
- Operable glass
- Sealants and caulking.
- Gas line by others.
- Electrical termination by others.
- Tax included.

Sincerely,

**Fire Place Masters**



**Hearth Brothers, Inc.**  
**560 Match Way**  
**Sherman Oaks, CA**

**Hearth Brothers is pleased to submit a bid for the PLAYA DEL REY APARTMENT PROJECT.**

**Our Bid Includes all the work outlined in the Architectural Drawings and the associated Specifications**

**Furnish (300) Zero Clearance type , fully lined fire places with grating and stamped metal screens: \$130,435**

**Install above mentioned fire places: \$37,500**

**This bid includes the following:**

- 1. Provide Operable glass**
- 2. Provide Fire Place screens**
- 3. Furnish Mantles & surrounds.**
- 4. Provide Caulking.**
- 5. Add \$ 10,300 to install flashing at roofs.**
- 6. Tax & Delivery.**
- 7. All rough-in electrical and plumbing to be by others.**

**We appreciate your consideration of our bid.**

**Sincerely ,**  
**Bob Hearth**  
**Hearth Brothers Inc**

---

## **D & D Fireplaces**

*The official Heatilator Supplier World Wide.*

12005 Log ave, suite 100

Las Vegas, NV

RE: Fire Place Bid for Playa Apartments

Dear Estimating Department,

The following bid is based on the project plans and specifications. Please note that we are the official distributor of all "heatilator" fire places in the West Cost.

Please feel free to contact us should you have any questions. We look forward to servicing all your needs.

Furnish all the project Fire Places in strict accordance with the plans and specification section 10300, including all applicable taxes.

Bid Amount = \$ 85,289.

Proposal to include:

- \* Heatilator G136E-S
- \* Mantles as specified
- \* Fire Place Surrounds.
- \* Screens
- \* Operable glass.
- \* Vent terminations & flashing.
- \* Ceramic logs.

Thank you for the opportunity to submit our proposal for your project.

**Sincerely, D & D Fireplaces**

School Name: \_\_\_\_\_

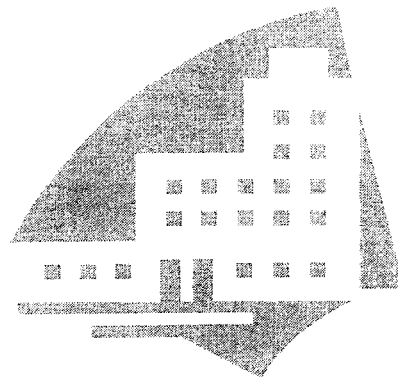
**EXHIBIT 3C-2**  
**SUBCONTRACTOR BID ANALYSIS**  
Archstone Playa del Rey Apartments  
Playa del Rey, California

**Swimming Pool, Spas & Fountains**

TRADE: \_\_\_\_\_

SUBCONTRACTOR	BASE BID											TOTAL

**Pacific Waterscapes**  
1225 North Hollywood Way  
Los Angeles, CA



Attention: Estimating Department

RE: Archstone Playa Del Rey Apartments  
Playa Del Rey, CA

Thank you for extending us the opportunity to submit our quotation for the waterscape related work. We propose to engineer, design and build all project pools, spa, and fountains per *GMAX* [10.05.01] Landscape drawings and pertinent job specifications, at the following locations complete:

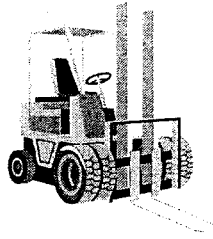
Pool	\$163,000
Spa	\$30,400
Fountain (Motor Court)	\$57,000
Waterfall Fountain at Pool Deck	\$26,000
Recessed Fountain at Pool Deck	\$15,750

**Exclusions:**

All Venting and combustion air  
Drains at Pool Equipment Room  
Deck Sleeves for Handicap Lift  
High Voltage Work

THANK YOU.  
**Pacific Waterscapes**

***Culver Pools & More***  
***2525 West Nile Street***  
***Culver City, CA***



**Culver Pools & More is pleased to submit a bid for the Archstone Playa Del Rey Apartments**

**Our Bid Includes all the work outlined in the Architectural and Landscape Drawings and the associated Specifications 13150 and 13152**

**Base Bid**

**\$280,720**

**This bid includes the following:**

**Furnish and Install of Pool**

**Furnish and Install of SPA**

**Furnish and Install of Motor Court Fountains (4)**

**Furnish and Install of Pool Courtyard Fountains (2)**

**This bid excludes the following:**

**Building Permits**

**We appreciate your consideration of our bid.**

**Sincerely, Culver Pools & More**



**Pro Pool Company**  
8966 Ohio Street  
Calabasas, CA

To whom it may concern,

The following bid is for the estimated cost to design and build all pool, fountain, and spa related work at Archstone Playa Del Rey Apartments per GMAX dated drawings.

Bid Break Down as Follows:  
(Includes all Low Voltage Wiring)  
Pool  
Spa  
Motor Court Fountains  
Wall Fountain

Total Cost      \$280,500

**ALT ADD:** Upgrade Coping at Pool to Desert Tree Model K5612      \$6,200

**ALT ADD:** High Efficiency Heaters      \$14,700

**Exclusions:**

Venting  
Permit Fees  
Crane Hoisting


Thank you for your consideration and the opportunity to submit our proposal.

**Pro Pool Company**



**Mulligan Pool and Spa**

922 Arroyo Drive  
Pasadena, CA



RE: Pool, Spa, Fountains

Dear Estimating Department,

The following bid is based on engineering, designing and building all pool,spa, and fountain work complete. All pricing and scope of work based upon bid set landscape and architectural drawings dated July 20, 2001.

Pool to be 25' wide X 40' long X 3'-6" to 4'-6" to 3'-6" deep

Spa to be 10' wide X 12' long X 4'-0" deep.

Four (4) auto court fountains as shown on L1.1A.

One (1) Waterfall Fountain at Pool Deck as shown on 6/L1.3.

One (1) Recessed/Sunken fountain as shown on L1.2, note 21

TOTAL \$ 291,000

**Exclusions:**

All Venting

High Voltage Wiring

Thank you for the opportunity to submit our proposal for your project.

Sincerely, Milligan Pool and Spa



**EXHIBIT 3C-1  
ESTIMATE SUMMARY**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

UCI	TRADE DESCRIPTION		COST	SUBCONTRACTORS
1710	Final Clean-up		\$117,417	Miller Brothers
2000	Site Pavers		\$28,524	Paver Brothers
2006	Site Utilities		\$569,634	Underground Inc.
2203	Earthwork		\$605,500	Earthmovers Inc.
2300	Erosion Control		\$31,750	RJH Contractors
2525	On-Site & Off-Site Concrete Work		\$403,990	JK Site Concrete
2400	Asphalt Paving		\$10,550	Mario Paving
2580	Bumpers and Striping		\$14,072	L&L Bumper & Striping
2900	Landscape and Irrigation		\$1,061,861	California Landscape
3200	Concrete Reinforcement		\$1,209,770	Rod Busters
3300	Cast In Place Concrete	Please Insert Estimated Value from 3C-3	\$ _____	Self Performed Work
3361	Shotcrete	Please Insert Estimated Value from 3C-3	\$ _____	Self Performed Work
3800	Lightweight Floor Fill		\$144,523	Golden Coast Lightweight
3950	Precast Concrete		\$11,825	Sunrise Precast
4200	Concrete Unit Masonry		\$1,232,405	Masonry Solutions
5500	Misc. Iron		\$818,686	Sunshine Ironworks
6101	Rough Carpentry	Please Insert Dollar Value with Corresponding Subcontractor Selection from 3C-2	\$ _____	_____
6200	Finish Carpentry	Please Insert Dollar Value with Corresponding Subcontractor Selection from 3C-2	\$ _____	_____
6250	Countertops	Please Insert Calculated Value from 3C-4	\$ _____	Owner Allowance
6400	Cabinets		\$445,741	Millwork Finishers
7120	Waterproofing		\$366,925	Water Tight Inc
7210	Building Insulation		\$149,240	Keep It Warm Inc.
7300	Roofing		\$315,025	Hunter Roofing
7600	Flashing and Sheet Metal		\$349,189	Hi-Tek Sheet Metal
7601	Sealants		\$15,000	CJ's Sealers
8331	Doors - Overhead Coiling		\$2,000	California Coiling Doors
8390	Doors - Shower		\$34,230	West Coast Shower Door
8500	Vinyl Windows		\$372,473	Windows and More Inc.
8520	Alum. Entrances / Sliding Doors and Windows		\$56,000	Clear Glazing Inc.
8530	Mirrors		\$23,602	Golden Coast Mirrors
8950	Toilet Accessories		\$35,932	Partition Specialties
9110	Metal Support System + Gypsum Wallboard Systems		\$1,843,740	Drywall Unlimited
9200	Lath and Plaster		\$1,117,190	Perfection Plastering
9310	Ceramic Tile	Please Insert Calculated Value from 3C-4	\$ _____	Owner Allowance
9655	Sheet Vinyl + Carpet	Please Insert Calculated Value from 3C-4	\$ _____	Owner Allowance
9900	Painting & Anti-Graffiti Coatings		\$507,325	West Coast Painting
10000	Miscellaneous Specialties		\$2,000	Cart Enterprises
10300	Fireplaces - Gas	Please Insert Dollar Value with Corresponding Subcontractor Selection from 3C-2	\$ _____	_____
10400	Signage		\$94,500	Sign Wizard Inc.
11175	Trash Chute		\$20,124	Gary's Chutes Company
11450	Appliances and Equipment		\$615,127	Kitchen Furnishers
12500	Window Coverings		\$62,899	SoCal Window Specialties
153	Swimming Pool, Spas & Fountains	Please Insert Dollar Value with Corresponding Subcontractor Selection from 3C-2	\$ _____	_____
14240	Elevators		\$326,260	M.K. Elevators
14811	Mailboxes		\$15,045	CalPostal Inc.
15300	Fire Protection System		\$545,800	Wet & Dry Sprinklers
15550	Fire Extinguishers and Cabinets		\$19,260	West Coast Cabinets
15400	Plumbing and Site Drainage		\$2,917,039	W.C. Plumbing
15500	Heating and Ventilation		\$1,014,072	Air Flow Masters
16000	Electrical and Fire Alarm		\$2,695,451	Sparky Electric
16080	Audio Video System Allowance		\$1,500	AV Plus

**EXHIBIT 3C-3  
SELF PERFORMED CONCRETE WORK ESTIMATE**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

UCI	TRADE DESCRIPTION	QTY	UNIT	UNIT PRICE	SUBTOTAL
<b>3300 CAST IN PLACE CONCRETE WORK</b>					
		Insert Estimated Quantities			Insert Calculated Costs
	- Column and Wall Foundations	<input type="text"/>	CY	\$146.44	\$ <input type="text"/>
	- Slab on Grade	<input type="text"/>	SF	\$2.32	\$ <input type="text"/>
	- Suspended Slabs	<input type="text"/>	SF	\$7.55	\$ <input type="text"/>
	- Columns	<input type="text"/>	EA	\$366.28	\$ <input type="text"/>
<b>3350 CAST IN PLACE CONCRETE MIX</b>					
	- Foundations	<input type="text"/>	CY	\$56.00	\$ <input type="text"/>
	- Slab on Grade	<input type="text"/>	CY	\$56.00	\$ <input type="text"/>
	- Suspended Slabs Including Beams and Drop Panels	<input type="text"/>	CY	\$56.00	\$ <input type="text"/>
	- Columns	<input type="text"/>	CY	\$56.00	\$ <input type="text"/>
<b>Cast in Place Concrete Total</b>					\$ <input type="text"/>
<b>3361 SHOTCRETE WORK</b>					
	- Backforming (One-Sided) for Shotcrete Walls	<input type="text"/>	SF	\$11.63	\$ <input type="text"/>
<b>3350 SHOTCRETE CONCRETE MIX</b>					
	- Shotcrete Walls	<input type="text"/>	CY	\$56.00	\$ <input type="text"/>
<b>Shotcrete Total</b>					\$ <input type="text"/>

**EXHIBIT 3C-4  
ALLOWANCE ESTIMATE  
Archstone Playa del Rey Apartments  
Playa del Rey, California**

UCI	TRADE DESCRIPTION	QTY	UNIT	UNIT PRICE	SUBTOTAL
<b>4465</b>	<b>Laminate COUNTERTOPS</b>	Insert Estimated Quantities			Insert Calculated Costs
	- Laminate Tops at Unit Kitchens	<input style="width: 80px;" type="text"/>	SF	<input style="width: 80px;" type="text" value="\$7.25"/>	<input style="width: 80px;" type="text" value="\$"/>
	- Laminate Tops at Unit Bathroom Vanities	<input style="width: 80px;" type="text"/>	SF	<input style="width: 80px;" type="text" value="\$7.25"/>	<input style="width: 80px;" type="text" value="\$"/>
	- Laminate Tops at Unit Computer Niches	<input style="width: 80px;" type="text"/>	SF	<input style="width: 80px;" type="text" value="\$7.25"/>	<input style="width: 80px;" type="text" value="\$"/>
<b>Laminate COUNTERTOPS SUBTOTAL =</b>					<b>\$</b> <input style="width: 80px;" type="text"/>
<b>9310</b>	<b>CERAMIC TILE</b>				
	- Tile at Unit Entries	<input style="width: 80px;" type="text"/>	SF	<input style="width: 80px;" type="text" value="\$15.00"/>	<input style="width: 80px;" type="text" value="\$"/>
<b>CERAMIC TILE SUBTOTAL =</b>					<b>\$</b> <input style="width: 80px;" type="text"/>
<b>9655</b>	<b>SHEET VINYL</b>				
	- Sheet Vinyl at Kitchens, Baths, and Laundry	<input style="width: 80px;" type="text"/>	SF	<input style="width: 80px;" type="text" value="\$2.00"/>	<input style="width: 80px;" type="text" value="\$"/>
<b>SHEET VINYL SUBTOTAL =</b>					<b>\$</b> <input style="width: 80px;" type="text"/>
<b>9680</b>	<b>CARPET</b>				
	- Carpet at Unit Interiors	<input style="width: 80px;" type="text"/>	SY	<input style="width: 80px;" type="text" value="\$15.00"/>	<input style="width: 80px;" type="text" value="\$"/>
	- Carpet at Public Areas / Corridors	<input style="width: 80px;" type="text"/>	SY	<input style="width: 80px;" type="text" value="\$17.50"/>	<input style="width: 80px;" type="text" value="\$"/>
<b>CARPET SUBTOTAL =</b>					<b>\$</b> <input style="width: 80px;" type="text"/>

**EXHIBIT 3C-5  
GENERAL CONDITIONS ESTIMATE  
Archstone Playa del Rey Apartments  
Playa del Rey, California**

UCI TRADE DESCRIPTION		QTY	UNIT	UNIT PRICE	SUBTOTAL
<b>1000 GENERAL CONDITIONS</b>					
No.	Item				
	Insert G.C. Line Item	Insert Quantity	Insert Month or Lump Sum	Insert Unit Price or Lump Sum Price	Insert Calculated Subtotal
1	_____	<input type="text"/>	_____	\$ _____	\$ _____
2	_____	<input type="text"/>	_____	\$ _____	\$ _____
3	_____	<input type="text"/>	_____	\$ _____	\$ _____
4	_____	<input type="text"/>	_____	\$ _____	\$ _____
5	_____	<input type="text"/>	_____	\$ _____	\$ _____
6	_____	<input type="text"/>	_____	\$ _____	\$ _____
7	_____	<input type="text"/>	_____	\$ _____	\$ _____
8	_____	<input type="text"/>	_____	\$ _____	\$ _____
9	_____	<input type="text"/>	_____	\$ _____	\$ _____
10	_____	<input type="text"/>	_____	\$ _____	\$ _____
11	_____	<input type="text"/>	_____	\$ _____	\$ _____
12	_____	<input type="text"/>	_____	\$ _____	\$ _____
13	_____	<input type="text"/>	_____	\$ _____	\$ _____
14	_____	<input type="text"/>	_____	\$ _____	\$ _____
15	_____	<input type="text"/>	_____	\$ _____	\$ _____
16	_____	<input type="text"/>	_____	\$ _____	\$ _____

**EXHIBIT 3C – 6  
CONTRACT QUESTIONS**

**Archstone Playa del Rey Apartments  
Playa del Rey, California**

**SCHOOL NAME** \_\_\_\_\_

1. Your Project Manager has evaluated the signage bid package and is ready to make an award to the low qualified bidder at \$90,000. Per the Partial Owner Contract, the signage line item is an allowance of \$96,000. The Owner has reviewed the subcontractor's bids and has issued a Construction Directive to use their regular signage subcontractor to perform the work. The Owner's signage subcontractor's bid is \$105,000. Per the Contract, what change order value is your team entitled to and why? Show your work.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Two months after accepting Building Two and the Motor Court common areas, the Owner notifies you that the Motor Court fountain spray height is too low and must be adjusted. Upon further investigation, it is determined that the fountain pump design does not allow for a higher spray pattern. The landscape contract documents diagrammatically show a higher spray than what can be achieved in the installed system. These same plans specify the type and size of pumps and fountain heads to be installed. What, if any, obligation do you have to correct the spray height of the Motor Court fountains?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. You have not yet completed the Project, but your Project Manager is very worried that you will incur liquidated damages. Based on the current schedule, the Project Manager believes the Project will not be completed until nine (9) days after the Scheduled Completion Date. In order to avoid liquidated damages, she wants to spend \$20,000 to assure the Scheduled Completion Date is met. Based purely on economics, is this a good decision? Explain why or why not. Show all your work.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## SECTION 3D PLAN READING AND PROJECT ENGINEERING

### Archstone Playa del Rey Apartments Playa del Rey, California

**School Name:** \_\_\_\_\_

#### **How to Complete this Section**

Read the questions carefully and write the answers in the space provided. All of the answers will be obtained by using the construction documents, the cut sheets, product data and information provided in this section.

- All answers requiring dimensions will be listed in feet and inches using fractions not decimals (i.e., 15'-2").
- All dimensions and quantities shall be calculated without the use of any waste or overage factors.

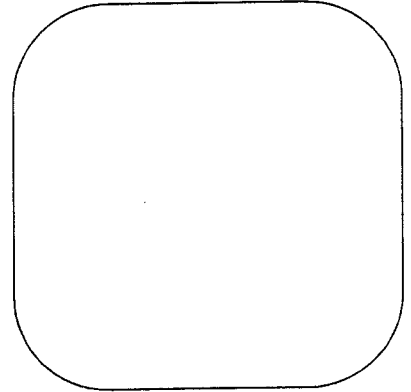
#### **Exhibits Included in this Section**

- Exhibit 3D-1 Additional Conduit Reinforcing Detail (1 page)
- Exhibit 3D-2 ASTM Standard Reinforcing Bars Table (1 page)
- Exhibit 3D-3 Common Area Tie Clarification (3 pages)
- Exhibit 3D-4 Typical Podium Slab Depression (1 page)
- Exhibit 3D-5 Fixture Type SJ Cut Sheet (1 page)
- Exhibit 3D-6 Fiberglass Tub/Shower Cut Sheet (1 page)
- Exhibit 3D-7 Exhaust Fan - Light Combination Cut Sheet (2 pages)
- Exhibit 3D-8 Pool Heater Direct Vent Cut Sheet (1 page)
- Exhibit 3D-9 Pool Heater Sleeve Layout Sketch (1 page)
- Exhibit 3D-10 Pool Heater Sleeve Blow Up Sketch (1 page)
- Exhibit 3D-11 Uniform Plumbing Code (1 page)
- Exhibit 3D-12 Fixture Type 6 Cut Sheet (1 page)
- Exhibit 3D-13 Light Pole Footing Detail (1 page)
- Exhibit 3D-14 Light Pole Attachment on Structure Detail (1 page)
- Exhibit 3D-15 Fixture Type 1 Cut Sheet (1 page)
- Exhibit 3D-16 California Building Code Sections 3118B.1 and 3118B.2 (2 pages)

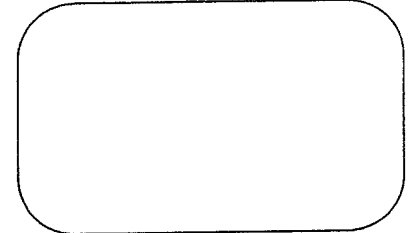
Items to be turned in: Section 3-D

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1. Electrical drawings do not indicate any conduit in the Podium (1<sup>st</sup> Floor) Level concrete deck for telephone/data wiring. A conduit pathway consisting of two (2) 1-1/2" I.D. (interior diameter) conduits must be provided from the MPOE room in the P1 level Garage below to each building's tel/data closets on the 1<sup>st</sup> floor. What is the total, most efficient lineal footage of conduit required in the Building 2 Podium deck. Include additional conduit required due to storage closet 2-128 changing to a tel/data closet. In addition, the structural plans prohibit conduit from being any closer than 3' from the center of a column. Figure conduit runs in plan view from center of MPOE room to center of tel/ data closet(s) only.



2. The structural engineer will not allow conduits larger than 1-1/2" O.D. (outside diameter) in the Podium deck unless additional reinforcing is provided. Additional reinforcing will consist of #5's at 14" o.c. x 4' long top and bottom per Exhibit 3D-1. Based on the conduit runs from question 1, indicate pounds of reinforcing steel added using information provided in Exhibit 3D-2.



3. You have been assigned to review steel trellis shop drawings. The steel (misc. iron) subcontractor has submitted shop drawings for 1<sup>st</sup> floor exterior trellises at Building 2 along H line between gridlines 22 & 18. Compare Structural details with Architectural details and describe any discrepancies found if any. Please list all details and sheets used.

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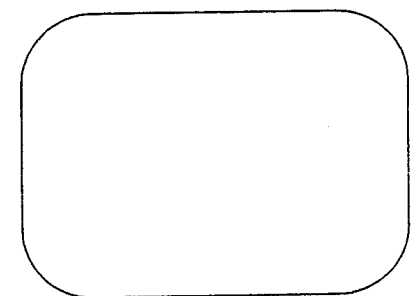
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4. Landscape, Architectural, and Schick Design Group drawings indicate painted (pale terra cotta) floor tile pavers for common areas. This particular tile must be imported from Italy, and the lead time is ten (10) weeks. To ensure that the correct amount of tile is delivered to the jobsite on time, please indicate the total square footage of painted (pale terra cotta) floor tile pavers required to complete the project. Refer to Exhibit 3D-3 for clarifications.



5. Reference note V on sheet A0.06A and review plan sheet A6.3.
- a.) Are there ramps on sheet A6.3 that require handrails even though none are specifically called out? If so, please list the areas (proximity to gridlines, rooms, etc.).
  - b.) Describe any conflicts, if any, which arise if handrails are added.

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6. See Exhibit 3D-4 relating to typical podium (1<sup>st</sup> floor) concrete slab depressions. Review the Architectural and Structural drawings and provide the missing information for a typical depressed area at Building 5.
- a.) Slab depression depth
  - b.) Slab thickness
  - c.) Top of interior slab elevation
  - d.) Bottom of slab elevation below depression
  - e.) Distance between top and bottom depression

7. The Electrical plans call for type SJ lights to be recessed into podium level CMU planter walls.
- a.) Please indicate the total number of type SJ lights required to complete the CMU planter walls on the podium level only.
  - b.) Review Exhibit 3D-5. Does the type SJ light work in this application? If not, please explain.

8. Architectural and Electrical drawings indicate combination light /exhaust fans in bathrooms. Some bathrooms only require a light without an exhaust fan when an operable window (Type E) exists.
- a.) Please review Exhibit 3D-6, Exhibit 3D-7, the window schedule, Architectural, and Electrical plans. Describe conflicts, if any, found in the Building 2 unit bathrooms with type E windows. The top of window E is 82" A.F.F. (above finish floor).
  - b.) If there is a conflict, what units are affected (for example unit 2-107), and what is a possible solution?



9. Review the areaway drain outside of Fan Room No. P234 at the P2 and P1 levels of the Garage for Building 2 and 3 (also called southwest Garage and Building 3 Garage.) Compare Architectural, Plumbing, and Mechanical plans, and describe discrepancies found if any.

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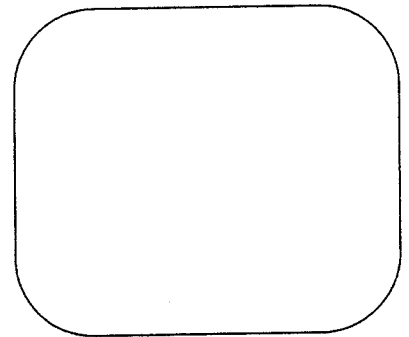
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10. a.) The pool subcontractor informed you that the pool heaters do not have to be vented to the roof through the 5'-8" x 2'-8" flue vent shaft shown on the drawings. Each heater can be vented directly outside of the wall per Exhibit 3D-8. The architect confirmed that the vent shaft could be eliminated. List the five major trades affected by this change.
- b.) Your superintendent has asked you to provide layout information for the mason to set sleeves in the CMU wall for the direct vents. Please review Exhibit 3D-9 and Exhibit 3D-10, and indicate the finish floor elevation (F.F.) of the Pool Equipment room, the measurement from F.F. to the bottom of sleeve (invert elevation or i.e.), and the i.e. of the sleeve.



11. Review the Building 3 garage Mechanical drawings only for concrete floor and CMU wall penetrations on the P1 and P2 levels. The concrete and masonry subcontractors have requested a list of block out sizes for concrete deck floors and CMU walls. The mechanical subcontractor informed you that floor / ceiling openings must be 4" greater in width and length than the ductwork sizes indicated, and wall openings must be 1" greater in width and length, or diameter than the equipment / louver sizes indicated on the mechanical drawings. Provide a list of floor and wall blockout sizes for concrete floors and CMU walls required along with the room or gridline associated with each block out. Note, do not list the ceiling blockout for the trash room shaft in room P132, wall intake louvers in Emergency Generator Room P136, and the ceiling blockout for diesel engine exhaust in Meter Room P135 south of gridlines N/22.

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16. A subcontractor wants to use a different product than specified in the drawings and/or specifications. Describe the procedures that must be taken.

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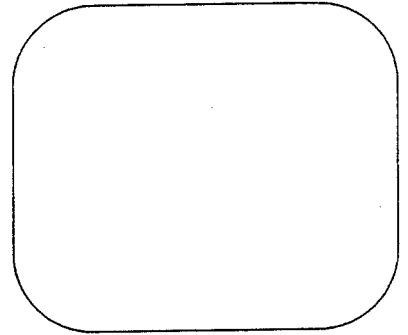
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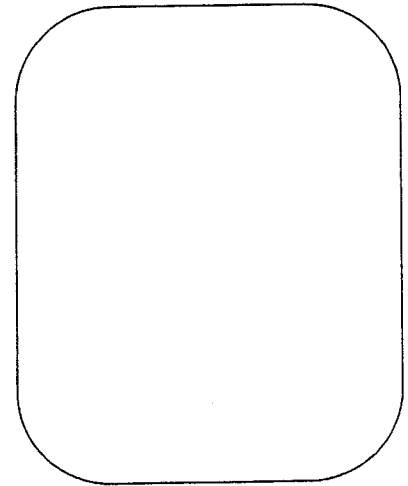
17. It is critical to the OWNER that elevator wall sconces in the garage are located as shown on the Electrical drawings. The electrical engineer confirmed that type 6 light fixtures will be mounted at 6'-8" A.F.F. to the bottom of the fixture.

- a.) Using the information provided in Exhibit 3D-12, what distance A.F.F. should the electrician mount the center of the junction box for the type 6 fixture. Note that the center of the j-box will also be the center of the fixture.
- b.) Compare the Architectural and Electrical plans for the southeast garage. Are there any discrepancies, which would affect the location of the type 6 light? If so, Please explain.



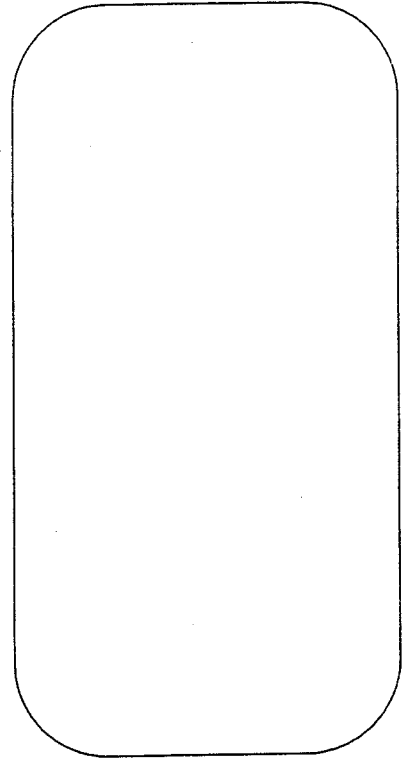
18. Site concrete work is ready to be procured. Your project team has determined that the site concrete subcontractor will excavate, supply and install reinforcing, set anchor bolt templates, and pour the footings for all the site light poles. The anchor bolt templates will be supplied by others. Before the contract is let, the number of site light pole footings to be excavated and poured must be determined.

- a.) Indicate the fixture types for all site light poles.
- b.) What is the fixture type for 8' tall light poles?
- c.) What is the fixture type for 10' tall light poles?
- d.) The structural engineer has provided a footing detail for light poles (see Exhibit 3D-13), and confirmed that this detail could be used for both 8' tall and 10' tall pole lights. How many site light poles meet this condition?
- e.) After carefully studying the plans, you have determined that not all site light poles are on grade. Some of the light poles are located on top of the podium level concrete deck (on structure). See Exhibit 3D-14 and provide the quantity of light poles on structure.



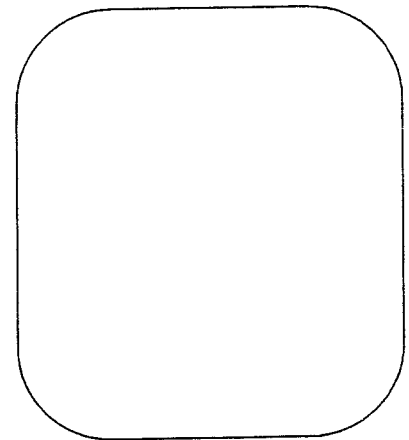
19.) The reinforcing steel subcontractor has submitted shop drawings for you to review and submit to the structural engineer for approval. Please indicate the bar sizes and list the appropriate structural details for all of the elements listed below:

- a.) Typical garage type A columns.
- b.) Typical drop panels at the 1<sup>st</sup> floor concrete deck. Show a diagram of the bar shapes.
- c.) Bottom, top, top center of support, and stirrup reinforcing for beam mark CB-4.
- d.) E-W running add bars at the 1<sup>st</sup> floor southwest deck at columns N/35 to K/35.
- e.) Wall reinforcing for the firelane perimeter wall located north of the pool area.



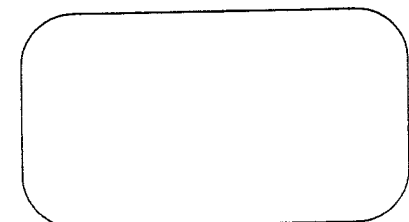
20. The mechanical subcontractor is ready to fabricate garage ductwork in the northwest garage below Bldg 4. To ensure that the ductwork is installed correctly and on time, your project manager has asked you to verify that the head height clearance below the ductwork complies with general note 1 on the Mechanical garage plans. The architect and mechanical engineer have confirmed that the south edge of ductwork should be located 2'-6" north of G line per Architectural plans in lieu of as shown on Mechanical plans.

- a.) Assuming that the bottom of the ductwork will be installed at a constant elevation based on the lowest ceiling height such as slab depressions, what is the elevation for the bottom of ductwork? Note, when calculating the depth of the ductwork, add 4" to the size shown on the Mechanical plan (for example, using a 48" x 12" duct, the bottom of ductwork will be 16" below the ceiling).
- b.) Does the ductwork comply with gen. note 1 on the Mechanical garage plans?



21. Review the Structural drawings and provide the following information relating to wood framing:

- a.) 3<sup>rd</sup> floor corridor ceiling joist size and spacing at Building 1.



- b.) 1st floor corridor ceiling joist size and spacing at Building 1.
- c.) Typical unit 2<sup>nd</sup> floor joist size and spacing at Building 1.
- d.) Shear wall mark 2 plywood thickness, nail size and spacing.

22. Per your subcontract agreement with the electrician, the CONTRACTOR, will supply all light fixtures. Recessed "can light" boxes must be installed after rough framing completes and before production drywall begins. It is time for you to order type 1 corridor light fixtures for Building 1. Please review Exhibit 3D-15. Do you see any problems with ordering the Building 1 type 1 "can light"? If so, please explain why.

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Review Exhibit 3D-16 and the Landscape Drawings. Do the fence and gates at the south end of the pool meet all the requirements of sections 3118B.1 and 3118B.2? If not please, describe any code violations.

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# BENCHMARK

Contractors, Inc.

## Request for Information

RFI No: 0126

Archstone-Playa Del Rey  
8700 Pershing Drive  
Playa Del Rey, CA 90293

Project # 01-810  
Tel: 310-574-9950 Fax: 310-574-9979

Benchmark Contractors, Inc.

Date: 4/9/02  
Submitted To: Rhoden Skyles  
Van Tilburg, Barvard & Soderbergh, AIA  
225 Arizona Avenue  
Santa Monica, CA 90401  
Tel: 310-394-0273 Fax: 310-394-2424

Authored By: Mark Manahan  
Benchmark Contractors, Inc.  
8700 Pershing Dr.  
Playa Del Rey, CA 90293  
Tel: 310-574-9950 Fax: 310-574-9979

Subject: 2" Conduit in Garage Slabs  
Discipline: Structural  
Document Reference: Number Title  
Revision Date and Number

----- No Reference Documents Listed -----

**Question** **Date Required: 4/10/02**

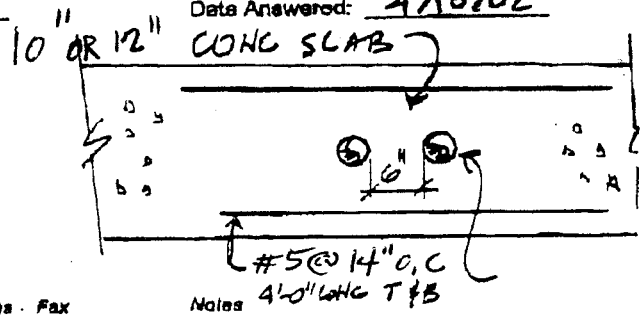
REF: S-1.2, 5S-2, A0.11  
Note J on sheet S-1.2 allows for 2" diameter conduit in slabs if locations are approved by the structural engineer

1. Please verify that it is acceptable to place 2" conduits for telephone and data lines running from the wire room in Building 2 to the telephone closets of each building at the Radium (1st Floor) as shown on SK126.A. ~~CONDUITS WITH AN OUTSIDE DIAMETER BETWEEN 1-1/2" & 2-1/2" IN GARAGE CONCRETE ELEVATED SLABS.~~

2. Also verify that 2" conduits can enter the P1 level of Garage 5 and run up the G line well per SK126.B.

**Answer** EDS 4-10-02 (This RFI is Due in 1 Day)  
Answered By: BOB BEGOVICH Date Answered: 4/10/02

- LOCATE 1 1/2" TO 2 1/2" O.D CONDUIT CENTER OF SLAB
- ADD 15 x 4'-0" AT 14" O.C. T & B



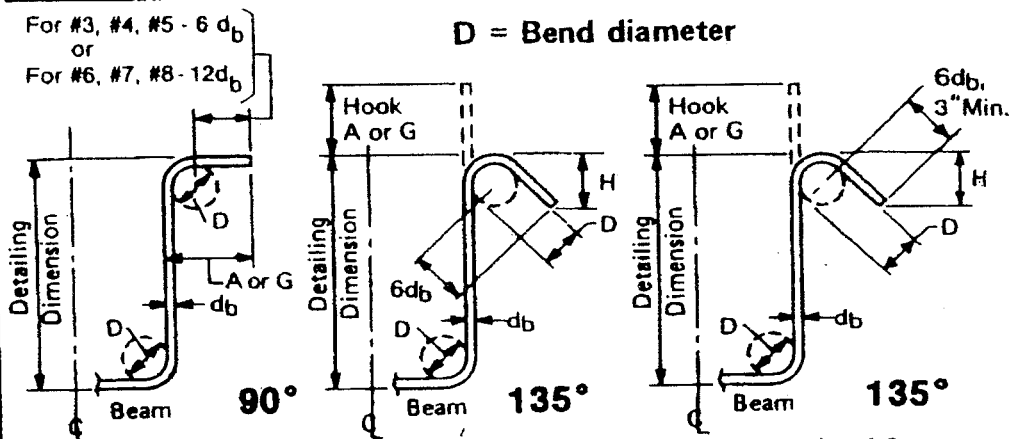
Copies To Company Name	Contact Name	Copies	Fax
Brian L. Cochran Associates	Bob Begovich	1	310-207-8188
Archstone Communities	Ciswaldo Lopez	1	949-453-8295
Archstone Communities	Julian Stephens	1	Jobsite

SK126.1.A

# ASTM STANDARD REINFORCING BARS

BAR SIZE DESIGNATION	AREA (Nominal) SQ. INCHES	WEIGHT POUNDS PER FT.	DIAMETER (Nominal) INCHES
#3	0.11	0.376	0.375
#4	0.20	0.668	0.500
#5	0.31	1.043	0.625
#6	0.44	1.502	0.750
#7	0.60	2.044	0.875
#8	0.79	2.670	1.000
#9	1.00	3.400	1.128
#10	1.27	4.303	1.270
#11	1.56	5.313	1.410
#14	2.25	7.650	1.693
#18	4.00	13.600	2.257

1. ASTM A615 Grade 40 is limited to sizes #3 through #6.
2. Check availability with local suppliers for #14 and #18.



**STIRRUP HOOKS**  
(Tie Bends Similar)

**SEISMIC STIRRUP / TIE**

BAR SIZE	D	90°			135°			BAR SIZE	135° SEISMIC HOOK		
		A or G	A or G	*H	A or G	*H	D		A or G	*H	
#3	1 1/2"	4"	4"	2 1/2"	#3	1 1/2"	4 1/4"	3"			
#4	2"	4 1/2"	4 1/2"	3"	#4	2"	4 1/2"	3"			
#5	2 1/2"	6"	5 1/2"	3 3/4"	#5	2 1/2"	5 1/2"	3 3/4"			
#6	4 1/2"	1'-0"	8"	4 1/2"	#6	4 1/2"	8"	4 1/2"			
#7	5 1/4"	1'-2"	9"	5 1/4"	#7	5 1/4"	9"	5 1/4"			
#8	6"	1'-4"	10 1/2"	6"	#8	6"	10 1/2"	6"			

\* H dimension is approximate

Archstone-Playa Del Rey  
8700 Pershing Drive  
Playa Del Rey, CA 90293

Project # 01610  
Tel: 310-574-9950 Fax: 310-574-9979

Benchmark Contractors, Inc.

Date 1/29/03  
Submitted To Clark Christianson  
Van Tilburg, Banvard & Soderbergh, AIA  
225 Arizona Avenue  
Santa Monica, CA 90401  
Tel: 310-394-0273 Fax: 310-451-3004

Authored By Mark Manahan  
Benchmark Contractors, Inc.  
8700 Pershing Dr.  
Playa Del Rey, CA 90293  
Tel: 310-574-9950 Fax: 310-574-9979

Subject **Common Area Tile Clarifications**

Discipline Architectural

Document Reference Number Title Revision Date and Number  
 \_\_\_\_\_ No Reference Documents Listed \_\_\_\_\_

**Date Required: 2/5/03**

**Question**

REF: L1.1A, L1.2, A0.16, A2.1, A2.2, A2.3, A4.5, A5.5, 15/A9.6  
 Note 8B on sheets L1.1A and L1.2 indicate 18"x18" Painted Pale Terra Cotta and Sonoran Pale Tan floor tiles at the Motor Court Entry and near the Sundeck Stair between the Fitness Center and Leasing Area.

1. At building 2, please confirm that the Entry Lobby (room 2-010), 1st floor corridor outside of the Fitness Center and Elevator Lobby (room 2-119), 2nd floor corridor (room 2-220), Elevator Lobby (room 2-219), Sundeck, and 3rd floor corridor (room 2-320) will also have 18"x18" Painted Pale Terra Cotta and Sonoran Pale Tan floor tiles.
2. Please confirm that the two colored tiles referenced above will be arranged in a checkerboard pattern.
3. The Paseo wall tile at buildings 4 and 5 per detail 15/A9.6 indicate Seneca Glazed Quarry Paver 12"x12" "Clay" Medium Terra Cotta Color for the exterior border tile. This tile only comes in 8"x8" or 4"x8". Please confirm that the 8"x8" is acceptable.

**Answer**

Answered By *Goldberg*

Date Answered: \_\_\_\_\_

Const. Doc's Clarification  Owner Requested Change  Consultant Coordination  Remedy for Non-Conformance w/Const. Doc's

*See attached 2-10-03*

(This RFI is Due in 7 Days)

**Copies To**

Company Name	Contact Name	Copies	Fax	Notes
Archstone-Smith Operating Trust	Al Udwin	1	949-206-1448	
Archstone-Smith Operating Trust	Julian Stephens	1	Jobsite	
Archstone-Smith Operating Trust	Patrice Goldberg	1	949-206-1391	
TGP	Rob Pressman	1	818-907-8461	



RFI No. 501

**Question 1:**

**Sonoran Pale Tan** only at 45°

- a) 2-010 (Entry Lobby)
- b) 3-229 (1<sup>st</sup> Floor Corridor outside Fitness Center and Elevator Lobby)
- c) 2-220 (2<sup>nd</sup> Floor Corridor)
- d) 2-320 (3<sup>rd</sup> Floor Corridor)
- e) 2-219 (Elevator Lobby) and 2-319 (Elevator Lobby)

**Checkerboard Pattern**

- f) At Sundeck

**Question 2:**

Two colored tiles referenced will be arranged in a checkerboard pattern – YES @ 45°

**Question 3:**

Paseo wall tile substitution of 8x8 **must be reviewed and confirmed by Landscape Architect**. May need to add another row of tile. See TGP response attached.

EXHIBIT 3D-3



Landscape Architecture  
Site Planning  
Urban Design

**FAX TRANSMITTAL**

DATE: 12 February 2003 JOB NO.: ARC 001  
TO: Mark Manahan & Clark Christensen  
COMPANY: Benchmark Contractors & VTBS  
FAX NO.: 310-574-9979 & 310-394-2424

TOTAL NUMBER OF PAGES (INCLUDING TRANSMITTAL): 1

TEL.: 818.907.8460

FAX: 818.907.8461

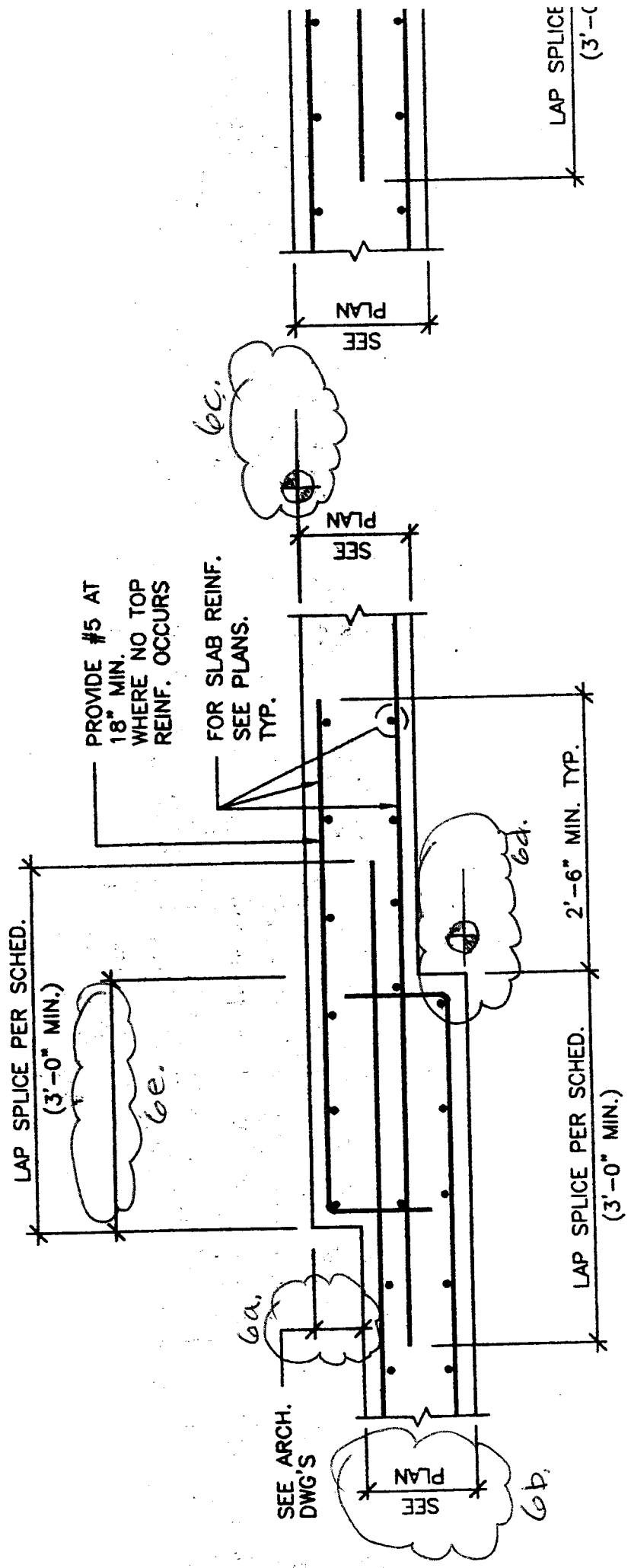
FROM: Diane Kern

Re: Archstone Playa Del Rey  
Seneca Tile for Paseo Wall Panel

Mark & Clark,

Please substitute **unglazed unflashed 'Scarlet' Seneca Tile in 12" x 12"** size for unavailable 12" x 12" glazed 'Clay' tile at wall panel. Available from Spec Ceramics; 714-680-6870, contact Will Stapp.

Please call if you have any questions. Thanks.



TYP. CHANGE

TYP. SLAB DEPRESSION (A)

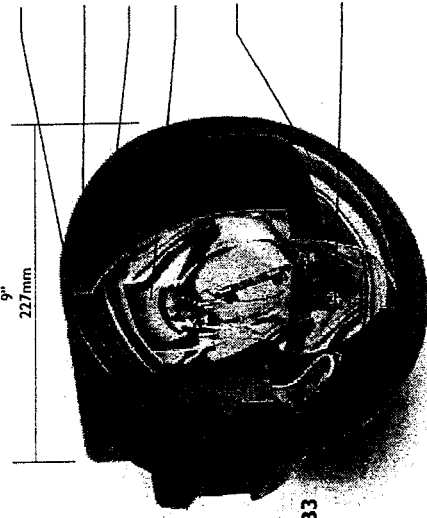
TYP. SLAB DEPRESSION AND CHANGE IN SLAB THICK

ST FIXTURE

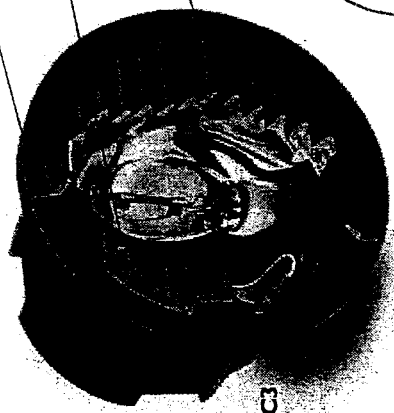
The RR3 Round Steplyte combines elegant styling with a lighting capacity of up to 70w metal halide with multiple lamping options available. The RR3 Round Steplyte can be specified with a wide light distribution bubble lens for further spacing of fixtures or a cast lower face plate with a shadow-free frosted lens.

ROUND STEPLYTES-9"

9" 227mm

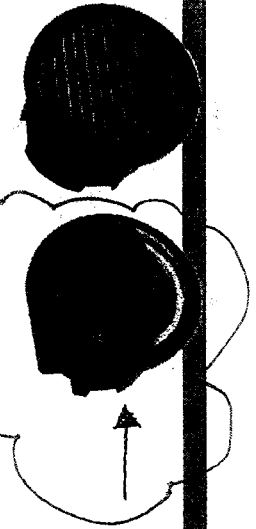
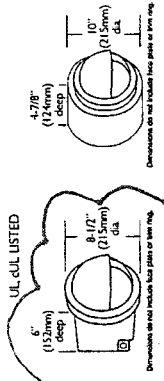


RRB3



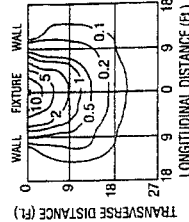
RRC3

- HOUSING:** Aluminum die-casting containing less than .3% copper to prevent corrosion in concrete applications.
- FASTENERS:** Capive, black oxide stainless steel
- GASKET:** Single piece molded silicone
- SOCKET:** UL listed for appropriate lamps with high pressure sodium sockets rated for 4 kv.
- LENS:** Bubble Lens- UV-stabilized injection molded clear polycarbonate bubble lens; lamp projects out of the wall, enabling efficient bare lumens to be directed down at ground level and a wide distribution for further spacing of fixtures.
- REFLECTOR:** RRB3, diffused specular aluminum; available in symmetric and asymmetric lens patterns; highly reflective; RRC3, highly reflective specular aluminum.
- WIRING COMPARTMENT:** Internal wiring compartment has a removable cover and contains two (2) 1/2" NPT conduit taps in the bottom and one (1) 1/2" NPT conduit tap in both sides. A removable plug will be provided for three (3) taps.
- BALAST:** (HID) are regulating with power factors better than 90% (HF). Ballasts shall provide +/-5% lamp power regulation with +/-10% input voltage regulation. Fluorescent ballasts (FL) are core and coil, NPF Class B, PL 2B is rated at -20°F starting temperature. Ballasts are factory wired and tested.
- Cast Louver-** Die-cut aluminum, offering 45° shielding; lens is frosted glass and attached to back of lower with stainless steel clips. Lens is completely sealed to prevent water, dust and insect infiltration.



PHOTOMETRIC INFORMATION

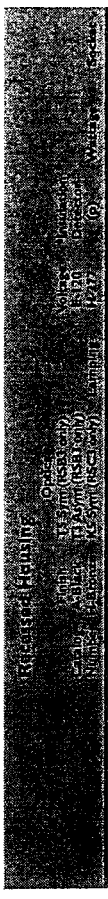
RRB3 - Symmetric reflector is precision formed, light diffuse aluminum, which produces a wide symmetric distribution for general lighting. Asymmetric reflector is precision formed, semi-specular and light, diffuse aluminum, which is field-adjustable for an asymmetric right or left distribution for lighting stairways. PL lamping not available in asymmetric.



RRB3 Distribution: Symmetric Lamp/Wattage: 60W MH Mounting Height: 3'

RRC3 - Asymmetric reflector is precision formed, highly polished specular aluminum. The frosted lens and cast lower offer lower light levels with cutoff for lighting stairways or general area lighting where shielding of the light source is more important than high light levels.

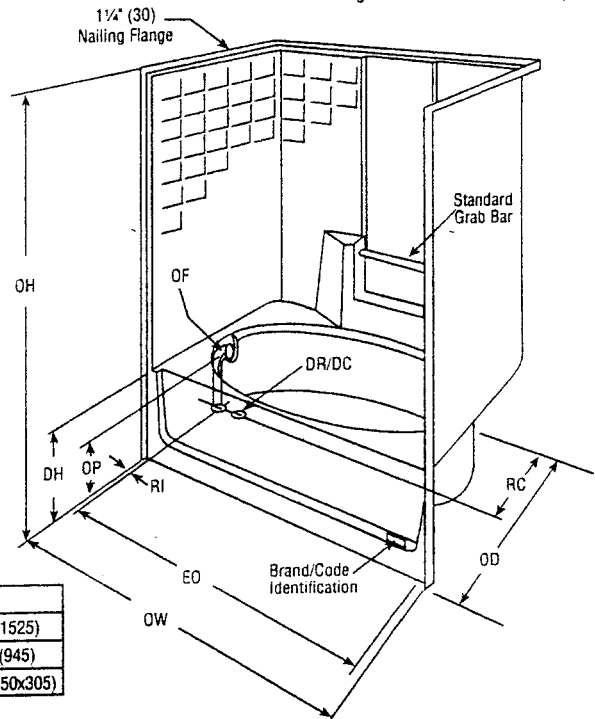
ORDERING GUIDE



RR3-HO	Specify	Housing only for pre-shipment
RRB3	Specify	4
RRB3	Specify	50W T4
RRB3	Specify	60W MH
RRB3	Specify	35W HPS
RRB3	Specify	28W PL28
RRB3	Specify	60W A19
RRC3	Specify	4
RRC3	Specify	50W T4
RRC3	Specify	60W MH
RRC3	Specify	35W HPS
RRC3	Specify	28W PL28
RRC3	Specify	60W A19
RRB3	Specify	50W T4
RRB3	Specify	60W MH
RRB3	Specify	35W HPS
RRB3	Specify	28W PL28
RRB3	Specify	60W A19
RRC3	Specify	50W T4
RRC3	Specify	60W MH
RRC3	Specify	35W HPS
RRC3	Specify	28W PL28
RRC3	Specify	60W A19
RRB3	Specify	50W T4
RRB3	Specify	60W MH
RRB3	Specify	35W HPS
RRB3	Specify	28W PL28
RRB3	Specify	60W A19
RRC3	Specify	50W T4
RRC3	Specify	60W MH
RRC3	Specify	35W HPS
RRC3	Specify	28W PL28
RRC3	Specify	60W A19
RRB3	Specify	50W T4
RRB3	Specify	60W MH
RRB3	Specify	35W HPS
RRB3	Specify	28W PL28
RRB3	Specify	60W A19
RRC3	Specify	50W T4
RRC3	Specify	60W MH
RRC3	Specify	35W HPS
RRC3	Specify	28W PL28
RRC3	Specify	60W A19



\* Insulation detector is required for installations in drywall plaster, wood or other non-masonry materials with the exception of fluorescent lamping and must be ordered as an option— add the suffix: "P" to the catalog number. ORDERING EXAMPLE: RRB3-A-K5-B-12-P  
 \*\* Lamp included.  
 \*\*\* When housing only is ordered for pre-shipment, add suffix "LH" (Less Housing) to complete catalog number to order fixture without housing.  
 ORDERING EXAMPLE: RRC3-A-T5-12-LH  
 See page 19 for mounting accessories.



ALCOVE	
Width	60 1/8" (1525)
Depth	37 1/4" (945)
DWO Box-Out	6"x12" (150x305)

MODEL #	SUMP DIMENSIONS					TOP OF DRAIN TO BOTTOM OF OVERFLOW	WATER CAPACITY				
	TOP	WIDTH	BOTTOM	TOP	DEPTH			BOTTOM	CAPACITY TO OVERFLOW		
2603-OCS 2603-OCSM	52"	(1230)	48 1/2"	(1230)	28"	(710)	25 1/2"	(650)	9 1/8"	(230)	58 gal. (219 ltr.)

STANDARD FEATURES	
<ul style="list-style-type: none"> <li>Lascoat Gelcoat finish, Fiberglass Reinforced Polyester</li> <li>Tub/shower combination</li> <li>4" textured tile design</li> <li>Oval sump</li> <li>Installed acrylic grab bar</li> <li>Integral soap shelves on back wall</li> </ul>	<ul style="list-style-type: none"> <li>Left or right hand drain option</li> <li>Slip resistant, textured bottom</li> <li>3-Year Warranty: Lascoat Finished Products</li> <li>†2603-OCSM: Above floor rough version of 2603-OCS</li> </ul>

OPTIONS
<ul style="list-style-type: none"> <li>Colors to match all major fixture brands</li> <li>Factory installed assisted care grab bars</li> <li>LASCO Door: Available with Chrome, Gold or White frame and Clear or Obscure glass. White door is available with Clear glass only.</li> </ul>

†Extended skirt allows for above-the-floor installation of waste, overflow, and drainage.

MODEL	2603-OCS	2603-OCSM
<b>Finish</b>	Textured Tile	Textured Tile
<b>OW</b> Overall/Net Width	60" (1525)	60" (1525)
<b>OD</b> Overall Depth Net Depth	37 1/4" (945) 36" (915)	37 1/4" (945) 36" (915)
<b>OH</b> Overall Height Net Height	73 1/4" (1860) 72" (1830)	76 1/4" (1935) 75" (1905)
<b>EO</b> Enclosure Opening	56" (1420)	56" (1420)
<b>DH</b> Dam Height	15" (380)	18" (460)
<b>RI</b> Rough-In	2 3/4" (70)	2 3/4" (70)
<b>RC</b> Rough-Center	18 1/8" (460)	18 1/8" (460)
<b>DR/DC</b> Drain Diameter Drain Clearance	2" (50) 1" (25)	2" (50) 4" (100)
<b>OF</b> Overflow Diameter	2 1/2" (65)	2 1/2" (65)
<b>OP</b> Overflow Height	12" (305)	15" (380)
<b>Approx. Weights</b> lbs. (kg.)	Net 134 (60) Pkgd. 139 (62)	Net 136 (63) Pkgd. 143 (65)
<b>LASCO Door</b> By-Pass	L6004	L6004
<b>Fax-On-Demand</b> Doc. #	1072	1073
<b>Region</b> Category	National	East of the Rockies



SK 163.1 A

## Economy Fluorescent Fan-Light

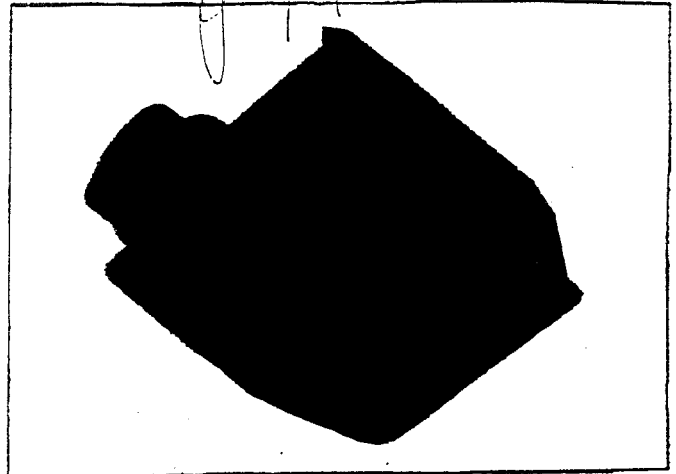
MODEL: 769RF

### DESCRIPTION

- Energy-saving Fluorescent Fan-Light Combination utilizes one (1) NEMA Type CFT 13W/GX23 13 watt compact fluorescent twin tube lamp (lamp must be purchased separately).
- White polymeric grille with break resistant polymeric lens.
- Quiet operation with molded polymeric duct collar and backdraft damper.
- 9" x 9" x 5 3/4" galvanized steel housing.
- Plug-in motor and light.
- Uses 4" duct.
- For baths up to 65 sq. ft., other rooms up to 85 sq. ft.
- Refer to NuTone's catalog for a complete listing of accessories to effectively adapt this Fan-Light Combination to your construction requirements.

*As specified on drawings*

7/23/01



### DESIGN FEATURES

- Air Delivery:** 70 CFM at 0.10" S.P.
- Sound Level:** 3.0 Sones.
- Dimensions:** Housing: 9" x 9" x 5 3/4".  
Grille: 10 3/4" x 12 1/4".
- Material & Finish:** Housing: Galvanized steel.  
Grille: White polymeric.
- Motor:** Shaded pole, thermally protected, 115vAC, 60 Hz, 1.1 amp.
- Blower Wheel:** One-piece polypropylene, 4 3/4" diameter.
- Duct Size:** 4" diameter.
- Electrical Rating:** 120 V, 60 Hz, 1.3 A.
- Mounting:** Mounting flanges provided.

### INSTALLATION

- Not for use in kitchens.
- Complete installation instructions are included with each unit.
- Suitable for use over tub or shower when installed in a GFI protected branch circuit.
- Type IC for use with thermal insulation.
- Not for use with solid state speed controls.

### ARCHITECT'S SPECIFICATIONS

Fluorescent Fan-Light Combination shall be NuTone Model Number 769RF as manufactured by NuTone according to listed specifications. Fan shall ventilate 70 CFM at 0.10 S.P. at a sound level of 3.0 Sones. Housing shall be 9" x 9" x 5 3/4" and connect to 4" duct.

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by      Date



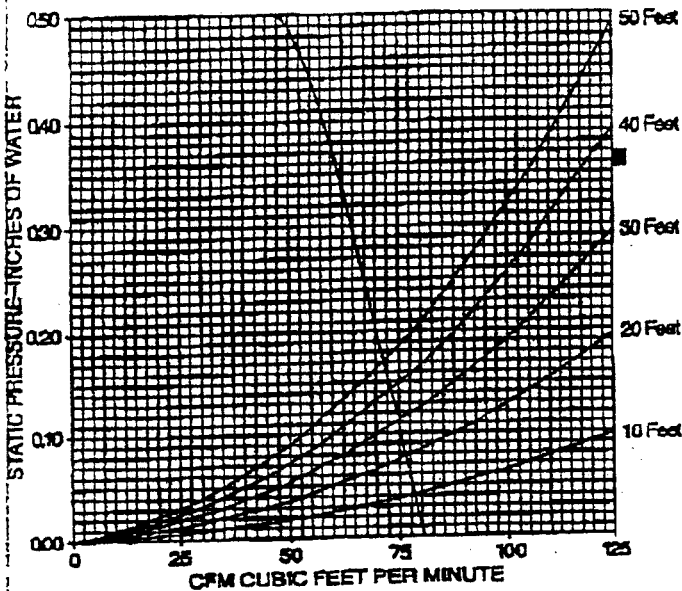
### CERTIFIED TEST DATA

HVI-2100 CERTIFIED RATINGS comply with new testing technologies and procedures prescribed by the Home Ventilating Institute, for off-the-shelf products, as they are available to consumers. Product performance is rated at 0.1 in. static pressure, based on tests conducted in AMCA's state-of-the-art test laboratory. Some are a measure of humanly-perceived loudness, based on laboratory measurements. This NuTone model is listed by Underwriters' Laboratories Inc.

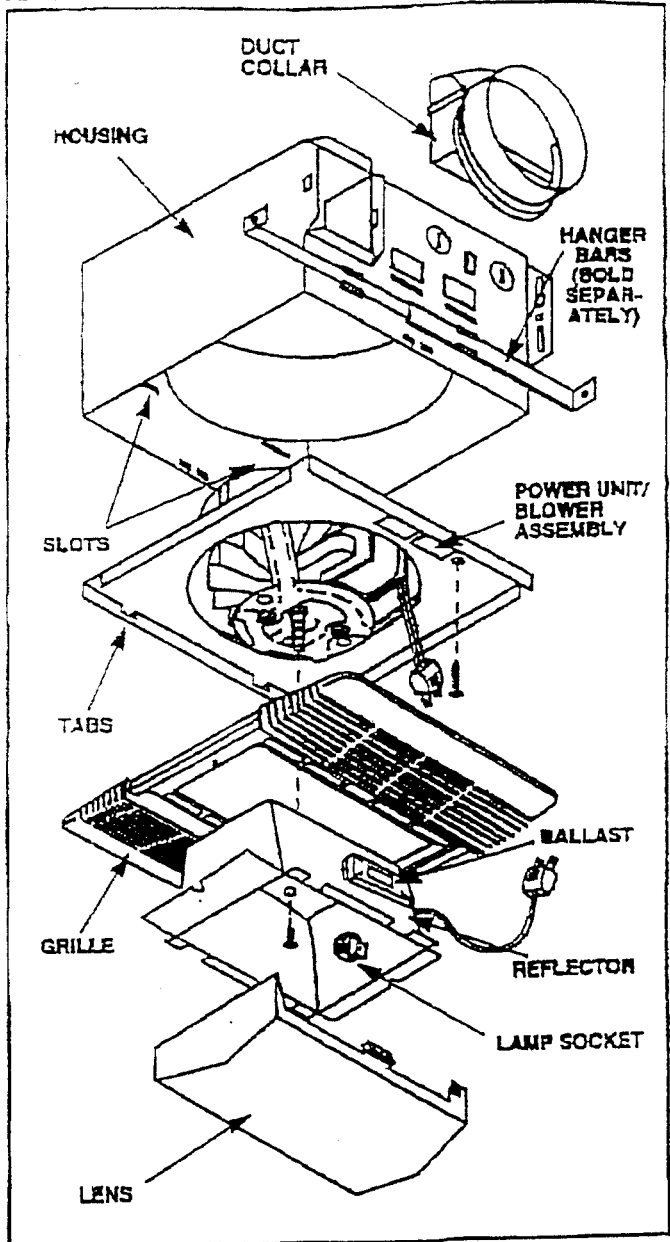
The air delivery of a ventilating system may be determined by:

1. Determine the equivalent duct length for each 90 degree elbow by adding one foot of duct length for each inch of duct diameter, i.e., a 4 inch diameter duct elbow equals 4 feet equivalent duct length and an 8 inch diameter duct elbow equals 8 feet equivalent duct length.
2. Add the total straight length of duct and the equivalent length for each elbow to obtain the total equivalent duct length.
3. Locate the intersection of the fan performance curve and the total equivalent duct length curves and draw a vertical line down to the CFM scale and read the system air performance.  
(NOTE: 3/4" x 10" duct equals 6 inch diameter duct.)

**AIR PERFORMANCE CURVE**  
(4 in. Duct to 10 Foot Lengths)



STATIC PRESSURE INCHES OF WATER	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45
CFM	77	75	73	70	68	65	62	59	54



SK 163.1 B

Product specifications subject to change without notice.

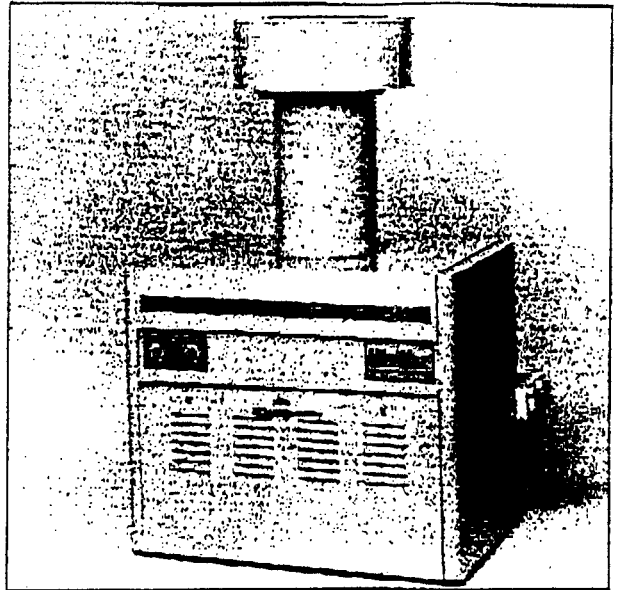
NuTone, Inc., 4820 Red Bank Road, Cincinnati, Ohio 45227  
Printed in U.S.A.

116)

# Indoor and Outdoor Vent Kits

For MiniMax Plus and PowerMax

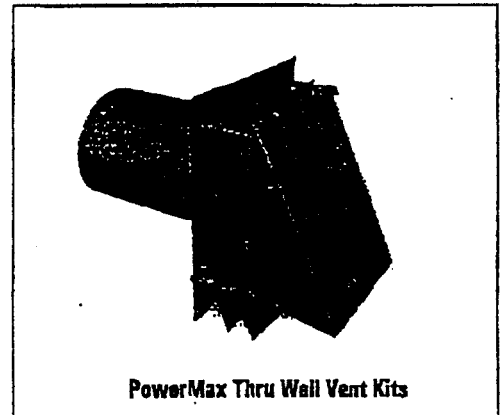
Indoor Installation			Outdoor, if required		
Product No.	Model No.	for Heater	Product No.	Model No.	for Heater
471187		100	471367		100
460227	DH15	150	460237	OV15	150
460228	DH20	200	460222	OV20	200
460230	DH25	250	460229	OV25	250
460231	DH30	300	460224	OV30	300
460233	DH35	350	460225	OV35	350
460234	DH40	400	460226	OV40	400
For Commercial MiniMax Heaters					
460355	DH525	525	460354	OV525	525
480320	DH750	750	460318	OV750	750
480321	DH900	900	460319	OV900	900



Vent Kits For PowerMax Heaters	
Outdoor Installation	
Product No.	for Heater
471395	150-200
471398	250-400

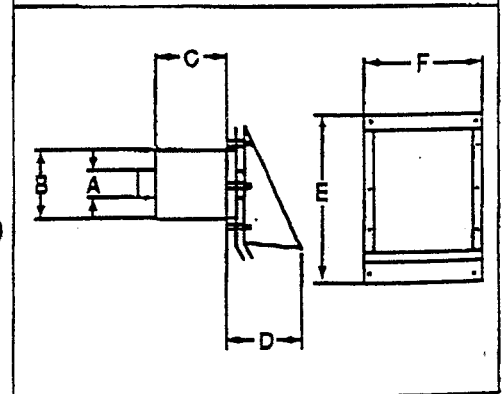
SK 134.1.B

109



PowerMax Thru Wall Vent Kits

Thru Wall Vent Kits For PowerMax Heaters							
Part Number	Heater Model	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F
471531	150 & 200	3 in. Dia.	5 in. Dia.	8 1/2 in.	4 3/8 in.	8 7/8 in.	7 5/8 in.
471632	250 - 400	4 in. Dia.	6 in. Dia.	8 1/2 in.	6 5/8 in.	12 5/8 in.	10 5/8 in.
471543	525	5 in. Dia.	8 in. Dia.	8 1/2 in.	8 in.	12 5/8 in.	10 5/8 in.
471544	750 & 900	6 in. Dia.	8 in. Dia.	8 1/2 in.	9 5/8 in.	12 5/8 in.	10 5/8 in.



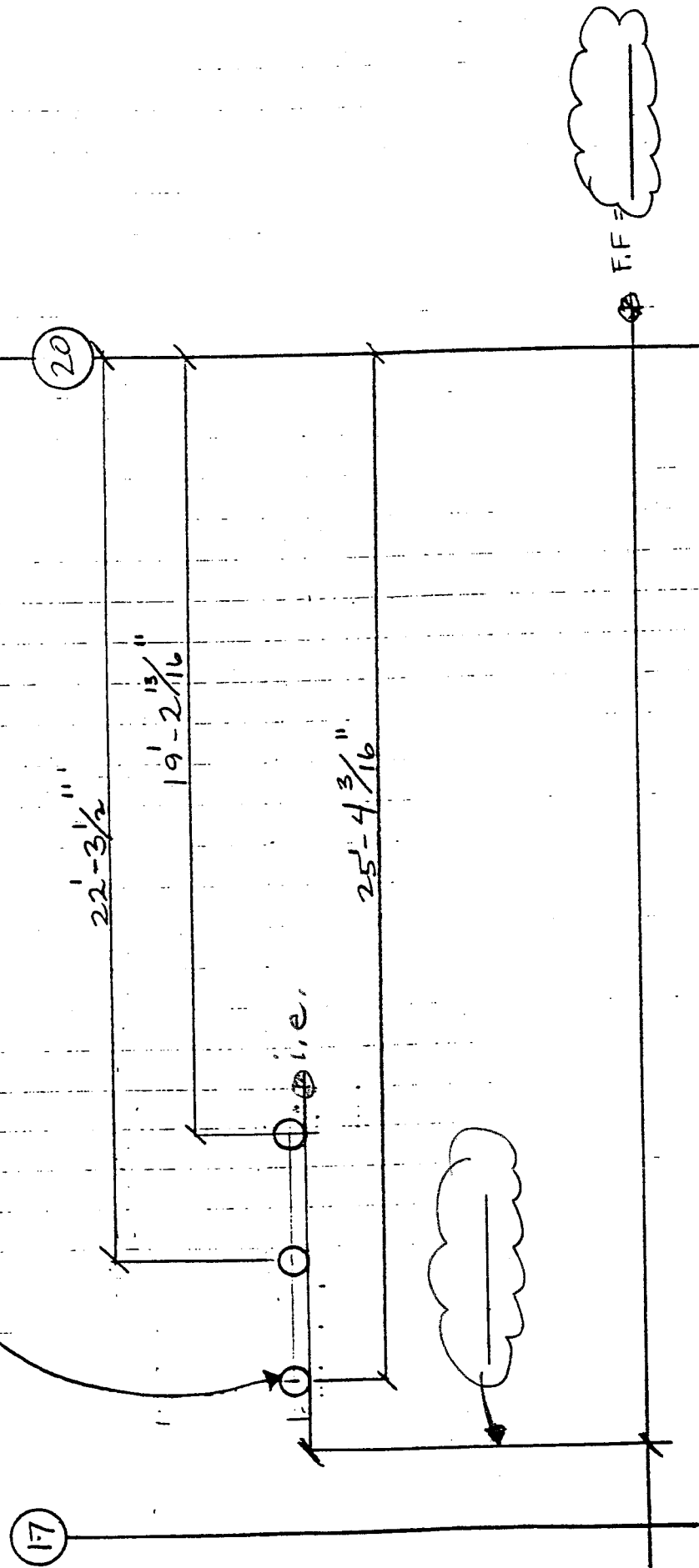
6" DIA.

Contact Factory for proper installation on older MiniMax Models.

See "Engineering Data", page 415, for information on selecting the proper size heater.



(3) 8" SLEEVES THRU 12" CMU WALL.

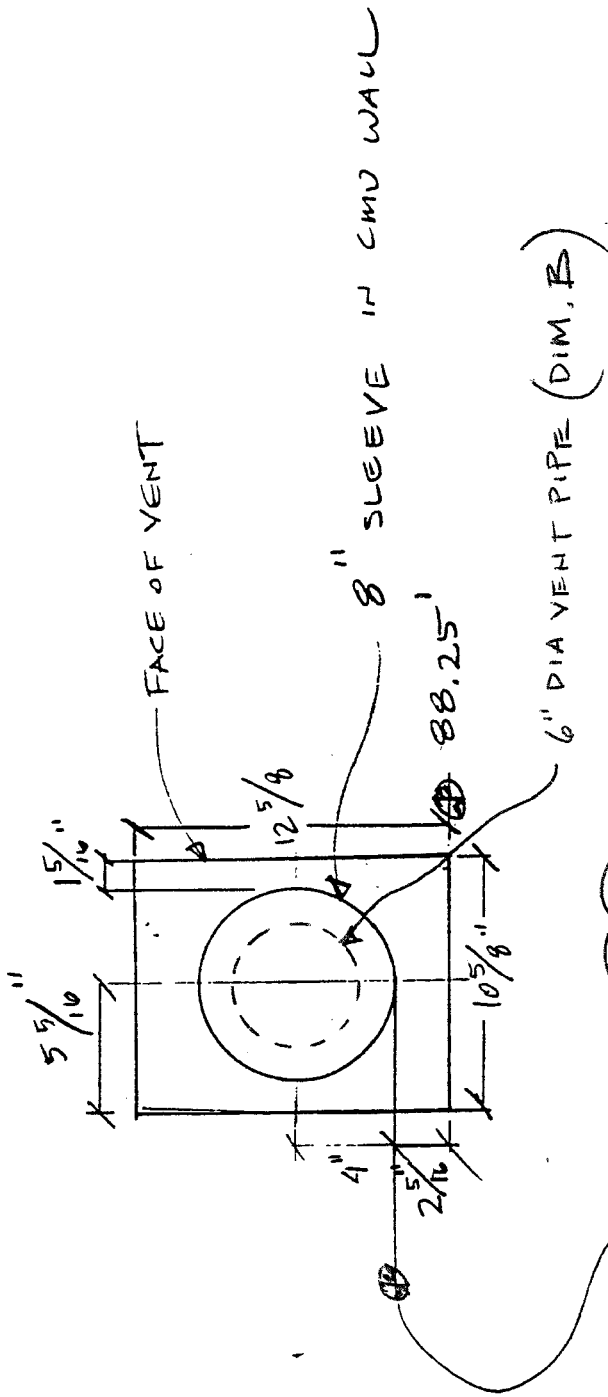


SLEEVE LAYOUT

SCALE  $\frac{1}{4}" = 1'-0"$

POOL EQUIP. RM GAR. 5 PI LEVEL

SK134.1.D



BLOW-UP OF VENT AND SLEEVE.

SK 134.1.C

**412.2 Location of Floor Drains.** Floor drains shall be installed in the following areas:

**412.2.1** Toilet rooms containing two (2) or more water closets or a combination of one (1) water closet and one (1) urinal, except in a dwelling unit. The floor shall slope toward the floor drains.

**412.2.2** Commercial kitchens.

**412.2.3** Laundry rooms in commercial buildings and common laundry facilities in multi-family dwelling buildings.

**412.3 Food Storage Areas.** If drains are provided in storerooms, walk-in freezers, walk-in coolers, refrigerated equipment, or other locations where food is stored, such drains shall have indirect waste piping. Separate waste pipes shall be run from each food storage area, each with an indirect connection to the building sanitary drainage system. Traps shall be provided if required under Section 801.2.2 of this Code and shall be vented.

Indirect drains may be located in freezers or other spaces where freezing temperatures are maintained, provided that traps, when provided, are located where the seal will not freeze. Otherwise, the floor of the freezer shall be sloped to a floor drain located outside of the storage compartment.

**412.4 Floor Slope.** Floors shall be sloped to floor drains where drainage occurs on a regular or frequent basis, or as otherwise required by the Administrative Authority.

**412.5** Shower receptors are plumbing fixtures and shall conform to the general requirements therefor contained in Section 401.0. Each such shower receptor shall be constructed of vitrified china or earthenware, ceramic tile, porcelain enameled metal or of such other material as may be acceptable to the Administrative Authority. No shower receptor shall be installed unless it conforms to acceptable standards as referenced in Chapter 3 and listed in Table 14-1 or until a specification or a prototype or both of such receptor has first been submitted to and approval obtained from the Administrative Authority.

**412.6** Each shower receptor shall be an approved type and be so constructed as to have a finished dam, curb, or threshold which is at least one (1) inch (25.4 mm) lower than the sides and back of such receptor. In no case shall any dam or threshold be less than two (2) inches (51 mm) or more than nine (9) inches (229 mm) in depth when measured from the top of the dam or threshold to the top of the drain. Each such receptor shall be provided with an integral nailing flange to be located where the

receptor meets the vertical surface of the finished interior of the shower compartment. The flange shall be watertight and extend vertically a minimum of one (1) inch (25.4 mm) above the top of the sides of the receptor. The finished floor of the receptor shall slope uniformly from the sides toward the drain not less than one-quarter (1/4) inch per foot (20.9 mm/m), nor more than one-half (1/2) inch per foot (41.8 mm/m). Thresholds shall be of sufficient width to accommodate a minimum twenty-two (22) inch (559 mm) door. Shower doors shall open so as to maintain a minimum twenty-two (22) inch (559 mm) unobstructed opening for egress.

Exception: Showers which are designed to comply with the accessibility standards listed in Table 14-1.

**412.7** All shower compartments, regardless of shape, shall have a minimum finished interior of one thousand twenty-four (1024) square inches (0.66 m<sup>2</sup>) and shall also be capable of encompassing a thirty (30) inch (750 mm) circle. The minimum required area and dimensions shall be measured at a height equal to the top of the threshold and at a point tangent to its centerline. The minimum area and dimensions shall be maintained to a point seventy (70) inches (1778 mm) above the shower drain outlet with no protrusions other than the fixture valve or valves, shower head, soap dishes, shelves and safety grab bars or rails. Fold-down seats in accessible shower stalls shall be permitted to protrude into the thirty (30) inch (750 mm) circle.

Exception: Showers which are designed to comply with the accessibility standards listed in Table 14-1.

**412.8** When the construction of on-site built-up shower receptors is permitted by the Administrative Authority, one of the following means shall be employed:

(1) Shower receptors built directly on the ground:

Showers receptors built directly on the ground shall be watertight and shall be constructed from approved type dense, non-absorbent and non-corrosive materials. Each such receptor shall be adequately reinforced, shall be provided with an approved flanged floor drain designed to make a watertight joint in the floor; and shall have smooth, impervious, and durable surfaces.

(2) Shower receptors built above ground:

When shower receptors are built above ground the sub-floor and rough side of walls to a height of not less than three (3) inches (76 mm) above the top of the finished dam or threshold shall be first lined

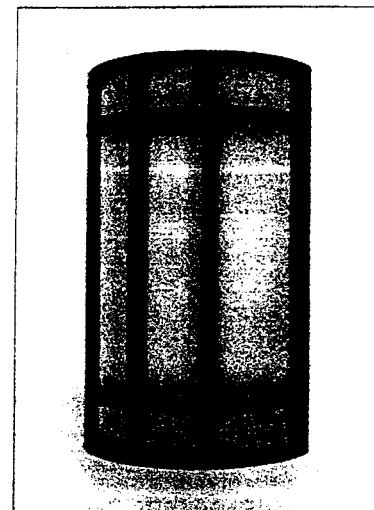
6

**RENO**

ITEM#	LAMP	LUMEN	POWER FACTOR	H	W	D
RE13	13W PL	800	NPF	10	6	4*
RE26T	26W TBX	1800	HPF	10	6	4*
RE213	2-13W PL	1600	NPF	15	9	4*
RE26Q	26W QUAD	1800	HPF	15	9	4*
RE226Q	2-26W QUAD	3600	HPF	15	9	4*
RE27B	27W BX	1800	HPF	20	10	5 1/2
RE227B	2-27W BX	3600	HPF	20	10	5 1/2

**STANDARD FEATURES**

- Construction - Solid Brass Square Tubing
- Finishes Available - 1.2.3.4.5.6.7.8.9 (See Page 1)
- Lens - Opal Acrylic
- \* ADA
- Voltage - 120
- Damp Location
- Wet Label - Consult Factory



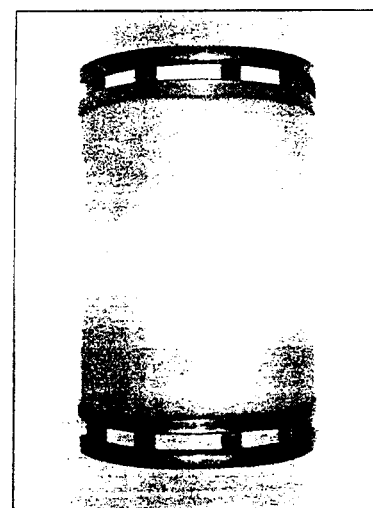
Open Top & Bottom

**CENTURY**

ITEM#	LAMP	LUMEN	POWER FACTOR	H	W	D
CE13	13W PL	800	NPF	11 1/2	7 3/4	4*
CE26T	26W TBX	1800	HPF	11 1/2	7 3/4	4*
CE213	2-13W PL	1600	NPF	12 3/4	7 3/4	4*
CE26Q	26W QUAD	1800	HPF	12 3/4	7 3/4	4*
CE226Q	2-26W QUAD	3600	HPF	12 3/4	7 3/4	4*

**STANDARD FEATURES**

- Construction - Solid Brass Material
- Finishes Available - 1.2.3.4.5.6.7.8.9 (See Page 1)
- Lens - Opal Acrylic
- \* ADA
- Voltage - 120
- Damp Location



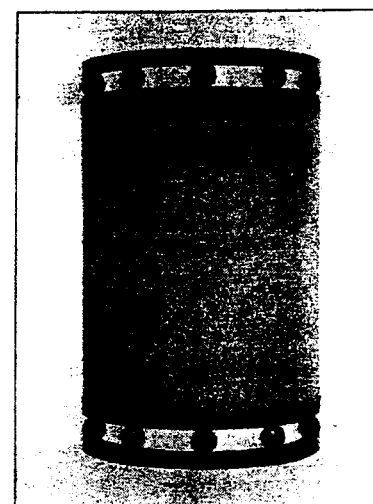
Open Top & Bottom

**OAKWOOD**

ITEM#	LAMP	LUMEN	POWER FACTOR	H	W	D
OA13	13W PL	800	NPF	11 1/2	7 3/4	4*
OA26T	26W TBX	1800	HPF	11 1/2	7 3/4	4*
OA213	2-13W PL	1600	NPF	12 3/4	7 3/4	4*
OA26Q	26W QUAD	1800	HPF	12 3/4	7 3/4	4*
OA226Q	2-26W QUAD	3600	HPF	12 3/4	7 3/4	4*

**STANDARD FEATURES**

- Construction - Solid Brass Material
- Finishes Available - 1.2.3.4.5.6.7.8.9 (See Page 1)
- Lens - Opal Acrylic
- \* ADA
- Voltage - 120
- Damp Location



Open Top & Bottom

**ORDERING INFORMATION (REFER TO PAGE 1)**

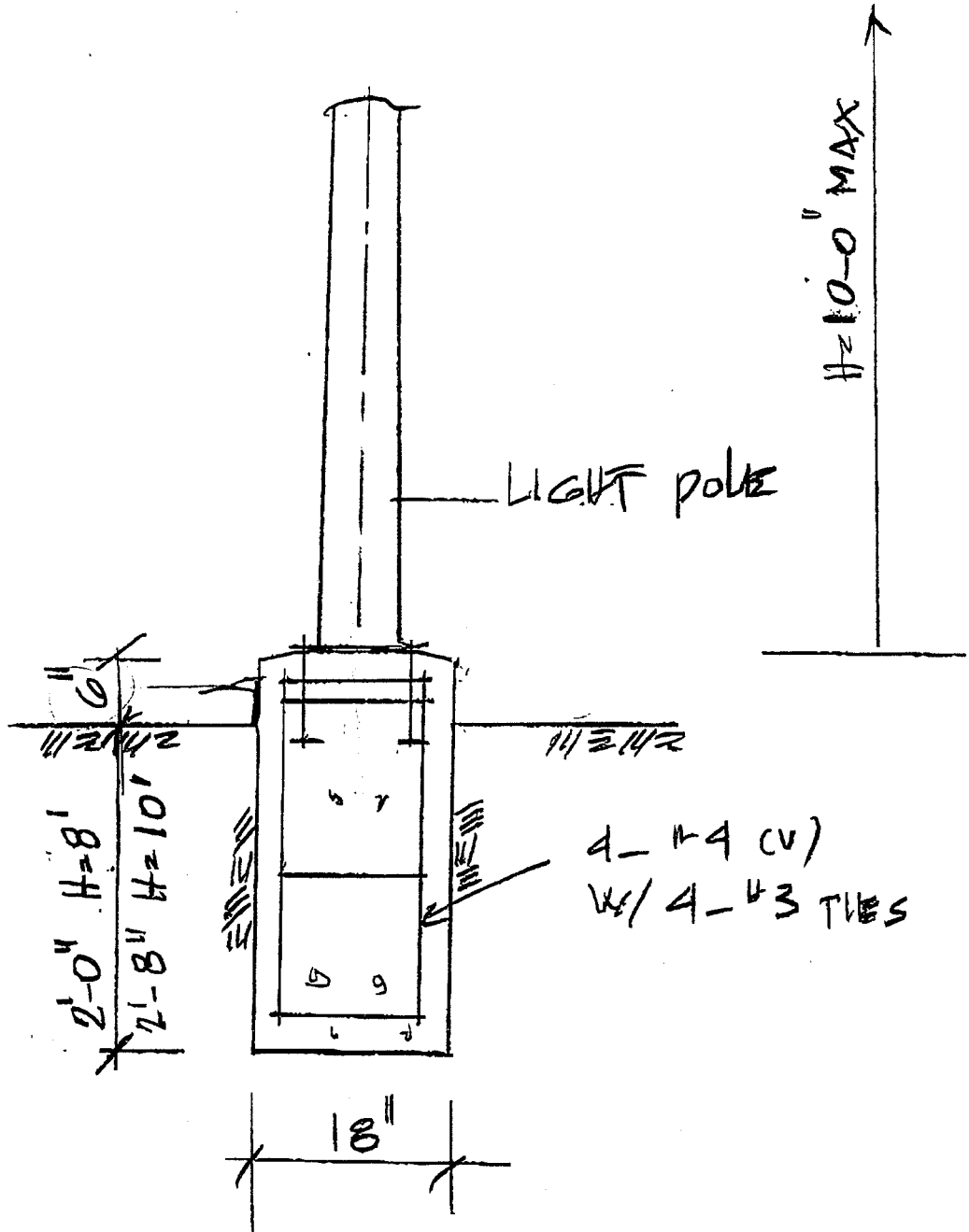
All products are manufactured in the U.S.A.



**EVERGREEN**  
lighting

PROJECT: ARCHSTONE - PLAYA DEL REY	JOB NO: 00-154
CLIENT:	DATE: 3/7/03
CAD FILE:	SKETCH NO: SK-71

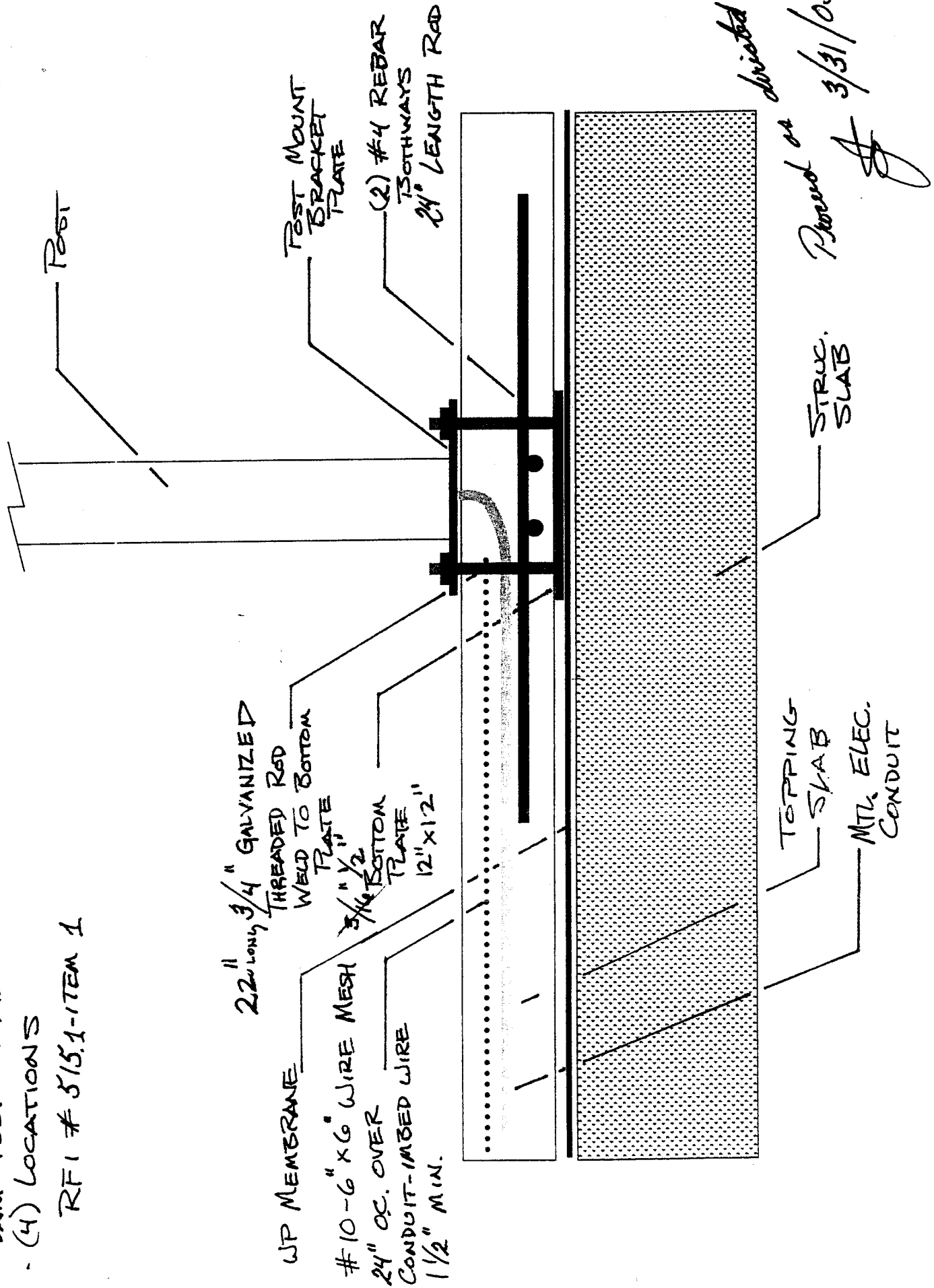
RFR BH 575



LIGHT POLE FTG

ASMSK 515.11

- BUILD 1 AND 3 COURTYARD LAMP POST DETAIL
- (4) LOCATIONS
- RFI # 515.1-ITEM 1



22" LONG, 3/4" GALVANIZED  
 TREADED ROD  
 WELD TO BOTTOM  
 PLATE

5/8" x 1/2"  
 BOTTOM  
 PLATE  
 12" X 12"

WP MEMBRANE  
 #10-6" X 6" WIRE MESH  
 24" OC. OVER  
 CONDUIT-IMBED WIRE  
 1/2" MIN.

divided  
 Prepared on 3/31/03  
 J

TOPPING  
 SLAB

STRUC.  
 SLAB

MTL. ELEC.  
 CONDUIT

**COMPACT "PL" FLUORESCENT**

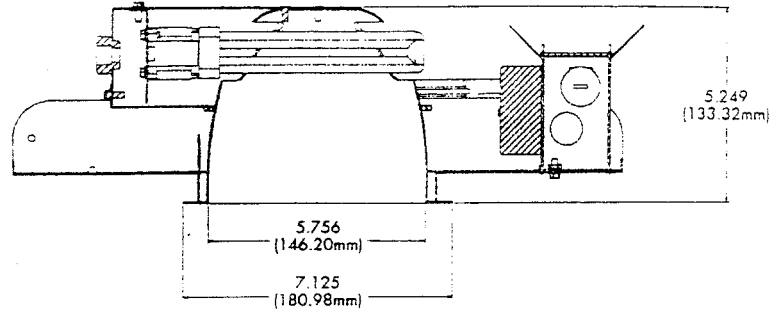
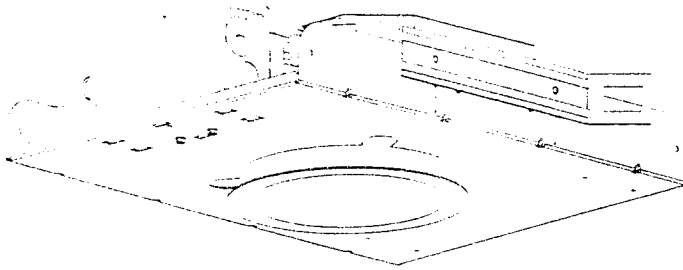
JOB Playa

TYPE 1

VOLTAGE 120

6" ROUND RECESSED DOWNLIGHT

PH60-213Q-G24Q-1-E1  
-C73



PAN SIZE: 12.00 x 16.25  
PAN SIZE w/SCA: 12.00 x 16.25

CEILING CUT OUT: 6.50  
CEILING CUT OUT: 9.125

**CATALOG NUMBER**

SERIES	WATTAGE	4-PIN	2-PIN
PH60	213Q	G24q-1	GX23
PH60	218Q	G24q-2	G24d-2
PH60	226Q	G24q-3	G24d-3
PH60	132T-EB	GX24q-3	N/A
PH60	142T-EB	GX24q-4	N/A

- Self-flanged aluminum reflector with semi-specular/low iridescent (CS) finish.
- Three piece socket assembly with twin sockets.
- 120/277 volt. (Specify when ordering.)
- Pan/plaster mounting frame: galvanized steel construction.
- Adjustable mounting brackets (bar hangers optional).
- Prewired at factory for easy field installation.
- Wet location under covered ceiling.
- Lamp by others.
- Easy access 14-ga. galvanized steel junction box with (2) snap-on covers.
- UL/cUL listed for through branch circuit wiring.
- Single lamp available.

**OPTIONS & ADDERS**

**SUFFIX**

Straw Reflector	-STR
Champagne Gold Reflector	-CG
Gold Reflector	-GD
Wheat Reflector	-WT
Umber Reflector	-UM
Pewter Reflector	-PW
Satin-Glow Reflector	-SG
PL Emergency Battery Pack	-EM
Fuse	-F
Bar Hangers (2)	-BH
Slope Ceiling Adapter (Specify Degree) 5° Increments *10-45°	-SCA (DEG.)
Matte White Trim	-MWT
Micro-Baffle	-MB
Accent Cone (Special Color - Consult Factory)	-AC
Electronic Dimming Ballast	-DIM
Electronic Ballast	-EB
C73 w/AC or MB (Please specify)	-C73/
FF w/AC or MB (Please specify)	-FF/
CGS w/AC or MB (Please specify)	-CGS/
Wall Wash (not available with AC or MB)	-WW
Luminous Disk	-LD



**FIXTURE SUBMITTED/APPROVED**

**SECTION 3117B — HOSE BIBBS**

Hose bibbs shall be provided for each pool and located so that all portions of the pool deck area may be reached with a 75-foot (22 860 mm) length of hose attached to the hose bibb. Hose bibbs shall be located so that they do not constitute a safety hazard and shall be protected against backflow.

**SECTION 3118B — ENCLOSURE OF POOL AREA**

**3118B.1 Enclosure.** The pool shall be enclosed by one or a combination of the following: a fence, portion of a building, wall or other approved durable enclosure. Doors, openable windows, or gates of living quarters or associated private premises shall not be permitted as part of the pool enclosure. The enclosure, doors and gates shall meet all of the following specifications:

1. The enclosure shall have a minimum effective perpendicular height of 5 feet (1524 mm) as measured from the outside as depicted in Figures 31B-4 and 31B-5.
2. Openings, holes or gaps in the enclosure, doors and/or gates shall not allow the passage of a 4 inch (102 mm) diameter sphere. The bottom of the enclosure shall be within 2 inches (51 mm) of the finished grade.
3. The enclosure shall be designed and constructed so that it cannot be readily climbed by small children. Horizontal and diagonal member designs, which might serve as a ladder for small children, are prohibited. Horizontal members shall be spaced at least 48 inches (1219 mm) apart. Planters or other structures shall not be permitted to encroach upon the clear span area as depicted in Figure 31B-5. Chain link may be used provided that openings are not greater than 1<sup>3</sup>/<sub>4</sub> inches (44 mm) measured horizontally.

**3118B.2 Gates.** Gates and doors opening into the pool enclosure shall also meet the following specifications:

1. Gates and doors shall be equipped with self-closing and self-latching devices. The self-latching device shall be designed to keep the gate or door securely closed. Gates and doors shall open outward away from the pool except where otherwise prohibited by law. Hand activated door or gate opening hardware shall be located at least 3<sup>1</sup>/<sub>2</sub> feet (1067 mm) above the deck or walkway.
2. Except as otherwise provided herein, gates and doors shall be capable of being locked during times when the pool is closed. Exit doors which comply with Chapter 10 shall be considered as meeting these requirements.

**EXCEPTION:** Doors leading from areas of hotels and motels, as defined in Business and Professions Code Section 25503.16 (b), which are open to the general public, e.g., restaurants, lobbies, bars, meeting rooms and retail shops need not be self-latching.

3. The pool enclosure shall have at least one means of egress without a key for emergency purposes. Unless all gates or doors are so equipped, those gates and/or doors which will allow egress without a key shall be clearly and conspicuously labeled in letters at least 4 inches (102 mm) high "EMERGENCY EXIT."
4. The enclosure shall be designed and constructed so that all persons will be required to pass through common pool enclosure gates or doors in order to gain access to the pool area. All gates and doors exiting the pool area shall open into a public area or walkway accessible by all patrons of the pool.

**3118B.3 Retroactivity.** Sections 3118B.1 and 3118B.2 shall apply only to a public swimming pool constructed on or after July 1, 1994.

**3118B.4 Enclosure of Pools Constructed Prior to July 1, 1994.** When the physical characteristics of a site preclude providing a 4 foot (1219 mm) deck around the perimeter of an existing

pool, the enforcing agency may allow the installation of an enclosure which reduces the pool deck to less than 4 feet (1219 mm) in width.

**SECTION 3119B — SIGNS**

**3119B.1 Occupant Load Sign.** A sign with clearly legible letters not less than 4 inches (102 mm) high shall be posted in a conspicuous place near the main entrance to a pool which shall indicate the number of occupants permitted for each pool.

**3119B.1.1 Spa pool.** The occupant capacity of a spa pool shall be based on one bather for every 10 square feet (0.929 m<sup>2</sup>) of pool water surface area.

**3119B.1.2 Other pools.** The occupant capacity of all other pools shall be based on one bather for every 20 square feet (1.858 m<sup>2</sup>) of pool water surface area.

**EXCEPTION:** Occupant capacity requirements do not apply to wading pools.

**3119B.2 Signs for Shallow Pool.** Signs with clearly legible letters not less than 4 inches (102 mm) high shall be posted in a conspicuous place and shall state: NO DIVING ALLOWED.

**3119B.3 Warning Sign for Pool Using Gas Chlorine.** Pools at which gas chlorine is used for disinfection shall have a conspicuously posted sign on the exterior side of the entry door to the chlorine room, or on the adjacent wall area. In addition to displaying the appropriate hazard identification symbol for gas chlorine, the sign shall state with clearly legible letters not less than 4 inches (102 mm) high the following: DANGER: GASEOUS OXIDIZER-CHLORINE.

**3119B.4 Warning Sign for Pool without Pool Lighting.** Where pool lighting fixtures which comply with Section 3114B are not provided, a sign with clearly legible letters not less than 4 inches (102 mm) high shall be posted in a prominent place near each entrance to the pool area. This sign shall state NO USE OF POOL ALLOWED AFTER DARK.

**3119B.5 Warning Sign for a Spa Pool.** A precaution sign with clearly legible letters shall be posted in a prominent place near the entrance to a spa pool which shall contain the following language:

**CAUTION**

1. Elderly persons, pregnant women, infants and those with health conditions requiring medical care should consult with a physician before entering a spa.
2. Unsupervised use by children under the age of 14 is prohibited.
3. Hot-water immersion while under the influence of alcohol, narcotics, drugs or medicines may lead to serious consequences and is not recommended.
4. Do not use alone.
5. Long exposure may result in nausea, dizziness or fainting.

**3119B.6 Approved Signs.** Approved signs shall be maintained in a legible manner.

**SECTION 3120B — INDOOR POOL VENTILATION**

A pool located indoors shall be ventilated according to acceptable engineering principles.

**NOTE:** See Section 1202.2 for ventilation requirements for dressing and toilet rooms.

**SECTION 3121B — FOUNDATIONS FOR POOL EQUIPMENT**

Pool equipment shall be mounted on a portland cement concrete or other easily cleanable nonabsorbent floor material. Floors



