

Construction system.

Armentación.

- Concrete tests - Chavez + Ramirez.
- Reason for cracks still not clear.
- Amount of reinforcement needed.

Columnas.

- JULIO: 1. Assure that they all come out same height as to be.
2. Modify mold to allow hole to be broken out of side.

Muros.

Modulation.

Thermal character - results of our tests.

Trabes

Amt of steel.

Decrease amt. of concrete.

Bovedas.

Material to use at joint between frontone and vault - like an expansion joint.

Waterproofing.

~~★~~ Soap test.

Decoración Decoración
Plumbing

Chavez
Ramirez
Chavez
Ramirez
Chavez
Ramirez

COST ESTIMATE FOR ARCADES FOUNDATION.

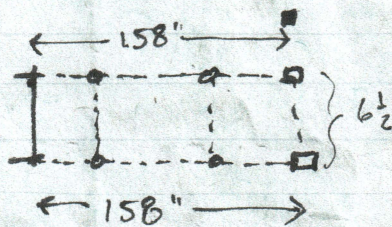
	CONCRETE BLOCKS @ 4.7 pesos	BEAM LENGTH	CONCRETE 1:9 @ .05 m ³ /m ² @ 1.9 pesos	3/8" RE-BAR	COST.
COMMON - ENTRY	7 1/2	17.4m	.87	17.4m	
COMMON - REAR.	14	38.5m	1.9	38.5m	
	21.5 / 101p		2.8 / 447	55.9 / 181 pesos	729 pesos
REYES	2 1/2	28' = 8.54m	.43	8.5m	
DURAN.	8	19.3m	.97	19.3m	
COSIO	5	12.3m	.62	12.3m	
TAPIA	3	22'-7" = 6.9m	.35	6.9m	
RODRIGUEZ	3	6.8m	.34	6.8m	
<u>TOTAL.</u>	43		5.48	109.7m 12 bars	
	202 pesos		874.6	356 pesos	1432 pesos

COST ESTIMATE FOR ARCADES + ENTRY - FOUNDATION.

TOTAL LENGTH OF BEAM. (incl. CROSS-BEAMS).

LONG ARCADE

ENTRY,



COLUMN FOUNDATION BLOCKS.

RE-BAR #3.

CONCRETE

CEMENT

GRAVEL

REVELTO.

TOTAL

FAMILIA
ARQUITECTO-CONSTRUCTOR

OPERACION 5. COLUMNAS
FECHA A EMPEZAR:

Unidad de medida: # columnas
Límite: .53 x área techada de la casa = _____ columnas
Casa tiene _____ columnas

Requisition de materiales

Material	Cantidad/Columna	Costo	Limit	Duran	Royes	Cant. del Rodriguez	Tapia	(Exceso)	TOT
BLOQUES DE COLUMNA	12	516		420	470	432	420		2258
VARILLA 3/8"	7 1/2'	322.5	11.5	262.5	295	270	262.5		1412.5
MEZCLA 1:9	.037 m ³								
CEMENTO	.004 m ³	0.172	5.5	0.14	0.156	0.144	0.14	4.5	0.752
GRAVA	.012 m ³	0.516		0.42	0.468	0.432	0.42		2.256
REVUELTO	.024 m ³	1.032		0.84	0.936	0.864	0.84		4.512

✓ VARILLA 3/8" x 30' = 48 piezas

✓ CEMENTO, $0.752 \div 0.032 = 23.5 \approx 24$ sacos.

✓ GRAVA = 1 VIAJE 4m³

✓ REVUELTO = 4.512 \approx 2 VIAJES

COLUMNS

1. Order re-bar for columns.
2. Order cement for columns.
3. Order reuelto + gawa for columns.

SCAB

- 1 vija more of reuelto (maybe)
- 1 vija more of gawa (maybe)
- 1 bag more of oxido rojo (maybe).

TOMORROW.

quantities of oxido rojo.
reuelto + gawa - clean it up.
Check on quantity of cr.

17
24

27

28

29

30

31

1

2

3

H.D. AQUÍ

OPERATION 4.
SLAB MATERIALS ORDER.

$\frac{40m^3}{.032m^3/sack}$

TOT.

Montaño

CEMENT — 144 sacks.

29.50/sack

4248

Prouensa

VARILLA #3 — 58 bars.

29.70/bar

1663

MAJLA DE ALAMBRE 6" — 302m²

8.3/m²

2506.6

Antonio Soto

REVOCCO 26.6 m³

65 p/m³

1729

GRANA 3/4" 13.3 m³

155 p/m³

2061.5

Tres Ems.

OXIDO ROJO 2sacks

221.60/sack

443.2

TOTAL

12651.3

11205.7

5%

523.8 meters

~~3.28 ft/m~~

.305 m/ft

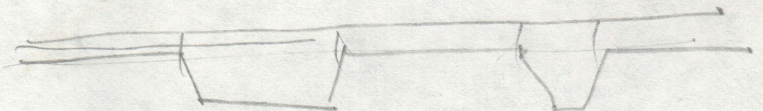
30 ft/bar

m P/m

159.6

40

3



8564

32

h

.05 m³/m² slab

.04 m³/m² beams

.08 m³/m² beams

.13 m³/m² total



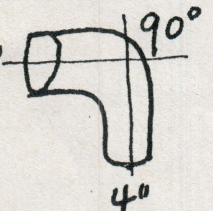
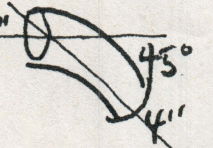
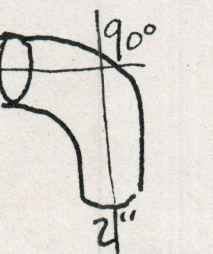

.08 m³/m²

.05 m³/m²

TOTAL

DRENAJE (DIBUJO EN LA PROXIMA PAGINA)

Por

Material	Cosco	Cantidad Solicitada				TOTAL
		Duran	Reyes	Rodriguez	Tapia	
TUBO 4"	10.0	3.10	3.10	6.25	1.1	23.55m
TUBO 2"	6.50	8.95	10.50	6.60	14.8	47.35m
	✓	✓	✓	✓	✓	5
	✓	✓	✓	✓	✓	5
						
						
	✓	✓	✓	✓	✓	18
	✓	✓	✓	✓		5

10.0
 3.1
 3.1
 6.25
 1.1

 23.55

6.5
 8.95
 10.50
 6.60
 14.8

 47.35

20' x .305m/ft = 6.1m

.305
 20

 6.10
 2.9

 9.0

TOTAL

Material

Cosmo

Duan

Cantidad Solicitada

Reyes

Rodriguez

Tayra

TOTAL



1

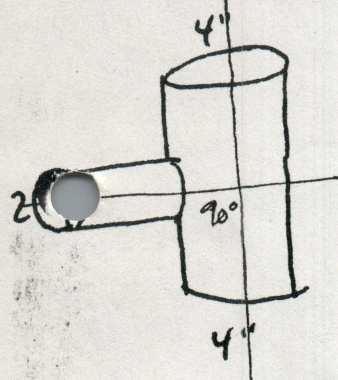
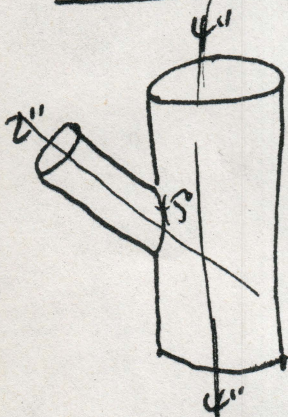
1

1

1

1

5



✓

✓

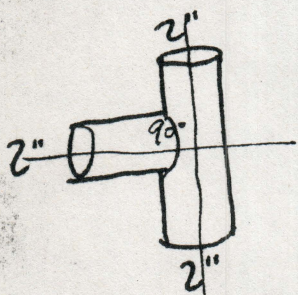
✓

1

1

1

3

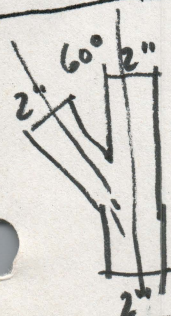


2

3

2

7



1

1

NIPLE 2"

2

2

TOTAL

11205.70

FAMILIA _____
 ARQUITECTO-CONSTRUCTOR _____

OPERACION #. PISO _____
 FECHA A EMPEZAR: Martes 9 marzo

Limite = $.71 \times \text{area techada de la casa} = \text{_____ m}^2$
 Casa tiene _____ m² del piso collado

Requisition de materiales

Material	Cantidad/m ²	Cantidad					TOTAL
		67.17 <small>Temp limita</small>	50.02 <small>Glavin Limita avez</small>	58.73 <small>Daniel Ema</small>	63.92 <small>Ludov Solidada</small>	62.02 <small>Ramiro Oscar (Exceso)</small>	
VARILLA #3	.88 m <i>new</i>	120m	106.8 m	105m	85.00 m	107m	523.8 <small>58 bars 1723p</small>
MALLA DE ALAMBRE	1 m ²	67.17	50.02 m ²	58.73	63.92	62.02	302 m ² 2505 p
CONCRETO	.09 m ³ <i>new</i>	6.045	4.51	5.28	5.75	5.58	27.17 m ³ 4336 p 40 m ³
REVUELTO	.06 m ³	⑥ 4.03	3.01 ④.5	3.52 1.25 ⑤.27	3.83 1.9 ⑤.73	3.72 1.66 ⑤.38	26.6 5870 p
GRAVA	.03 m ³	2.015	1.50	1.76	1.91	1.86	13.3
CEMENTO	.01 m ³	0.1671 335 1.006	0.50 25 .75	1.58 29 .87	1.64 32 .96	0.62 31 .93	444
<u>CAPA DE OXIDO ROJO</u>			0.0125				
OXIDO ROJO	.00025 m ³	0.017 34.	25	.014 28	.016 32	.0155 31	.075 2 sacos
TIERRA LIMO	.0005 m ³	0.034	0.025	.029	.0320	0.031	.15 <small>there now</small>
CEMENTO	.0005 m ³	1.006 0.034	0.025	.87 1.029	.96 1.0320	0.031 .93	.15 5 sacos
(TOTAL DE CEMENTO = PISO + CAPA)		0.705	0.525	.609	.672	0.651	3.162 m ³ 99 bags 2915 pesos

1.640
32 bags
.775
24 bags
.899
28 bags
99.20
3 bags
9.61
30 bags

TOTAL.

FAMILIA _____
 ARQUITECTO-CONSTRUCTOR _____

OPERACION 3. CIMENTACION
 FECHA A EMPEZAR Lunes 1 marzo 1976

Limite: 1.04m/m² x area de la casa _____ m

Unidad de medida: m¹ de cimentacion

Casa tiene _____ metros
 de cimentacion

141
 123
 146
 140
 146
 696

~~73~~
 68
 69.4
 78.2
 288.6

39
 27
 32
 30
 35
 163

Requisition de materiales

111 16
 112 10
 123 23
 116 13
 111 80
 573

Material	Cantidad/m	Limite	Cantidad Solicitada					TOT.	(Exceso)
			Cosio	Duran	Reyes	Bohr	Tejeda		
TIERRA LIMO	1 pie ³		73	68	69.4	78.2	15	288.6 +15 carr.	
BLOQUES DE CIMENTACION DE ESQUINA.	.53		44	35	39	37	35	190	
BLOQUES DE CIMENTACION DE MURO	1.93		76 14 97	114 123 ✓	46 146 ✓	134 140 ✓	146	696	
BLOQUES DE COLUMNA (ROJO) CONCRETOS	.53		39 5	27 8	32 7	30 7	35 ?	163 27	
BLOQUES DE MURO CONCRETOS (ROJOS)	2.43		111 16	1: 1/2:	112 10	123 18	116 23	111 13	573 80
CEMENTO (MEZCLA 1:12)	.002 m ³		1.97	0.146 4.5sks	0.116 3.6	.14 4.4	.152 5	0.15 5	.711
REVUELTA	.027 m ³		1.97	1.97	1.56	1.86	2.11	2.10	9.60

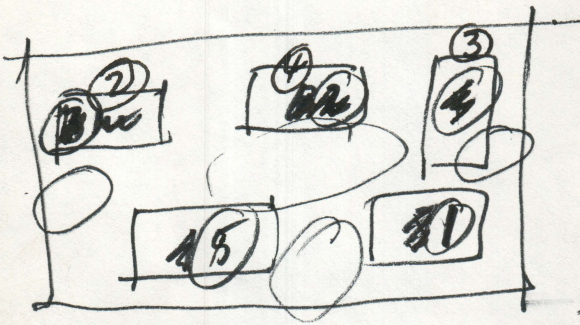
PLCERIA (SOLAMENTE DRENAJE ABAJO DEL FISO): PROXIMA PAGINA

~~1.97~~ 1.97
 1.56
 1.86
 2.11
 2.10
 9.60
 76
 54
 130
 34
 168
 145
 23
 696
 551
 145
 168
 145
 23
 111
 112
 123
 116
 111
 16
 10
 23
 13
 80
 0.146
 0.116
 .14
 .156
 .153
 .711
 1.97
 1.56
 1.86
 2.11
 2.10
 9.60
 276
 144
 46
 151
 134
 551
 696
 551
 145
 76
 54
 130
 34
 168

OPERATION #4 LOGISTICS

TOTAL

JUEVES VIERNES SABADO DOM. LUNES.



Team	X	2	3	4	5	6	7
1	PREP 1	POUR 1	X	POUR 3	POUR 4	X	BEGIN OPERATION #5
2	PREP 2	PREP 2	POUR 2	X	POUR 4	POUR 5	
3	PREP 3	POUR 1	PREP 3	POUR 3	X	POUR 5	
4	PREP 4	POUR 1	POUR 2	PREP 4	POUR 4	X	
5	PREP 1	PREP 5	POUR 2	POUR 3	PREP 5	POUR 5	

Approx quantities:

Cement

$$3.18 \text{ p/m}^2 \times 350 \text{ m}^2 = 1113 \text{ pesos}$$

$$14.4 \text{ p/m}^2 \times 350 \text{ m}^2 = 5040 \text{ pesos}$$

$$\text{Cement cost} = 58\% \times 5040 = 2923.2 \text{ pesos}$$


$$/29.5 \text{ pesos/bag} = \underline{\underline{99 \text{ bags}}}$$


1:9 mix. 1:6:3 by vol

1: 595 saches revuelta, 297 saches grava-
tada sach is .032 m³

19m revuelta and 9.5 m grava

Wednesday.

1. Electrical connection into slabs.
2. Quantities for slabs - order Thursday?
3. Build forms & screeds. 
logistics of pour - what's where.
4. Check on mixer with David Martinez
5. General quantities.
6. My b.v.
7. Kitchen - com - arcade - discuss with D & V
8. Arzol test.

-
1. Revuelto to wrong place 
 2. Cement used 8.1 - our sand.
 3. quantities - barrels when to order -

Tues meeting March 9th.

0. General disc. about organization ←
1. Quantities sheets.
2. Site cleanup.
3. Block movement + distribution.
4. How much car used.
- ✓ 5. Families time sheets.
- ✓ 6. Block materials order.

Wed - electrical connection.

788
 340 100
 224 90
 684 60
 ----- 57
 2036 56
 210
 ----- 25
 2306 42
 320 48
 ----- 48
 2624 81
 42
 96
 96
 26
 5
 ----- 788

23
 4
 ----- 27

17
 6
 ----- 102

17
 20
 ----- 340

16
 14
 ----- 64
 16
 ----- 224

30
 9

190
 13
 ----- 2
 570
 190
 ----- 2470

36
 19
 ----- 5
 324
 36
 ----- 684

TUESDAY

Meeting

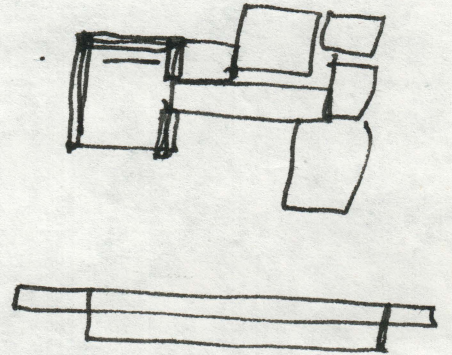
- ① Block inventory + production - Julio.
2. Accounting + cost counting.
- ✓ ② 3. ~~Wed night~~ - David Martinez + David Sanchez.
4. Hector Yruegas - registers of slab pour.
5. Operation sheet for slabs - with record of time worked.
- ④ 6. My b.r. - step + window.
7. Kitchen - corridor.
8. Level for Hector - Go to Calaf. to find time call Mrs. Tedeschi.
9. Count of materials on each person's site.
- ✓ 10. Go to school with Chris.
11. Angel lecture.

Meeting 8 a.m.
Monday March 8.

- ✓ 0. Attendance at meetings.
- ✓ 1. Operation of materials sheets - explain.
- ✓ 2. Schedule of pouring. 2 days behind.
- 3. Need people to work on logistics with me, + to make the guides + screeding device - map of bld area.
- ✓ 4. Questions about foundation. for ↑
- 5. Distrib. of rest of blocks.
- 6. Degree of tolerance in foundation placement.
- 7. Record of CR used + extra materials used.
- 8. Record of families working schedules.

Pouring slab.

Jueves	DURAN.
Viernes	TAPIA.
Sabado	RODRIGUEZ.
Domingo	COSSIO
Lunes	REYES.



Tues meeting

- ✓ 1. Work's behind -
Try to place blocks completely today -
red blocks at night & fill -
making sure again distance is correct.
- ✓ 2. Quantities sheets - incl plumbing.
3. Mix to be done individually - for cols anyway -
I will issue cement for whole operation -
1:12 wet mix.
- ✓ 4. Who will get mixer & some new buckets ^{Chavez} ~~Clara~~
when ready to use - in a.m. - ~~Clara~~
5. Method of doing it quickly.

Tues work

MB.

- ① Work out OP4
 - a) requisition & operations sheets
 - b) logistcs of mat'l purchases
 - c) logistcs of pouring -
who's doing what, when.
- ② My b.r.
- ③ Gen'l quants.
- ④ Asset list
- ⑤ Mat'l's allocation.

MEETING Thursday . a.m.

1. This morning - distrib. of all blocks - want right # on each site.
2. Plumbing stuff has been counted out - do something with it.
3. Confusion about when people are working - arrange with families.
4. Schedule of work - less wind today - should be able to level blocks -
5. In week of pouring slabs - fams. should plan to be here 2 days at least - preferably 3 -
 - 1 to prepare
 - 1 to pour
 - 1 to help pour another -
6. Oscar - Tres Elnes. order.

a
nta
cho

AGENDA FOR MONDAY MEETING.

1. PROGRESS OF WORK.
- ✓ 2. COL BLOCKS.
 - a) distrib.
 - ? → b) re-bars - cut holes for them.
- Hector 3. QUANTITIES STREETS - fill out ^{will get pour.} by p.m.
- 4. PLUMBING QUANTITIES.
5. Do col. terra lino first - want top of blocks ~~2~~ 2" above gd - may have to use earth already in trenches + re-compact it. Fine adjustment of col block - again tomorrow when red ones are placed.
- ✓ 6. TERRA LIMO QUANTITY?
7. I'll get tools + order forms
8. Problems, questions?
9. ~~Cement also~~

line level - Howard.

Monday

✓ Meeting 8 a.m.

✓ Bank

✓ Copies of operations sheets *Hector*

✓ Plumbing quantities-check out all 5 houses *noon*

✓ Order cement, revuelta, ~~varilla 1/2"~~

~~_____~~

Continue work on general quantities

Tools still needed

Bookkeeping

My bedroom

Decide on height of all windows, and width

Decide on height and position of all perimeter beams

Supervision of corner block placement

Atget lecture

Start operation sheet for operation 4.

Cement allocation to blocks.

Layout of cluster for materials storage.

Tools still needed.

5 tapes

~~1 fine level~~

1 steel float

~~1 level~~

1 level ←

27 Feb 76

Inventory transfer from Macaroni to 5 Familias.

1. All column foundation, wall foundation, concrete wall, concrete column, and round column blocks, now on both sides of the site, to be sold to 5 Familias. All foundation blocks to be transferred to 5 Familias side this week.
2. Macaroni will pay labor and materials charges which are payable until now. This includes current inventory of arena pura and granito. I estimate 1 viaje of granito, and ~~1 viaje~~ 1/2 viaje of arena pura. **CEMENT?**
5 Familias will buy these from Macaroni.
3. As of March 1, block production will be paid for by 5 Familias. Any of the above blocks, or new earth wall blocks, which Macaroni needs, to be bought from 5 Familias.
4. All mixed bills to be broken down and payment made from one side to the other at the end of every week or so. What to do about taxes & discounts?

✓ Procura del — out re-bar to 2' pieces.

✓ operations sheets

✓ block inventory, ^{needs,} schedule
my br.

books.

→ quantities ops 2 + 3.

→ concrete revision...

1. Estimate of quantities of all materials

2. Investigation of wholesale price according to quantities

3. Form for bill of quantities - make copies.

4. Prod of found wall blocks #5's. ordered

5. Rebars for column positions. ~~10#5's.~~ 11 #3 rebar. ordered

6. Lime - quantity for work. ordered

375
.008
<hr/>
3000
2900

7. ~~the~~

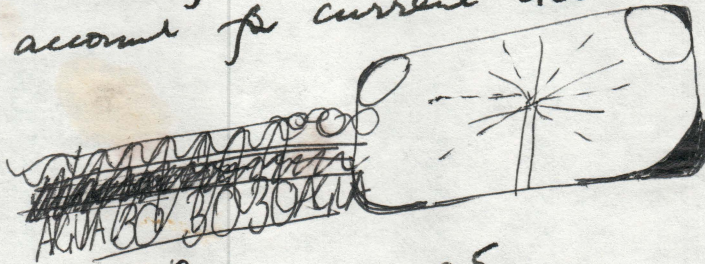
7. Creating the books - how to keep tabs on all of it.

375
.008
<hr/>
3000

8. Tools - tomorrow. - Chris.

9. Block inventory + production schedule.

10. How to account for current block situation.



for

375
73
<hr/>
2625 pesos.

wheelbarrows

375.0 m ²
.53 cts/m ²
<hr/>
11.25
1875
<hr/>
198.75 cts

17.88

179
16
<hr/>
1074
179
<hr/>
2864 pesos

107
3
<hr/>
321
2
<hr/>
2 160 sacks

35.7
2.9 m ³ CA
<hr/>
3

10 7.1 ft³

2/3 ft³ / sack

200
<hr/>
18

19
<hr/>
20

Checks

1. Amt of CAR in a sack. 25 kg 3×0.16
2. Amt of CEMENT in a sack. 40 kg.
- ~~3. Amt of PORTLAND in a sack.~~

$$\frac{1/20 \text{ m}^3/\text{sack} \times 375 \text{ m}^2 \times .008 \text{ m}^3/\text{m}^2}{1/20 \text{ m}^3/\text{sack}}$$

$$= 20 \times .008 \times 375 \text{ sacks}$$

$$= 60 \text{ sacks}$$

$$\frac{179605}{1074}$$

$$\frac{20}{.008} = .0160$$

2

$$\begin{array}{r} 375 \\ .16 \\ \hline 2250 \\ 375 \\ \hline 60.00 \end{array}$$

$\frac{375}{25} = 15 \text{ pesos/m}^2$
 25 pesos