

CLTWater STANDARD DETAILS

U.S. FOUNDRY & MFG. CORP.

(4) 1" DIA. ANCHOR HOLES ON A 31" BOLT CIRCLE DIA.

2 1/2"

MACHINED SURFACE

2"

FRAME

11/16"

WEIGHT - 240 LB. MIN., 0% MINUS TOLERANCE

NOTES:
LOAD RATING - HEAVY DUTY
MATERIAL - ASTM A48 - CLASS 35 GRAY IRON
COATING - UNDIPPED

EAST JORDAN IRON WORKS

(4) 1" DIA. HOLES ON 29 1/4" BOLT CIRCLE DIA.

MACHINED SURFACE

2"

FRAME

5/8"

WEIGHT - 220 LB. MIN., 0% MINUS TOLERANCE

USE WITH TYPE 6 MANHOLE COVER
FRAME SHALL CONFORM TO DIMENSION AND WEIGHT REQUIREMENTS.
FRAME SHALL NOT BE OUT OF ROUND.

NO SCALE

STANDARD NO. U-5008

REV. 1.0

DATE 2/14/2011

CHARLOTTE-MECKLENBURG UTILITIES

STANDARD DETAILS

WATER

TYPE F MANHOLE FRAME
20.5 - INCH DIAMETER (CLEAR OPENING)
7 - INCH TALL

CHARLOTTE

PLAN

SECTION FRONT

DETAIL A - LOCKING BOLT (1 EA)

DETAIL B HINGE

DETAIL C HANDLE (4)

DETAIL D HANDLE

ANCHOR DETAIL OPTION 1

ANCHOR DETAIL OPTION 2

NO. DESCRIPTION

- ERT TRANSMITTER SUPPORT BRACKET, (SEE STANDARD DETAIL)
- 2" INCH LETTERING MILLED INTO DOOR LEAF
- 7/16" INCH DIAMETER DRILLED HOLE (COUNTERSINK) 10 EACH
- 9/16" INCH DIAMETER DRILLED HOLE (10 EACH)
- 3/8" INCH DIA. x 2 - 7/8 INCH STAINLESS STEEL ANCHOR, (RED HEAD DYNABOLT # SFS - 3028 OR HELIX HELIC SLEEVE ANCHOR # HLC - FPH 3/8" INCH DIA. x 2 - 7/8 INCH STAINLESS STEEL OR APPROVED EQUAL)
- 1/2" INCH DIAMETER x 4 x 1/2" INCH DRIVEN EXPANSION ANCHOR OR EPOXY ADHESIVE ANCHOR - (RED HEAD, HELIX OR APPROVED EQUAL)
- 1/2" INCH DIAMETER DRILLED HOLE IN CONCRETE
- CONCRETE VAULT OR PEDESTRIAN SIDEWALK
- 3/8" INCH DIA. DRILLED HOLE - IN CONCRETE
- WATER METER ERT TRANSMITTER
- OPEN COMPRESSION SPRING ASSEMBLY (# AS REQUIRED) - HORIZONTALLY MOUNTED.
- PAULOCK TO BE FURNISHED BY CMUD.
- AUTOMATIC HOLD OPEN ARM WITH VINYL GRIP.

DESIGN REQUIREMENTS

- MATERIAL - STRUCTURAL STEEL - ASTM A36.
- LIVE LOAD - 300 LBS / SQ. FT. - PEDESTRIAN LOADING. MAXIMUM DEFLECTION 1/150 TH OF SPAN.
- DOOR LEAF - 3/8" INCH THICK DIAMOND PLATE.
- COMPRESSION SPRINGS AND HOLD OPEN ARM REQUIRED ON EACH LEAF.
- SLAM LOCK / HOLD OPEN ARM - STAINLESS STEEL - TYPE 304.
- COMPRESSION SPRING ASSEMBLY - STAINLESS STEEL - TYPE 304.
- FORCE REQUIRED TO OPEN LEAF (W/ SPRINGS) SHALL BE MINUS 5 LBS MINIMUM AND 20 LBS MAXIMUM.
- HINGE (PIPE AND BAR) - TYPE 304 STAINLESS STEEL.

NOTE:

- FRAME SHALL BE FURNISHED WITH ANCHOR HOLES NO. 3 AND NO. 4.
- CONTRACTOR SHALL ANCHOR FRAME USING ANCHOR HOLES NO. 3 OR NO. 4 - AS APPROVED, (OPTION ONE OR OPTION TWO)
- FRAME AND COVER TO BE SHOP COATED WITH ZINC CHROMATE PRIMER AND ONE COAT OF BLACK ENAMEL. FIELD APPLY ONE COAT OF COMPATIBLE BLACK ENAMEL AT FINAL INSPECTION.
- FRAME DIMENSIONS SHALL ALLOW FOR CLOSE FIT INSIDE VAULT AS SHOWN AT TOP OF VAULT WALLS.
- STIFFENER TO BE WELDED TO BACK OF ACCESS DOOR USING WELD PATTERN AS SHOWN.
- COMPRESSION SPRING ASSEMBLY SHALL BE DESIGNED BY MANUFACTURER TO CONFORM TO LIFTING FORCE REQUIREMENTS - NUMBER OF SPRINGS AS REQUIRED.

WARNING NOTE:
THIS DOOR IS NOT TO BE USED IN OR ADJACENT TO DRIVEWAYS OR ANY AREA SUBJECT TO VEHICLE WHEEL LOADS, OR ANY LOAD GREATER THAN 300 PSF.

NO SCALE

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CHARLOTTE-MECKLENBURG UTILITIES

STANDARD DETAILS

WATER

STEEL DOUBLE LEAF ACCESS DOOR - 4' x 5'
PEDESTRIAN LOADING (300 PSF) FOR
WATER METER VAULTS

CHARLOTTE

U.S. FOUNDRY & MFG. CORP.

(2) 1" DIA. ANCHOR HOLES

MACHINED SURFACE

24" DIA.

25.80" DIA.

WEIGHT - 105 LB. MIN., 0% MINUS TOLERANCE

NOTES:
LOAD RATING - HEAVY DUTY
MATERIAL - ASTM A48 - CLASS 35 GRAY IRON
COATING - UNDIPPED

EAST JORDAN IRON WORKS

(2) 1" DIA. ANCHOR HOLES

MACHINED SURFACES

23" DIA.

20.75" DIA.

WEIGHT - 105 LB. MIN., 0% MINUS TOLERANCE

USE WITH TYPE 6 MANHOLE COVER
FRAME SHALL CONFORM TO DIMENSION AND WEIGHT REQUIREMENTS.
FRAME SHALL NOT BE OUT OF ROUND.

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CHARLOTTE-MECKLENBURG UTILITIES

STANDARD DETAILS

WATER

TYPE G MANHOLE FRAME
20.5 - INCH DIAMETER (CLEAR OPENING)
3 - INCH TALL - INVERTED (CAST-IN-PLACE)

CHARLOTTE

CMUD PUBLIC FIRE HYDRANTS

1 FIRE PROTECTION
YELLOW / YELLOW

2 FIRE PROTECTION (MUDDY WATER)
YELLOW / RED

3 AIR RELEASE / BLOW-OFF
BLUE / BLUE

4 REUSE / RECLAIM
PURPLE / PURPLE

CMUD / CPD COLOR LEGEND

COLOR	HATCH TYPE
OSHA SAFETY YELLOW	(Diagonal lines top-left to bottom-right)
OSHA SAFETY BLUE	(Diagonal lines top-right to bottom-left)
OSHA SAFETY PURPLE	(Cross-hatch)
OSHA SAFETY GREEN	(Horizontal lines)
OSHA SAFETY WHITE	(Vertical lines)

CMUD AND CHARLOTTE FIRE DEPARTMENT STANDARDS COLOR SCHEME FOR PRIVATE FIRE HYDRANTS

FIRE HYDRANT CLASSIFICATION	BARREL	SQUARE TOP / BONNET	STORZ PUMPER NOZZLE	IRON PUMPER NOZZLE	IRON HOSE NOZZLE
1 - FIRE PROTECTION	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW
2 - FIRE PROTECTION (MUDDY WATER)	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY RED	OSHA SAFETY RED
3 - AIR RELEASE	OSHA SAFETY BLUE	OSHA SAFETY BLUE	NOT PAINTED	OSHA SAFETY BLUE	OSHA SAFETY BLUE
4 - REUSE/RECLAIM	OSHA SAFETY PURPLE	OSHA SAFETY PURPLE	NOT PAINTED	OSHA SAFETY PURPLE	OSHA SAFETY PURPLE

PRIVATE FIRE HYDRANTS

5 PRIVATE (THROUGH WATER METER)
YELLOW / GREEN

6 PRIVATE (BOOSTER PUMP)
YELLOW / WHITE

7 PRIVATE (IF SMALLER OR LIMITED SUPPLY)
YELLOW / BLUE

8 PRIVATE (IF OUTLET AND HYDRANT)
RED / RED

CHARLOTTE FIRE DEPARTMENT STANDARDS COLOR SCHEME FOR PRIVATE FIRE HYDRANTS

CLASSIFICATION	BARREL	TOP / BONNET	STORZ PUMPER NOZZLE	IRON PUMPER NOZZLE	IRON HOSE NOZZLE
5 - PRIVATE THROUGH WATER METER	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY GREEN	OSHA SAFETY GREEN
6 - PRIVATE (4 INCH AND FIRE BOOSTER PUMP)	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	WHITE	WHITE
7 - PRIVATE (4 INCH AND SMALLER MAIN OR LIMITED SUPPLY)	OSHA SAFETY YELLOW	OSHA SAFETY YELLOW	NOT PAINTED	OSHA SAFETY BLUE	OSHA SAFETY BLUE
8 - PRIVATE (2.5 INCH OUTLET YARD HYDRANT)	OSHA SAFETY RED	OSHA SAFETY RED	N/A	N/A	OSHA SAFETY RED

INDUSTRY STANDARD - NOT ADOPTED OR USED BY CMUD/CPD

AWWA C-502 UNIFORM COLOR SCHEME FOR FIRE HYDRANTS

NFPA 291 RECOMMENDED PRACTICE FOR MARKING FIRE HYDRANTS

CLASSIFICATION	FLOW CAPACITY (GPM AT 20 PSI RESIDUAL)	BARREL	TOP / BONNET	PUMPER NOZZLE	HOSE NOZZLE
CLASS AA	1500 OR GREATER	CHROME	ORANGE	ORANGE	ORANGE
CLASS A	1000 TO 1499	CHROME	GREEN	GREEN	GREEN
CLASS B	500 TO 999	CHROME	YELLOW	YELLOW	YELLOW
CLASS C	LESS TO 499	CHROME	YELLOW	RED	RED

NOTES:

- PUBLIC FIRE HYDRANTS ARE (1) CONNECTED DIRECTLY TO CMUD WATER DISTRIBUTION SYSTEM (2) OWNED AND MAINTAINED BY CMUD AND (3) LOCATED WITHIN THE ROAD RIGHT-OF-WAY OR CMUD WATER MAIN EASEMENT.
- PRIVATE FIRE HYDRANTS ALL NON-PUBLIC FIRE HYDRANTS, INCLUDING HYDRANTS (1) SERVED VIA CMUD WATER METER, (2) SERVED VIA PRIVATE WATER SYSTEM AND ARE (3) LOCATED OUTSIDE THE ROAD RIGHT-OF-WAY AND (4) PRIVATELY OWNED AND MAINTAINED.

NO SCALE

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CHARLOTTE-MECKLENBURG UTILITIES

STANDARD DETAILS

WATER

FIRE HYDRANT PAINT/COLOR SCHEMES
CMUD/CHARLOTTE FIRE DEPT. STANDARDS
PUBLIC AND PRIVATE HYDRANTS

CHARLOTTE