#11

AUG 15 2013

Chandler • Arizona
Where Values Make The Difference

MEMORANDUM **Fire Department**

DATE: AUGUST 15, 2013

TO: MAYOR AND COUNCIL

THRU: RICH DLUGAS, CITY MANAGER
PAT MCDERMOTT, ASST. CITY MANAGER
JEFF CLARK, FIRE CHIEF

FROM: MARC WALKER, ASST. FIRE CHIEF

SUBJECT: FIRE DEPARTMENT STANDARD DETAILS, 2013 EDITION

RECOMMEDATION: Staff recommends approval of Resolution No. 4697 adopting the Chandler Fire Department Standard Details, 2013 edition.

BACKGROUND: The City of Chandler Fire Department has previously developed a document Containing standard details as a guide for the plan review requirements of the fire code.

DISCUSSION: The City of Chandler has adopted the International Fire Code, 2012 edition. The Fire Department has updated the Standard Details document that is used as a guide for the plan review requirements of the fire code. This document assists those going through the plan review process to better understand the requirements of the Fire Code.

FINANCIAL IMPLICATIONS: None

PROPOSED MOTION: Move to approve Resolution No. 4697 adopting the Chandler Fire Department Standard Details, 2013 edition.

RESOLUTION NO. 4697

A RESOLUTION OF THE CITY OF CHANDLER, ARIZONA, DESIGNATING THE CHANDLER FIRE DEPARTMENT STANDARD DETAILS, 2013 EDITION, A PUBLIC RECORD AND THE DEPOSIT OF THREE COPIES IN THE OFFICE OF CITY CLERK.

WHEREAS, the City of Chandler Fire Department has technical standard details for its use in reviewing construction plans within the City of Chandler; and

WHEREAS, the City Council needs to adopt the 2012 edition of the International Fire Code as published by the International Code Council as well as amend the same with local amendments that incorporate some of the Chandler Fire Department Standard Details, 2013 edition (hereinafter referred to as "Fire Department Standard Details);

NOW, THEREFORE, BE IT RESOLVED as follows:

SECTION 1. ADOPTION OF STANDARD DETAILS. The City of Chandler City Council adopts the Fire Department Standard Details for use by the Fire Department in construction plan reviews.

SECTION 2. PUBLIC RECORD DESIGNATION. The Chandler City Council designates as a public record that certain publication entitled the Fire Department Standard Details and order the deposit of three (3) copies of the same to remain on file in the office of the City Clerk.

PASSED AND ADOPTED by the Mayor and City Council of the City of Chandler, Arizona, this _____ day of June, 2013.

_____
MAYOR

ATTEST:

_____
CITY CLERK

APPROVED AS TO FORM:

_____
CITY ATTORNEY(*kl*)

CERTIFICATION

I HEREBY CERTIFY that the above and foregoing Resolution No. 4697 was duly passed and adopted by the City Council of the City of Chandler, Arizona, at a regular meeting held on the _____ day of June, 2013, and that a quorum was present thereat.

_____
CITY CLERK

Chandler + Arizona
Where Values Make The Difference

CHANDLER FIRE DEPARTMENT PLAN REVIEW GUIDES AND STANDARD DETAILS

http://udm.chandleraz.gov

PLAN REVIEW GUIDES

GUIDE NO.	DESCRIPTION
11	GENERAL NOTES TO THE CONTRACTOR
12	PLAN REVIEW GUIDE FOR BUILDING PLANS
13	PLAN REVIEW GUIDE FOR SITE PLANS
14	SECONDARY/EMERGENCY ACCESS
15	KEY BOX/ELEVATOR KEY BOX/ELECTRONIC ACCES GATE(S) REQUIREMENTS
16	PLAN REVIEW GUIDE FOR UNDERGROUND FIRE LNES
17	PLAN REVIEW GUIDE FOR FIRE SPRINKLER SYSTEMS
18	PLAN REVIEW GUIDE FOR FIRE ALARM SYSTEMS
21	FIRE SAFETY PROCEDURES IN UNFINISHED DEVELOPMENTS

STANDARD DETAILS

DETAIL NO.	DESCRIPTION
FD102	FIRE LINE INSTALLATION (NO ON-SITE HYDRANTS REQUIRED / FOR SMALL SITES AND/OR SINGLE BUILDINGS)
FD103	FIRE LINE INSTALLATION (ON-SITE HYDRANTS REQUIRED / FOR LARGE SITES AND/OR MULTIPLE BUILDINGS)
FD104	FIRE DEPT CONNECTION AND POST INDICATING VALVE SIGNAGE
FD105	FIRE SPRINKLER SYSTEM RISER COMMERCIAL INSTALLATION
FD106	FIRE RISER ROOM AND FIRE ALARM PANEL SIGNAGE
FD107	TEMPORARY FIRE DEPT ACCESS ROAD SIGNAGE
FD108	FIRE DEPT EMERGENCY GATE ACCESS SIGNAGE
FD109	FIRE DEPARTMENT EMERGENCY ACCESS BARRIERS
FD111	FIRE LANE SIGNAGE
FD112	FIRE LANE SIGNAGE (PRIVATE STEETS AND SUBDIVISIONS)
FD115	BLOCKED DOOR SIGNAGE (INTERIOR WALL)
FD121	HYDRANT IDENTIFICATION AND COLOR CODING
FD123	FIRE HYDRANT "OUT OF SERVICE" SIGNS
FD124	UNAUTHORIZED WATER VALVE SHUT OFF
FD141	FIRE APPARATUS ROADWAYS AND TURNAROUNDS FOR COMMERICAL / INDUSTRIAL SITES
FD143	FIRE APPARATUS ROADWAYS AND TURNAROUNDS PRIVATE RESIDENTIAL CUL-DE-SAC
FD151	ADDRESS IDENTIFICATION

FIRE DEPARTMENT PLAN REVIEW GUIDES

CHANDLER FIRE DEPARTMENT

GENERAL NOTES TO THE CONTRACTOR

All buildings shall be provided with an approved automatic fire sprinkler system installed in accordance with Fire Code, NFPA 13, and City of Chandler Fire Code amendments.

Residential (multi-family) - all private shared domestic and residential fire line mains shall have a reduced pressure backflow installed per COC Detail C-315.

Fire protection systems shall be installed or modified by a contractor licensed to perform such work by the State of Arizona, and who also holds a current valid permit from the Chandler Fire Department to conduct such work within the City of Chandler.

Fire Department Connections (FDC's) for Fire Code, Building Code and NFPA 13 fire sprinkler systems shall be 2 and 1/2" female swivels with National Standard Threads. FDCs shall be located at the primary entrances to the site. **NO FDC' shall be located on the buildings** (except as approved by the Fire Marshal). Fire Hydrant and FDC shall be on the same side of the drive entrance to prevent access obstruction.

FDC's for NFPA 13R sprinkler systems shall be single female swivels with 1 and 1/2" National Standard Threads.

All Fire Department Hose connections and Standpipe hose connections for Fire Department use shall be 2 and 1/2" National Standard Threads. **No hose shall be attached to the Fire Department Hose Stations.**

Automatic sprinkler systems shall be supervised by an approved central, proprietary or remote signal station service; or an audible signal shall sound at a constantly attended location when the number of sprinkler heads is 20 in all other occupancies.

Fire Department vehicle access roadways shall be provided and maintained throughout construction. Temporary access roads shall be a minimum 20' clear width with 6" compacted AB or gravel. No trenching across Fire Access roads. Required water fire flow shall be provided and maintained throughout construction **Prior to any combustibles being brought on site, all hydrants shall be approved and functional.** Permanent fire vehicle access roadways shall be 20' clear width, all weather surface. **If hydrants are placed on access road width shall be 26' clear width, all weather surface.**

One set of stamped, approved drawings shall be maintained on-site and made available to City Inspectors on demand.

The contractor shall provide the City Inspector with copy of: the "Contractor's Material and Test Certificate For Aboveground Piping" in accordance with NFPA 13; and the "Contractors Material & Test Certificate for Underground Piping" in accordance with NFPA 24; and the "Certificate of Compliance" for fire alarm systems in accordance with NFPA 72, upon successful completion of the system test and prior to City acceptance of the system.

Tenant Improvement Projects

Any modifications to existing systems shall be submitted for plan review to the Transportation and Development Department. Plans shall be reviewed, approved, permit issued and on site prior to work beginning.

HEADS	SPRINKLER SYSTEM TEST REQUIRED
9 or <	A visual inspection only is required
10 - 19	50 psi above normal static pressure for 15 minutes
20 or >	50 psi above normal static pressure for 2 hours
All new systems	Per NFPA 13

Fire flow calculation area shall be in accordance with Appendix B of the Fire Code, reductions and modification require approval of the Fire Marshal.

CHANDLER FIRE DEPARTMENT

PLAN REVIEW GUIDE FOR BUILDING PLANS

PROJECT NAME: _____ CITY LOG #: _____
PROJECT ADDRESS: _____ CONTRACTOR: _____
CONTACT PERSON: _____ TELEPHONE #: _____

Building and life safety system installation information shall be provided on the appropriate drawings. A copy of this guide shall be attached to submitted drawings. **A review will not be conducted without this guide being submitted with the drawings.** A contractor licensed by the State to do such work SHALL perform all such work and who holds a current valid permit from the Fire Department to work within the City of Chandler.

The following items shall be included on the drawings.

1. Fire Department "General Notes to the Contractor" are provided on the plan.
2. The Building Code occupancy classification of each area and/or room within the building is indicated on the floor plan.
3. The location and size of the addressing to be installed in accordance with Fire Department standard detail FD151.
4. The location(s) of the Fire Department key box(es) in accordance with Fire Department Plan Review Guide FPB015.
5. The location(s) of all gate(s) on site. All electric gates shall be installed in accordance with Fire Department Plan Review Guide FPB015. All Non-electric gates shall be installed in accordance with Fire Department Detail FD109. Personnel gates used as part of egress components shall be in accordance with the IBC.
6. The location(s) of all required Fire Rated Door(s), Fire Dampers, Fire/smoke Dampers, Fire Walls and Fire wall details.
7. The location(s) of all required portable fire extinguishers including the size and class.
8. The location(s) of all fire sprinkler risers, fire standpipe hose outlets (NO hoses attached), fire alarm control panels, and fire alarm annunciator panels. (All Fire Protection equipment needs to be shown).
9. The location(s) of all fixed equipment, machinery, or devices.
10. The height, width, construction type, commodity class, shelving type, and aisle width for warehouse or storage areas with rack storage or high piled stock. (Include rack manufacture installation instruction and structural calculations).
11. Provide the following information for storage, use, or handling of hazardous materials (if applicable):

    _____ A. Contacted Encompsol (see #12) to initiate HMIS (HCIS).
    _____ B. Show the location of all storage (outside and inside). Show quantities, chemical types, property line and setbacks for the site.
    _____ C. Show exterior secondary containment and/or treatment systems.

12. Chandler Fire Chemical Inventory Requirements – Electronic Hazardous Materials Inventory Statement (HMIS) is required to be completed for Plan Review and submitted with construction drawings to Transportation and Development Department. The electronic version shall import into the Fire Departments software. The Fire Department is using software from Encompsol. Any format can be used as long as it will import into the Fire Departments software. The Fire Department uses the Encompsol software because it is compatible with the CAD computers on our Fire Engines no other software is compatible.

    Encompsol may be contacted at 877-655-6952 or info@encompsol.com to obtain information on the software or to determine what will import into the system. If you wish to use another software you will have to contact Encompsol to find out what will import into their software (the Fire Department does not know what will import into their software).

    Small businesses will need the Hazardous Chemical Inventory System (HCIS). (Examples: Auto supply, Auto Shops, Pool Supply, Machine Shop, Small Distribution Warehouse, Beauty Supply, Golf Maintenance facilities, Paint Supply, Big Box Warehouse, Pest Control, Landscape Maintenance, Swimming Pool Supply/Store, Sporting Good Supply/Store, Small semi-conductor Business, etc.)

    Large businesses will need the Hazardous Materials Management Plan (HMMP). (Examples: Chemical Companies, Large Semi-conductor Business, Water Treatment Plant, Large Chemical Warehouse, Large Warehouse Distribution, etc.)

    Once you have signed up for the system you will need to input your information and make sure all information is completed. A copy of the Material Safety Data Sheets (MSDS) shall be in a .PDF format and attached in the software. A copy of your site plan and floor plan will need to be added on you have your certificate of occupancy these will need to be in a .PDF format. Please make sure all maps are legible.

    Please make sure to provide the local chandler zip code when entering your information, if you don't this could hold up your review or your plans might be denied for lack of access when submitted.

    If you need further assistance with this please contact the Chandler Fire Department at 480-782-2121.

13. Place your initials beside any and all of the following that will take place within the building:

____	Place of assembly	____	Bowling Alley
____	Automotive, Junk Or Waste Material Handling	____	Covered Mall Building
____	Aviation Facilities	____	Dry Cleaning
____	Combustible Dust-Producing Operations	____	Flammable Finishes
____	Fruit & Crop Ripening	____	Fumigation & Thermal Insecticidal Fogging
____	Semiconductor Fabrication Facilities	____	Lumber Yards & Woodworking Facilities
____	Manufacture Of Organic Coatings	____	Industrial Ovens
____	Motor Fuel-Dispensing Facilities & Repair Garages	____	High-Piled Combustible Storage
____	Tire Rebuilding & Tire Storage	____	Welding & Other Hot Work
____	Hazardous Materials – General Provisions	____	Aerosols
____	Combustible Fibers	____	Compressed Gases
____	Corrosive Materials	____	Cryogenic Fluids
____	Explosives & Fireworks	____	Flammable & Combustible Liquids
____	Flammable Gases	____	Flammable Solids
____	Highly Toxic & Toxic Materials	____	Liquefied Petroleum Gases
____	Organic Peroxides	____	Oxidizers
____	Pyrophoric Materials	____	Pyroxylin (Cellulose Nitrate) Plastic
____	Unstable (Reactive) Materials	____	Water-Reactive Solids & Liquids

CHANDLER FIRE DEPARTMENT

PLAN REVIEW GUIDE FOR SITE PLANS

PROJECT NAME: _____ CITY LOG #: _____
PROJECT ADDRESS: _____ CONTRACTOR: _____
CONTACT PERSON: _____ TELEPHONE #: _____

Site plans submitted for review and approval shall contain the following information. A copy of this guide shall be attached to submitted drawings. **A review will not be conducted without the guide being submitted with the drawings.** A contractor licensed by the State to do such work SHALL perform all such work and who holds a current valid permit from the Fire Department to work within the City of Chandler.

1. Fire Department "General Notes to the Contractor" is provided on the plan.

2. Required fire lanes, emergency access roadways, and emergency vehicle turnarounds are outlined and dimensions are marked and identified on the drawing in accordance with Fire Department Details.

3. Fire lane sign locations and the sign detail are shown on the drawing in accordance with Fire Department Details FD111 or Fd112.

4. The location(s) of all gate(s) on site. All electric gates shall be installed in accordance with Fire Department Plan Review Guide FPB015. All Non-electric gates shall be installed in accordance with Fire Department Detail FD109. Personnel gates used as part of egress components shall be in accordance with the IBC.

5. No spike strips, guard post or other limiting barriers shall be placed at entrances or exits for any properties, unless approved by the Fire Marshal. When approved by the Fire Marshal all spike strips, guard post or other limiting barriers shall be automatic retraction and lockable to allow access when retracted. A Knox Box shall be placed next to the controller or control box for the retraction and the retraction key/controller box key shall be placed inside the Knox Box.

6. Fire Department Emergency Access Barriers (Only as Approved by the Fire Marshal). Barrier access Fire Department Emergency Only Access road can consist of bollards with a chain across the road with a sign that states "Fire Department Emergency Access Only". Instead of a chain a gate may be placed across the road for gated area or in high traffic area. These barriers shall be set off the roadway by fifty-five feet (55') to allow safe distance for the Fire Department to pull off the roadway to open the access barrier. See Detail FD109 for detail of allowable Barriers.

7. On site fire hydrants are required when any point of the first floor exterior wall of a building is 12,000 square feet or less and is more than 300 feet from a public fire hydrant, OR any point of the first floor exterior wall of a building is larger than 12,000 square feet is more than 150 feet from a public fire hydrant.

8. On site and off site hydrants shall have a clear space of 3 feet around and in front of the hydrant and hydrant valve. No Trees, Bushes, Fences, Walls or River Rock. No Cactus within 10 feet of a fire hydrant or hydrant valve. All landscaping shall be kept the 3 feet and 10 feet clear of the hydrants at maturity of the plants. All sight visibility in front of the hydrant shall be maintained at all times (see C-305).

9. All off site and on site hydrants shall have markers to indicate were the hydrant is located (see MAG Detail 122). When on site streets, roads, private drives or parking lots are resurfaced the hydrant markers shall be replaced as part of the maintenance of the road surface.

10. Speed Humps may be place on the roadway or other Fire Department access in conformance with City of Chandler Detail C-234, or as approved by the Fire Marshal.

11. Alternate Access Road Surfaces Approved by the Fire Marshal shall conform to City of Chandler Details C-236 and C-238. Delineation of the edge by ribbon curbing shall be provided with detail C-236.

CHANDLER FIRE DEPARTMENT
Secondary/Emergency Access

Criteria required for secondary/emergency access to all properties (examples: industrial parks, commercial complexes, apartment complexes, condominiums, housing subdivisions, but not limited to, etc.):

- All projects shall have a second access as remote as possible from the primary access to the site.
    - Projects with a boulevard entry (median separated ingress/egress) may apply for an exemption in writing from the Fire Department. The Fire Department will determine whether to grant such exemption based on width of the ingress/egress, width of median, size of project, distance of farthest point of project from street, and/or fire hydrant, amount of frontage and other factors affecting the ability of police, fire and other emergency equipment to respond or to evacuate the project.
    - All access shall be recorded on the Final Plat.
    - Emergency access gate(s) shall meet fire department criteria:
        - Electrically operated gates installed across required fire apparatus access roadways shall be provided with pre-emption devices and Key Switch. **The gate(s) with the pre-emption devices shall remain open for 30 minutes after the first unit enters, to allow other units or ambulance to enter during emergencies.** (See also City of Chandler Detail C-228).
        - All gates and barriers across fire apparatus access roadways shall be set off the roadway by fifty-five feet (55') to allow safe distance for the Fire Department to pull off the roadway to open the access gate or barrier.
        - Non-electric gates or barrier for other than primary entrances shall comply with Chandler Fire Department Detail FD109, unless approved by the Fire Marshal.
        - Conversion from manual gates to automatic gates will require the installation of pre-emption device and key switch to be installed for any gates across Fire Department access, unless approved by the Fire Marshal.

The Fire Department will have final approval for secondary/emergency access to ensure the best possible safety ingress/egress for the Site.

Note: For developments with gate prior to FY2000 only an entrance code shall be provided to Chandler Police Department (City of Chandler, Chandler Police Department MS804, PO Box 4008, Chandler, AZ 85244-4008: 480-782-4149)

CHANDLER FIRE DEPARTMENT

Key Box/Elevator Key Box/
Electric Access Gate (s) Requirements

PROJECT NAME: _____ CITY LOG #: _____
PROJECT ADDRESS: _____ CONTRACTOR: _____
CONTACT PERSON: _____ TELEPHONE #: _____

Key Box Requirements

Criteria to be shown on the plans for building key box locations

- Key box is required for where access to or within a structure or an area is restricted because of a secured openings or where immediate access is necessary for life-saving or fire-fighting purposes. The key box shall be an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the Fire Marshal.
- Key box is to be visible and readily accessible from the front entrance of facility.
- Additional key box may be necessary for large building.
- The top of the key box is to be located no more than 6 feet up on the wall and no lower than 4 feet from finished grade.
- Chandler Fire Department requires one grand master key for the facility that will open all the doors, including the Fire Sprinkler Riser room and the Fire Alarm Room. If you have multiple tenants then you may have multiple grand master keys.
- Key Box shall be large enough to hold the number of keys required for the facility. Where swipe cards/fobs are used Key box shall be large enough to hold all key swipe cards/fobs and keys for the facility or multiple box at the entrance may be required.
- Red sticker to be applied to main entrance door.
- The operator of the building shall immediately notify the Fire Department (480-782-2121) and provide the new key when a lock is changed or rekeyed.
- Application for key box may be obtained by going to www.knoxbox.com (enter Chandler when asked for a city) or by contacting Chandler Fire Department at 480-782-2121.

Criteria to be shown on the plans for Elevator key box locations

- Key box is required for where access to or within a structure or an area is restricted because of a secured openings or where immediate access is necessary for life-saving or fire-fighting purposes. The key box shall be an approved type listed in accordance with UL 1037, and shall contain keys to gain necessary access as required by the Fire Marshal.
- The Key Box shall compatible with an with an existing rapid entry key box system in use in the jurisdiction and approved by the Fire Marshal
- The front cover shall be permanently labeled with the words "Fire Department Use Only – Elevator Keys".
- The key box shall be mounted at each elevator bank at the lobby nearest to the lower level of fire department access.
- The key box shall be mounted 5 feet 6 inches above the finished floor to the right side of the elevator bank.
- Contents of the key box are limited to fire service elevator keys. Additional elevator tools, keys and information pertinent to emergency planning or elevator access shall be permitted when authorized by the Fire Marshal.
- In buildings with two or more elevator banks, a single key box shall be permitted to be used when such elevator banks are separated by not more than 30 feet. Additional key boxes shall be provided for each individual elevator or elevator bank separated by more than 30 feet, unless approved by the Fire Marshal.

Criteria to be shown on the plans for Key Switch and Pre-emption device locations

- Key switch and Pre-emption devices are required on all electric gate or barriers limiting 24-hour access to the site. The Key switch and Pre-emption device(s) location shall be shown on the Site Plan.
- **Electric gates shall remain open for 30 minutes after emergency activation with the pre-emptions device.** (See City of Chandler Detail C-228).
- Key pads/numeric pads are prohibited for exiting on electric gates.
- Electrical plans shall show panel locations, size and type of conduit, conduit routing, conductor size, type of over current protection and location of disconnecting means.
- 2 copies of cut sheets shall be submitted with the plans for the electric gate operation device.
- Application for Key switch may be obtained by going to www.knoxbox.com (enter Chandler when asked for a city) or by contacting Chandler Fire Department at 480-782-2121.

CHANDLER FIRE DEPARTMENT

PLAN REVIEW GUIDE FOR UNDERGROUND FIRE LINES

PROJECT NAME: _____ CITY LOG #: _____
PROJECT ADDRESS: _____ CONTRACTOR: _____
CONTACT PERSON: _____ TELEPHONE #: _____

Underground fire line installation information shall be provided on the appropriate drawings. A copy of this guide shall be attached to submitted drawings. **A review will not be conducted without this guide being submitted with the drawings.** A contractor licensed by the State to do such work SHALL perform all such work and who holds a current valid permit from the Fire Department to work within the City of Chandler.

1. Fire Department "General Notes to the Contractor" are provided on the plans.
2. A detector check valve assembly for the underground fire line is installed because there is a capability for on site private fire hydrants or other means of flowing water without sounding an alarm.
3. The plans are drawing to scale and include:
   A. Size and location of city water main(s) supplying underground fire line(s).
   B. Type, class, depth of burial, size, and location of all new underground fire line piping.
   C. Location(s) and type of off-site and on-site fire hydrant(s).
   D. Location(s) of fire sprinkler(s) and standpipe rise(s), to be supplied by underground fire lines(s).
4. Location and distance to all existing fire hydrants on City mains, within 300 feet of the site property lines.
5. Provide additional fire hydrants as needed for the site and building(s) to meet City standards.
6. The location of underground fire lines are NOT to be located within retention basins or public utility easements.
7. Underground fire line maximum lengths are do not exceed (unless approved by Fire Marshal):
   A. Six inch diameter dead end lines shall not exceed 300 feet in length.
   B. Eight inch diameter dead end lines shall not exceed 1200 feet in length.
   C. Six inch-looped lines shall not exceed 1200 feet in length.
8. Fire line pipe shall be either DIP Class 350 pipe, or PVC C-900, 150 psi or PVC C-905, 235 psi pipe.
9. Metallic warning tape shall be installed in accordance with the manufacturers installation instructions when non-metallic piping is used for underground fire lines.
10. Show appropriate fire line connection detail for backflow prevention assemblies, underground check valves, fire department connections, and post indicating valves.
11. Show all fire line control valves:
    A. Are of the indicating type.
    B. Are aboveground.
    C. The top of valve housings is 36 inches above clearance around PIV finished grade.
    D. Are to be color coded and signed in accordance with FD standards.
    E. Maintain a minimum of three (3) Feet clearance around PIVs (No trees, bushes, fences, cactus or river rock).
12. Show all fire line backflow prevention assemblies with FDC, underground check valves, fire department connections (FDC), and fire line control valves.
13. Show looped underground fire lines are provided with sectional control valves installed at appropriate locations to permit isolation of portions of the system in the event of a break, or to facilitate repairs or extensions to the system.
14. Show that all stub out or future connections on underground fire lines shall terminate with post indicator valves only.

15. Plans shall show that backflow with fire department connections (FDC) assembly is installed as follows:
    A. A minimum of one fire department connection is provided for single underground fire lines supplying a single riser (FD102).
    B. A minimum of two-fire department connections, located remote for each other, are provided for looped underground fire lines supplying multiple risers. More than two FDC's may be required as determined by plan review (FD103).
16. Plans shall indicate that backflow with FDC assembly:
    A. Are located on private property six to ten feet behind curbs of a permanent entrance to the site (as determined by the Fire Marshal or designee).
    B. Will not obstruct public or private sidewalks.
    C. Are not located in a retention area or behind walls.
    D. Are located within 150 feet of a fire hydrant connected to a public water main.
    E. Are located within landscaped or planter areas.
    F. Are signed in accordance with FD Detail 104.
    G. Maintain a minimum of three (3) foot clearance around the FDC (No landscaping, bushes, trees, cactus, river rock, or fences).
    H. Fire Hydrants is located on the same side of the drive to prevent access from being obstructed.
17. Plans shall show separate hydrant (H) and Fire Line (FL) lines on the plans. These lines shall be separate throughout the site unless otherwise approved by the Fire Marshal.
18. Tapping sleeves are not to be used on any portion of the underground fire line downstream of the underground check valve or backflow prevention assembly.
19. Uni-flange devices are not to be installed on aboveground piping.
20. All system components are to be listed or approved for fire protection use by an approved testing agency.
21. A sectional control PIV shall be installed on a looped fire line to provide isolation of the fire line. Each branch fire line shall have a riser control PIV for individual riser (unless otherwise approved by the Fire Marshal or designee). The riser PIV shall be located as close to the outside of the building as practical where the riser is located. If the riser PIV is eliminated a note shall be place on the Fire Protection Sprinkler Plans that Fire Department detail FD105 shall be used. The Civil Engineer is required to coordinate with the Fire Sprinkler Designer to ensure FD105 is placed on the Fire Sprinkler plans for review.
22. All stub out and temporary fire line terminations (phased projects) shall end with a PIV painted forest green.
23. Residential (multi-family) - all private shared domestic and residential fire line mains shall have a required pressure backflow installed per COC Detail C-315.

CHANDLER FIRE DEPARTMENT

Plan Review Guide For Fire Sprinkler Systems

PROJECT NAME: _____ CITY LOG #: _____
PROJECT ADDRESS: _____ CONTRACTOR: _____
CONTACT PERSON: _____ TELEPHONE #: _____

Fire sprinkler system installation information shall be provided on the appropriate drawings. A copy of this guide shall be attached to submitted drawings. **A review will not be conducted without this guide being submitted with the drawings.** Any modifications to existing systems shall be submitted for plan review to Transportation and Development Department. Plans shall be reviewed, approved, permit issued and on site prior to work beginning. A contractor licensed by the State to do such work SHALL perform all such work and who holds a current valid permit from the Fire Department to work within the City of Chandler.

1. Fire Department "General Notes to the Contractor: are provided on the plans.

2. Pursuant to Board of Technical Registration guidelines adopted March 17, 1989 sprinkler system design criteria has been accomplished by a registrant; and the submittal bears the registrants seal.

3. A City Inspector shall witness the testing of the Sprinkler System. Contact your Building Inspector to schedule an inspection at least 48 hours in advance. The contractor shall provide the City Building Inspector two copies of Inspection, Testing and Maintenance form (require by NFPA), prior to the start of any Inspection or Testing of the system. One copy of the completed Inspection, Testing and Maintenance form will then be given to the contractor upon successful completion of the inspection or test of the system.

4. The Building Code occupancy class of each area or room in the building is indicated on the drawings.

5. Indicate the type of system to be installed: NFPA 13, 13R__ 13D__ Other_

6. Plans shall be drawn to an indicated scale, on sheets of uniform size, with a plan of each floor, and shall show those items from the following list that pertain to the design of the system:
   a. Name of owner and occupant.
   b. Name and address of contractor.
   c. Location, including correct street address.
   d. Point of compass.
   e. Full height cross section.
   f. Ceiling construction.
   g. Fire wall locations.
   h. Partition wall locations.
   i. Fire door locations.
   j. Unprotected window openings.
   k. Large unprotected floor openings.
   l. Location and dimensions of:
      i. Concealed spaces
      ii. Bathrooms
      iii. Attics
      iv. Closets
   m. Any small enclosures in which NO sprinklers are to be installed.
   n. A legend list with descriptions.
   o. Detail of connection to the underground fire line (do not state see civil).
   p. Shape of design area.
   q. A sprinkler head table listing the manufacturer, model, orifice size, temperature rating, and protection area for each head type, and number of sprinkler heads per riser on each floor.
   r. The following in a "DESIGN CRITERIA" box:
      i. Hazard class
      ii. Design density
      iii. Design Area (sq. ft.)
      iv. Number of sprinklers in design area

v. Water supply data:
    1. Test date and location
    2. Flow PSI and GPM
    3. Residual PSI
    4. Static PSI

s. City main size and system elevation relative to flow test hydrant.
    i. System demand:
    ii. PSI at riser
    iii. GPM at riser
    iv. Hose stream and in-rack sprinkler water allowance

t. Riser detail (including flow switch, gauges, check valve, main drain, control valve [if located on riser, if not reference civil sheet for PIV], and fittings).

u. Pipe type and schedule of wall thickness.

v. Type and location of hangers, sleeves, braces, and methods of securing sprinklers

7. Cut sheet literature describing all system components are included as attachments; or component manufacturer, make, and model data is included on the drawings when the components are listed in the Underwriters Laboratories Inc. "Fire Protection Equipment Directory".

8. Calculations for hydraulically calculated systems contain the data required in accordance with NFPA.

9. A detail of the hydraulic data nameplate is included on the drawings.

10. The riser PIV shall be located as close to the outside of the building as practical where the riser is located. If the riser PIV is eliminated a note shall be place on the Fire Protections Sprinkler plans that Fire Department detail FD105 shall be used. The Civil Engineer is required to coordinate with the Fire Sprinkler Designer to ensure FD105 is placed on the Fire Sprinkler plans for review.

11. The type and locations of all control valves, check valves, and main and auxiliary drains are indicated and identified on the drawings.

12. The maximum floor area on any single floor, served by an individual riser, does not exceed NFPA allowance.

13. The location and size of the inspectors test valve is indicated on the drawings.

14. The location and type of local water flow alarm is indicated on the drawings. (Red)

15. Third party monitoring of water flow is provided for systems in accordance with the Fire Code.

16. Sprinkler heads are positions no closer than 4 inches to any wall, and no further from a wall that one-half the allowable distance between sprinklers.

17. The clear space below sprinklers is in accordance with NFPA.

18. Sprinkler system installation under exterior roofs or canopies exceeding four feet in width, attached to the building is indicated on the drawings.

19. Sprinkler head installation under ducts (more than 4 feet in width) is indicated on the drawings.

20. Sprinkler head installation for shade structure 3000 square feet or more is indicated on the drawings.

21. Fire hose valves and stations (when required or provided) are spaced so that all protected areas are within thirty feet of a nozzle when attached to not more than 100 feet of hose. Fire hose valves shall be 2- 2 1/2 male connections (NST) with gate valve. All Piping to the hose stations shall be 2 ½ in or larger. **No hose shall be attached**.

22. The placement, location and contents of the spare sprinkler head cabinet is indicated on the drawings.

23. Show any special hazards for the building fire sprinkler system "in-rack", "bin", or "high piled" storage inside the building; storage of flammable and/or combustible liquids within the building; any use, dispensing, or mixing of flammable and/or combustible liquids within the building; any storage, use, dispensing, handling, or mixing of any chemicals other than flammable or combustible liquids inside the building.

Chandler + Arizona
Where Values Make The Difference

CHANDLER FIRE DEPARTMENT

PLAN REVIEW GUIDE FOR FIRE ALARM SYSTEMS

PROJECT NAME:_____ CITY LOG #:_____
PROJECT ADDRESS:_____ CONTRACTOR:_____
CONTACT PERSON:_____ TELEPHONE #:_____

Fire alarm system installation information shall be provided on the appropriate drawings. A copy of this guide shall be attached to submitted drawings. **A review will not be conducted without this guide being submitted with the drawings.** Any modifications to existing systems shall be submitted for plan review to Transportation and Development Department. Plans shall be reviewed, approved, permit issued and on site prior to work beginning. A contractor licensed by the State to do such work SHALL perform all such work and who holds a current valid permit from the Fire Department to work within the City of Chandler.

1. Fire Department "General Notes to the Contractor: are provided on the plans.

2. Pursuant to Board of Technical Registration guidelines adopted March 17, 1989 sprinkler system design criteria has been accomplished by a registrant; and the submittal bears the registrants seal.

3. All Fire Alarm Systems shall be installed in accordance with applicable provisions of NFPA, Fire Code, Building Code and ANSI Standards. All system components are compatible and are listed or approved as such.

4. One set of approved drawings shall be maintained on-site and made available to City Inspectors on demand.

5. A City Inspector shall witness the testing of the Fire Alarm System. Contact your Building Inspector to schedule an inspection at least 48 hours in advance. The contractor shall provide the City Building Inspector two copies of Inspection, Testing and Maintenance form (require by NFPA), prior to the start of any Inspection or Testing of the system. One copy of the completed Inspection, Testing and Maintenance form will then be given to the contractor upon successful completion of the inspection or test of the system.

6. Plans shall be drawn to an indicated scale, on sheets of uniform size, with a plan of each floor, and shall show those items from the following list that pertain to the design of the system:
   a) Name of owner and occupant.
   b) Name and address of contractor.
   c) Location, including correct street address.
   d) Point of compass.
   e) Occupancy and Occupant Load
   f) Square foot
   g) Scope of work (New install, TI, Modification, Addition, Change with in facility)
   h) Legend of all Devices
   i) Sequence of operations for all functions
   j) Floor Plans
   k) Zone Maps
   l) Room Description/Use
   m) Convention or addressable wiring
   n) FACP & Annunciator Location (The alarm annunciator shall be positioned in a location approved by the Fire Department).
   o) Notification Power Supply Location
   p) Riser Location and Number
   q) Location of Primary Power Connection (Breaker Panel Location)
   r) One Line Diagram of initiating and notification circuits
   s) Monitoring and/or height requirements for equipment
   t) Detail special device hook up or other unique device configuration
   u) Cut sheet literature describing devices, controls, appliances and other equipment, to include but not limited to information on:
      i) Device, appliance and equipment ratings and spacing requirements
      ii) Device, appliance and equipment compatibility
      iii) Listings /Approvals
      iv) Device/Appliance/Equipment features to be utilized in the system

v) All calculations for the following items are complete, accurate, and adequate:
   i) Battery calculations and voltage drop estimates
   ii) Voltage Drop of Circuits
   iii) Current Protection
   iv) Standby and Alarm Battery Calculations
   v) A battery calculation sheet (with all values used) showing that battery power is adequate for 24 hours of stand-by power and 5 minutes of alarm power.
   vi) Allowable Voltage drop shall not exceed 10%

7. Equipment location and floor plan drawing showing:
   a) Location of Devices (Pull Stations, Tamper Switches, Smoke Detector, interface with elevator, door release or unlock, smoke control, HVAC shut down, Dampers, Fire Pump, Water Flow, Heat detectors, Duct Detectors, Etc.).
   b) Location of Appliances (Bells, Horns, Horn/strobe, speaker, chimes, Etc.).
   c) Type of Devices and Appliances (Pull Stations, Tamper Switches, Smoke Detector, interface with elevator, door release or unlock, smoke control, HVAC shut down, Dampers, Fire Pump, Water Flow, Heat detectors, Duct Detectors, Etc.).
   d) Control Location(s) (FACP, Annunciators, Transmitters, Transponders, Etc.).
   e) Type of Control (Bells, Horns, Horn/strobe, speaker, chimes, Etc.).
   f) Ceiling Shape and Surface Cross Sections or Note at Detector Locations (Level Shape, Smooth Surface, Etc.).
   g) A Symbol List (With Equipment Identification) Showing:
      i) Symbols Used On Drawings
      ii) Symbol Description
      iii) Device Manufacturers, Make and Model Number
      iv) Linear Footage Detector Rating for Spacing in "High Air Movement Areas" If Applicable

8. An Elementary Wiring (Riser) Diagram Showing:
   a) Arrangement of ALL Devices and Appliances with Respect to Control Units and FACP
   b) Typical Data On:
      i) Control Panel
      ii) Power Supply Circuit
      iii) Alarm Initiating Circuits
      iv) Alarm Indicating Circuits
      v) Ancillary Functions (HVAC Shutdown, Elevator Recall, Door Closures, Etc.)
   c) Zone Configuration and Addressing (As It Will Appear on FACP and/or Annunciator) for Each Zone
   d) System Primary and Secondary/Stand-By Electrical:
      i) Power Source and Voltage
      ii) Connection to System
      iii) Electrical Power to System
   e) Alarm Circuit Load Consumption of All Circuits to Include:
      i) Voltage Drop
      ii) Acceptable Limits
      iii) Quantity of Signaling Appliances on Furthest Circuit and Current Consumption
      iv) Length of Furthest Circuit and Resistance of Wire or a Note Specifying Maximum Circuit Length

9. A point to Point System Wiring Diagram Showing:
   a) Interconnection of ALL Devices and Appliances
   b) External Connection of Modules in Control Panel
   c) Conduit Connection and Size
   d) Type, Size, Manufacturer's Name, and Approved List of Wire or Cable
   e) Electrically operated water flow alarm devices attached to sprinkler systems to provide required supervision shall be interconnected to the fire alarm system in accordance with the appropriate NFPA standard.

10. Show Detector Protection in Air/Heat Ducts, Detector Activation of Magnetic Door-Releasing Hardware and Detector/Fire Alarm System Activation of HVAC Shutdown.

11. Fire Sprinkler Supervisory/Tamper Switch Connection to Fire Alarm System, Alarm system supervision of sprinkler system trouble and water flow indications in buildings more than one story high, shall be provided by the fire alarm system in accordance with NFPA 13.

12. Sprinkler tamper switch is to cause light and buzzer indication at annunciator panel and at the remote supervision site when such is required. Activation of tamper alarm shall not cause operation of door, chimes, bells, or sprinkler flow alarm.

13. An information plate reading "LOCAL ALARM ONLY - THIS ALARM DOES NOT SUMMON THE FIRE DEPARTMENT - IN CASE OF FIRE CALL FIRE DEPARTMENT AT 9-1-1" is installed on the exterior of each building where the local alarm sounds or is visible for water flow.

14. Activation of the manual pull station or device shall sound a local alarm.

15. An information plate reading "LOCAL ALARM ONLY - THIS ALARM DOES NOT SUMMON THE FIRE DEPARTMENT - IN CASE OF FIRE CALL FIRE DEPARTMENT AT 9-1-1" is installed at each manual pull station for a local alarm system.

16. Manual fire alarm boxes (pull stations) shall be at every exit on every floor for multiple story buildings

17. Fire alarm system voice speakers/audible devices are being used for purposes other than evacuation only when allowed by the code.

18. Emergency telephones with individual cabinets for use by the Fire Department (Or other emergency responders) are installed.

19. Will there be any storage, use, handling, dispensing or mixing of any chemicals or flammable/combustible liquids inside the building?

20. When hazardous materials rated 3 or 4 in accordance with Fire Code are transported through exit corridors or exit enclosures, there shall be an emergency telephone system, a local manual alarm or an approved signaling device at not more than 150 feet intervals and at each exit doorway throughout the transport route. The system shall initiate a local audible alarm and the signal shall be relayed to an approved central, proprietary or remote station service or a constantly attended location.

21. A manual pull station or approved emergency signal device is shown outside of each interior exit door of hazardous material storage buildings, rooms, or areas.

22. Manual alarm, emergency signal, detection or automatic fire extinguishing systems (including fire sprinklers) shall be supervised by an approved central, proprietary or remote station service; or shall initiate an audible and visual signal at a constantly attended location.

23. A smoke detection system shall be provided in rooms or areas where highly toxic compressed gases are stored indoors, and activation shall sound a local alarm.

24. A smoke detection system shall be installed in all liquid and solid oxidizer storage areas (except when stored in detached storage buildings with an automatic fire extinguishing system) and shall sound a local alarm.

25. An approved automatic smoke-detection system shall be provided when the amount of hazardous materials stored, dispensed, handled or used in one control area exceeding exempt amounts specified in Fire Code.

26. The contractor is to place a floor plan of the building inside the Fire Alarm Panel. The floor plan shall show the location of all devices and provide room numbers and/or description of room that is compatible with the Fire Alarm System notification (example: 1st floor smoke detector room 103 or break room). Zone Maps are to be placed in the Fire Alarm Panel.

27. The contractor shall place a key to the fire alarm panel in the Key Box.

28. All Fire Alarm Rooms shall be signed in accordance with Fire Department detail FD106.

CHANDLER FIRE DEPARTMENT

FIRE SAFETY PROCEDURES IN UNFINISHED DEVELOPMENTS

1. Submit a fire access plan to Transportation & Development, which will be reviewed by the Fire Marshal.

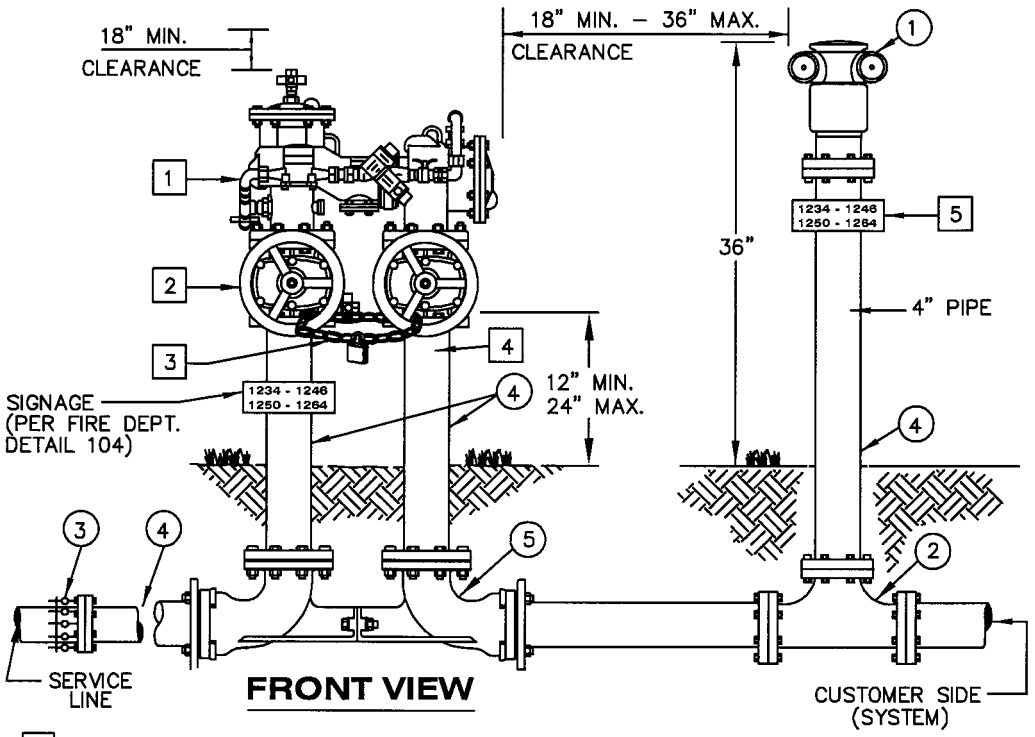
2. The plan shall clearly note a temporary fire vehicle access roadway that shall be 20' clear width, consisting of an all-weather surface of 6"ABC at 100% compaction on subgrade compacted to 95%. The road shall be delineated by red reflectors no shorter than 24" above grade and spaced no further that 50' apart. If the road is no longer than 150', provide a turn-around to comply with Fire Department Standard Detail FD141 (Temporary-Construction Site Only). You must provide a construction as built certificate for the access road before construction will be allowed.

3. Show on the plan the approved source of water for the hydrants, which shall be located no further that 75' off the access road and no further that 300' from the most remote lot to the built on.

4. The approved water source shall be one that has been tested, approved and pressurized. The City Engineer may agree to allow extension and approval of portions of public water line to provide service to fire hydrants. The water line shall be a portion of the approved water system and its construction shall not interfere with the normal construction of other improvements. No other water sources shall be allowed.

Note: Building Permits issued prior to completion of all improvements are a privilege and not a right. All required items shall be maintained. Default on any one item shall be subject to the entire project to a "Stop Work" order.

FIRE DEPARTMENT STANDARD DETAILS



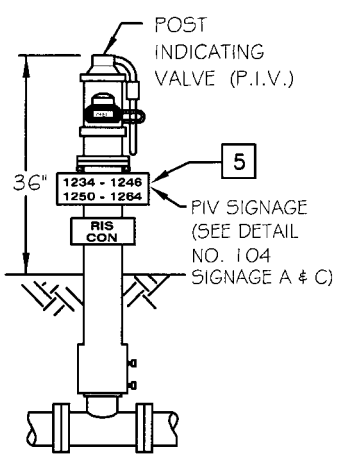
FRONT VIEW

NOTES

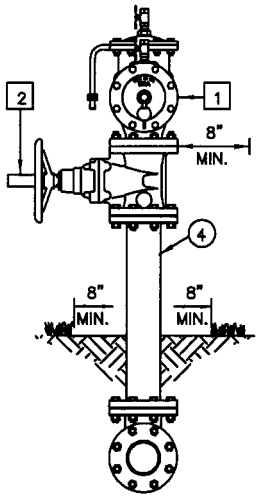
1. DOUBLE CHECK DETECTOR ASSEMBLY WITH BYPASS METER SHALL BE UL LISTED OR FM APPROVED FOR FIRE PROTECTION USE AND SHALL BE AS APPROVED BY U.S.C. FOUNDATION FOR CROSS-CONNECTION CONTROL AND HYDRAULIC RESEARCH. THIS ASSEMBLY IS TO BE USED FOR POLLUTION HAZARDS ONLY AS RECOMMENDED IN THE AWWA-M14 MANUAL.
2. ALL PIPING, VALVES, FITTINGS AND APPURTENANCES DOWNSTREAM OF THE SERVICE LINE SIDE O.S.& Y. VALVE SHALL BE APPROVED FOR FIRE PROTECTION USE AND INSTALLED PER N.F.P.A. #24.
3. THE ENTIRE ASSEMBLY SHALL BE SECURED WITH CHAIN AND LOCK.
4. BACKFLOW DEVICES SHALL BE PAINTED TO MATCH THE LANDSCAPE (DESERT BROWN).
5. FDC'S AND PIV'S SHALL BE PAINTED RED AND SIGNED PER FIRE DEPT. DETAIL NO. 104 SIGNAGE A, B, OR C.

GENERAL NOTES:

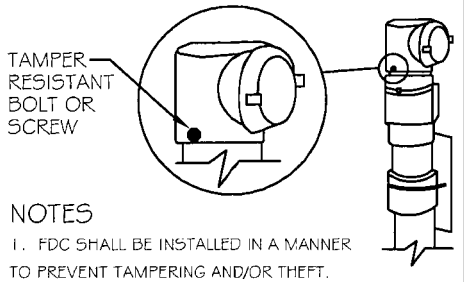
1. FDC'S SHALL BE LOCATED WITHIN 150 FEET OF A PUBLIC (YELLOW) FIRE HYDRANT AT THE ENTRANCE TO THE SITE.
2. A REGISTERED STRUCTURAL ENGINEER SHALL SEAL THE DESIGN OF THE THRUST BLOCKS, SUPPORTS AND TIE ROD ASSEMBLIES.
3. MAINTAIN 3 FEET CLEARANCE AROUND PIV AND FDC. (NO TREES, BUSHES, FENCES, CACTUS OR RIVER ROCK.)
4. MAX DISTANCE BETWEEN FDC AND BACKFLOW MAY BE MODIFIED ONLY AS APPROVED BY THE FIRE MARSHAL OR DESIGNER.



FOR SINGLE RISER SYSTEMS, A PIV IS REQUIRED AS RISER CONTROL VALVE WITHIN 10 FEET OF THE BUILDING. IF PIV IS ELIMINATED THEN FD105 SHALL BE USED.



SIDE VIEW



NOTES

1. FDC SHALL BE INSTALLED IN A MANNER TO PREVENT TAMPERING AND/OR THEFT.
2. PRIOR TO INSTALLING THE FDC ON THE CHECK VALVE, THREADLOCKER, OR EQUIVALENT, SHALL BE PLACED ON THE THREADS.
3. TAMPER RESISTANT BOLT OR SCREW SHALL BE INSTALLED IN THE BASE OF THE FDC BY DRILLING A 3/8 INCH HOLE THROUGH THE MANIFOLD CASE AND INNER THREADS.

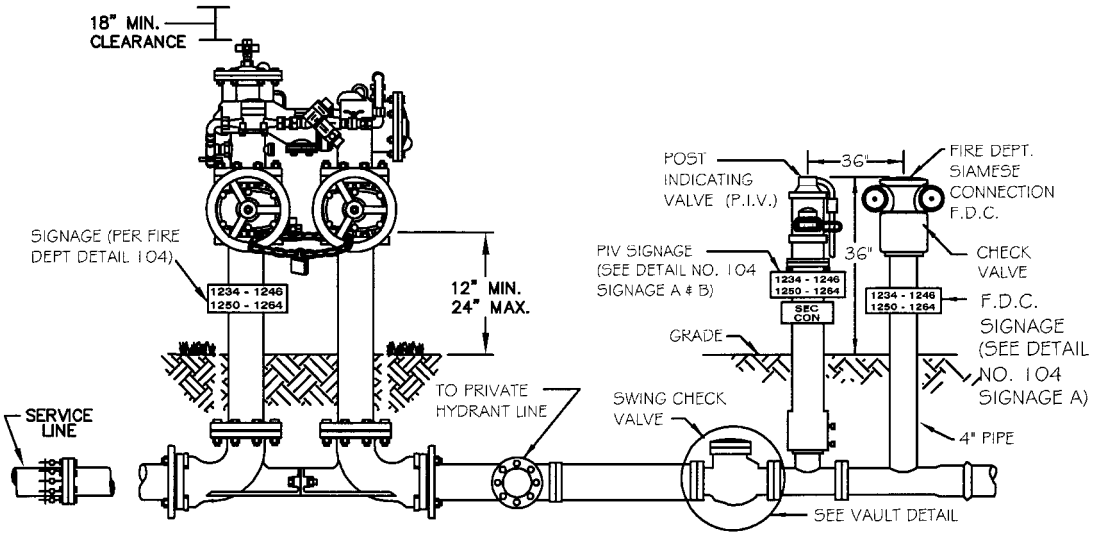
LIST OF MATERIALS

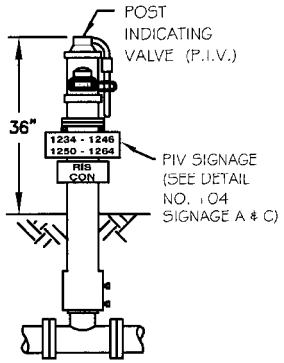
1. FIRE DEPT. SIAMESE CONNECTION (FDC) (RED).
2. FLANGED TEE.
3. FLANGED ADAPTER, (WHEN REQUIRED).
4. PIPE SPOOL. (FLANGED D.I.P.)
5. 90° ELBOW. (FLANGED D.I.P.)

SCREENING METHOD

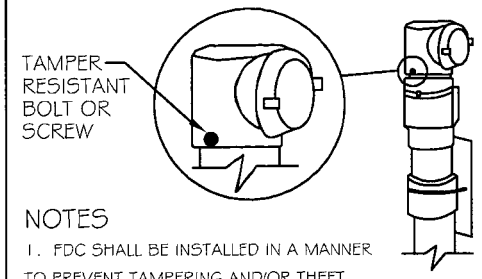
1. SCREEN WALLS, PLANT MATERIAL, BERMING AND/OR BUILDING ORIENTATION SHALL BE SUBMITTED TO DEVELOPMENT SERVICES FOR REVIEW AND APPROVAL PRIOR TO START OF CONSTRUCTION.
2. METHOD OF SCREENING USED MAY REQUIRE FDC'S TO BE REMOTELY LOCATED. FDC LOCATION AND METHOD OF INSTALLATION SHALL BE INCLUDED ON SCREENING PLAN SUBMITTED TO DEVELOPMENT SERVICES FOR REVIEW AND APPROVAL.

DETAIL NO. **FD102** NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE LINE INSTALLATION (NO ON-SITE HYDRANTS REQUIRED / FOR SMALL SITES AND/OR SINGLE BUILDINGS)**	APPROVED: FIRE MARSHAL DATE: 6/25/2013	DETAIL NO. **FD102** NTS





MULTIPLE RISER SYSTEMS, ADDITIONAL PIVS MAY BE REQUIRED AS RISER CONTROL VALVES. RISER CONTROL VALVES TO BE WITH 10 FEET OF BUILDING. IF RISER CONTROL VALVE IS ELIMINATED THEN FD105 SHALL BE USED.

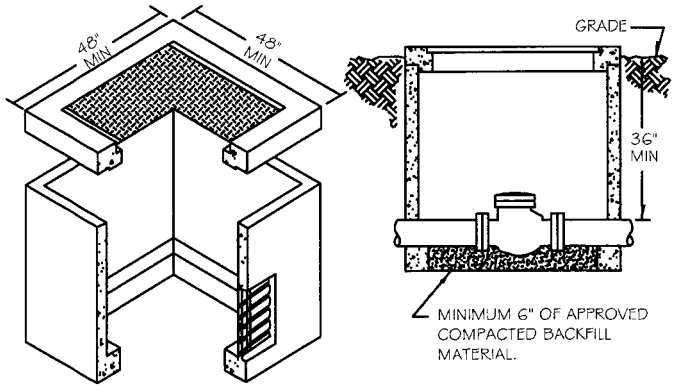


NOTES

1. FDC SHALL BE INSTALLED IN A MANNER TO PREVENT TAMPERING AND/OR THEFT.
2. PRIOR TO INSTALLING THE FDC ON THE CHECK VALVE, THREADLOCKER, OR EQUIVALENT, SHALL BE PLACED ON THE THREADS.
3. TAMPER RESISTANT BOLT OR SCREW SHALL BE INSTALLED IN THE BASE OF THE FDC BY DRILLING A 3/8 INCH HOLE THROUGH THE MANIFOLD CASE AND INNER THREADS.

NOTES:

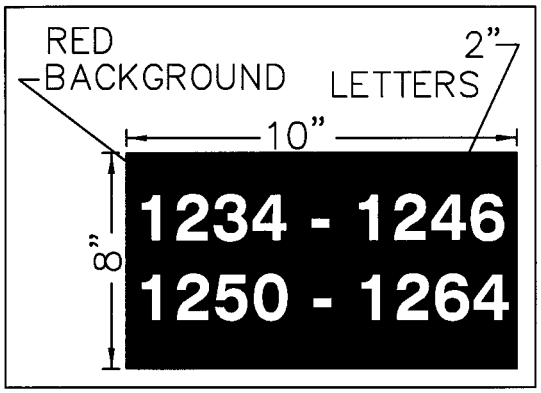
1. ALL FD102 NOTES, GENERAL NOTE AND LIST OF MATERIALS SHALL APPLY TO FD103 DESIGN. (EXCEPT GENERAL NOTE #4).
2. FDC'S SHALL BE LOCATED WITHIN 150 FEET OF A PUBLIC (YELLOW) FIRE HYDRANT.
3. SWING CHECK VALVES USED ON UNDERGROUND FIRE LINES SHALL BE INSTALLED WITHIN A VAULT IN ACCORDANCE WITH THIS DETAIL. THE CHECK VALVE AND VAULT ASSEMBLY SHALL BE INSTALLED AFTER THE PRIVATE HYDRANT LINE (PRIVATE HYDRANTS SHALL BE PAINTED YELLOW WITH A BLACK BONNET).
4. FIRE SPRINKLER LINES SHALL HAVE A SECTIONAL CONTROL PIV INSTALLED BETWEEN THE SWING CHECK VALVE AND THE FDC. A SECTIONAL CONTROL PIV SHALL BE INSTALLED AT MID POINT ON THE LOOPED FIRE LINE TO PROVIDE FOR ISOLATION OF THE FIRE LINE.
5. FIRE SPRINKLER LINES SHALL HAVE A RISER CONTROL PIV FOR EACH INDIVIDUAL RISER. THE PIV'S SHALL BE LOCATED AS CLOSE TO THE RISER AS PRACTICAL. THE RISER CONTROL PIV'S MAY BE ELIMINATED AND FD105 IS REQUIRED. PROVIDE A KEY BOX FOR FIRE DEPARTMENT ACCESS TO THE RISER CONTROL VALVES LOCATED INSIDE THE BUILDING.
6. ALL STUB OUT AND FUTURE DEVELOPMENT PADS (PHASED PROJECTS) SHALL END WITH A PIV PAINTED FOREST GREEN.



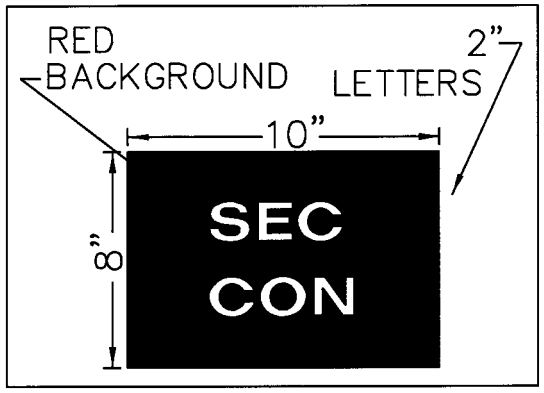
VAULT DETAIL

DETAIL NO. FD103 NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE LINE INSTALLATION ON-SITE HYDRANTS REQUIRED / FOR LARGE SITES AND/OR MULTIPLE BUILDINGS**	APPROVED: DATE: 6/25/2013	DETAIL NO. FD103 NTS

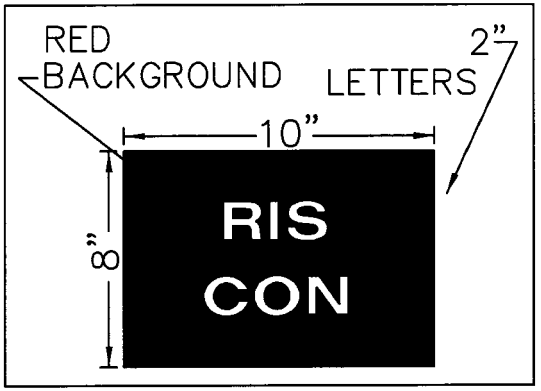
SIGNAGE A

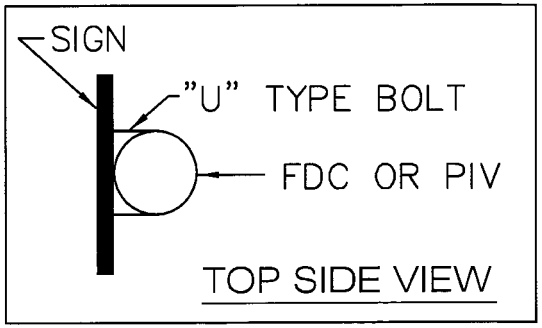


SIGNAGE B



SIGNAGE C

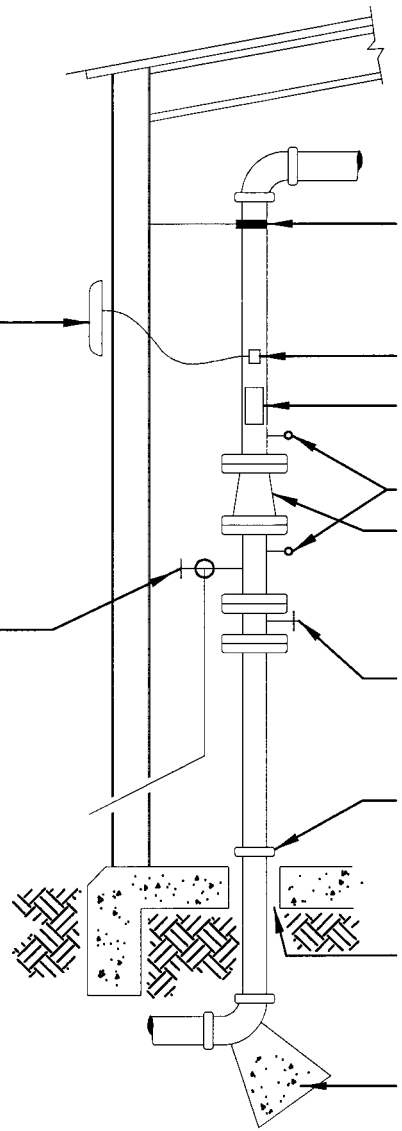




NOTES:

1. THE SIGNS SHALL INCLUDE THE ADDRESS(S) OF THE PREMISE(S) SERVING THE FDC OR PIV.
2. THE SIGNS SHALL BE RED IN COLOR WITH WHITE REFLECTIVE LETTERING AND SHALL BE 0.08 GAUGE ALUMINUM AND SHALL BE SECURELY ATTACHED TO THE FDC OR PIV WITH "U" TYPE BOLTS.

DETAIL NO. FD104 NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE DEPT. CONNECTION AND POST INDICATING VALVE SIGNAGE**	APPROVED: FIRE MARSHAL, DATE: 10/05/2010	DETAIL NO. FD104 NTS



4-WAY BRACING SECURED TO STRUCTURE

EXTERIOR LOCAL ALARM, 10" ELECTRIC BELL OR APPROVED AUDIBLE DEVICE (RED)

WATER FLOW SWITCH WIRED TO EXTERIOR LOCAL ALARM

HYDRAULIC DESIGN CALCULATIONS PLACARD

300 LB PRESSURE GAUGES ABOVE AND BELOW RISER CHECK VALVE

RISER ALARM CHECK VALVE OR APPROVED VERTICAL CHECK VALVE SHALL BE PROVIDED ON ALL RISERS.

2" SYSTEM MAIN DRAIN PIPED TO EXTERIOR

RISER CONTROL VALVE. WHEN A RISER CONTROL PIV IS INSTALLED ON THE UNDERGROUND FIRE LINE, THE CONTROL VALVE ON THE RISER MAY BE OMITTED.

FLANGE 6" MINIMUM ABOVE FINISHED FLOOR. UNI-FLANGES (MEGA-LUGS) SHALL NOT BE USED ABOVE GRADE.

SLEEVE THROUGH FINISHED FLOOR. CLEARANCE ON ALL SIDES SHALL NOT BE LESS THAN ONE INCH FOR PIPE SIZES 1" THROUGH 3-1/2", AND TWO INCHES FOR PIPE SIZES 4" AND LARGER.

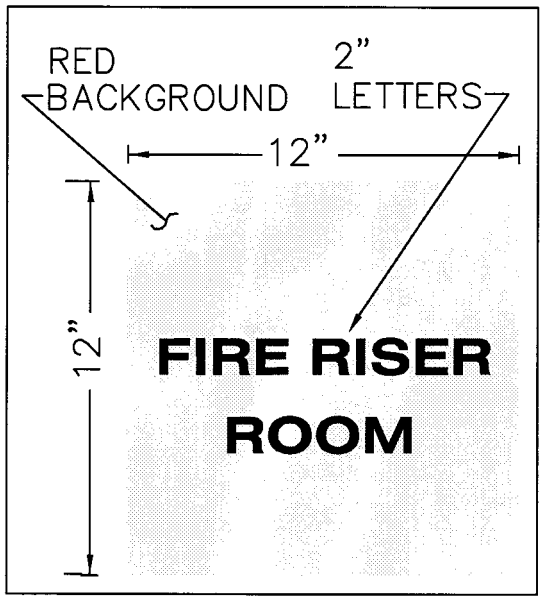
THRUST BLOCK PER NFPA #24

NOTE:

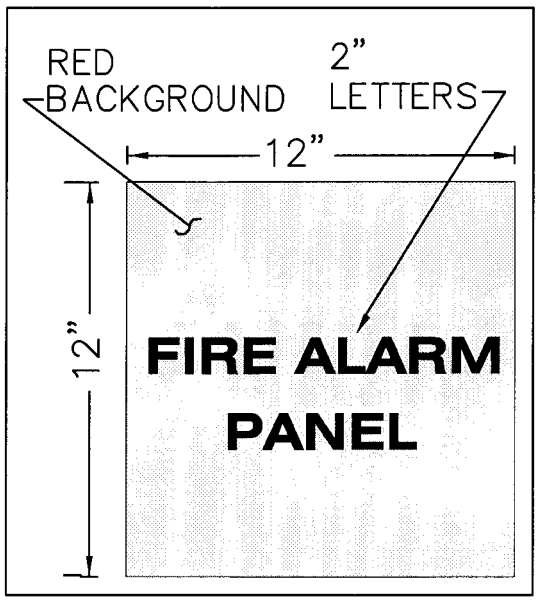
1. WHEN RISER CONTROLS ARE LOCATED INSIDE THE BUILDING A KEY BOX (WITH A MASTER KEY FOR THE BUILDING) SHALL BE PLACED AT THE FRONT ENTRANCE.
2. CHECK VALVE SHALL NOT BE REMOVED FROM THE RISER WHEN A BACKFLOW IS INSTALLED ON A WATER LINE.

DETAIL NO. FD105 NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE SPRINKLER SYSTEM RISER COMMERCIAL INSTALLATION**	APPROVED: FIRE MARSHAL DATE: 7/30/2010	DETAIL NO. FD105 NTS

SIGNAGE A



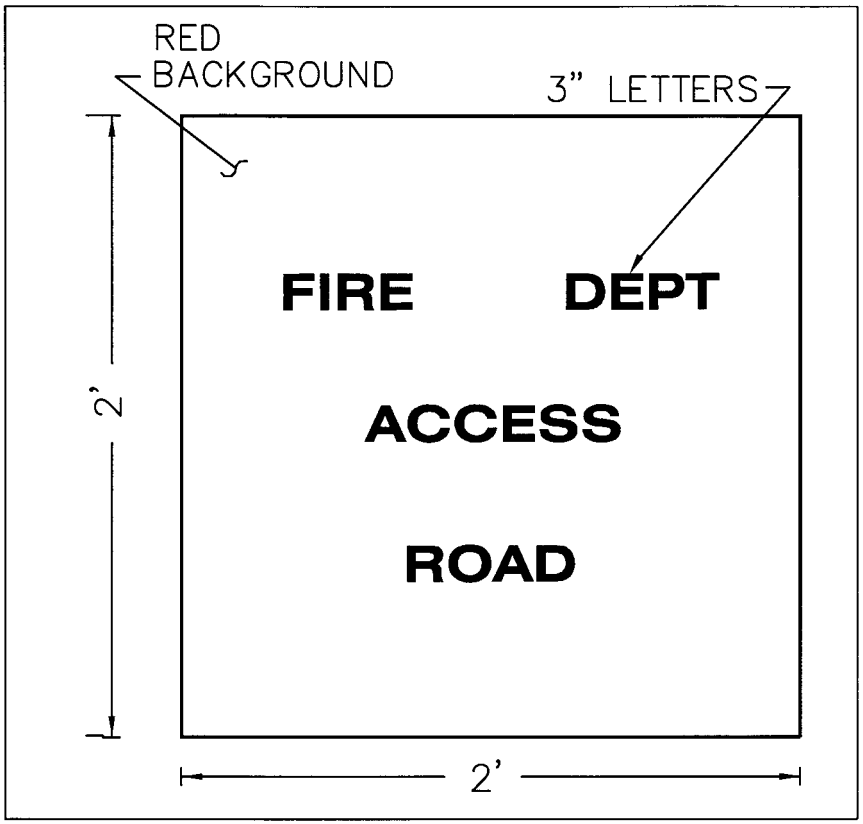
SIGNAGE B

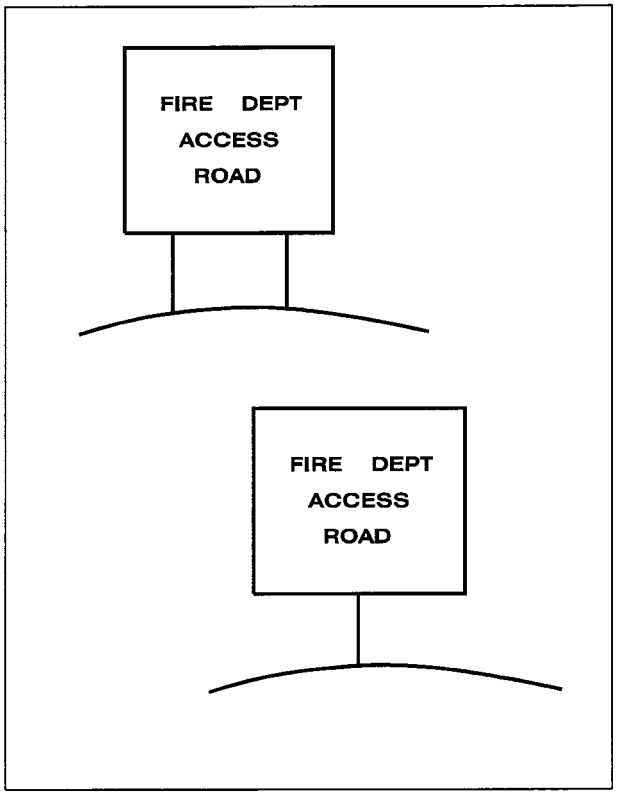


NOTES:

1. ALL SIGNS SHALL BE RED IN COLOR WITH WHITE REFLECTIVE LETTERING.
2. OUTSIDE SIGNS SHALL BE 0.08 GAUGE ALUMINUM OR EQUIVILANT, SECURED TO THE DOOR, OR THE SIGN MAY BE STENCILED ON THE DOOR. STENCILING SHALL BE RED BACKGROUND WITH WHITE REFLECTIVE LETTERING.
3. INSIDE SIGNS SHALL BE OF DURABLE MATERIAL.

DETAIL NO. FD106 NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE RISER ROOM AND FIRE ALARM PANEL SIGNAGE**	APPROVED: FIRE MARSHAL DATE: 10/05/2010	DETAIL NO. FD106 NTS

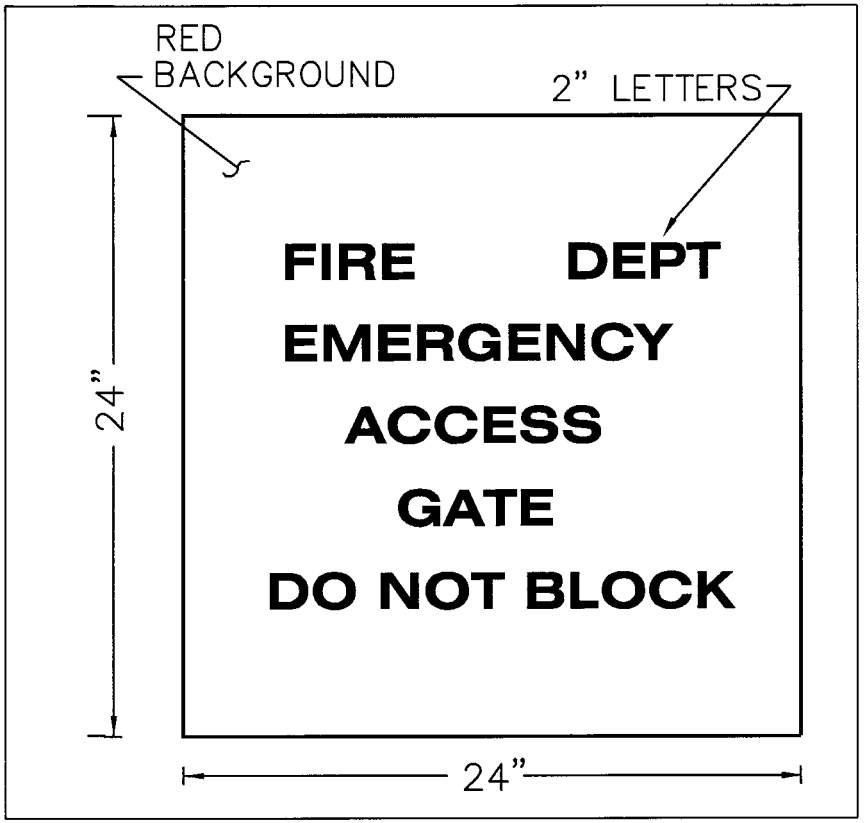




NOTES:

1. ALL SIGNS SHALL BE RED IN COLOR WITH WHITE REFLECTIVE LETTERING.
2. SIGNS SHALL BE POSTED AT ALL FIRE DEPT ACCESS POINTS TO THE SITE.
3. SIGNS SHALL BE MADE OF DURABLE OR ALL WEATHER MATERIALS.
4. SIGNS SHALL BE MOUNTED ON EITHER A SINGLE CENTER POST OR DOUBLE SIDE POST. POST MAY BE STEEL OR WOOD.
5. TOP OF SIGN SHALL BE 6-8 FEET FROM FINISH GRADE.
6. SIGNS SHALL BE POSTED WHEN TEMPORARY FIRE DEPARTMENT ACCESS ROADS ARE INSTALLED.
7. SIGNS SHALL BE REMOVED WHEN PERMANENT ROADS ARE COMPLETED.

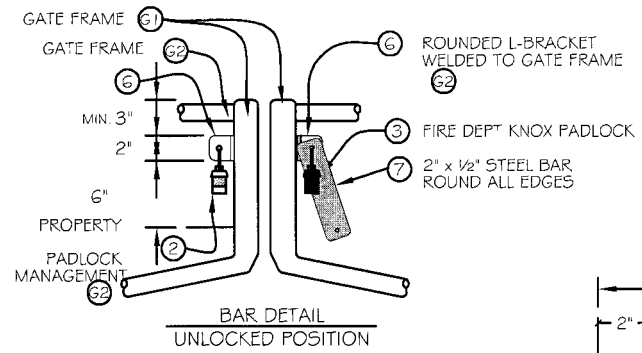
DETAIL NO. FD107 NTS	CITY OF CHANDLER STANDARD DETAIL	**TEMPORARY FIRE DEPT ACCESS ROAD SIGNAGE**	APPROVED: FIRE MARSHAL DATE: 10/05/2010	DETAIL NO. FD107 NTS



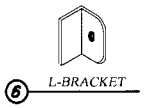
NOTES:

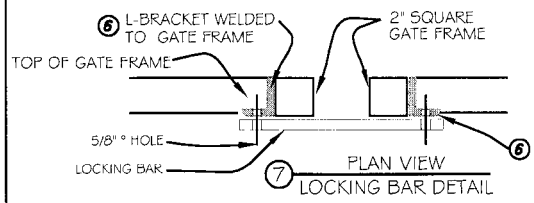
1. ALL SIGNS SHALL BE RED IN COLOR WITH WHITE REFLECTIVE LETTERING.
2. SIGNS SHALL BE POSTED AT ALL FIRE DEPT EMERGENCY GATE ACCESSES.
3. SIGNS SHALL BE MADE OF DURABLE OR ALL WEATHER MATERIALS.
4. SIGNS SHALL BE MOUNTED ON BOTH SIDES OF THE GATE.

DETAIL NO. FD108 NTS	CITY OF CHANDLER STANDARD DETAIL	**TEMPORARY FIRE DEPT ACCESS ROAD SIGNAGE**	APPROVED: FIRE MARSHAL DATE: 10/05/2010	DETAIL NO. FD108 NTS

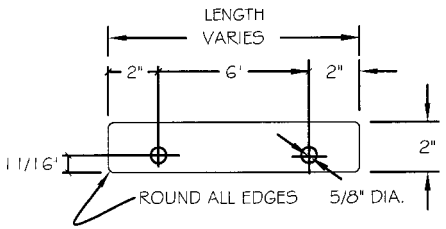


BAR DETAIL
UNLOCKED POSITION





7 PLAN VIEW
LOCKING BAR DETAIL

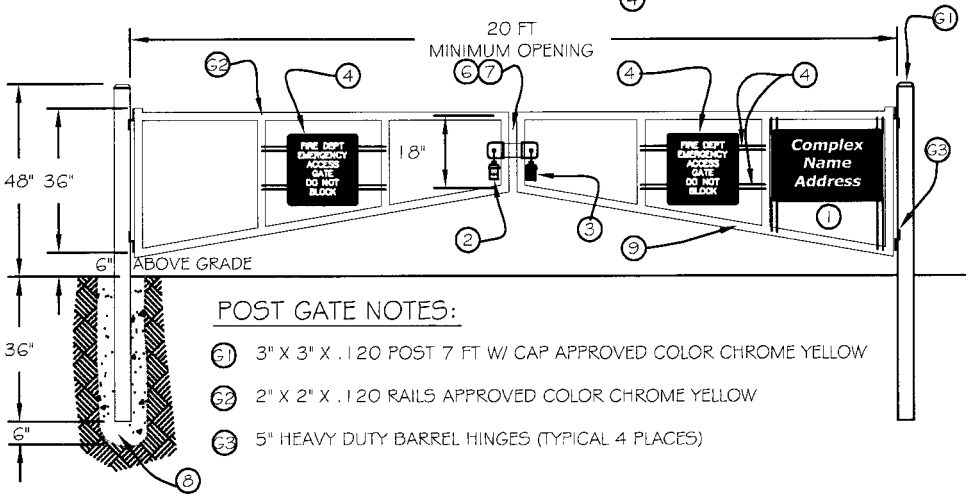


7 LOCKING BAR DETAIL

GENERAL NOTES:

1. APPROVED SIGN, (2" LETTERS HELVETICA MEDIUM, 36" x 24"), RED BACKGROUND WITH WHITE REFLECTIVE LETTERING,TO IDENTIFY THE NAME OF THE COMPLEX AND THE LOCATION (ADDRESS). ¼" X 1½" MOUNTING STRAPS
2. PROPERTY OWNER/MANAGEMENT PADLOCK
3. KNOX PADLOCK SHALL BE ACCESSIBLE FROM BOTH SIDES OF GATE. (KNOX PADLOCK CAN BE PURCHASED AT www.knoxbox.com, enter "chandler" for the City.)
4. "FD EMERGENCY ACCESS DO NOT BLOCK" FD108 SIGNS (2" LETTERS, 24" x 24"), RED BACKGROUND WITH WHITE REFLECTIVE LETTERS, PLACED BACK TO BACK AND FASTENED ON ALL 4 CORNERS. ¼" X 1½" MOUNTING STRAPS
5. THE MINIMUM OVERALL WIDTH OF THE GATE OPENING SHALL BE 20 FT.
6. WELD MODIFIED L-BRACKET TO GATE FRAME OR POST. ROUND ALL EDGES. (TYPICAL 2 PLACES)
7. LOCKING BAR LENGTH IS DETERMINED BY THE FRAME WIDTH AND THE GAP WIDTH BETWEEN THE 2 GATES. REMOVE ALL SHARP EDGES / ROUND ALL CORNERS.
8. 24" DIAMETER CONCRETE POST FOOTINGS. (TYPICAL)
9. POSTS AND GATES SHALL BE PAINTED CHROME YELLO.
10. GATES / BARRIERS SHALL BE SET OFF THE ROADWAY FIFTY-FIVE (55') TO ALLOW SAFE DISTANCE TO PULL OFF THE ROADWAY.

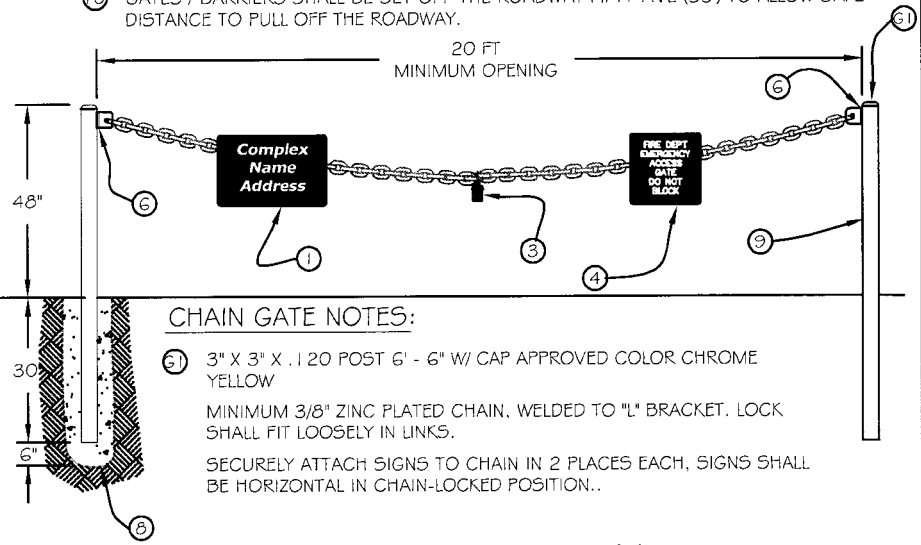
4 PLAN VIEW



POST GATE NOTES:

- G1 3" X 3" X .120 POST 7 FT W/ CAP APPROVED COLOR CHROME YELLOW
- G2 2" X 2" X .120 RAILS APPROVED COLOR CHROME YELLOW
- G3 5" HEAVY DUTY BARREL HINGES (TYPICAL 4 PLACES)

TYPE 'A' DOUBLE SWING GATE



CHAIN GATE NOTES:

- G1 3" X 3" X .120 POST 6' - 6" W/ CAP APPROVED COLOR CHROME YELLOW

  MINIMUM 3/8" ZINC PLATED CHAIN, WELDED TO "L" BRACKET. LOCK SHALL FIT LOOSELY IN LINKS.

  SECURELY ATTACH SIGNS TO CHAIN IN 2 PLACES EACH, SIGNS SHALL BE HORIZONTAL IN CHAIN-LOCKED POSITION..

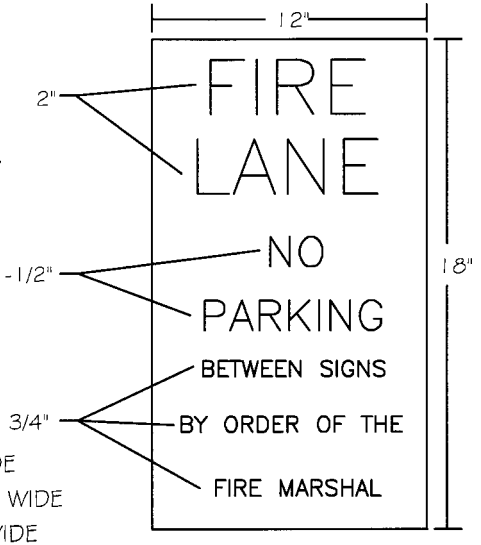
TYPE 'B' CHAIN GATE

DETAIL NO. FD109 NTS	CITY OF CHANDLER STANDARD DETAIL	**EMERGENCY ACCESS BARRIER**	APPROVED: Mark E. Dedalus DATE: 6/13/2013	DETAIL NO. FD109 NTS

MINIMUM ACCESSWAY WIDTH FOR FIRE LANE SIGN PLACEMENT

* WIDTH	PARKING CONDITIONS	SIGNS REQUIRED
LESS THAN 29'	NO PARKING ON EITHER SIDE OF STREET	THIS DETAIL
29' TO LESS THAN 35'	PARKING ON ONE SIDE OF STREET ONLY	ONE SIDE
35' OR MORE	PARKING ON BOTH SIDES OF STREET	NOT REQUIRED

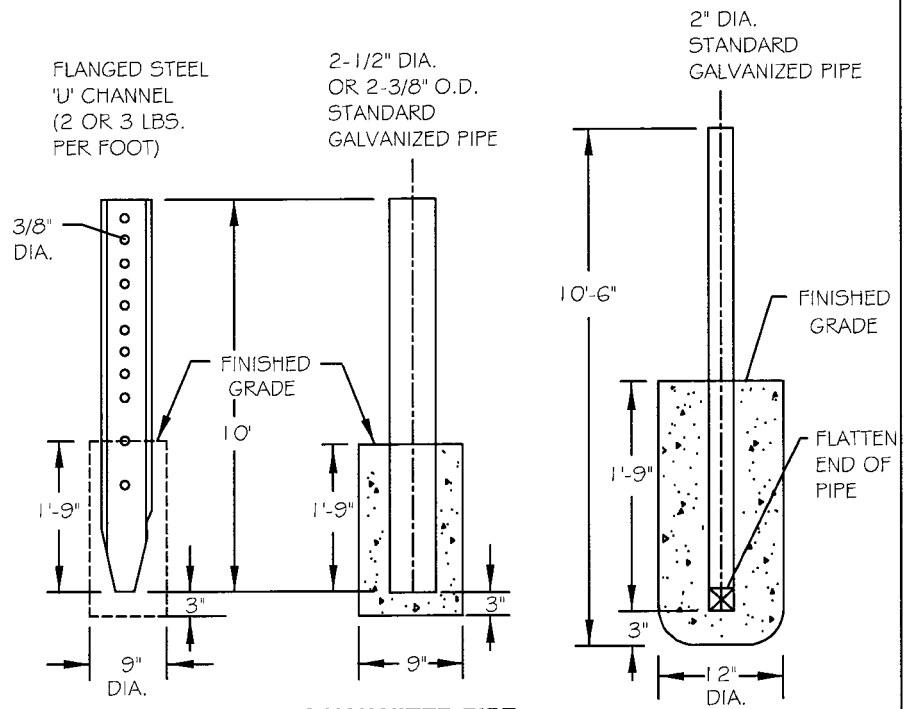
* ROLLED CURBS SHALL BE MEASURED FROM BACK OF CURB TO BACK OF CURB.
* ALL OTHER CURBS SHALL BE MEASURED FROM FACE OF CURB TO FACE OF CURB.



NOTES:

1. 2" LETTERS ARE 5/8" WIDE
2. 1-1/2" LETTERS ARE 1/2" WIDE
3. 3/4" LETTERS ARE 1/8" WIDE
4. ALL LETTERS ARE RED WITH A WHITE BACKGROUND
5. THE SIGNS ARE TO BE MOUNTED ON A POST AS PER DETAIL SHOWN.
6. THE BOTTOM OF THE SIGN IS TO BE 7' ABOVE GRADE AND NO MORE THAN 75' APART.
7. CURBING SHALL BE PAINTED BRILLIANT RED WITH WHITE 2" LETTERING "NO PARKING-FIRE LANE".
8. SIGNING AND CURBING SHALL BE INSTALLED UNLESS A WRITTEN VARIANCE IS PROVIDED TO THE FIRE MARSHAL FOR APPROVAL AND APPROVED.
9. THESE SIGNS ARE NOT SUPPLIED BY THE CITY OF CHANDLER.

FIRE LANE SIGN BASE



TYPE 'A': USE DRIVING HEAD FOR DRIVING ALL FLANGED STEEL 'U' CHANNEL POSTS. IN LIEU OF DRIVING, FLANGED STEEL 'U' CHANNEL POSTS MAY BE SET IN CONCRETE BASE FOUNDATION AS PER TYPE 'B' BASE.

TYPE 'B' & 'C': CONCRETE BASE FOUNDATIONS SHALL BE CLASS 'C' CONCRETE.

DETAIL NO. FD111 NTS	CITY OF CHANDLER STANDARD DETAIL	FIRE LANE SIGNAGE	APPROVED: FIRE MARSHAL DATE: 6/25/2013	DETAIL NO. FD111 NTS

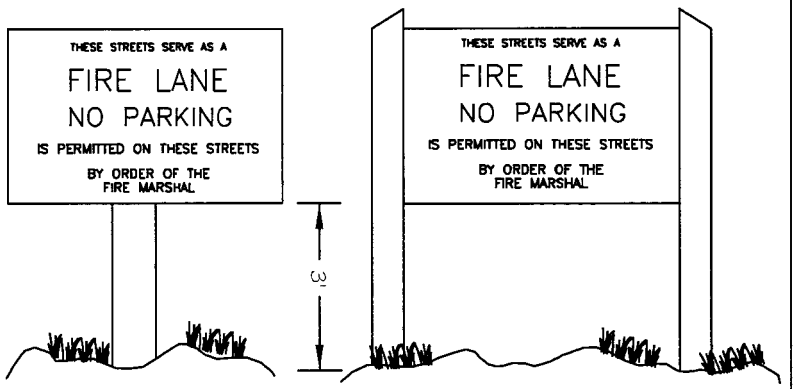
MINIMUM STREET WIDTH FOR FIRE LANE SIGN PLACEMENT

* WIDTH	PARKING CONDITIONS	SIGNS REQUIRED
LESS THAN 29'	NO PARKING ON EITHER SIDE OF STREET	THIS DETAIL
29' TO LESS THAN 35'	PARKING ON ONE SIDE OF STREET ONLY	USE DETAIL 111
35' OR MORE	PARKING ON BOTH SIDES OF STREET	NOT REQUIRED

* ROLLED CURBS SHALL BE MEASURED FROM BACK OF CURB TO BACK OF CURB.
* ALL OTHER CURBS SHALL BE MEASURED FROM FACE OF CURB TO FACE OF CURB.

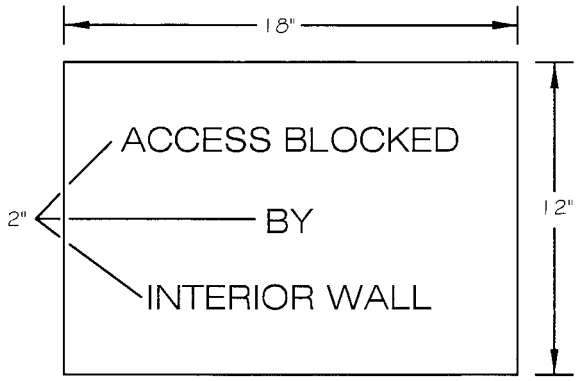
NOTES:

1. THIS SIGN MAY BE USED FOR PRIVATE STREET AND SUBDIVISIONS IN LIEU OF FIRE LANE SIGNS BEING POSTED EVERY 75' AND PAINTED CURBS.
2. 3 INCH LETTERS ARE 5/8 INCH WIDE
3. 2-1/2 INCH LETTERS ARE 1/2 INCH WIDE
4. 1 INCH LETTERS ARE 1/8 INCH WIDE
5. ALL LETTERS ARE RED WITH A WHITE BACKGROUND
6. SIGNS SHALL BE MOUNTED ON EITHER A SINGLE CENTER POST OR DOUBLE SIDE POSTS. POSTS MAY BE STEEL OR WOOD.
7. SIGNS SHALL HAVE A MINIMUM DIMENSION OF 24 INCHES BY 18 INCHES HIGH.
8. THE BOTTOM OF THE SIGN IS TO BE 3 FEET ABOVE GRADE SIGNS AND POSTS ARE NOT SUPPLIED BY THE CITY OF CHANDLER.
9. ALL SIGNS SHALL BE VISIBLE UPON ENTERING THE PRIVATE STREET.
10. ALL SIGNS SHALL BE MAINTAINED, SO THEY ARE LEGIBLE.



DETAIL NO.				
FD112 NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE LANE SIGNAGE (PRIVATE STREETS AND SUBDIVISIONS)**	APPROVED: FIRE MARSHAL DATE: 5/30/2008	DETAIL NO. **FD112** NTS

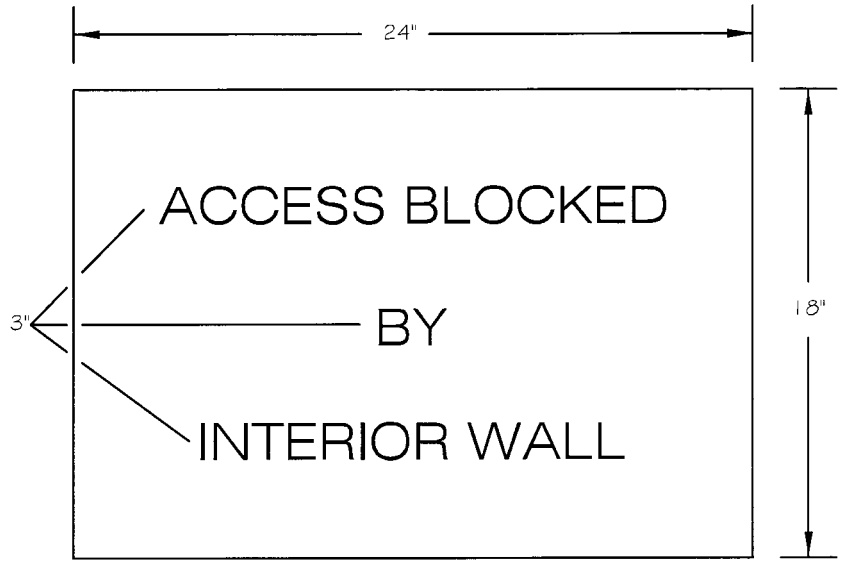
PERSONNEL ENTRY/EXIT DOOR



NOTES:

1. LETTERS SHALL BE 2" IN HEIGHT.
2. LETTERING SHALL BE WHITE REFLECTIVE WITH A RED BACKGROUND.
3. SIGNS SHALL BE 0.08 GAUGE ALUMINUM.
4. SIGNS SHALL BE SECURED TO THE DOOR IN A PERMANENT FASHION. NO GLUE.
5. TOP OF SIGN SHALL BE 6' ABOVE FINISHED GRADE.

OVERHEAD GARAGE DOOR



NOTES:

1. LETTERS SHALL BE 3" IN HEIGHT.
2. LETTERING SHALL BE WHITE REFLECTIVE WITH A RED BACKGROUND.
3. SIGNS SHALL BE 0.08 GAUGE ALUMINUM.
4. SIGNS SHALL BE SECURED TO THE DOOR IN A PERMANENT FASHION. NO GLUE.
5. TOP OF SIGN SHALL BE 6' ABOVE FINISHED GRADE.

DETAIL NO. FD115 NTS	CITY OF CHANDLER STANDARD DETAIL	**BLOCKED DOOR SIGNAGE (INTERIOR WALL)**	APPROVED: FIRE MARSHAL DATE: 10/05/2010	DETAIL NO. FD115 NTS

COLOR CODE

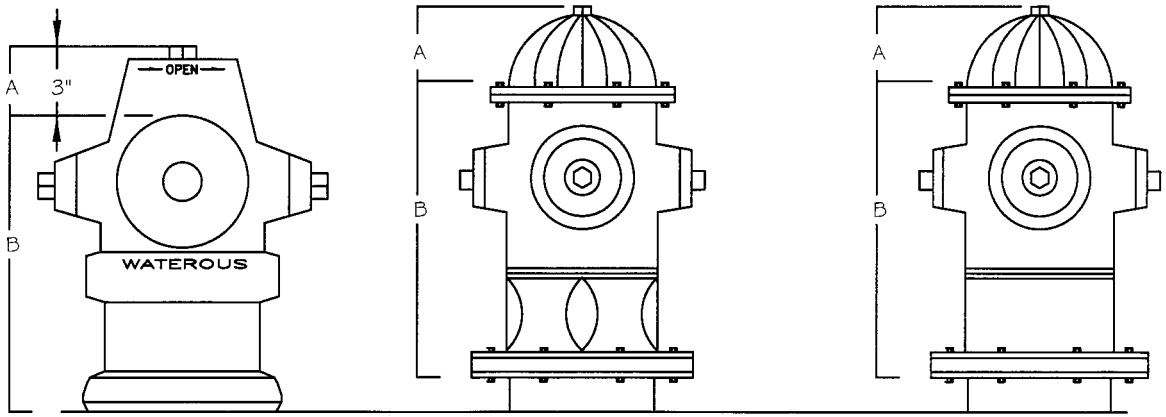
THE CITY OF CHANDLER WATER DIVISION AND FIRE DEPARTMENT UTILIZE THE FOLLOWING COLOR CODE IN DISTINGUISHING THE VARIOUS TYPES OF FIRE HYDRANTS:

1. CAT YELLOW: THE BARREL AND BONNET OF ALL FIRE HYDRANTS INSTALLED ON PUBLIC WATER MAINS IN RIGHTS-OF-WAY AND IN PUBLIC UTILITY EASEMENTS (PUE'S) SHALL BE PAINTED CAT YELLOW.
2. GLOSS BLACK/CAT YELLOW: THE BONNET OF ALL FIRE HYDRANTS INSTALLED ON PRIVATELY OWNED AND MAINTAINED WATER MAINS SHALL BE PAINTED GLOSS BLACK. THE BARREL SHALL BE PAINTED CAT YELLOW.
3. BRILLIANT RED: THE BARREL AND BONNET OF ALL FIRE HYDRANTS INSTALLED ON PRIVATE FIRE LINES SHALL BE PAINTED BRILLIANT RED IF THOSE FIRE HYDRANTS ARE SERVED BY FIRE PUMPS OR FIRE DEPARTMENT SIAMESE CONNECTIONS (FDC'S). ALL SUCH FIRE HYDRANTS SHALL BE ISOLATED FROM THE MUNICIPAL WATER SYSTEM BY DOUBLE DETECTOR CHECK VALVES. ALL RED HYDRANTS SHALL BE APPROVED BY THE FIRE MARSHAL.

NOTE:
1. ON WATEROUS HYDRANTS ONLY: BONNET (A) WILL BE PAINTED 3" DOWN FROM THE TOP.

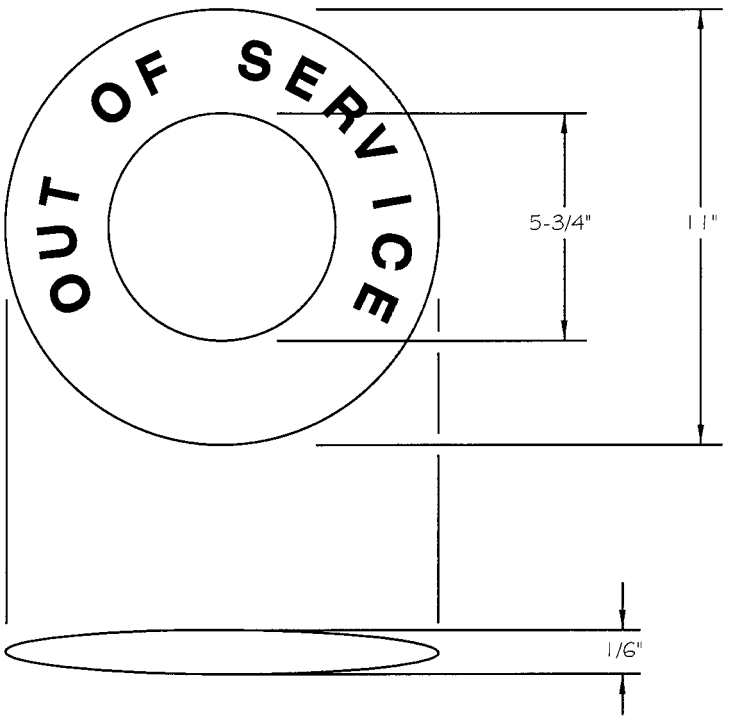
LEGEND:
1. (A) = BONNET (B) = BARREL
2. TYPE DENOTES COLOR CODE DESIGNATION.
(CY) = CAT YELLOW (BR) = BRILLIANT RED
(GB) = GLOSS BLACK

TYPE	A	B
1	CY	CY
2	GB	CY
3	BR	BR



WATEROUS **MUELLER** **CLOW**

DETAIL NO. **FD121** NTS	CITY OF CHANDLER STANDARD DETAIL	**HYDRANT IDENTIFICATION AND COLOR CODING**	APPROVED: FIRE MARSHAL DATE: 5/30/2008	DETAIL NO. **FD121** NTS



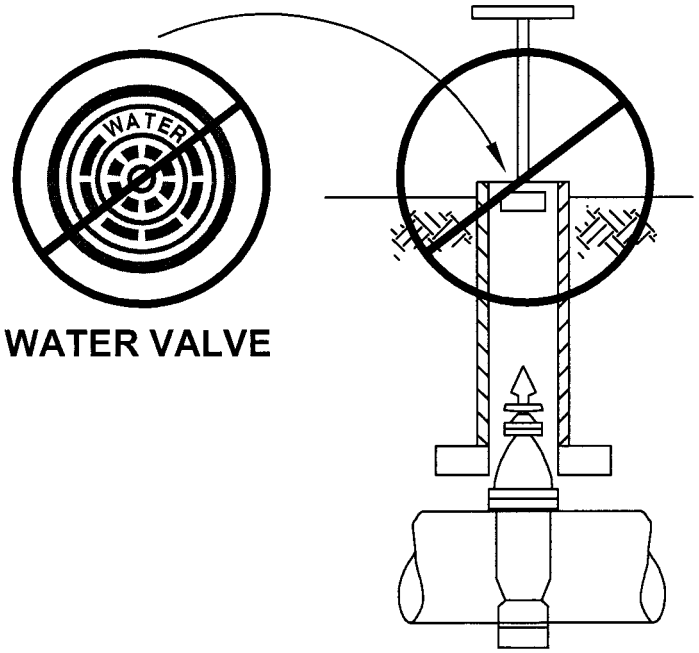
NOTE:

ALL FIRE HYDRANTS INSTALLED ON PRIVATE AND PUBLIC WATER LINES SHALL BE PROVIDED WITH "OUT OF SERVICE" SIGNS. UPON COMPLETION OF REQUIRED INSPECTIONS, TESTS, ACCEPTANCE, AND APPROVAL OF THE WATER SYSTEM BY A C.O.C. INSPECTOR AND THE SYSTEM IS VERIFIED TO BE IN SERVICE, THE "OUT OF SERVICE" SIGNS SHALL BE REMOVED. A HYDRANT REMOVED FROM SERVICE SHALL BE PROVIDED AN "OUT OF SERVICE" SIGN WITHIN THE INITIAL 2 HOURS OF THE SERVICE INTERRUPTION. SIGNS SHALL BE IN ACCORDANCE WITH THIS DETAIL. SIGNS SHALL BE PERMANENTLY MARKED AND CONSTRUCTED OF WEATHERPROOF METAL OR RIGID PLASTIC MATERIAL. THE COLOR OF LETTERING ON SIGNS SHALL BE IN HIGH CONTRAST WITH THEIR BACKGROUND. SIGNS SHALL HAVE THE WORDS "OUT OF SERVICE" ON THE SIGN IN BLOCK CAPITAL LETTERS NOT LESS THAN 1-1/2" IN HEIGHT WITH A STROKE OF NOT LESS THAN 1/4".

DETAIL NO.				DETAIL NO.
FD123 NTS	CITY OF CHANDLER STANDARD DETAIL	**'OUT OF SERVICE' SIGNS**	APPROVED: FIRE MARSHAL DATE: 5/30/2008	**FD123** NTS

UNAUTHORIZED PERSONNEL SHUTTING OFF WATER VALVES AND FIRE HYDRANTS ARE IN VIOLATION OF CITY OF CHANDLER CODE. CONTACT WATER DISTRIBUTION 48 HOURS PRIOR TO SCHEDULE ALL SHUT DOWNS - (480) 782-3700 MONDAY-FRIDAY 8:00AM-5:00PM.

APAGAR LAS VALVULAS DE AGUA O LAS BOCAS DE INCENDIOS A PERSONAL NO AUTORIZADO ESTAN VIOLANDO EL CODIGO DEL LA CIUDAD DE CHANDLER. CONTRACTAR DISTRIBUCIÓN DE AGUA 48 HORAS ANTES PARA PROGRAMAR TODOS LOS CIERRES. (480) 782-3700 DE LUNES A VIERNES 8:00AM-5:00PM.

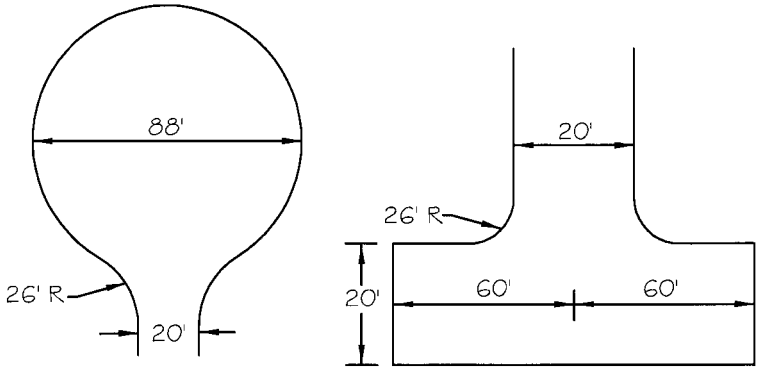


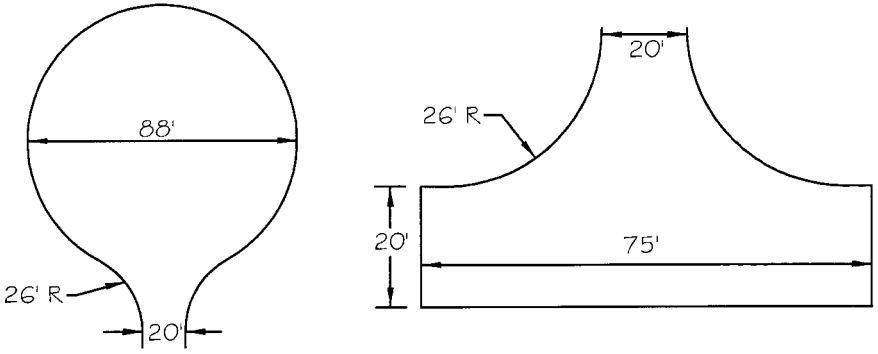
WATER VALVE

SIGNATURE: _____ **DATE:** _____

THIS IS TO BE POSTED IN THE CONSTRUCTION OFFICE

DETAIL NO. FD124 NTS	CITY OF CHANDLER STANDARD DETAIL	**UNAUTHORIZED WATER VALVE SHUT OFF**	APPROVED: FIRE MARSHAL DATE: 7/30/2010	DETAIL NO. FD124 NTS





DETAIL A

✳ DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE. ROLLED CURBS SHALL BE MEASURED FROM BACK-OF-CURB TO BACK-OF-CURB. ALL OTHER CURBS SHALL BE MEASURED FROM FACE-OF-CURB TO FACE-OF-CURB.

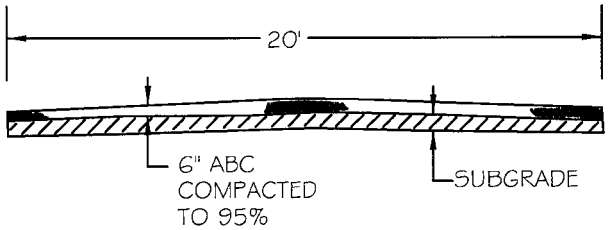
TURNAROUNDS: ALL DEAD-END FIRE APPARATUS ACCESS ROADS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH APPROVED APPARATUS TURNAROUNDS.

SURFACE: FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS (50,000 LBS. MIN) AND SHALL BE PROVIDED WITH A SURFACE SO AS TO PROVIDE ALL-WEATHER DRIVING CAPABILITIES.

HEIGHT: UNOBSTRUCTED VERTICAL CLEARANCE SHALL BE NOT LESS THAN 13 FEET 6 INCHES.

WIDTH: UNOBSTRUCTED WIDTH SHALL NOT BE LESS THAN 20 FEET.

PERMANENT



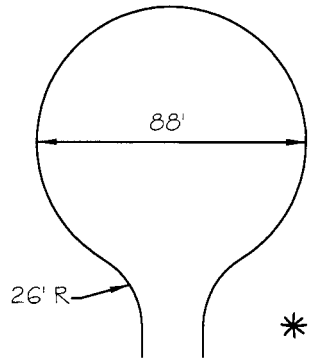
DETAIL B

NOTES:

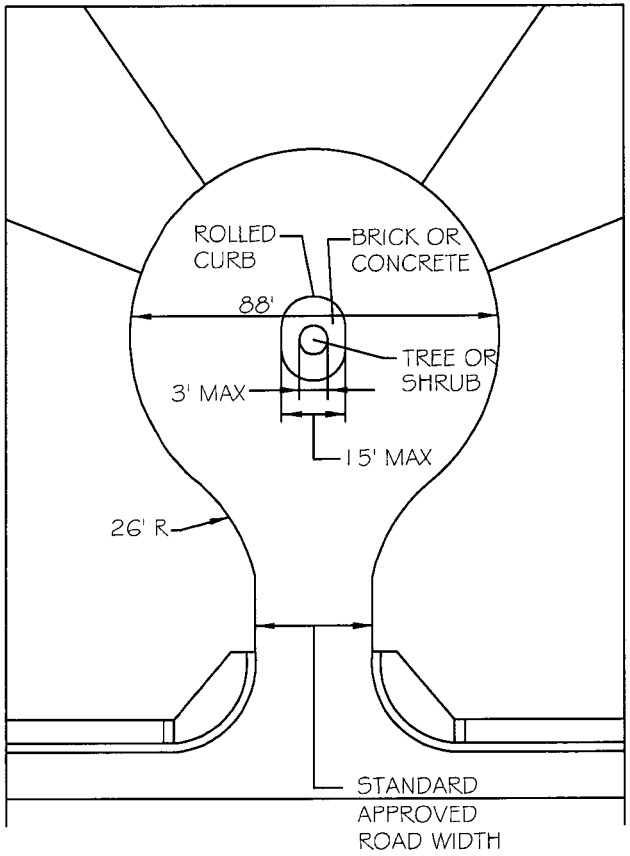
1. TEMPORARY ACCESS ROADWAYS SHALL BE IN ACCORDANCE WITH THE FIRE CODE.
2. ROADWAYS SHALL BE CONSTRUCTED AS PER DETAIL B ABOVE AND FIRE APPARATUS TURNAROUNDS SHALL BE IN ACCORDANCE WITH EITHER EXAMPLE IN DETAIL A ABOVE WHEN THE ROADWAYS ARE IN EXCESS OF 150 FEET.

TEMPORARY

DETAIL NO. FD141 NTS	CITY OF CHANDLER STANDARD DETAIL	FIRE APPARATUS ROADWAYS AND TURNAROUNDS	APPROVED: [signature] DATE: 4/2/2013	DETAIL NO. FD141 NTS



* DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE. ROLLED CURBS SHALL BE MEASURED FROM BACK-OF-CURB TO BACK-OF-CURB. ALL OTHER CURBS SHALL BE MEASURED FROM FACE-OF-CURB TO FACE-OF-CURB.



LANDSCAPE IN CUL-DE-SAC

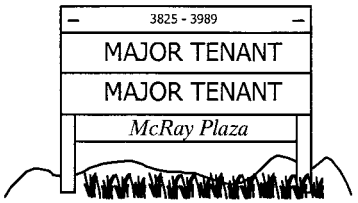
TURNAROUNDS: ALL DEAD-END FIRE APPARATUS ACCESS ROADS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH APPROVED APPARATUS TURNAROUND.

SURFACE: FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AS PER COC ROADWAY STANDARDS.

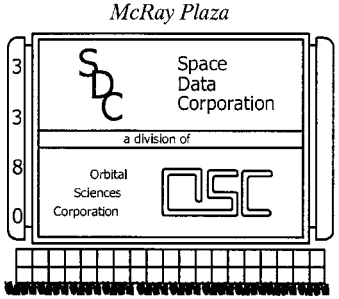
HEIGHT: UNOBSTRUCTED VERTICAL CLEARANCE SHALL BE NOT LESS THAN 13 FEET 6 INCHES.

WIDTH: UNOBSTRUCTED WIDTH SHALL NOT BE LESS THAN STANDARD APPROVED ROAD WIDTH.

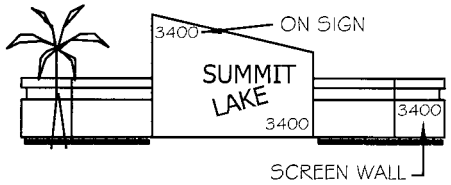
DETAIL NO. FD143 NTS	CITY OF CHANDLER STANDARD DETAIL	**FIRE APPARATUS ROADWAYS AND TURNAROUNDS PRIVATE RESIDENTIAL CUL-DE-SAC**	APPROVED: Mark D. Walker DATE: 4/2/2013	DETAIL NO. FD143 NTS



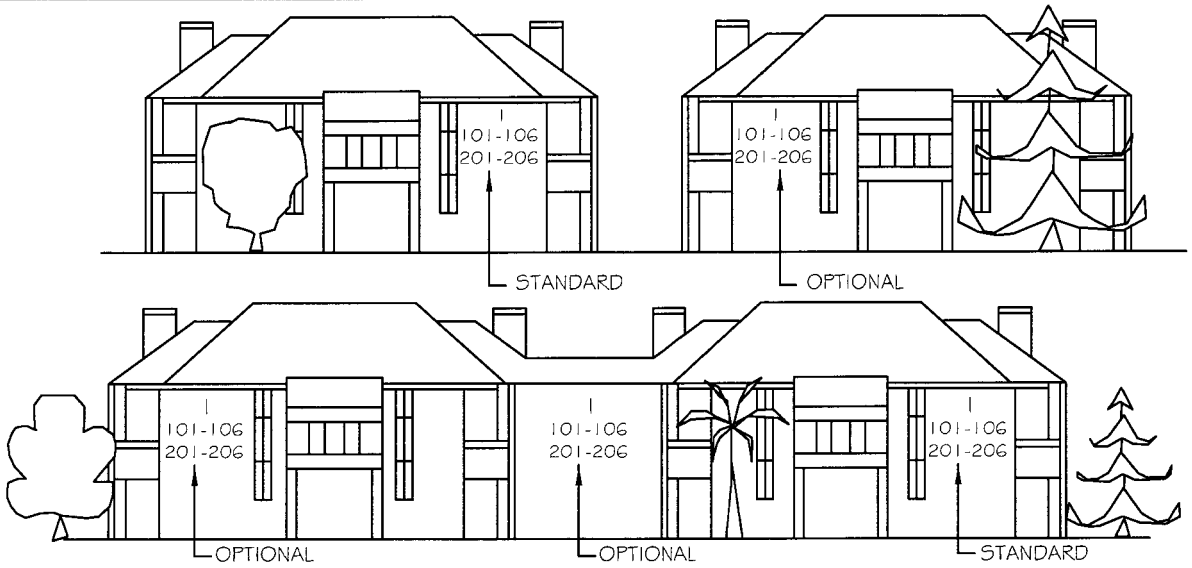
THE ADDRESS NUMBERS SHALL BE POSTED ON THE TOP CENTER IDENTIFICATION SIGN AT MAIN ENTRANCE OF COMMERCIAL MALL, CENTER, VILLAGE, OR SQUARE, SO AS TO BE VISIBLE FROM A NORTH-SOUTH OR EAST-WEST DIRECTION.



PERMANENT FIXTURE WITH THE SITUS ADDRESS SHALL BE PLACED IN A CONSPICUOUS LOCATION IF NOT VIEWABLE FROM THOROUGHFARE FRONTAGE SO AS TO BE VISIBLE FROM A NORTH-SOUTH OR EAST-WEST DIRECTION.



ADDRESS SHALL BE DISPLAYED ON THE TOP PORTION OF THE COMPLEX IDENTIFICATION SIGN OR ON THE TOP PORTION OF THE SCREEN WALL AT THE MAIN ENTRANCE SO AS TO BE VISIBLE FROM A NORTH-SOUTH OR EAST-WEST DIRECTION



BUILDING IDENTIFICATION NUMBERS AND INTERVAL OF SUB-STRUCTURE SUFFIXES ASSIGNED TO INDIVIDUAL UNITS SHALL BE DISPLAYED IN THE UPPER, RIGHT HAND CORNER AT THE END OF EACH BUILDING SO AS TO BE PLAINLY VISIBLE FROM THE ACCESS THOROUGHFARE. ALPHA CHARACTERS MAY BE ASSIGNED FOR BUILDING IDENTIFICATION FOR MULTI FAMILY DEVELOPMENTS WHERE SINGLE DIGIT SUB-STRUCTURE SUFFIXES ARE USED. MULTI FAMILY DEVELOPMENTS WITH INTERNAL DRIVES, BUILDING LETTER/NUMBER AND RANGE OF SUB-STRUCTURE SUFFIXES SHALL BE POSTED ON EACH SIDE OF BUILDING SO AS TO BE CLEARLY VISIBLE FROM ALL ACCESS DRIVES AND THOROUGHFARES. ** EXCEPTION: INTERVAL OF SUB-STRUCTURE SUFFIXES MAY BE DISPLAYED ELSEWHERE ON BUILDING DUE TO REQUIRED LANDSCAPING, SUBJECT TO APPROVAL OF THE STREET NAMING AND ADDRESSING COORDINATOR. COLOR OF NUMBERS/LETTERS AND BACKGROUND SHALL CONTRAST AND CONFORM TO REQUIREMENTS FOR HELVETICA MEDIUM NUMBERING/LETTERING DISTANCE AT WHICH LETTERS/NUMBERS SHALL BE LEGIBLE FROM CENTER OF THOROUGHFARE:

0-50' 4" - APPLIES TO SINGLE FAMILY RESIDENTIAL, MULTI-FAMILY, COMMERCIAL MALLS, CENTERS, OR VILLAGES.
50-200' 10" - INTERVAL OF LOW-HIGH SUB-STRUCTURES SUFFIXES FOR MULTI-FAMILY DEVELOPMENTS MAY BE A MINIMUM OF 6"-8" IN HEIGHT. INTERVAL OF LOW-HIGH SITUS ADDRESSES ON CENTER IDENTIFICATION SIGN MAY BE A MINIMUM OF 8" IN HEIGHT.
201-300' - 12"
301-400' - 14"

FOR COMMERCIAL MALLS, CENTERS, VILLAGES AND SQUARES, DISTANCE TO BE MEASURED FROM CENTER OF ACCESS DRIVE TO STRUCTURE(S).

NOTES:
1. THERE SHALL BE NO LANDSCAPING THAT COVERS OR HINDERS THE VIEW OF THE MONUMENT SIGN OR SCREEN WALL FROM THE ROADWAY.
2. ALL SUITES SHALL HAVE THE ADDRESS AND SUITE NUMBER ON BOTH THE FRONT AND BACK DOOR(S).

DETAIL NO. FD151 NTS	CITY OF CHANDLER STANDARD DETAIL	**ADDRESS IDENTIFICATION**	APPROVED: FIRE MARSHAL DATE: 7/30/2010	DETAIL NO. FD151 NTS