ELMA WATER DEPARTMENT

(EWD)

# CROSS CONNECTION CONTROL DESIGN & SUBMITTAL INFORMATION PACKET

EUGENE F. STEVENSON, SUPERINTENDENT

# INSTALLATION OF CONTAINMENT PROTECTION BACKFLOW PREVENTERS IN THE SERVICE AREA OF THE ELMA WATER DEPARTMENT (EWD)

Eugene F. Stevenson, Superintendent

The Town of Elma Water Department (EWD) Cross Connection Control Program exists to safeguard the purity of the drinking water that we supply to our customers. This is a very active program, mandated by the New York State and Federal Laws, and enforced ultimately by the New York State Department of Health (NYSDOH). Compliance is mandatory by law.

To reduce the cost of compliance to those affected water customers, we have developed the attached Design Criteria Approval Form. It is a checklist for design professionals (and water customers) and becomes an important part of their submittal of an installation design. By diligent use of the form and adherence to the requirements of the stated references and resources, a more efficient and cost effective design and approval process is possible. If ignored, the process is much more time consuming and will create higher consumer costs for compliance.

It has been the experience of the EWD and other individuals and agencies that review submittals, that many of the submittals are initially quite defective. Problems of inattention to directions and detail, incompleteness, inaccuracy, inconsistency and otherwise unacceptable entries and designs cause rejection. The submittals are then returned to the agent designer for correction and notification of the status to the water customer. This, in many cases, substantially delays the approval and creates additional costs and fees for the water customer. Be sure the design professional that you select, your New York State Licensed Professional Engineer (P.E.) or Registered Architect (R.A.) is experienced and understands the design mission and required end state. We will assist you, the water customer and your designer, however compliance is your sole responsibility. The design and submittal content is the responsibility of the P.E or R.A under their personal license. We are the initial review and approval agency. We will not forward the submittal to the NYSDOH without our review, endorsement and acceptance of containment device installation as providing the required protection. Proper function, of the facility, with regard to any affected systems, maintenance and testing of the device, record keeping and installation, etc., remains the sole responsibility of the water customer.

Please contact the EWD office at 716-674-8855 for clarification or assistance.
ELMA WATER DEPARTMENT- 5730 SENECA STREET, ELMA, NY 14059-9653

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Please contact the Erie County Health Department directly for assistance.or the EWD office at 716/674-8855

# ELMA WATER DEPARTMENT

CROSS CONNECTION CONTROL CONTAINMENT DEVICE INSTALLATION

## DESIGN APPROVAL CRITERIA

Requirements of New York State Department of Health (NYSDOH) and Elma Water Department (EWD): Provide five (5) copies of each item, 1-6. NOTE: If the lettered sub-item is not applicable (N/A), a negative response is required. This completed checklist document becomes a required part of the design professional's Engineer's Report to evidence consideration or inclusion of the indicated design concerns. The plans must be first submitted to the Elma Water Department for the water department to sign off. We will send them to the appropriate office at the Health Department. Per the Health Department, a check for $226.00 payable to "Erie County Commissioner of Finance" must accompany your submittal. Until payment is received, they will not look at the plans. NOTE: EWD requires Reduced Pressure Sone (RPZ) devices on all commercial use type services, with detector meters on all fire services and recommends above grade installation, with exterior devices in heated, protective enclosures. LATEST EWD AND NYSDOH STANDARDS MUST BE FOLLOWED!

☐ 1. **Letter of Transmittal**

☐ a. Listing all information (5 Copies each) submitted for the containment device submittal

1. **Application (DOH-347 form)**

☐ a. All items 1 through 12 completed with all information that is applicable to the project.

☐ b. Item #5 answered specifically. Information for two parallel devices may be listed.

☐ c. Items 13-14: #13 is **Hazardous**, based generally on commercial type usage, #14 is for EWD. (See information ** on page #3 of this document); **signature block in item #14 is for EWD.**

☐ **2. Site Plan – (to scale or w/dimensions)** of the facility containing, but not limited to the following:

☐ a. Property lines(s), a North direction arrow, benchmark Elevation and Datum used.

☐ b. Buildings and other notable structures.

☐ c Size and location of public water mains and any available Auxiliary Water Supply.

☐ d. All fire, domestic and combination water services to include items to be installed by EWD

1) Size of Corporation Stop, Tapping Sleeve or Saddle w/Valve
2) Size of Service Line within the Right of Way (R.O.W.)
3) Size of the Curb Stop or Line Valve at R.O.W.

☐ e. Meter Vault and Hatch Cover, both with manufacturer and model number shown or noted.

☐ f. Fire Sprinkler System (Note: Containment Devices on Fire Services require a detector meter).

1) Show riser details (may be submitted as a separate sheet and must include: Name & address of the facility, design engineer's or architect's original stamp & signature).
2) State AWWA M-14 old classification with new recommended Containment Protection

☐ g. On site yard piping/hydrants, fire hydrants and any frost proof hydrants (per ASSE 1057)

☐ h. Fire Department Connection(s) with point of connection to the fire service line shown; also, note all potential drafting intake sites (ponds, etc.) or available water sources within 1700'

☐ i. Interconnection(s) and any other Water Source Available.

☐ j. All irrigation systems, protection if any, types of system, any pumps used or chemigation.

☐ k. Proposed location of back-flow preventer(s) and protective enclosures (with descriptions).

☐ l. State if the site is in 100-year flood plain. Show curvilinear contours and/or elevations of the device centerline, hatch cover and vault floor, finish floor and top of protective enclosure slab.

☐ m. Designers stamp and signature (always originals), the design must be done by a New York Start (N.Y.S.) Licensed Professional Engineer (P.E.) or N.Y.S Registered Architect (R.A.)

☐ **3. Plumbing Floor Plan** – (to scale or w/dimensions) A Plan View or a partial plan view showing the location area floor plan and indicating:

☐ a. Water Services and all piping, with all pipe and fitting materials and types shown or noted.

☐ b. Name and address of facility

☐ c. Water meter layout (with piping detail showing two (2) full port isolation valves, etc., **(Note: Soldered (sweat) joints are not permitted prior to the containment device or PRV).**

☐ d. Proposed back-flow preventer(s), with any strainers and/or pressure regulating valves.

☐ e. Booster pump system(s).

☐ f. Floor drain(s), size, manufacturer's name and model with per cent of clear opening of grate. If the drain line discharges to daylight, a rodent screen (w/per cent of clear opening) is required.

☐ g. All nearby objects (electrical items, boilers, chillers, water cooled jacketed equipment, storage tanks, fire pumps, fire sprinkler risers, protective guard rails, pipe bollards, etc.).

☐ h. All required clearance dimensions must be shown. Indicate direction of flow.

☐ i. Device manufacturer, model number & size, shown or noted, in the plan view or cross section. Use of an "Or Equal" may require a formal design change and amended submittal.

☐ j. All piping, fittings, valves, strainers, water meter, pressure regulating valve, appurtenances, retaining rods, pipe supports, thrust blocking, etc. in plan-view and/or vertical cross connection.

☐ k. Designers stamp (seal) and signature (All originals on each sheet, not copies!).

☐ **5. Vertical Cross Section(s) Plan** – Elevation view (to scale or w/dimensions) of the proposed installation with elevations from and of the floor, ceiling, and outside grade (to include finish grade pitch). To include:

☐ a. All required clearance, centerline and **air gap** dimensions for the device(s) shown or noted.

☐ b. All size(s), pipe type(s), routing of floor drains, discharge connection, and all drainage piping, with percent of slope or pitch per foot of drain piping shown or noted. Also, indicate the elevation of the differential pressure relief valve discharge outlet, the elevation of the top of hatch and floor of vault (pit) (if used), the top of the floor drain grate, and the invert of the open end of the discharge drainage piping, if run to "day light". Describe drain termination.

☐ c. Plan for heat & light. Show all electrical info/circuits (GFI & in-use outlet covers required).

☐ d. Indicate direction of flow, with all piping and appurtenances, etc. (see Section 4. Above), shown in the vertical cross section and/or the plumbing plan, Show any section lines.

☐ e. Designers stamp (seal) and signature (All originals on each sheet, not copies!).

☐ **6. Engineer's Report** – The report shall include:

☐ a. The general uses of water in the facility.

☐ b. Size and description of all fire, domestic and combination water services to the facility.

☐ c. Number of floors within the facility; indicate floor level and location of containment device.

☐ d. Actual or estimated maximum flow demand (volume in GPM and pressure in PSI).

☐ e. System Pressure: existing and estimated after the containment device installation.

☐ f. Description of the Fire Sprinkler System – state the AWWA Manual M-14 recommended protection. (State if containment protection exists, with device manufacturer and model).

☐ g. Description of the proposed installation of the containment device(s). Describe the drainage planned. Note: state the maximum discharge rate of the RPZ differential pressure relief valve(s) (DPRV) and drain adequacy. Address: the lighting, heating, protective enclosure information, access to the unit (to include any required stabilized vehicle access), sq. footage of the floor level where the device is to be located, and basement or vault (pit) volume (CF).

☐ h. Will adequate delivery pressure and volume be available? Answer the following questions

☐ 1. After the installation of the proposed containment device(s), will the net positive suction head (NPSH) required for the proper operation of the booster pump system be adequate?

☐ 2. After the installation of the containment device(s) in the suction line to the booster pump system, or on the water service, will the water system and/or the booster pump system, operate to deliver an adequate supply at peak demand to the highest elevation, the most remote fixture and/or any other operation requiring a certain pressure? Section 604 of The Plumbing Code of New York State requires the **minimum** pressure at water outlets at all time to be: Fixture: non-flush valve @ 8 PSI, Fixture: flush valve @ 15 PSI.

☐ 3. Does the booster pump system have a pressure cutoff switch in the suction line? What is the pressure setting of the switch? An existing or proposed cutoff switch must be set at: For a cutoff switch where a device is located upstream of the booster pump(s); 10 PSI. For cutoff switch where a device is located downstream of the booster pump(s): 20 PSI.

☐ i. Does this facility need dual or multiple containment devices in parallel or in a manifold?

☐ 1. Does this facility need a continuous, uninterrupted water supply?

☐ j. The elevation and location of the 100-year flood plain in relation to the facility. A Reduced Pressure Zone (RPZ) back-flow preventer must generally be installed 1' above the 100-year flood plain elevation at the RPZ location (measured from the elevation of the differential pressure relief valve discharge outlet), or higher depending on the invert elevation of the discharge end of the drain pipe. The invert of which must also be at least 1' above the highwater level (HWL) of the 100-year Flood elevation at the point of daylight discharge. Cold air infiltration should be prevented by installing a flap type valve, i.e.: "Tideflex" or equal.

☐ k. An inventory of any existing containment devices to include: the make, model, size and serial number of each device. Current annual test reports must also be submitted. The degree of hazard for these services must be determined to ensure that the device provides the correct containment protection. Stat the (NYSDOH & EWD) approval status of all existing devices.

☐ l. Enclose a copy (five (5) in total) of this completed document as part of the Engineer's Report. Any items left blank, **to include a lack of N/A for Not Applicable**, or items not shown or noted on the plans, or addressed in the Engineer's Report could delay the approval process.

☐ m. A statement that it is the owner's responsibility to keep snow or other obstructions clear of any drain ports or exterior drains for the RPZ device, and to maintain the installation and drainage system in continued compliance, to include vault or pit installations and hatches.

☐ n. A statement that all protective enclosures shall be designed with security measures such as locking doors and panels, flow alarms or flow indicator lights, power indicator lights, etc.

☐ o. A Design Provision for thermal expansion, water hammer and supply pressure fluctuation.

☐ p. Designers stamp (seal) and signature (All originals on each sheet, not copies)

This completed document is part of the Submittal Application for the installation of containment protection for:

Owner/Water Customer: _____ Telephone: _____

Project Name/Description/Type and Size of Device(s) _____

Address: _____

Designer: _____

Company/Firm: _____

Address: _____

Signature, Date and Stamp (seal) of the Designer (New York State Licensed P.E. or R.A):

_____ Date _____ (Stamp/Seal)

** The foregoing points of this document are provided as a checklist to give the designer some criteria information that must be thoroughly considered and included in the design development of a containment installation. The responses and ultimate design remain the sole responsibility of the designer, and should indicate to the reviewer that those points have been considered. The New York State Department of Health (NYSDOH) Manual on Cross Connection Control (Jan. 1981) with Amendments (Jan 1992), the most current: Plumbing Code of New York State, New York State Sanitary Code, The National Electric Code (NEZC), NYSDOH, OSHA, and EPA Regulations, American Water Works Association (QWWQ) M-14, other governing statutes and standards, and the Standards and Requirements of the Elma Water Department (EWD), the Code of the Town of Elma (TOE) (see: www.elmanewyorkcom), NYSDOH PWS-14, the NYSDOH website at www.health.state.ny.us, and the Erie County Health Department (ECHD) should ALL be used in developing a design, effecting the installation and continued compliance. Additionally, Sect IX of the NYSDOH Amendments date Jan. 1992, requires an initial (and subsequent annual) (NYSDOH Form 1013 Part A) certification test of the device by a NYSDOH certified tester, and a certification by the **Designer** (NYSDOH Form 1013 Part B), that the installation was installed **exactly** as approved. Submittals will be reviewed for approval by the EWD and NYSDOH Approval Designate. Incomplete, inaccurate, inconsistent, or otherwise unacceptable submittals will not be approved. Full Initial Fee Payment required with submittal. All conditions of final EWD/NYSDOH approval must be followed and the installation always maintained in full compliance by the water customer.

NEW YORK STATE DEPARTMENT OF HEALTH

Bureau of Public Water Supply Protection

# Application for Approval of Backflow Prevention Devices

PRINT OR TYPE ALL ENTRIES EXCEPT SIGNATURES
Please completed items 1 through 12a + Block and Lot Numbers

| Block # | Lot # | FOR DEPARTMENT USE ONLY Log No. |
|---|---|---|
| | | |

| | | | |
|---|---|---|---|
| 1. Name of Facility | | 2. City, Village, Town | 3. County |
| 4. Location of Facility (Street) | | City | State / Zip |
| 4a. Phone Numbers | | 5. Contact Person | |
| 5. Approx. Location of Device(s) | | 6. Mfg. Model # | Size of Device(s) |

| # of Fire Services | # of Domestic Services | # of Combined Services | Total # of Services | Total # of Buildings |
|---|---|---|---|---|
| | | | | |

| | | | |
|---|---|---|---|
| 7. Name of Owner | Title | Phone Number | 8. Nature of works<br>☐ Initial Device Installation<br>☐ Replace Existing Device |
| Full Mailing Address (Street) Address | | | 8a.<br>☐ New Service<br>☐ Existing Service |
| City | State | Zip | |
| Owner's Signature | Date ___/___/___ M D Y | | 8b.<br>☐ New Building<br>☐ Existing Building<br>☐ Major Renovations |

| | | |
|---|---|---|
| 9. Name of Design Engineer or Architect | | 10. NYS License # |
| (Street) Address | | ☐ PE ☐ RA ☐ Other |
| City | | |
| State | Zip | 10a. Telephone Number(s) |
| Signature | | |
| Original ink signature and seal required on all copies | | Date ___/___/___ M D Y |

| 11. Water System Pressure (psi) at Point of Connection | 12. Estimate Installation Cost | 12a. Estimate Design Cost |
|---|---|---|
| Max Avg Min | | |

13. Degree of Hazard

☐ Hazardous
☐ Aesthetically Objectionable

List of processes or reasons that lead to degree of hazard checked:

| 14. Public water supply name | Name of supplier's designate representative |
|---|---|
| Mailing Address (Street) | Title |
| City State Zip | Signature ___ ___/___/___ M D Y |
| Telephone No. ( ) | |

Note: All applicants must be accompanied by plans, specifications and an engineer's report describing the project in detail. The project must first be submitted to the water supplier, who will forward it to the local public health engineer. This form must be prepared in quadruplicate with four copies of all plans, specifications and descriptive literature.

DOH-347 (5/91)

NEW YORK STATE DEPARTMENT OF HEALTH
Bureau of Public Water Supply Protection
Empire State Plaza - Corning Tower Room 1110
Albany, NY 12237

# Report on Test and Maintenance of Backflow Prevention Device

**PART A** — Please use a separate form for each device.

For the year _____
☐ Initial test - *Complete entire form*
☐ Annual test - *Complete Part A only*

| Public Water Supply | Account No. | County | Block | Lot |
|---|---|---|---|---|
| | | | | |

Facility Name _____
Address _____ (Street / City / Zip)

Location of Device _____

| Device Information | Manufacturer | Type ☐ RPZ ☐ DCV | Model | Size (in inches) | Serial Number |
|---|---|---|---|---|---|
| | | | | | |

| | Check Valve No. 1 | Check Valve No. 2 | Differential Pressure Relief Valve | Line Pressure _____psi |
|---|---|---|---|---|
| Test before repair | Leaked ☐ Closed tight ☐ Pressure drop across first check valve _____psid | Leaked ☐ Closed tight ☐ | Opened at _____psid | Date ☐☐ ☐☐ ☐☐ M D Y |
| Describe repairs and materials used | | | | Repaired by Name _____ Lic # _____ Date repaired: ☐☐ ☐☐ ☐☐ M D Y |
| Final test | Closed tight ☐ Pressure drop across first check valve _____psid | Closed tight ☐ | Opened at _____psid | Date ☐☐ ☐☐ ☐☐ M D Y |

| Water Meter Number | Meter Reading | Type of Service: (check one) |
|---|---|---|
| | | * Domestic * Fire * Other_____ |

Remarks (Describe deficiencies: bypasses, outlets before the device, connections between the device and point of entry, missing or inadequate signage, etc.)

Certification: This device ☐ meets,* ☐ does NOT meet, the requirements of an acceptable containment device at the time of testing
I hereby certify the foregoing data to be correct.

| Print Name | Certified Tester No. | Signature | Expiration Date |
|---|---|---|---|
| | | | ___/___/___ |

Property owners (or owners agent) certification that test was performed:

| Print Name | Title | Signature | Telephone |
|---|---|---|---|
| | | | (___)___-___ |

**PART B** — Certification that installation is in accordance with the approved plans. (To be completed by the design engineer or architect or water supplier.)

I hereby certify that this installation is in accordance with the approved plans.

| Name | Title | Date m d y | NYS DOH Log # |
|---|---|---|---|
| License Number | Phone ( ) | | |

| Representing | Describe minor installation changes |
|---|---|
| Address | |
| City / State / Zip | |
| Signature_____ | |

NOTE: Send one completed copy to the designated health department representative and one copy to the water supplier within 30 days of the testing device.
Notify owner and water supplier immediately if device fails test and repairs cannot immediately be made.

# ELMA WATER DEPARTMENT

EUGENE F. STEVENSON, SUPERINTENDENT
5730 SENECA STREET, ELMA, NEW YORK 14059-9653
TEL. 674-8855 FAX. 674-0929

## PLUMBING & DESIGN PLAN APPLICATION
## FOR INSTALLATION OF WATER METER, METER VAULT AND PIPING

ALL WORK AND DESIGNS MUST MEET ELMA WATER DEPARTMENT REQUIREMENTS

SHOW A PLAN VIEW AND ELEVATION. REFERENCE ELEVATIONS TO FINISH GRADE. SHOW DIMENSIONS, PIPING LAYOUT, COVER OVER SERVICE LINE, ELECTRIC DESIGN, SUMP PUMP OR DRAINAGE (IF REQUIRED) AND VAULT LOCATION ON SITE. NOTE MANUFACTURER OF VAULT AND COVER. SHOW BASE MATERIAL.

DESIGN PLAN MUST BE APPROVED BEFORE WORK IS STARTED, CALL TO SCHEDULE AN INSPECTION FOR METER INSTALLATION.

PAGE 1: PLAN VIEW

OWNER: TELEPHONE #
JOB LOCATION:

CONTRACTOR: TELEPHONE #
ADDRESS:
CONTACT PERSON: DATE:

SIGN AND DATE DRAWING, RETURN IT TO ELMA WATER DEPARTMENT
SIGNED: DATE:

APPROVED (EWD):

# ELMA WATER DEPARTMENT

EUGENE F. STEVENSON, SUPERINTENDENT
5730 SENECA STREET, ELMA, NEW YORK 14059-9653
TEL. 674-8855 FAX. 674-0929

## PLUMBING & DESIGN PLAN APPLICATION

## FOR INSTALLATION OF WATER METER, METER VAULT AND PIPING

ALL WORK AND DESIGNS MUST MEET ELMA WATER DEPARTMENT REQUIREMENTS

PAGE 2: ELEVATION

OWNER: TELEPHONE #
JOB LOCATION:

CONTACTOR TELEPHONE #
ADDRESS:
CONTACT PERSON: DATE:

SIGN AND DATE DRAWING, RETURN TI TO ELMA WATER DEPARTMENT
SIGNED: DATE:

APPROVED (EWD)

# AIR GAP SEPARATION REFERENCE INFORMATION

NEW YORK STATE PLUMBING CODE (CURRENT CODE 2002):

CHAPTER 2 DEFINITIONS (Page 5)

## AIR GAP (WATER DISTRIBUTION SYSTEMS):

"The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level rim of the receptacle."

## CHAPTER 6 WATER SUPPLY AND DISTRIBUTION (Page 42 & 43)

608.12.2 Reduced Pressure Principle Backflow Preventers.

"The relief opening shall discharge by air gap and shall be prevented from being submerged"

608.15 Protection of Potable Water Outlets

See: 608.15.1 Protection by air gap

608.15.2 Protection by a reduced pressure principle backflow preventer.

608.15.3 Protection by a backflow preventer with intermediate atmospheric vent.

608.15.4 Protection by a vacuum breaker.

608.15.4.1.1 Deck-mounted and integral vacuum breakers.

608.15.4.1.2 Hose connections.

## CHAPTER 2 DEFINITIONS (Page 5)

AIR GAP (DRAINAGE SYSTEMS):

"The unobstructed vertical distance through the free atmosphere between the outlet of the waste pipe and the flood level rim of the receptacle into which the waste pipe is discharging."

## NEW YORK STATE DEPARTMENT OF HEALTH SUPPLEMENT TO THE 1981 CROSS CONNECTION CONTROL MANUAL – JANUARY 1992

III. drainage (Page 3) (Third Bullet Statement)

"An air gap must be maintained between the RPZ relief valve opening and any discharge piping. The air gap must be at least twice the dimension of the effective opening of the relief valve; but in no case less than 1 inch."