Renovate Fire Station 605 (75th Street & Shea Boulevard)

Estimated Project Cost: $800,000

Staff Priority: 25 of 34

PROJECT DETAILS

Project Summary

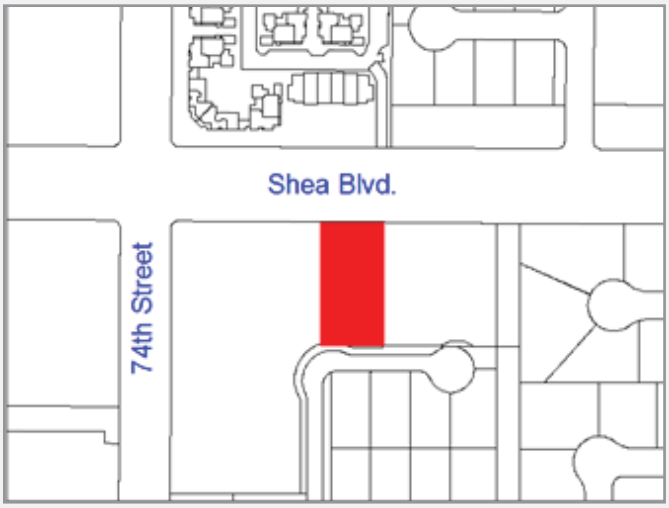
Fire Station 605 was built in 1983 and needs extensive remodeling to allow for more efficient use of limited space and improve the bathrooms, locker rooms, bunk rooms, and kitchen. The renovated apparatus bay area also will include an OSHA compliant decontamination room and personal protective equipment storage.

Project Cost

Design	$87,000
Bond Issuance Cost	$60,000
Construction	$483,000
Administration	$80,000
Contingency	$95,000
Total Cost	$805,000

Project Location

75th Street and Shea Boulevard



ANALYSIS & ASSESSMENT

Background

Fire Station 605 was constructed in 1983 and is need of extensive interior remodeling to allow for more efficient use of the limited usable space within the structure.

Safety

The current facility does not have OSHA-certified decontamination area or a storage area for personal protective equipment that meets industry standards as outlined in National Fire Protection Association 1500 and 1851 recommendations.

What is the customer experience?

The current facility is not commensurate with contemporary industry standards or City of Scottsdale employee expectations.

Recent Staff Action

The Scottsdale Fire Department, following the recommendations of COS Audit Report No. 1413, updated their Standard of Coverage and Deployment Plan document by contracting with Emergency Services Consulting International to provide a third-party perspective. The contractual scope of work identified three components to

ANALYSIS & ASSESSMENT

be completed; Standard of Coverage, Facilities Assessment, and Fleet Assessment.

The consultant also hired a third-party architect to work with COS Facility personnel to complete the comprehensive fire facilities assessment. In the executive summary of the 'Fire Station Assessment' specific to FS605, "Scottsdale Fire Station No. 5 was constructed in the 1990's although the exact construction date could not be verified. The fire station floor plan is similar to several other fire stations constructed in Scottsdale between 1990 and 2002. Due to the heavy vehicle volume on Shea Blvd. ingress/egress can be difficult at certain times of the day although emergency apparatus egress was not mentioned as a concern. The facility has undergone minor renovation to include enclosing a Captain Dorm and the addition of a fairly large emergency generator that was relocated from another facility. The facility is functional but does not meet the current standards established by the City of Scottsdale Fire Dept. as is evident in their current fire station designs. Portions of facility meet previous ADA standards but the entire facility is not ADA accessible. Issues of the facility include the lack of private dormitories which compromises the ability for male/female fire personnel; however male/female restrooms are available. The location of the physical fitness equipment, turn-out, laundry and ice storage bin in the apparatus bays does not meet current NFPA 1500 recommendations. Interior finishes are somewhat dated in appearance but in generally good condition. Mechanical systems, (2) 5-ton split systems were functional requiring general maintenance, but the evaporator cooler relief system was not adequate allowing humidified air to enter the living side of the facility through the man-doors. The overall assessment of the facility is fair and replacement/relocation due to facility condition is not presently warranted provided the facility is maintained"

Council Goals

The implementation of this project supports the Council Goal: Enhance Neighborhoods.

RESOURCE IMPACTS

Operating Cost

This is a facility asset staffed 24 hours per day 365 days per year and would be similar in ongoing operation costs of like sized fire stations housing four employees.

Staffing, Workload Impact

There will be no impact on staffing or workload due to the new station.

Maintenance Requirements

This is a facility asset that would fall into their normal and routine periodic maintenance schedule similar to other fire stations of like size.

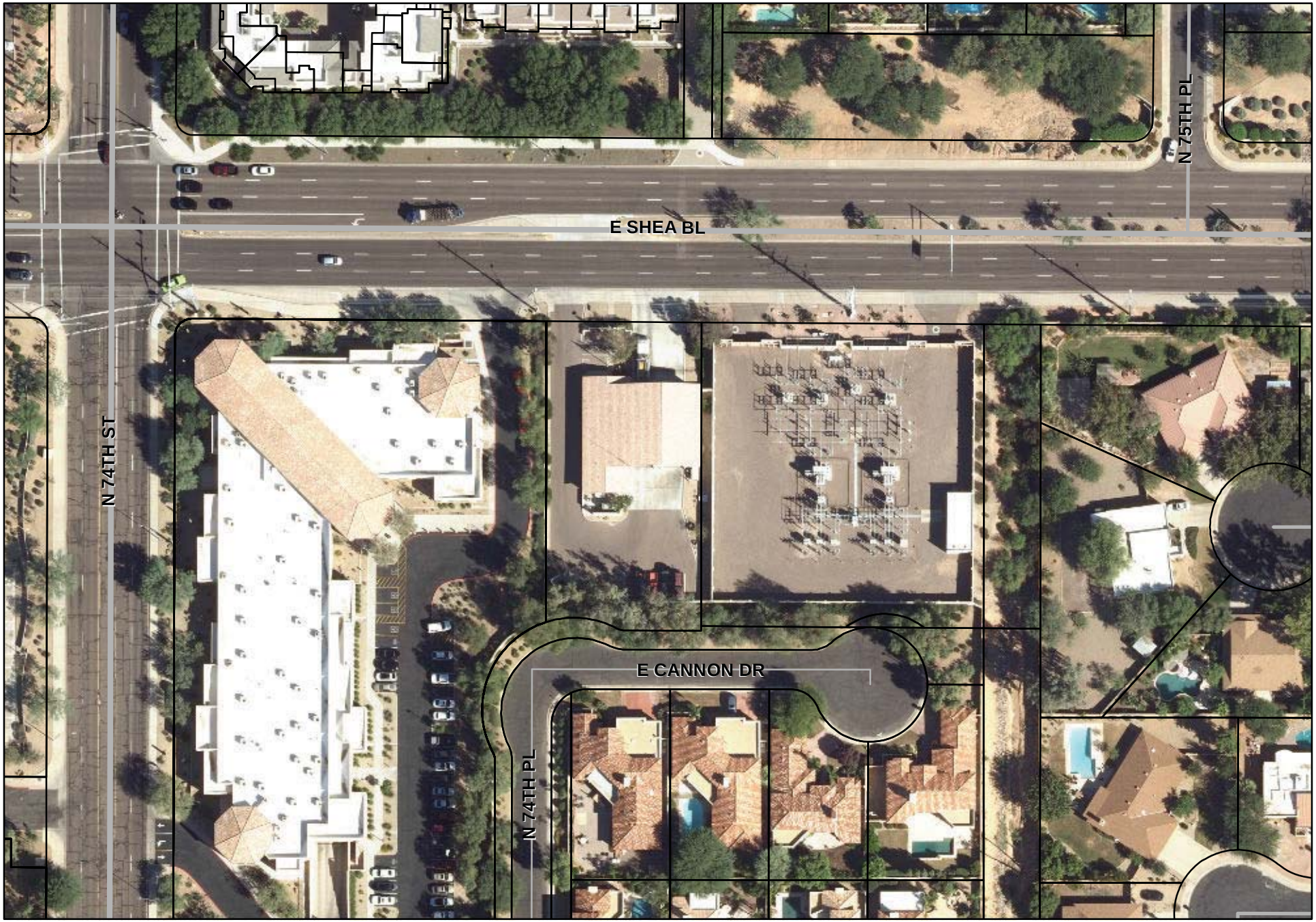
Impact if this project is not implemented

The fire department would continue to house employees and respond to customer needs from the current location; however the station would not meet OSHA and NFPA Standards.

Supplemental Information:

1. Picture of existing facility
2. Facility location maps
3. Design plans


FIRE STATION
EMERGENCY VEHICLE ACCESS ONLY
Google
© 2015 Google
Image Date June 2014



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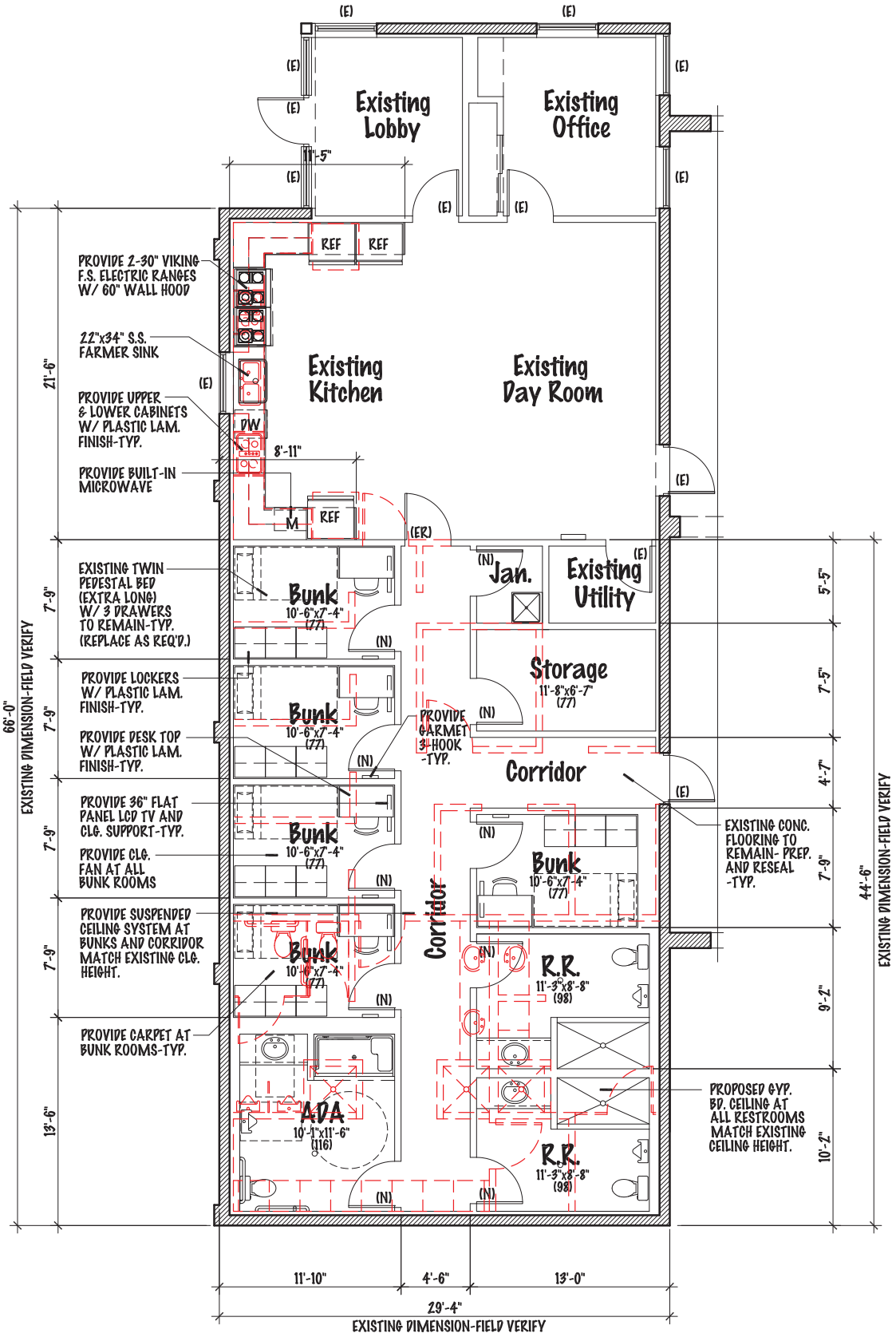
City of Scottsdale GIS



NORTH

City of Scottsdale / Renovation with Demolition

FIRE STATION 605

CONCEPTUAL PLAN

Sheet Number 1

SCALE: N.T.S.

11/14/12

2 VICINITY MAP:
NOT TO SCALE

PROJECT NAME:
CITY OF SCOTTSDALE - FIRE STATION #605 DISINFECTING FACILITY

PROJECT ADDRESS:
7455 EAST SHEA BLVD, SCOTTSDALE, ARIZONA 85260

PARCEL NUMBER:
175-49-027-H

CHAPTER SECTION
29 / 43

SUBDIVISION:
SHEA - SCOTTSDALE

LOT NUMBER:
165

ZONING DISTRICT:
C-3 - GENERAL COMMERCIAL SERVICE-RESIDENTIAL

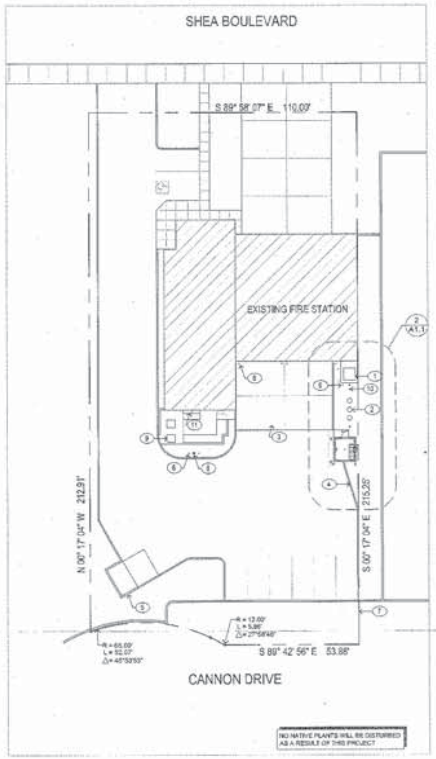
FEMA ZONE:
FLOOD ZONE 'X'

3 PROJECT DATA:

THIS PROJECT CONSISTS OF CONSTRUCTING A 66 SF EXTERIOR WASHING AREA OUTSIDE OF AN EXISTING CITY OF SCOTTSDALE FIRE STATION.

THE CONSTRUCTION WILL CONSIST OF PLACING A CONCRETE PAD WITH FLOOR DRAIN TO THE SANITARY SEWER, 6'-0" HIGH CMU WALLS OPEN TO ABOVE. THE SPACE WILL CONTAIN A SINK, HOSE BIB AND AND DRYING RACK FOR EQUIPMENT.

4 PROJECT DESCRIPTION:



1 EXISTING EVAPORATIVE COOLER
2 EXISTING SAND/OIL INTERCEPTOR
3 EXISTING 4" CONCRETE PAD ON 4" ABC
4 EXISTING 6" CONCRETE CURB
5 EXISTING REFUSE LOCATION
6 EXISTING BOLLARD
7 PROPERTY LINE
8 EXISTING FIRE HYDRANT
9 EXISTING A/C UNIT
10 EXISTING CLEAN OUT
11 EXISTING SSS

1 SITE PLAN:
SCALE: 1" = 20'-0"

PROJECT DIRECTORY:

OWNER:
CITY OF SCOTTSDALE
3626 N. DRINKWATER BLVD.
SCOTTSDALE, AZ 85251
CONTACT: CHUCK SHERMORE
P. 480.312.7692
F. 480.312.2781

ARCHITECTURAL:
DURKIN + DURKIN L.L.C.
130 NORTH CENTRAL AVE., STE. 220
PHOENIX, AZ 85004
CONTACT: ANDREA LUCARELLI
P. 602.254.8644
F. 602.253.3745

STRUCTURAL ENGINEER:
MOREHEAD ENGINEERING, INC.
5620 W. MARICOPA FREEWAY
PHOENIX, AZ 85037
CONTACT: HAROLD HALL
P. 602.258.4426
F. 602.242.6053

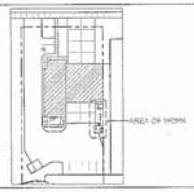
MECHANICAL ENGINEER:
SAGUARO ENGINEERS
12835 N. 35TH AVE, SUITE 111A
PHOENIX, AZ 85029
CONTACT: STANLEY V. ROE
P. 602.870.3918
F. 602.870.0950

ELECTRICAL ENGINEER:
SW ENGINEERING, INC.
430 S. SOUTHERN AVE., STE 100
TEMPE, AZ 85270
CONTACT: RANDY SMOTHERS
P. 480.731.5050
F. 480.731.5053

PROJECT ADDRESS:

FIRE STATION #605
7455 EAST SHEA BLVD.
SCOTTSDALE, ARIZONA 85255

KEY PLAN: NOT TO SCALE



SHEET INDEX:

GOVERNING CODES:

2006 INTERNATIONAL BUILDING CODE (IBC)
2006 INTERNATIONAL MECHANICAL CODE (IMC)
2006 INTERNATIONAL FIRE CODE (IFC)
2006 INTERNATIONAL ENERGY CODE
2005 NATIONAL ELECTRICAL CODE (NEC)
1994 UNIFORM PLUMBING CODE (UPC)

NO	REVISION / SUBMISSION	DATE

durkin + durkin ARCHITECTS, LLC
130 north central avenue, suite 220
phoenix, arizona 85004
p.602.254.8644
f.602.253.3745

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

SITE PLAN / PROJECT DATA

drawn	MB
checked	AD
reviewed	AD
date	10.27.08
project number	0630
scale	AS NOTED
drawing number	A1.0

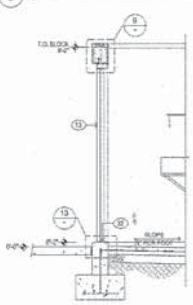
DOOR SCHEDULE

NUMBER	DOOR SIZE	THICKNESS/ MATERIALS	FRAME	HARDWARE SET	REMARKS
001	3'-0" x 7'-0"	1 ¾" PAINTED H.M. DOOR W/TEMPERED LITE PER ELEVATION (STANDARD SIZE)	PAINTED H.M. MATCH EXIST.	- PASSAGE SET - THRESHOLD - WALL STOP - CLOSURE - WEATHERSTRIPPING	- PER CITY OF SCOTTSDALE STANDARDS - "GENERAL NOTE: T = TEMPERED GLASS

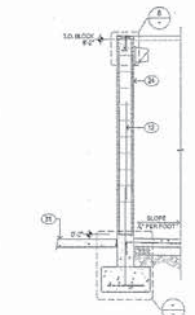
FINISH SCHEDULE

FINISH AREA	MATERIAL	MFG.	REMARKS
FLOOR	POLYAMIDE EPOXY PAINT PER MFG. SPECS.	SHERWIN WILLIAMS (OR APPROVED EQ.)	- PER MFGS. SPECS.
BASE	POLYAMIDE EPOXY PAINT PER MFG. SPECS.	SHERWIN WILLIAMS (OR APPROVED EQ.)	- PER MFGS. SPECS. - EPOXY PAINT EXPOSED STEM
INTERIOR WALLS	POLYAMIDE EPOXY PAINT PER MFG. SPECS.	SHERWIN WILLIAMS (OR APPROVED EQ.)	- PER MFGS. SPECS.
INTERIOR WALL @ SINK	18 GA. S.S. PANELS, FULL HEIGHT OVER 2" PLYWOOD	-	- AT SINK WALL ONLY - SILICONE AT BASE & ALL SEAMS
EXTERIOR WALLS	PAINT OVER CONCRETE BLOCK	SHERWIN WILLIAMS (OR APPROVED EQ.)	- COLOR TO MACH EXISTING FIRE STATION BUILDING

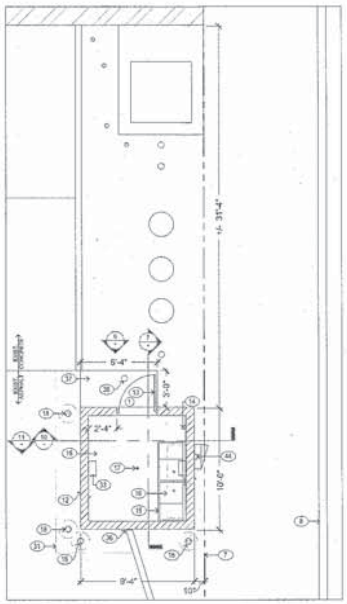
3 DOOR / FINISH SCHEDULE



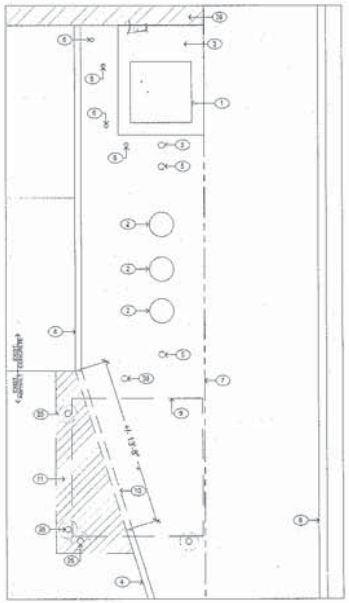
5 SECTION
SCALE: 1/2" = 1'-0"



4 SECTION
SCALE: 1/2" = 1'-0"



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



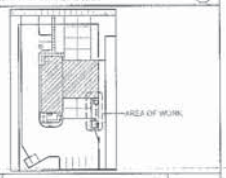
1 EXISTING / DEMO PLAN
SCALE: 1/4" = 1'-0"

KEY NOTES:

1. EXISTING EVAPORATIVE COOLER TO REMAIN
2. EXISTING SAND/OIL INTERCEPTORS TO REMAIN
3. EXISTING CONCRETE PAD
4. EXISTING 6" CONCRETE CURB
5. EXISTING CLEAN OUT TO REMAIN
6. EXISTING BOLLARDS TO REMAIN
7. PROPERTY LINE
8. EXISTING SITE WALL TO REMAIN
9. LINE OF NEW CONSTRUCTION
10. REMOVE PORTION OF CONC. CURB AS REQ. FOR NEW CONSTR.
11. SAW CUT OUT EXISTING ASPHALT AS REQ. FOR NEW CONSTRUCTION
12. NEW 8" MASONRY WALL W/ PAINTED EXTERIOR PER FINISH SCHEDULE, COLOR TO MATCH EXIST. STATION
13. PAINTED H.M. DOOR (3'-0" x 7'-0"), COLOR TO MATCH EXIST. DOORS
14. HOSE BIBB, REFER PLUMBING
15. NEW S.S. DOUBLE COMPARTMENT SINK (2'-3" x 6'-4"), REFER PLUMBING
16. NEW 4" CONCRETE OVER 2" ABC W/ REINF. PER STRUCTURAL. SLOPE 1/2" (1%) TO DRAIN. PAINT W/4 PART EPOXY PAINT PER FINISH SCHEDULE
17. NEW 2" FLOOR DRAIN, REFER PLUMBING
18. NEW 6" BOLLARDS (TYP. 4), REFER DETAIL 13/-
19. S.S. WIRE DRYING SHELF (3' - 16" x 36")
20. PAINTED GALVANIZED COPING
21. EPOXY PAINT OVER CONCRETE SLAB, PER FINISH SCHEDULE
22. CONCRETE STEM WITH 2" THRESHOLD
23. SLOPE EXPOSED STEM
24. EPOXY PAINT OVER CONCRETE BLOCK, PER FINISH SCHEDULE
25. SAW CUT OUT EXISTING ASPHALT AS REQ. FOR NEW BOLLARD FOOTING CONSTRUCTION
26. EXISTING FIRE STATION BUILDING
27. FSD STL. PIPE, CONCRETE FILLED, PAINT SAFETY YELLOW
28. CONCRETE FOOTING 24" x 36"
29. DOME SHAPED CONCRETE CAP - PAINT
30. NOTE NOT USED
31. PATCH BACK WITH NEW ASPHALT
32. 6" ALUMINUM THRESHOLD
33. WATERPROOF WALL PACK, REFER ELECTRICAL
34. 18 GA. S.S. PANELS, FULL HEIGHT (WALL @ SINK ONLY)
35. LIMITS FSD STRUCTURAL
36. PROVIDE ½" EXPANSION BOARD AND CAULK AT JOINT
37. 6" CONCRETE LANDING W/ HEAVY BROOM FINISH
38. EXIST. CLEAN OUT TO BE RECOPING, AS REQ. FOR NEW CONSTRUC.
39. ½" PLYWOOD
40. CONT. W/ BACKER SILICONE SEALANT
41. PAINTED HM FRAME, SET FLUSH WITH INTERIOR, GROUT SOLID
42. EPOXY PAINTED EXPOSED STEM, PER FINISH SCHEDULE
43. 2" VENT, REFER PLUMBING
44. TANKLESS ELECTRIC WATER HEATER, REFER PLUMBING

PROJECT ADDRESS:
FIRE STATION #605
7455 EAST SHEA BLVD.
SCOTTSDALE, ARIZONA 85260

KEY PLAN: NOT TO SCALE



NO	REVISION / SUBMISSION	DATE

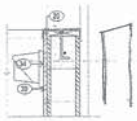
durkin + durkin ARCHITECTS, LLC
130 north central avenue, suite 203
phoenix, arizona 85004
p.602.254.6644
f.602.253.5769

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

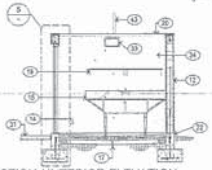
PLANS / SECTIONS

DESIGNED	TMG
DRAWN	JMR
CHECKED	TMG
APPROVED	TMG
DATE	06.15.05
PROJECT NUMBER	0307
SCALE	AS NOTED
DRAWING NUMBER	A1.1

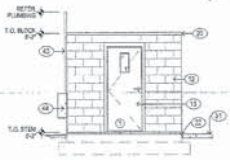
9 DETAIL
SCALE: 1/2" = 1'-0"



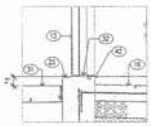
8 DETAIL
SCALE: 1/2" = 1'-0"



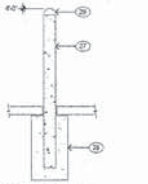
7 SECTION / INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



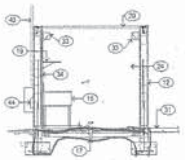
6 FRONT ELEVATION
SCALE: 1/4" = 1'-0"



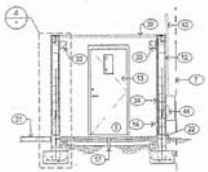
13 DETAIL
SCALE: 1/2" = 1'-0"



12 BOLLARD DETAIL
SCALE: 1/2" = 1'-0"



11 SECTION / INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



10 SECTION / INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

GENERAL STRUCTURAL NOTES

GENERAL STRUCTURAL NOTES AND SPECIFICATIONS
Apply Unless Otherwise Noted on Drawings

DESIGN CODE

2006 International Building Code (I.B.C.)
with City of Scottsdale Amendments

DESIGN LOADS

Wind Load ..... 90 MPH (3 second gust) Exposure C,

Seismic Load ..... Site Class C
Seismic Design Category B

SOIL BEARING

FOOTINGS ..... 1500 psf at 1'-6" below exist. grade in lieu of Soil Report

1. Finished grade is defined as lowest adjacent grade for exterior ftgs.
2. All footings shall bear on in situ soil.

CONCRETE

CAST-IN-PLACE

1. Mechanically vibrate all concrete.
2. Maximum slump shall be + 1/2".
3. Minimum specified compressive strength at 28 days shall be 3000 psi (U.N.O.) (Foundation Designed for $f'c$ = 2500 psi).
4. Fly ash ASTM C618 Class F, or Class C. Max. 25% of total cementitious materials by weight.

REINFORCING

1. Deformed bars ASTM A615/A615M (F_y=60 ksi/420 MPa), Grade 60/420, Welded wire fabric ASTM A185.
2. All reinforcing that is welded shall be ASTM A706/A706M.
3. Detailing of all reinforcing and concrete cover shall comply to A.C.I. requirements.
4. Reinforcing lap splices shall be:
   #6 and Smaller ..... 48 x Bar Diameter (U.N.O.)
5. Stagger splices a minimum of 60 bar dia.
6. Provide bent bars at corners and intersections such that they match and lap horizontal reinforcement 2'-0" in each direction (U.N.O.).
7. Lap splices for welded wire fabric shall be wire spacing plus 2".
8. Maintain 3" clear cover below reinforcing in foundations and at unformed sides (U.N.O.).

MASONRY

SPECIFICATION

1. Special inspection required for all masonry specified on the Structural Drawings unless specifically noted otherwise.
2. Hollow concrete units ASTM C90, Type I with a net area compressive strength of 1900 psi.
3. Mortar ASTM C270, cement-lime, Type S, $F'c$ = 1800 psi @ 28 days.
4. Grout ASTM C476, with slump 8" to 11", with corresponding cement to provide a minimum 28 day compressive strength of 2000 psi.
5. Deformed bars ASTM A615/A615M (F_y = 60 ksi/420 MPa) Grade 60/420.
6. Joint reinforcing ASTM A951 galvanized.
   All smooth bars shall conform to ASTM A82.
7. All reinforcing that is welded shall be ASTM A706/A706M.
8. Concrete Masonry Units must be produced by a manufacturer that is in current compliance with the MASONRY INSTITUTE OF ARIZONA Certified Block Program.

VERTICAL REINFORCING

1. All vertical reinforcing shall be continuous thru floor or roof bond beam above.
2. Typical vertical reinforcing shall be #5 bars at 32" O.C. in the center of the wall in solid grouted cells (U.N.O.).
3. In addition to typical reinforcing, and unless noted otherwise on drawings, place 1-#5 vertical at all wall intersections, corners and each side of openings.
4. All vertical jamb reinforcing shall be continuous.
5. Foundation shall have dowels to match and lap ALL vertical wall reinforcing.
6. All walls, in contact with soil, shall be grouted solid.
7. All anchor bolts and anchors shall be installed in solid grouted cells.

HORIZONTAL REINFORCEMENT

1. Minimum 8" deep grouted bond beam with 1-#5 continuous at the top of wall.
2. Stagger splices a minimum of 60 bar diameters.
3. Provide bent bars at corners to match and lap horizontal reinforcement a minimum of 2'-0".
4. Provide galvanized standard truss type, or ladder type with cross rods @ 16"o/o, horizontal joint reinforcement at 16"o/o vertically with 9 ga. rods with 6" minimum laps. Use hot dip galvanized for all exterior masonry walls.

GENERAL MASONRY CONDITIONS

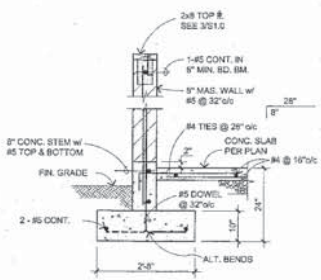
1. Head joints shall be mortared a minimum distance from each face equal to the thickness of the face shell.
2. Prior to grouting, the grout space shall be clean so that all spaces to be filled with grout do not contain mortar projections greater than 1/2 inch.
3. Grout shall be placed so that all spaces to be grouted shall be filled with grout and the grout shall be confined to those specific spaces.
4. The grouting of any section of wall shall be completed in one day with no interruptions greater than one hour.
5. Between grout pours, stop the grout 1 1/2 inches below a mortar joint.
6. Bolts, embeds and reinforcing shall be accurately set prior to grouting and held in place to prevent movement.
7. Maximum vertical grout pour 5'-0" without clean outs, 12'-0" with clean outs (U.N.O.).
8. Grout shall be consolidated full height of pour by mechanical vibration during placing, and re-consolidated before loss of plasticity, in a manner to fill the grout space. The grout pour height shall be limited to the length of the vibrator.
9. All grouted cells (reinforced & not reinforced) shall be mechanically vibrated.
10. Strength and construction of masonry shall be verified per the "UNIT STRENGTH METHOD" of the Building Code.

STRUCTURAL STEEL

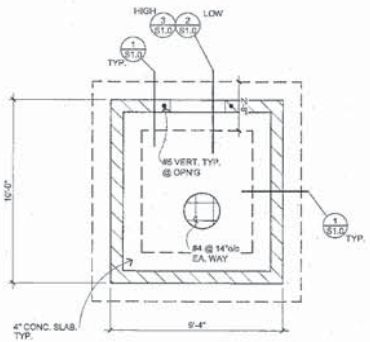
1. All structural steel shapes shall be ASTM A36 Fy = 36000 psi (U.N.O.).
2. All machine bolts (M.B.) shall be ASTM A307 (U.N.O.).
3. All anchor rod and anchor bolts shall be ASTM F1554 Grade 36 (U.N.O.).
4. All construction per latest AISC Steel Construction Manual.
5. All bolts shall be installed with washers. All nuts shall be ASTM A563.
6. All welding per: AWS requirements.
7. All welding electrodes shall be Low-Hydrogen Type.

GENERAL NOTES

1. No Structural Construction REQUIRING Shop Drawings or deferred submittals shall commence prior to review by the Engineer of Record for compliance with design intent. Only Engineer of Record approved shop drawings shall be used during construction in conjunction with approved plans and specifications.
2. The Project Construction Documents consisting of the Structural Drawings and Specifications, represent the finished structure. They do not indicate the method of construction. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to, bracing shoring for loads due to construction equipment, etc. Observation visits to the site by the Structural Engineer shall not include inspection of the above items.
3. Where reference is made to various test standards for materials, such standards shall be the latest edition and/or addendum.
4. Prior to construction, the Contractor shall verify dimensions and notify Architect/Engineer of any discrepancies in plans.
5. Establish and verify all openings and inserts for Architectural, Mechanical, Electrical and Plumbing with appropriate trades, drawings and subcontractors prior to construction.
6. Radius all exposed corners of concrete slabs, curbs, etc. as directed by the Architect.
7. See Architectural & Civil Plans for location of all depressions, curbs and sidewalks.

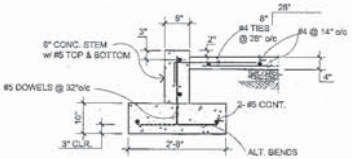


1 S1.0 CONC. STEM @ MAS. WALL
3/4" = 1'-0"



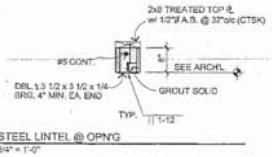
FOUNDATION PLAN

3/8" = 1'-0"



NOTE: SKEW HOOKS FOR 3" CLEAR
FROM SIDES OF FTG. - TYPICAL

2 S1.0 CONC. STEM@ DOOR OPN'G
3/4" = 1'-0"



3 S1.0 STEEL LINTEL @ OPN'G
3/4" = 1'-0"

4272.240

MOREA-HAL engineering inc
1820 W. Maricopa Freeway
Phoenix, Arizona 85007
Phone: 602-258-4428
CIVIL · SANITARY · STRUCTURAL · SURVEY

PROJECT ADDRESS:

FIRE STATION #616
9320 EAST CAVE CREEK BOULEVARD
SCOTTSDALE, ARIZONA 85262

NO	REVISION/SUBMISSION	DATE

dunlop architects, llc
136 north central avenue, suite 203
phoenix, arizona 85004
p.602.254.9644
f.602.253.9760

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

FOUNDATION PLAN / DETAILS

S1.0

PLUMBING SYMBOL LIST

SYMBOL	ABBREV.	DESCRIPTION
———	W	WASTE PIPING
———	V	VENT PIPING
———	CW	COLD WATER PIPING
———	HW	HOT WATER PIPING
———	HWR	HOT WATER RETURN PIPING
—F—	F	FIRE SPRINKLER PIPE
~~		EXISTING TO BE REMOVED
	GPM	GALLONS PER MINUTE
	GPF	GALLONS PER FLUSH
▨	FS	FLOOR SINK
∅	FCO	FLOOR CLEANOUT
∅	SCO	SURFACE CLEANOUT
∅	WCO	WALL CLEANOUT
S.A.	SA	SHOCK ABSORBER
—⊖—	BV	BALL VALVE
—⋈—	GV	GATE VALVE
—↷—	CV	CHECK VALVE
—⫟—		UNION OR DIELECTRIC UNION
—⊙—	PG	PRESSURE GAUGE
⊕	P.O.C.	POINT OF CONNECTION
⊗	F.S.R.	FIRE SPRINKLER RISER
	V.B.	VACUUM BREAKER
	A.F.F.	ABOVE FINISH FLOOR
	A.F.G.	ABOVE FINISH GRADE
	B.F.G.	BELOW FINISH GRADE
	"W.C.	INCHES WATER COLUMN

POTABLE WATER CALCULATION SITE TO BUILDING

VERTICAL PIPE LENGTH 2 FT.
HORZ. TAP TO METER 8 FT.
HORZ. PIPE METER TO BUILDING 135 FT.
TOTAL PIPE LENGTH 145 FT.

FITTING 145' AT 20 PERCENT OF TOTAL RUN 44 FT. EQUIVALENT LENGTH

TOTAL DEVELOPED LENGTH 192 FT.

FIXTURE UNITS = 56
PLUMBING FIXTURES 21 GPM

VERTICAL HEAD = 4
(4 FT STATIC LOSS) X 0.43 = 1.7

DEVICE	PSI LOSS
STATIC HEAD	1.7
WATER METER 1-1/2"	2.1
TAP AT MAIN	2.0
MINIMUM REQUIRED RESIDUAL AT BUILDING	8.0
SUBTOTAL ENCOUNTERED	14.8 PSI
TOTAL LOSS	14.8
PRESSURE	80
STATIC AND BUILDING LOSS	13.6 PSI
DIFFERENCE	66.2 PSI

80 PSI AT EXISTING HOSE BIBB ON BUILDING

OVER 80 PSI AT BUILDING PRESSURE REGULATOR REQUIRED AT BUILDING

1-1/4" SERVICE REQUIRED TO BOTH BUILDINGS AND IS ACCEPTABLE
1" SERVICE REQUIRED TO NEW BUILDING

POTABLE WATER CALCULATION DECONTAMINATION BUILDING

VERTICAL PIPE LENGTH 3 FT.

HORZ. PIPE PRESS. REGULATOR TO LAST FIXTURE 4 FT.
TOTAL PIPE LENGTH 7 FT.

FITTING 7' AT 30 PERCENT OF TOTAL RUN 2 FT. EQUIVALENT LENGTH

TOTAL DEVELOPED LENGTH 9 FT.

FIXTURE UNITS = 6
PLUMBING FIXTURES 12.8GPM

VERTICAL HEAD =3
(3 FT STATIC LOSS) X 0.43 = 1.3

DEVICE	PSI LOSS
STATIC HEAD	1.3
FIXTURE	8
TOTAL LOSS	9.3 PSI
REGULATOR PRESSURE	65.0 PSI
BUILDING LOSS	9.3 PSI
DIFFERENCE	55.7 PSI

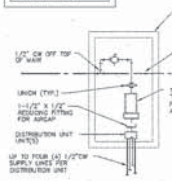
55.7 PSI / 9 FT. X 100 = 618 MAXIMUM PSI DROP ALLOWABLE PER 100 FT. PIPE LENGTH

OVER 80PS PRESSURE REGULATOR REQUIRED AT BUILDING SET AT 65 PSI

PIPE SIZES

SIZE	MAX GPM	NON FLUSH VALVE MAX FU	FLUSH VALVE MAX FU
1/2"	5.5	3	-
3/4"	11	8.5	-
1"	19	32	9

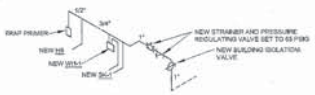
TYPE L COPPER, @PSI & 64.7 PSI/100' MAX



NOTE:
PROVIDE 14"X10" FRAMED PRIMED STEEL ACCESS PANEL. COEFFICIENT PRIMER IN ACCESS PANEL! ALL TRAP PRIMERS SHALL BE CONCEALED WITHIN THE WALL.

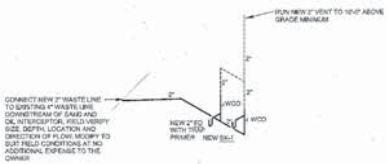
TRAP PRIMER DETAIL

NO SCALE



WATER SCHEMATIC

NO SCALE



WASTE AND VENT SCHEMATIC

NO SCALE

FIXTURE UNIT CALCULATIONS METER TO BUILDING (90 PSIG)

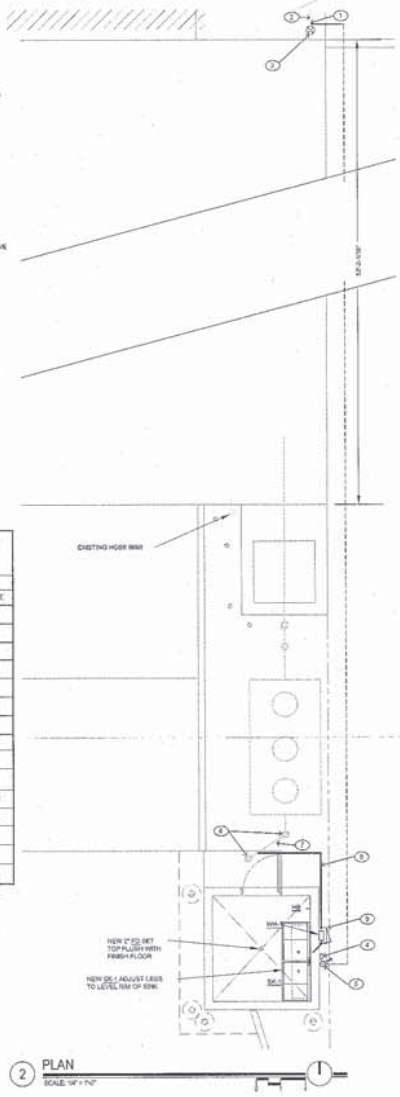
MARK	DESCRIPTION	QTY	FU EACH WATER	FU EACH WASTE	SUBTOTAL FU WATER	SUBTOTAL FU WASTE
	EXISTING WATER CLOSET - RES.	3	2.2	3	6.6	9
	EXISTING LAVATORY - RES.	3	2	1	6	3
	EXISTING KITCHEN SINK - RES.	1	1.4	2	1.4	2
	EXISTING SHOWER - RES.	3	1.4	2	4.2	6
	EXISTING HOSE BIBB	3	4.0		12	
	EXISTING CLOTHES WASHER - RES.	1	1.4	2	1.4	2
	EXISTING PRIVATE DISHWASHER	1	1.4		1.4	
	EXISTING SERVICE SINK	1	4	2	4	2
	EXISTING EVAP. COOLER	1	1		1	
	EXISTING URINAL	2	5	2	10	4
				TOTAL EXISTING	48	28
SK-1	SINK - PUBLIC	1	4	2	4	2
FD	FLOOR DRAIN	1	-	2	-	2
HB	HOSE BIBB	1	4		4	
	TANK TYPE TOILETS - BASED ON 2006 IPC			TOTAL NEW	8	4
				TOTAL	56	32

FIXTURE CONNECTION SCHEDULE

	DESCRIPTION	TRAP	W	V	CW	HW	MAX FLOW	REMARKS
SK	SINK	2"	2"	2"	1/2"	1/2"	-	
FD	FLOOR DRAIN	2"	2"	2"	1/2"			
HB	HOSE BIBB				3/4"			VACUUM BREAKER

TANKLESS ELECTRIC WATER HEATER SCHEDULE

MARK	MANUF.	MODEL	STORAGE CAP.(GAL)	OUTPUT TEMP. F°	KW INPUT	ELECTRICAL	AMPS	TEMP. RISE AT 0.5 GPM	REMARKS
WH-1	EEMAX	SP3208	N/A	103	3.0	208/230-1Ø-60Hz	14.4	41 °F	USED



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

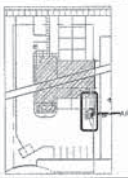
KEY NOTES:

1. CONNECT NEW 1" WATER LINE TO EXISTING 2" BELOW GRADE. FIELD VERIFY AND MATCH DEPTH AND LOCATION AND SIZE.
2. EXISTING 2" BELOW GRADE. FIELD VERIFY SIZE
3. EXISTING BUILDING ISOLATION VALVE AND PRESSURE REGULATOR ASSEMBLY
4. STRAINER AND PRESSURE REGULATOR WITH UNION ON EACH SIDE
5. BUILDING ISOLATION VALVE
6. REPLACE OR RELOCATE CLEANOUTS TO BE FLUSH W/GRADE OR CONCRETE WALK. WHERE SET IN CONCRETE REPLACE W/ NEW PER SPEC WITH COVER.
7. VERIFY DEPTH LOCATION, DIRECTION OF FLOW AND SIZE OF EXISTING WASTE LINE AND CONNECT NEW 3" WASTE LINE TO EXISTING MODIFY, MODIFY LOCATION TO SUIT FIELD CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
8. NEW 2" WASTE LINE
9. INSTALL NEW WATER HEATER IN MINIMUM 24"x24"x12" NEMA 4R RATED ENCLOSURE ON EXTERIOR WALL. SEAL PIPE PENETRATIONS WEATHER TIGHT. PIPES AND CONDUIT SHALL PENETRATE BOTTOM OF BOX ONLY.

NOTE: 1. SLOPE WASTE LINE AT 1/4" PER FOOT MINIMUM.
2. INSULATE ALL WATER LINES ABOVE GRADE W/ 3/8" THICK ARMAFLEX INSULATION OR EQUAL. PAINT WITH U.V. RESISTANT PAINT.
3. DOUBLE WRAP OF 10 MIL POLYKIN TAPE FOR A MINIMUM THICKNESS OF 20 MIL.
4. EXCAVATE AS REQUIRED TO INSTALL WATER & WASTE LINES. RESTORE LANDSCAPE TO ORIGINAL CONDITIONS.

PROJECT ADDRESS:
FIRE STATION #605
7498 EAST SHEA BLVD.
SCOTTSDALE, ARIZONA 85260

KEY PLAN: NOT TO SCALE



NO	REVISION/SUBMISSION	DATE

durkin + durkin ARCHITECTS, LLC
120 north central avenue, suite 200
phoenix, arizona 85004
t.602.254.5544
f.602.253.5760

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

PLANS / CALCULATIONS

STATE OF ARIZONA — STANLEY R. FOX — REGISTERED ARCHITECT

designed sf | project number 0512
drawn sf | scale AS NOTED
checked sf | drawing number
reviewed sf | date 10.21.09

P1.1

SECTION 15400 SUMMARY OF WORK FOR PLUMBING

SCOPE: THE WORK UNDER THESE SECTIONS INCLUDE FURNISHING AND INSTALLING PLUMBING SYSTEMS AS SHOWN ON THE DRAWINGS AND REQUIRED BY CODE.

SECTION 15401 DOMESTIC WATER SYSTEM

INSTALL ALL PIPING ABOVE FLOOR UNLESS NOTED OTHERWISE ON THE DRAWINGS.

USE WROUGHT COPPER SOLDER TYPE FITTINGS AT ALL COPPER PIPE CONNECTIONS. TUBE DRAWING IS NOT APPROVED.

PIPING:

TYPE "L" HARD DRAWN COPPER, CONFORMING TO ASTM B88, FOR ALL WATER PIPE NOT SET IN OR UNDER CONCRETE OR IN THE GROUND.

TYPE "K" HARD DRAWN COPPER, CONFORMING TO ASTM B88, FOR WATER PIPE SET IN THE GROUND BUT NOT UNDER CONCRETE FLOOR SLABS.

TYPE "K" SOFT DRAWN COPPER, CONFORMING TO ASTM B88, FOR ALL WATER PIPE SET BELOW CONCRETE FLOOR SLAB. INSTALL NO JOINTS BELOW FLOOR SLAB.

FITTINGS: PROVIDE WROUGHT COPPER SOLDER TYPE FITTINGS CONFORMING TO ANSI B16.22 (1963) FOR ALL CONNECTIONS TO COPPER PIPING. PROVIDE PVC SCHEDULE 40, TYPE 1, GRADE 1, SOCKET TYPE FITTING CONFORMING TO ASTM D-1784-75.

BALL VALVES: APOLLO FOR VALVES UP TO 2" IN DIAMETER SOLDER END JOINTS WITH EXTENDED SOLDER CUPS SHALL BE 600 PSI CWP, CAST BRASS BODY, REPLACEABLE REINFORCED TEFLON SEATS, FULL PORT, BLOWOUT-PROOF STEMS, AND CHROME-PLATED BRASS BALL.

SOLDER LINES 1/2" THROUGH 3". USE LEAD FREE SOLDER WITH SUITABLE FLUX. CONFORM TO COPPER DEVELOPMENT INSTITUTE RECOMMENDATIONS AND CODE REQUIREMENTS. BRAZE LINES 2-1/2" AND LARGER.

EXTEND WATER PIPING TO ALL FIXTURES, OUTLETS AND EQUIPMENT. PROVIDE SHUTOFF VALVES OR FIXTURE STOPS AS REQUIRED FOR PROPER SERVICE. PITCH WATER PIPING TO DRAIN AND INSTALL ALL NECESSARY DRAIN VALVES. BURY ALL COPPER UNDERGROUND WATER PIPING A MINIMUM OF 24" BELOW FINISH GRADE. COORDINATE OVERHEAD PIPING WITH MECHANICAL DUCTWORK AND ELECTRICAL CONDUIT.

PROVIDE NECESSARY ALLOWANCE IN PIPING SYSTEMS TO HANDLE EXPANSION AND CONTRACTION. INSTALL AMPLE SWINGS OR OFFSETS IN BRANCH CONNECTIONS TO AVOID UNDUE STRAINS ON FITTINGS OR SHORT PIPE SUPPLIES. WHERE SHOWN ON THE DRAWINGS OR REQUIRED BY LOCAL PLUMBING CODE, INSTALL ANTISHOCK TRAP PRIMERS ON COLD WATER SUPPLY AT NEAREST FIXTURE AND RUN DRAIN TO TRAP SEAL BEING PROTECTED. PROVIDE WALL ACCESS PANELS WHEN PRIMERS ARE INSTALLED IN WALLS.

STERILIZATION: STERILIZE THE ENTIRE WATER DISTRIBUTION SYSTEM THOROUGHLY WITH A SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION OF AVAILABLE CHLORINE. FOR THE CHLORINATING MATERIAL USE SODIUM HYPOCHLORITE SOLUTION, CONFORMING TO FEDERAL SPECIFICATION O-S-441, GRADE D, AND INTRODUCE INTO THE SYSTEM IN A MANNER APPROVED BY THE ARCHITECT. ALLOW THE STERILIZING SOLUTION TO REMAIN IN THE SYSTEM FOR A PERIOD OF 8 HOURS, DURING WHICH TIME ALL VALVES AND FAUCETS SHALL BE OPENED AND CLOSED SEVERAL TIMES. AFTER STERILIZATION, FLUSH THE SOLUTION FROM THE SYSTEM WITH CLEAN WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION, UNLESS OTHERWISE DIRECTED. *** NOTE: CONTRACTOR SHALL PROVIDE OWNER WITH CERTIFICATION OF TEST RESULTS. ***

TEST: FILL SYSTEM WITH WATER AND PRESSURIZE TO 125 PSI AND HOLD FOR FOUR (4) HOURS WITH NO PRESSURE DROP. TEST AND OBTAIN APPROVAL ON ALL UNDERGROUND PIPING BEFORE COVERING WORK.

SECTION 15405 SANITARY WASTE AND VENT SYSTEM

SCOPE: ALL WASTE AND VENT PIPE SHALL BE OF MATERIALS COMPLYING WITH THE 2006 IPC. CAST IRON SOIL PIPE CONFORMING WITH CISPI 301 WASTE, & VENT LINES SHALL BE GALVANIZED IRON PIPE, SCHEDULE 40, CONFORMING TO ASTM A120.

NO-HUB COUPLINGS FOR PIPE ABOVE GRADE: DOUBLE BAND, STAINLESS STEEL SHIELD-CLAMP ASSEMBLY WITH NEOPRENE GASKET CONFORMING TO CISPI 301-477.

INSTALLATION: PITCH WASTE AND DRAIN LINE 3" AND SMALLER AT A UNIFORM SLOPE OF 1/4" PER FOOT MINIMUM. PITCH WASTE AND DRAIN LINES 4" AND LARGER AT A UNIFORM SLOPE OF 1/8" PER FOOT MINIMUM, 1/4" PER FOOT WHEREVER POSSIBLE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

INSTALL WALL CLEANOUTS ON ALL SINKS AND URINALS. CLEANOUTS TO BE THE SAME SIZE AS WASTE LINES ON WHICH THEY ARE INSTALLED. MAKE ALL CLEANOUTS ACCESSIBLE BY EITHER BEING ACCESSIBLE WITHIN 6" OF CEILING ACCESS PANEL, EXTENDED TO FLOOR OR GRADE, OR LOCATED IN WALL WITH REMOVABLE PLATE. WHERE SURFACING MATERIALS SUCH AS RESILIENT FLOOR COVERING OR CERAMIC TILE IS USED, INSTALL THE CLEANOUT WITH TOP SO THAT FINISHED SURFACE IS SMOOTH AND FLUSH. WHERE INSTALLED IN WATERPROOF SLABS, PROVIDE CLEANOUTS WITH A MANUFACTURING FLASHING CLAMP DEVICE AND ANCHORING FLANGE.

TEST: FILL SYSTEM TO HIGHEST POINT OF SYSTEM. ALLOW SYSTEM TO STAND FOR FOUR (4) HOURS. IF WATER LEVEL DROPS, CHECK FOR LEAKS, REPAIR AS DIRECTED, AND RETEST UNTIL SYSTEM IS APPROVED. TEST AND OBTAIN APPROVAL ON ALL UNDERGROUND PIPING BEFORE COVERING WORK.

SECTION 15420 PLUMBING EQUIPMENT

SCOPE: ALL ELECTRICAL EQUIPMENT AND CONTROLS SHALL BE UL LISTED. PROVIDE ASME APPROVED TEMPERATURE AND PRESSURE RELIEF VALVES ON ALL DOMESTIC HEATING EQUIPMENT.

SECTION 15421 PLUMBING SPECIALTIES

PROVIDE ALL CLEANOUTS WITH THREADED BRONZE PLUGS. INTERIOR FINISHED WALLS: J. R. SMITH 4472 WALL ACCESS COVER WITH BRONZE THREADED PLUG.

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, AND ADOPTED CITY CODES.

PLUMBING CONTRACTOR SHALL FURNISH ALL EQUIPMENT, MATERIAL, LABOR, ETC., WHETHER WHETHER SHOWN ON THESE PLANS OR NOT, NECESSARY TO PROVIDE A COMPLETE, WORKABLE, CODE-APPROVED PLUMBING SYSTEM.

ALL LAVATORIES AND SINKS SHALL COME COMPLETE WITH NECESSARY TRAP, "P" TRAPS, TAILPIECE CONNECTIONS, SHUTOFF VALVES, AND REQUIRED CARRIERS.

ALL HOT AND COLD WATER LINES SHALL BE INSULATED WITH 3/4" THICK ARMAFLEX OR EQUAL.

PLUMBING CONTRACTOR TO COORDINATE ALL LINES AND VENTS WITH RELIEF VENTS AND MECHANICAL EQUIPMENT. ALL VENTS THRU ROOF SHALL BE MINIMUM 10'-0" FROM ALL FRESH AIR INTAKES.

PLUMBING CONTRACTOR SHALL VERIFY, PRIOR TO ENCODING, THAT THE DESIGNED SLOPE OF THE SEWER SHALL WORK UNDER ACTUAL FIELD CONDITIONS. IF THE DESIGNED SLOPE WILL NOT WORK, THE PLUMBING CONTRACTOR SHALL CONTACT THE ENGINEER.

PROVIDE ACCESS PANELS FOR ALL WATER HAMMER ARRESTORS AND/OR TRAP PRIMERS.

ALL FLOOR DRAINS, FLOOR SINKS AND OTHER FIXTURES SUBJECT TO NON-USE SHALL BE EQUIPPED WITH A TRAP PRIMER.

ALL WATER CLOSETS SHALL BE ELONGATED BOWLS WITH OPEN FRONT SEAT PER IPC.

ALL NEW PLUMBING FIXTURES SHALL MEET THE LOCAL MUNICIPALITIES LOW WATER CONSUMPTION AND HANDICAP REQUIREMENTS.

FLASH ALL PIPE PENETRATIONS THROUGH THE ROOF IN A WATER TIGHT MANNER.

THE CONTRACTOR SHALL VERIFY ALL UTILITIES LOCATION, SIZES AND CONNECTION REQUIREMENTS PRIOR TO BID AND COMMENCEMENT OF ANY WORK.

S-1 TWO COMPARTMENT SINK:

FIXTURE: ELKAY WNSF-6332 LR, FREE STANDING, 14 GAUGE, TYPE 304 STAINLESS STEEL WITH LEFT AND RIGHT DRAIN BOARDS, WELDED 1/4" RADIUS COVED CORNERS, NEEDS ARE TO BE GROUND TO A SMOOTH AND CLEANABLE FINISH, 4" HIGH BACKSPLASH WITH 45° SLOPED TOP, HOLES PUNCHED TO MATCH THE FAUCET, 1-1/2" WIDE INWARD SLOPING TOP CHANNEL RING, INTEGRAL DRAINBOARDS, SINK COMPARTMENTS PITCHED TO DRAIN, EXPOSED SURFACES POLISHED TO A SATIN FINISH, NSF INTERNATIONAL CERTIFICATION.

SINKS ARE TO BE SUPPORTED ON 4 ELKAY MODEL LK251 STAINLESS STEEL, 1-5/8" O.D. TUBULAR LEGS, 18/4 GAUGE, ADJUSTABLE BULLET SHAPED FEET.

ADA SUPPLY FITTING: CHICAGO FAUCET, 886-CP, 13MB 3-5/8" VACUUM BREAKER CAST SWING SPOUT, 3/4" HOSE THREAD WITH POLISHED CHROME FINISH, COLOR CODED INSCRIBED HANDLES, 4" WRIST BLADE HANDLES, 2 GPM FLOW CONTROL AERATOR.

SUPPLIES: EASTMAN CSOR-20-LK, 1/2" x 3/8" ANGLE STOPS WITH FLEXIBLE TUBE RISERS.

STRAINER: ELKAY 1367-NF STRAINER WITH 2" TAILPIECE, ROTARY DRAIN, INTERNAL PLUG VALVE.

TRAP: MOGUME, 2" ADJUSTABLE CAST BRASS BODY P-TRAP WITH CLEANOUT PLUG, CHROME PLATED.

KEY NOTES:

PROJECT ADDRESS:

FIRE STATION #605
7455 EAST GAINEY RANCH BLVD.
SCOTTSDALE, ARIZONA 85260

KEY PLAN: NOT TO SCALE (1)

NO	REVISION/SUBMISSION	DATE

durkin + durkin ARCHITECTS, LLC
130 north central avenue, suite 202
phoenix, arizona 85004
p.602.258.8844
f.602.253.5760

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

PLUMBING SPECIFICATIONS

P2.1

ELECTRICAL SYMBOLS (NOTE: ALL SYMBOLS MAY NOT APPLY TO THIS PROJECT)

- CEILING MOUNTED LIGHT FIXTURE
- WALL MOUNTED LIGHT FIXTURE
- FLUORESCENT FIXTURE
- EXIT SIGN – SEE LIGHT FIXTURE SCHEDULE
- JUNCTION BOX IN ACCESSIBLE LOCATION ABOVE REMOVABLE CEILING W/ FLEXIBLE CONDUIT CONNECTION TO LIGHT FIXTURE
- FLEXIBLE CONDUIT CONNECTION TO EQUIPMENT
- JUNCTION BOX IN ACCESSIBLE LOCATION
- DUPLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED
- FOUR-PLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED
- ISOLATED GROUND RECEPTACLE AT + 15" A.F.F. TO BOTTOM OR AS NOTED
- RECEPTACLE (TYPE AS SHOWN) AT + 42" A.F.F.
- SPECIAL USE RECEPTACLE, VERIFY NEMA NUMBER AND MOUNTING HEIGHT WITH EQUIPMENT
- S S_2 S_3 TOGGLE SWITCH – SINGLE POLE, 3-WAY, 4-WAY AT +42" OR AS NOTED ON PLANS.
- S_P SINGLE-POLE, ILLUMINATED HANDEL OR PILOT LIGHT TOGGLE SWITCH AT +42" OR AS NOTED ON PLANS
- S_M MOTOR RATED SWITCH WITH THERMAL PROTECTION
- S_V MOTOR SPEED CONTROL SWITCH, FURNISHED BY ELECTRICAL CONTRACTOR.
- PHOTOCELL – TORK #2100 – MOUNT ON ROOF AND AIM NORTH
- TIMESWITCH: TORK 'W' SERIES OR EQUAL
- CIRCUIT IN CONDUIT, CONCEALED. HASH MARKS INDICATE QUANTITY OF CONDUCTORS NO HASH MARKS INDICATE TWO CONDUCTORS, PLUS GROUND(S). (NOTE: WIRE AND OR CONDUIT SIZE SHOWN AT HOMERUN IS THE MINIMUM SIZE FOR THE ENTIRE CIRCUIT. #12 A.W.G. CU, 1/2"C. MINIMUM). LONG STROKE(S) INDICATE NEUTRAL CONDUCTOR(S). SHORT STROKES INDICATE PHASE OR SWITCHED CONDUCTORS AND LONG STROKES WITH DOT INDICATE GREEN INSULATED GROUNDING CONDUCTOR(S) TYPICAL. EACH ISOLATED GROUND CIRCUIT SHALL HAVE A SEPARATE NEUTRAL AND GROUND WIRE. BOND WIRES ARE NOT SHOWN ON DRAWINGS. BOND WIRES SHALL BE INSULATED CU. SIZED IN ACCORDANCE WITH N.E.C. #250.
- CIRCUIT IN CONDUIT CONCEALED IN FLOOR
- CIRCUIT IN CONDUIT CONCEALED IN WALLS OR ABOVE CEILING
- HOMERUN TO PANELBOARD OR AS NOTED
- PANELBOARD, MOUNT TOP OF PANEL AT + 6'-6". STUB (2) 3/4" E.C. INTO ACCESSIBLE CEILING SPACE ON FLUSH MOUNTED PANELS.
- MOTOR: SIZE AND RATING AS SHOWN. EF INDICATES 55-WATT, 120V. EXHAUST FAN
- A.C. MAGNETIC STARTER BY ELECTRICAL CONTRACTOR. HORSEPOWER, VOLTAGE AND PHASE RATED, NUMBER OF POLES REQUIRED. FURNISH WITH (1) N.O. AUXILIARY CONTACT (120 V. CONTROL) SINGLE SPEED NON-REVERSING UNLESS OTHERWISE SHOWN ON PLAN
- DISCONNECT SWITCH – HORSEPOWER RATED, FUSED, NEMA 3R WHERE OUTSIDE. N.F. INDICATES NON-FUSED. (FUSE PER EQUIPMENT MANUFACTURERS' SPECIFICATIONS.)
- MOTOR CONTROLLER – FURNISHED WITH EQUIPMENT
- TELEPHONE OUTLET AT +15" TO BOTTOM OR AS NOTED WITH 3/4"C. UP INTO ACCESSIBLE CEILING SPACE UNLESS SHOWN OTHERWISE
- DATA OUTLET AT + 15" A.F.F. TO BOTTOM OR AS NOTED. STUB 3/4"C. INTO ACCESSIBLE CEILING SPACE
- DATA/TELEPHONE OUTLET AT + 15" A.F.F. TO BOTTOM OR AS NOTED. STUB 3/4"C. INTO ACCESSIBLE CEILING SPACE
- APPROVED TEMPERATURE SEAL-OFF AND EXPANSION JOINTS AS REQ'D BY N.E.C. ART. #300-7
- WP WEATHER PROOF
- EDF ELECTRIC DRINKING FOUNTAIN
- S.E.S. SERVICE ENTRANCE SECTION
- T.M.B. TELEPHONE MOUNTING BOARD: 4'-8"-8" x 3/4"-PLYWOOD WITH #6 CU. BOND WIRE TO GROUNDING ELECTRODE SYSTEM
- T.T.C. TELEPHONE TERMINAL CABINET, 36" W. X 30" H. X 6" D. 16 GA. WEATHERPROOF HINGED LOCKABLE COVER, 3/8" PLYWOOD BACKBOARD. PROVIDE A #6 CU BOND TO GROUNDING ELECTRODE SYSTEM

PANEL LEGEND:

- ○ INDICATES EXISTING CIRCUIT BREAKER & LOAD.
- ● INDICATES NEW CIRCUIT BREAKER & LOAD.
- □ INDICATES CIRCUIT BREAKER WITH 'LOCK-OFF' DEVICE.
- ■ INDICATES EXISTING CIRCUIT BREAKER W/CHANGED LOAD.
- △ INDICATES CIRCUIT THRU PHOTOCELL.
- ▲ MISCELLANEOUS.
- ✱ INDICATES CONTINUOUS LOAD TAKEN @ 125% PER N.E.C.

LOAD CALCULATION: EXIST. S.E.S.

EXISTING LOADS:

EXISTING HIGH DEMAND = 27.6 (TAKEN MAY 2007)

$\frac{27.6}{.864} \times 125\% \times 240\sqrt{3}$ = 179.7 AMPS

NEW LOADS:

NEW LOAD ADDED TO EXIST. PANEL 'B' = 14.3 AMPS

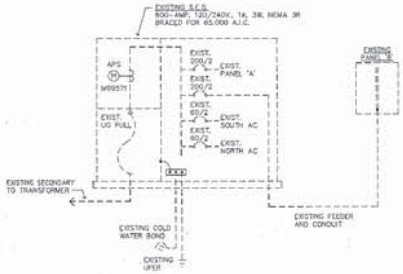
TOTAL LOAD ON S.E.S. = 194.0 AMPS

2 VICINITY MAP:
NOT TO SCALE

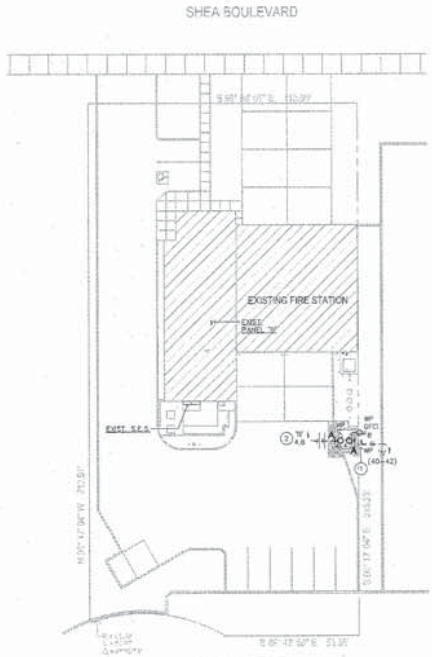
(EXISTING)

PANEL B	200 AMP	120/240V., 1Φ, 3W	MAIN	L.C.	NEMA 1	SURF MTG
LOCATION	STORAGE ROOM	TYPE	B.C.		BREAKER RATING 10,000 A.I.C.	

USE/AREA SERVED	CB	No	TYPE	VA A	VA B	No	CB	USE/AREA SERVED
SPARE	20/1	1				2	20/1	EXIST. GARAGE DOOR
		3			180	4		NEW LTS – DISINFECTING
		5		864		6		EXIST. GARAGE DOOR
		7			180	8		NEW REC. – DISINFECTING
		9		864		10		EXIST. GARAGE DOOR
		11				12		SPARE
EXIST. DRYER	30/2	13	5000	5000		14		EXIST. GARAGE DOOR
		15			864	16		SPARE
EXIST. WATER HEATER	30/2	17	4500	4500		18		
		19			2250	20	40/2	EXIST. RANGE
EXIST. EQUIPMENT	50/2	21	6000	6000		22		
SPACE		23			2250	24		
		25		1000		26		
		27			2250	28		
EXIST. EQUIPMENT	50/2	29	6000	6000		30		EQUIPMENT
SPACE		31			2250	32		
		33	2000			34		SPACE
EXIST. FAN COIL	30/2	35	750	750		36		
		37			2250	38		
EXIST. FAN COIL	30/2	39	750	750		40	20/1	NEW WATER HEATER
		41	1000			42		
TOTAL (CONNECTED)			22826	19570				
25 % CONTINUOUS			-	23				
TOTAL (CODE)			22826	19593	22826 VA / 120V. = 190.2 A.			



ONE-LINE DIAGRAM EXISTING S.E.S.
N.T.S.



1 ELECTRICAL SITE PLAN
SCALE: 1" = 20'-0"

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	MFR.	CATALOG #	VOLT.	LAMPS #	LAMPS TYPE	REMARKS
A	FLUORESCENT WALL PACK WITH SENSOR	RAB LIGHTING	WP26WSNSR	120	2	42W GX 24Q-4 TRIPLE	MOUNT TOP OF FIXTURE AT +8'-0" A.F.F.

GENERAL NOTES:

1. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH 2005 (OR LATEST ADOPTED) NATIONAL ELECTRICAL CODES AND ALL APPLICABLE LOCAL CODES, ORDINANCES AND NAG AMENDMENTS TO N.E.C.

2. ALL WIRING SHALL BE COPPER UNLESS OTHERWISE NOTED. INSULATION SHALL BE TYPE 'XHHW OR THWN/THWN. WIRING FOR OUTSIDE LIGHTING SHALL BE A MINIMUM OF #10AWG COPPER. FOR UNDERGROUND CIRCUITS RUN IN PVC CONDUIT, CONTRACTOR IS TO PROVIDE A COPPER BOND WIRE SIZED PER N.E.C. 250-95.

3. CONTRACTOR IS TO VERIFY EXACT LOCATION, MOUNTING HEIGHTS AND ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT PROVIDED BY OTHERS PRIOR TO ROUGH-IN. CONTRACTOR IS TO PROVIDE DISCONNECT, SWITCHES AND TRANSFORMERS AS REQUIRED, AND FINAL CONNECTIONS TO EQUIPMENT PER OWNER.

4. CONTRACTOR IS TO COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATIONS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT PRIOR TO BID.

5. ALL GENERAL USE RECEPTACLES MOUNTED WITHIN 6' OF A BASIN OR SINK SHALL BE G.F.C.I.

6. CONTRACTOR IS TO PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250.

7. ELECTRICAL CONTRACTOR SHALL PROPERLY SUPPORT ALL EXISTING AND NEW CONDUIT FROM NEW SUPPORTS PER NEC ART. 300-11.

8. ON THE COMPLETION OF THE PROJECT, THE REGISTERED ARCHITECT/ENGINEER SHALL CERTIFY IN WRITING THAT TO THE BEST OF HIS KNOWLEDGE THE BUILDING OR STRUCTURE HAS BEEN COMPLETED IN ACCORDANCE WITH THE DESIGN.

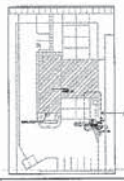
KEYED NOTES:

1. NEW WATER HEATER: 240V., 1Φ, 3.0 KW (2) #10 CU. (1) #10 CU GND. 3/4"C.
2. #10's, 3/4"C. THRU-OUT.

PROJECT ADDRESS:

FIRE STATION #605
7456 EAST SHEA BLVD.
SCOTTSDALE, ARIZONA 85260

KEY PLAN: NOT TO SCALE



NO	REVISION/SUBMISSION	DATE

dunlop + dunlop ARCHITECTS, LLC
120 north central avenue, suite 203
phoenix, arizona 85004
p.602.254.8044
f.602.253.8769

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

SITE PLAN / PROJECT DATA

Designer: Randy Grothaus Job #: 06157
engineering, inc.
406 east southern avenue, suite 102 • tempe, arizona 85282
t 480.731.8080 • f 480.731.8010 • randy@swengr.net
electrical consultants

E1.0

ELECTRICAL SYSTEM SPECIFICATIONS - DIVISION 16000

(SOME SECTIONS MAY NOT APPLY)

1. GENERAL CONDITIONS

The General Provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions) and Division 1 – General Requirements as appropriate, apply to the work specified in this Section.

2. SCOPE OF WORK

The work included under this section consists of furnishing all materials, equipment, and labor and the performing of all functions, except as otherwise specified herein or shown on the drawings to be performed by others, for the installation and placing into operation of a complete electrical system as specified and shown on the drawings.

3. GENERAL DESCRIPTION

3.1 The work in general shall consist of, but is not necessarily limited to the following:

3.1.1 Furnishing and installing all fixtures with lamps as indicated on the drawings and as specified herein unless noted.

3.1.2 Furnishing and installing all electrical work, panels, service, conduit, wiring, etc., for all outlets and equipment.

3.1.3 Furnishing and installing all telephone outlets, conduits with pull strings and telephone mounting boards including conduit from telephone mounting board to the building entrance as indicated on the plan.

3.1.4 Furnishing and installing a complete Fire Alarm system as indicated on plans.

3.1.5 Include $ hundred dollars) allowance for power and telephone company utility service charges. Difference between actual cost and allowance to be credited or billed to the Owner.

3.1.6 Furnishing and installing all motor starters and control components, not specifically specified to be furnished in accordance with other sections of the specifications.

3.1.7 Furnishing and installing all power and wiring except that which is pre-wired in factory assembled equipment.

3.1.8 Installing all LINE VOLTAGE mechanical control wiring and associated controls which are furnished by the Mechanical Contractor (low voltage control wiring and controls shall be furnished and installed by the Mechanical Contractor).

3.1.8 Painting work as described under other sections of these specifications. Clean and prepare all surfaces ready for painting.

3.1.10 Provide temporary construction power as outlined below. This service shall be maintained throughout the entire job as the work progresses. Provide outlets at convenient points and in sufficient numbers so that no extension cord over 50 feet in length is required to reach any work point. Maintain general lighting in corridors, stairs, basement and other areas not receiving sufficient daylight required for safety. Remove temporary work as rapidly as required for or allowed by installation of permanent work.

3.1.11 Certain items of work by other trades will be necessary for the completion of work under this division. Cooperate with other trades and arrange for these items to be performed in orderly course.

3.1.12 This Contractor shall review the mechanical control requirements as specified and shown on the drawings and shall furnish and install all necessary conduit, wiring, boxes, protective devices, switches, etc., for the completion and proper operation of the system.

3.1.13 Review all drawings and all specifications for each section of work. Unless specifically noted otherwise, herein or elsewhere, furnish and install items of any electrical nature required for completion of work for other trades, whether or not same is shown or noted in this or other sections.

4. REGULATIONS AND CODES

The Contractor must comply with all state, municipal and federal safety laws, construction codes, ordinances and regulations relating to building and public health and safety. In addition, comply with rules and regulations of the State Fire Protection Code. Fire protection material must bear the Fire Underwriters Laboratories label.

5. GENERAL REQUIREMENTS

5.1 The Contractor shall examine the premises and satisfy himself of existing conditions under which he will be obligated to operate in performing his part of the work or that will in any manner affect the work under the contract. The Contractor shall cooperate with other trades so that the installations of all equipment may be properly coordinated.

5.2 All equipment furnished shall fit the space available, with connection, etc., in the required locations and with adequate space for operating and servicing. The drawings are generally diagrammatic and indicate the manner and method of the installation, while the specifications and fixture list denote the type and quality of material and workmanship to be used. Where a conflict exists between the drawings and the specifications, the Contractor shall promptly notify the Architect/Engineer whose decision shall be final. No allowance will be made subsequently in this connection in behalf of the Contractor after award of the contract.

6. EQUIPMENT AND MATERIAL

6.1 All materials furnished under this contract shall be new (except as noted), free from defects of any character, shall conform with the standards of the Underwriters Laboratories, Inc. (U.L.) (or other nationally recognized Laboratory), in every case where such a standard has been established and shall be so labeled. It is the intention of these specifications to indicate a standard of quality for all materials incorporated in this work, and where materials are not specified herein and are required to complete the electrical installation, these materials shall be of first quality for use intended. Manufacturers of similar quality products will be considered unless the specifications or drawings indicate otherwise.

6.2 Materials shall be suitable for intended use and location. Unless otherwise shown use NEMA-1 for interior areas and NEMA-3R for exterior areas.

6.3 The Architect/Engineer decision as to equal in grade and quality shall rule and be final for all electrical materials incorporated in this work. Where two or more similar type items are furnished, all shall be of the same manufacturer (e.g., all disconnect switches shall be of the same manufacturer) unless otherwise noted herein or shown on the drawings. All material and installation methods used shall be in accordance with the latest and approved electrical and mechanical engineering practices.

7. SERVICE ENTRANCE EQUIPMENT

7.1 Service entrance equipment shall be in accordance with the requirements of the municipal governing body and serving utility. Shop drawings shall be submitted to the serving utility for written approval before ordering equipment.

7.2 Label equipment and each individual overcurrent device per Section 16000.22.

7.3 Approved manufacturers are: Sun Valley, Square D, Cutler-Hammer, Siemens/ITE, General Electric

8. PANELBOARDS

8.1 Each panel shall be provided with door lock and two keys, all keyed alike. Each panel shall be provided with typewritten sheet installed on door identifying the use of each branch circuit. Panels shall have bussing as indicated on the drawings.

8.2 Label equipment per Section 16000.22

8.3 Approved manufacturers are: Square D, Cutler-Hammer, Siemens/ITE, General Electric

9. STARTERS

9.1 All motor starters shall be furnished under this section of the specifications unless as integral part of equipment or noted as furnished with equipment specified under other sections of these specifications.

9.2 Separately mounted motor starters shall be across-the-line combination magnetic with 120V coils, fused disconnect contactors, additional auxiliary contact for interlocking of controls. Provide pushbutton or selector switch in cover. Switchboard mounted starters shall be magnetic with 120V coils and additional auxiliary contacts as required for interlocking of controls. Starters shall have an integral control circuit transformer or separate 120V control with control circuit disconnect switch in cover.

9.3 Manual starters shall be horsepower, voltage and phase rated with overload protection and green "on" pilot light. Surface mounted unless noted otherwise.

9.4 All starters shall have overload protection in all phase lines. Furnish and install the proper size overload heater elements determined from full load nameplate readings on motors and compensation for ambient temperatures in all starters whether they be furnished under this Section or other Sections.

9.5 Label per Section 16000.22

9.6 Approved manufacturers are: Square D

10. TRANSFORMERS

10.1 Transformers shall be dry type, with voltage ratings as indicated on plans. Transformers shall be rated for for full load operation at a maximum 150 degree centigrade rise above a 40 degree centigrade ambient or as otherwise noted on drawings. Provide at least (4) 2 1/2 percent taps, two above normal and two below normal and have a sound rating not to exceed NEMA standards. Special "K" factor ratings as noted.

10.2 Submit complete transformer data with shop drawings for approval. The data shall include efficiencies, core and copper losses, impedance, regulation and sound level.

10.3 Installation of transformers shall be on vibration isolators and all wiring connections with flexible conduit.

10.4 Label per Section 16000.22

10.5 Approved manufacturers are: ACME, Square D, Jefferson, Cutler-Hammer, Westinghouse, General Electric, or same manufacturer as distribution equipment.

11. CONDUIT

11.1 Metallic conduits shall be hot dipped galvanized equal to LTV Steel.

11.2 Electric metallic tubing (EMT) is permitted for exposed work above 8'-0" A.F.F. or concealed work only. EMT is NOT permitted in the following: (1) in or under concrete, (2) in earth, (3) in grouted walls, (4) exterior of building, (5) with dissimilar metals, (6) where it will be subject to severe physical damage (either during or after installation), (7) in any hazardous (classified location) except as permitted by 502.10, 503.10 and 504.20, (8) without an equipment grounding conductor. Size and provide equipment grounding conductor per Article 250 and increase conduit size if required.

11.3 Rigid PVC conduit is permitted only underground or as noted on drawings. Provide rigid steel elbows and risers (NO MINIMUM SIZE). Size and provide equipment grounding conductor per Article 250 and increase conduit size if required.

11.4 Rigid galvanized or sherardized steel shall be used for all exposed conduit below 8'-0" A.F.F. or as noted on drawings. Where used in or under concrete or in earth, shall be code approved PVC coated or half lap wrapped with Polyken #900 tape or equal.

11.5 Install exposed raceways parallel and perpendicular to nearby surfaces or structural members and follow the surface contours as much as practical.

11.6 Run exposed, parallel, or banked raceways together. Make bends in parallel or banked runs from the same center line so that the bends are parallel. Factory elbows may be used in banked runs only where they can be installed parallel. This requires that there be a change in the plane of the run such as from wall to ceiling and that the raceways be of the same size. In other cases provide field bends for parallel raceways.

12. WIRE

12.1 Soft drawn annealed copper (unless otherwise noted on plans) having conductivity of not less than 98% of that of pure copper, uniform in cross section, free from flaws, scales, and other imperfections. All wire larger than #10 shall be stranded.

12.2 Insulation: Type THHN/THWN, or XHHW for all branch circuit and feeder wiring.

12.3 Size: No wire smaller than #12 unless otherwise noted on drawings.

12.4 Feeder conductors #2 awg and larger may be copper or AA-8000 series aluminum alloy. Aluminum conductors shall be equal or larger ampacity to copper. Conduit fill shall not exceed 40% factor as described in 2005 NEC, annex C, table C1 (copper) or C1A (aluminum).

13. MISCELLANEOUS MATERIALS:

13.1 Safety switches: Heavy duty, fused rejection type, minimum 200,000 A.I.C. rated. "NF" indicates not fused.

13.1.1 Label per Section 16000.22

13.1.2 Approved manufacturers are: Square D, Cutler-Hammer, Westinghouse, General Electric or same manufacturers as distribution equipment.

13.2 Fuses: "Bussmann" or "Gould Shawmut" mfg. No substitutions unless by prior written approval from Engineer, or as noted on drawings.

13.3 Conduit strap: Heavy gauge steel snap-on type.

13.4 Electrical metallic tubing fittings: Equal to T&B compression type. Connectors shall have insulated bushings.

13.5 Rigid conduit locknuts and bushings: Equal to T&B.

13.6 Flexible conduit and fittings: Equal to Calamite Conduit and Cable Company, Inc.

13.7 Liquid tight conduit and fittings for all exterior and equipment connections.

13.8 Outlet boxes, plaster rings, pull, and junction boxes, etc: Equal to RACO. Zinc coated or Cadmium plated sheet steel for indoor locations, cast aluminum for outdoor locations.

13.8.1 For all light fixtures: Octagon or 4" square boxes.

13.8.2 For switches and receptacles: 4" or 4-11/16" square boxes.

13.8.3 Junction and pull boxes: 4" square minimum size. Provide with screwfastened covers located in accessible locations.

13.9 Condulets: Equal to Crouse-Hinds.

13.10 Wire and Cable: Equal to General Cable and/or Simplex.

13.11 Devices: "Hubbell", "Leviton", or approved equal. Receptacles: Duplex-20 amp #5362, isolated ground – 20 amp #IG-5362, GFCI- 20 amp #GF-5362. Switches: 20 amp #1221 single pole, 1222 double pole, 1223 three way, 1224 four way. Colors to be specified by Architect/Owner/Tenant.

13.12 Device plates: "Hubbell", "Leviton", or equal. Ivory nylon in interior areas or as noted on drawings. Zinc die cast flip lid mounted horizontally for exterior or weatherproof locations.

13.13 Lighting fixtures: Equal to as shown on fixture schedule or described on drawings, complete with lamps in original cartons and all canopies, stems, hangers and accessories including all structural members required for proper mounting. All fluorescent fixture ballasts shall be energy saving type. Submit shop drawings to Architect/Engineer for approval by the same. Must be C.E.C. approved in Calif.

13.14 Lamps: G.E. or equal and shall be for the maximum rated wattage of fixture unless otherwise shown on drawings.

14. SLEEVES, INSERTS, OPENINGS

14.1 Contractor shall layout and install his work in advance of pouring concrete floors or walls. Provide all sleeves and/or openings through floors or walls required for electrical conduits or ducts.

14.2 Sleeves shall be of rigid conduit or galvanized sheet steel rigidly supported and suitably packed to prevent entrance of wet concrete.

15. EXCAVATION/CUTTING/FITTING/REPAIRING/FINISHING

15.1 The Contractor shall include in his bid all excavation, compaction, fill, backfill, cutting, fitting, repairing and finishing of all work necessary for the installation of all equipment under this specification but no cutting of the work of other Contractors shall be done without the consent of the General Contractor.

15.2 Earthwork shall be done in accordance with latest industry standards.

16. CLEANUP OF PREMISES

Contractor shall at all times keep the premises clear of waste materials and debris caused by his employees and operation. Equipment not required in the work shall be removed prior to the termination of the contract.

17. TESTS AND INSPECTIONS

17.1 Contractor shall test wiring and devices as sections are completed and shall correct all defects immediately at his own expense, including any damage to walls, ceilings, floor or other portions of the building which may result from repairing defective equipment.

17.2 Furnish all meters, cable, connections and apparatus necessary for making tests.

17.3 Test system for shorts and grounds. Faulty wiring shall be removed and replaced. Any device, apparatus or fixture installed showing substandard performance shall be removed and replaced as directed by the Architect/Engineer.

17.4 Megger all systems neutrals to insure the neutral is not grounded within the system.

17.5 All equipment rated at 1,000 amps or more , or 480 volts shall be tested for insulation breakdown prior to its being energized. Such equipment shall withstand for a period of one minute without breakdown, the application of a 60HZ alternating potential of 1,000V plus twice the rated voltage of the device.

17.6 After the electrical wiring system installation is completed and at such time as the Architect/Engineer or his authorized representative may direct, the Contractor shall conduct an operating test for approval. Equipment shall be demonstrated to operate in accordance with requirements of specifications. Test shall be performed in presence of Architect/Engineer or his representative.

18. SHOP DRAWINGS

18.1 All data shall be submitted at one time, bound and indexed in an orderly manner. Prior to starting the work, submit to the Architect/Engineer for approval, six (6) sets of shop drawings of service (S.E.S.), panels, distribution sections, light fixtures, motor control centers, fire alarm system, dimmers, sound system, emergency generator, devices, transformers, labels as required by 16000.22, and all other equipment to be fabricated.

18.2 Process shop drawings, wiring diagrams, etc., from other trades involved where such drawings may facilitate and expedite the work. Air conditioning and mechanical equipment shall be wired complete as per manufacturer's wiring diagrams furnished by the air conditioning and mechanical contractors.

19. DRAWINGS OF RECORD (AS-BUILT)

As-built drawings shall be submitted in accordance with and if required by Division 1 – General Requirements.

20. GUARANTEE

The Contractor shall guarantee all material and equipment to be free from defect of material and workmanship and shall replace or repair without cost to the owner all defective material and workmanship for a period of one year after final acceptance.

21. INSTRUCTIONS

21.1 Contractor shall instruct the Owner in the proper operating and maintenance of the equipment.

21.2 Contractor shall provide two (2) sets of operating and maintenance manuals for each piece of equipment provided by this discipline, only when such manuals are available from the manufacturer.

21.2.1 All manuals to be bound in a 3-ring binder and tabulated in an orderly manner.

22. LABELING

22.1 Labels shall be engraved, black on white melamine plastic laminate, 1/16" minimum thickness for signs up to 20 square inches or 8 inches long, 1/8" thick for larger sizes. Engraved legend shall be in white letters on black face with minimum 3/16" high letters. Labels shall be punched and fastened to equipment with aluminum rivets or self tapping stainless steel screws or number 10/32 stainless steel machine screws with nuts, flat and lock washers.

22.2 Label equipment with name, amperage, voltage, phase, and wires (i.e. Panel "A", 400A., 120/208V,3Ø,4W). Submit list of all labels with wording for review as per 16000.18.

22.3 Equipment to be labeled shall include service (S.E.S.) and all overcurrent devices, distribution sections and all overcurrent devices, motor control centers (M.C.C.) and all overcurrent devices, fusable panelboards and all overcurrent devices, panels, starters and transformers. Label other equipment as noted on plans.

Designer: Randy Glathaus Job #: 08157

engineering, inc.

416 east southern avenue, suite 109 • tempe, arizona 85282
t • 480.731.2800 f • 480.731.3282 • randy@swengr.net
electrical consultants

PROJECT ADDRESS:

FIRE STATION #605
7405 EAST SHEA BLVD.
SCOTTSDALE, ARIZONA 85260

KEY PLAN: NOT TO SCALE

NO	REVISION/SUBMISSION	DATE

durkin + durkin ARCHITECTS, LLC
120 north central avenue, suite 202
phoenix, arizona 85004
p.602.254.5044
f.602.253.5760

CITY OF SCOTTSDALE FIRE STATION #605 DISINFECTING FACILITY

ELECTRICAL SPECIFICATIONS

designed:	project number: 0207
drawn: TG	date: 10-07-07
checked:	drawing number: E2.0
reviewed:	
date: 10.2.07	