CROSS-CONNECTIONS: CASE STUDY ON LOCAL COLLABORATION

Patrick McCormack, MPH
Uncas Health District

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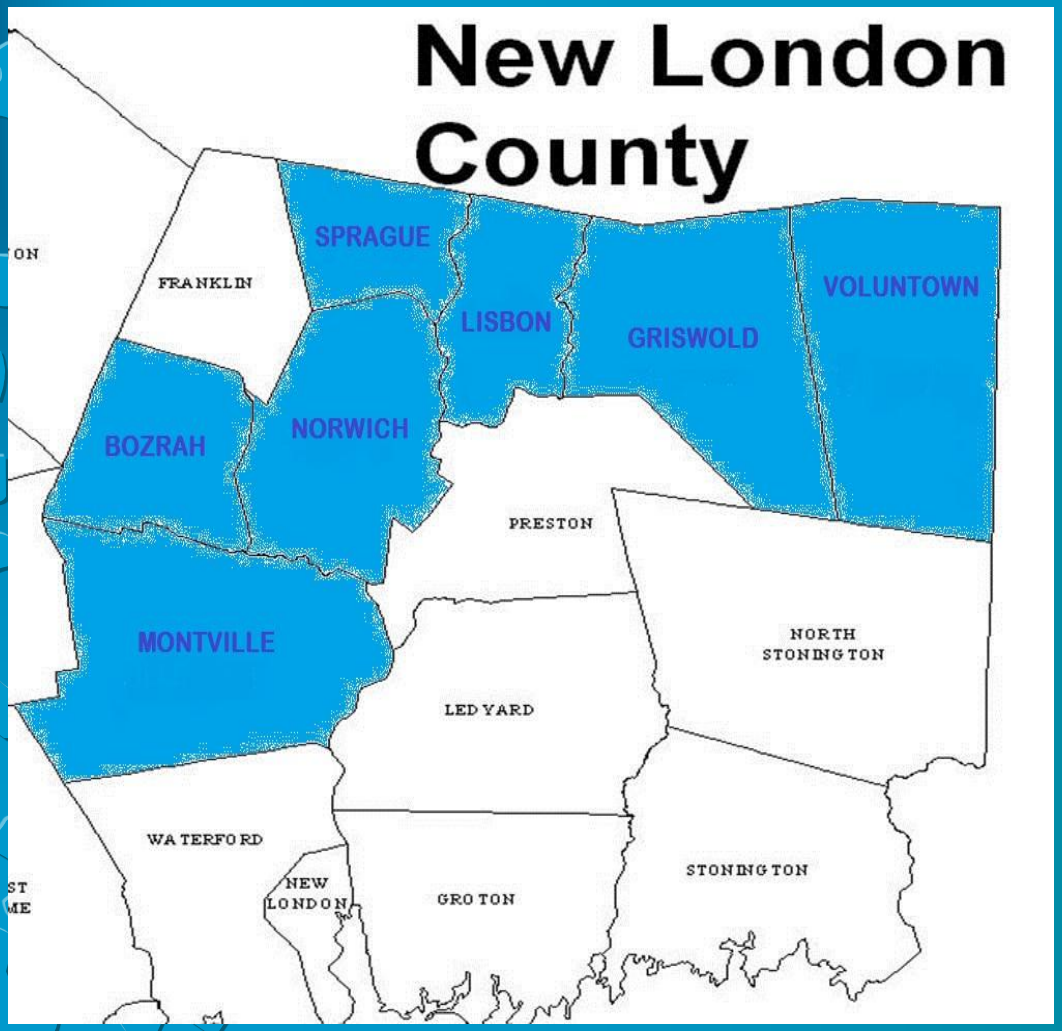
Norwich Public Utilities

Uncas Health District

Serves more than 80,000 residents in the municipalities of:



- Norwich
- Montville
- Bozrah
- Griswold
- Lisbon
- Sprague
- Voluntown

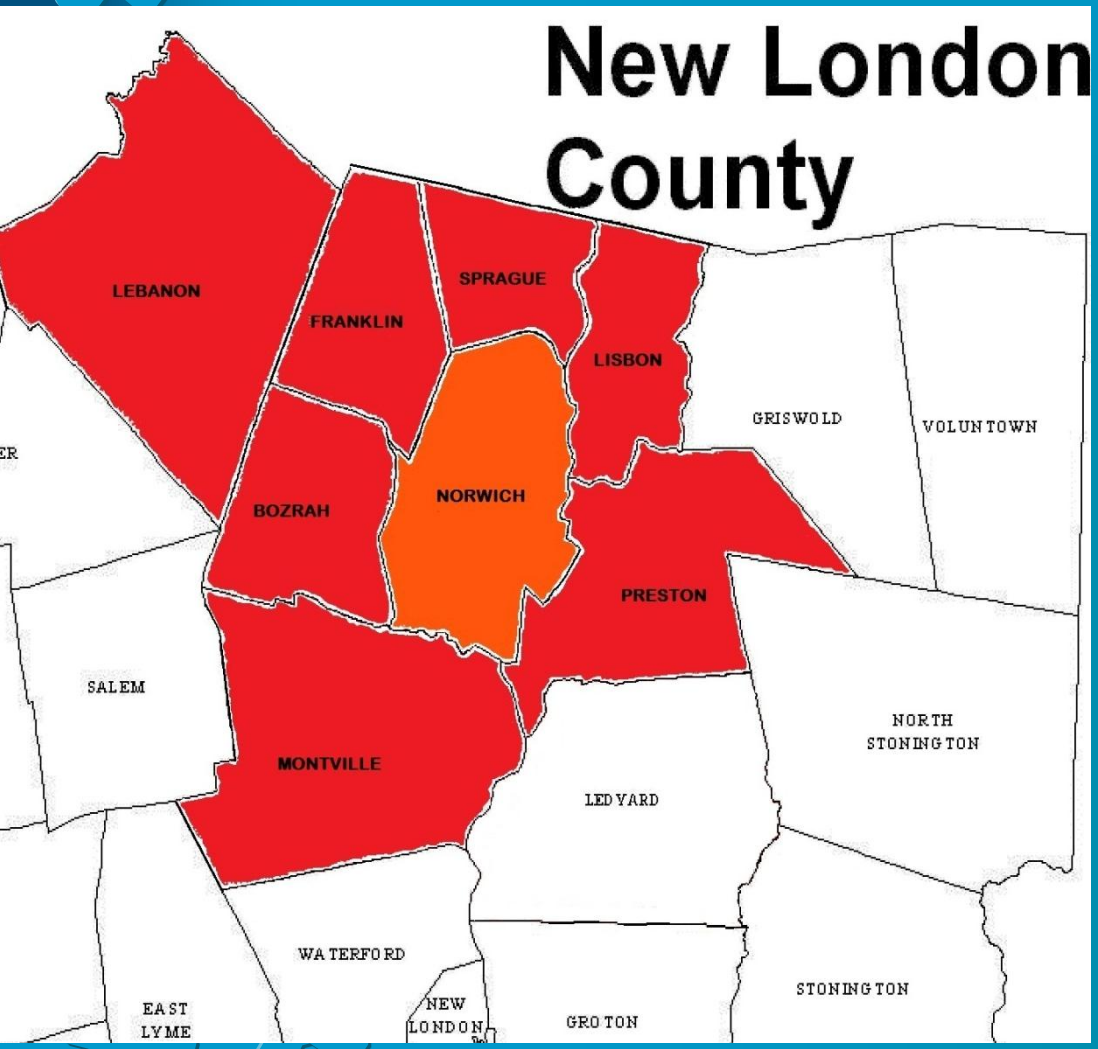
Uncas Health District

The region is served by 5 Public Utility Agencies:

- Norwich Public Utilities
- Jewett City Public Utilities
- Montville Water Pollution Control Authority
- Bozrah Light & Power/Groton Utilities
- Sprague Water Pollution Control Authority

Norwich Public Utilities

A Department of City of Norwich



- Provides gas, electric, water & sanitary sewer services to residents & businesses of **Norwich**
- Water and/or sewer services also provided to portions of surrounding communities:
  - **Bozrah**
  - **Franklin**
  - **Lebanon**
  - **Lisbon**
  - **Montville**
  - **Preston**
  - **Sprague**

Norwich Public Utilities

- NPU treatment facilities provide roughly 1.6 billion gallons of clean drinking water every year, or approximately 4.5 million gallons a day!
- Our storage tanks hold 9.3 million gallons of treated water, delivered through a 190-mile network of water mains.

Cross Connections and Backflow Prevention Review

A Cross Connection is an actual or potential connection between a public water system and any other source or system through which it is possible to introduce into the water system any contamination or polluting agent.

Backflow is the reversal of flow of water or other substances into the public water system or consumer's potable water system.

Under backflow conditions, unprotected cross-connections can introduce biological, chemical and/or physical contaminants into the drinking water.

Cross Connections and Backflow Prevention Review

Backflow prevention devices or *backflow preventers* are installed to prevent backflow of contaminants into drinking water through cross-connections.

WHERE?

- At the building connection?
- At ALL other equipment?

HOW are they ALL Connected?

PERSPECTIVES

Public Health

Ensure Sanitation To:

- Protect Individual Health
- Prevent Foodborne Outbreaks
- Prevent Infection/Disease

Public Utilities

Protect Water Supply:

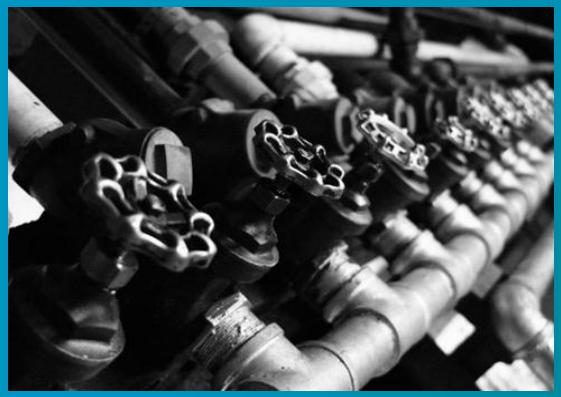
- Meet required WQ Standards (Quality to Tap)
- Meet required inspections of all testable devices
- Avoid violations and fines

The Local Process

Norwich Public Utilities

City of Norwich Building Dept.

CROSS-CONNECTION



PREVENTION

Uncas Health District

The Local Process

Food Service

Salons

Spas & Splash Pads

Public Housing

Day Care/Group Homes

Inspections

Public Health

- Mandated by PHC
- Snapshot In Time
- Frequency
  - Pre-operational
  - 1 to 4x's/year for FSE
  - Annually for Salons
- Complaint-based

Public Utilities

- Mandated by PHC
- Snapshot In Time
- Frequency
  - Annually, or
  - Every 5 Yrs
- CO Inspections
- New Equipment

Public Utility Inspections

1. The Public Water System (PWS) shall have annual inspections for cross connections, performed at public, commercial or industrial premises where toxic or objectionable or biological substances are used in water solution.

2. The PWS shall have inspections performed every five years at premises where there is:

- A known water supply source other than that of the PWS, or
- A raised water pressure by pumping on other than residential premises above that furnished by the supplier, or
- A water storage tank, public swimming pool or water filter, for other than residential use, or
- A known sprinkler system for either fire protection or irrigation.

Norwich Public Utilities

Within the NPU water service area there are:

- ~170 annual inspections
- ~225 Five-year inspections
- ~740 testable devices

What Tips Us Off?

- New Business Application/ Plan Review
- Annual Permit Renewal - Change of owner/operator
- Routine Inspection -New equipment observed
- Surveillance - Retrofit/Remodel without Plan Review Permit

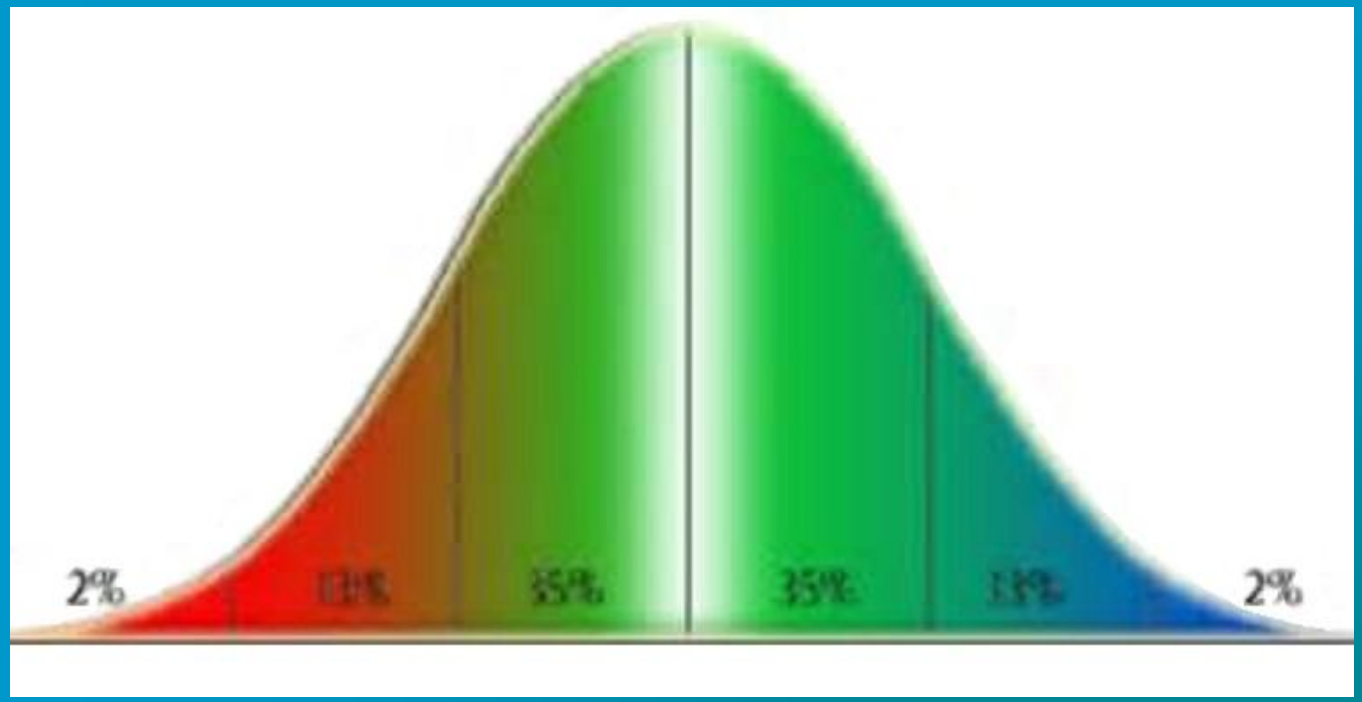
Communication – Do You…

- Pick up the phone and call from office or site?
- Text Questions/Photos during inspection?
- Have email contacts? Make referrals?
- Request records of Older Installations?
- Request records of Inspection Reports?
- Facebook? Tweet?
- Check Annual Reports?

Communication

EASE:

INVERSE OF EFFORT



PART-TIME STAFF	F-T SMALL STAFF	F-T LARGE STAFF	F-T MULTI-DEPT. AGENCIES

SIZE OF THE AGENCIES INVOLVED

Communication

Hmmm…Would I report this?

"A picture can say a thousands words" …or not!

UHD
FSE Plan Reviews

UNCAS HEALTH DISTRICT

Date: April Fools Day, 2013

Subject: Food Service Plan Review of "We Want the Moon" Cafe, Norwich, CT

To: Will Bildit, Restaurant Design Consultant

From: Wanda Inspekta, R.S., Environmental Sanitarian

Date plan received:

Reason for submission: ☒ New construction ☐ New Owner ☐ Other

☐ Renovation of existing licensed establishment ☐ Conversion of existing space

Details: Classification: 3 Type of Establishment: Retail Restaurant

Water supply: ☒ Public supply ☒ Well (submit copy of recent water test results)

Sewage disposal: ☒ Public sewer ☐ Septic system (date tank pumped ___/___/_____)

Grease disposal: ☐ Indoor grease interceptor: Big Dipper W-250-AST Type 304
☐ Outdoor grease interceptor tank (size _____)
☒ N/A

Determination:

☐ Approved. Plans meet the requirements of Connecticut Public Health Code Section 19-13-B42.

☒ Conditional approval subject to further inspections as noted.

Determination:

☐ Approved. Plans meet the requirements of Connecticut Public Health Code Section 19-13-B42.

☒ Conditional approval subject to further inspections as noted.

☐ Conditional approval with revisions to the plan as noted

☐ Approval denied, revise as noted.

Comments/Conditions:

1] **Norwich Public Utilities must be contacted regarding cross-connection prevention requirements. The condensate drainage for the air-cooled ice machine, as indicated in the plans, must have either an air gap or air break.**

PWS Annual Inspection Summary

CROSS CONNECTION SURVEY REPORT FORM - ANNUAL INSPECTION SUMMARY

WATER SYSTEM NAME: NORWICH PUBLIC UTILITIES

SURVEY YEAR: 2012

Consumer Name And Address	Categories Of Concern	Date Of most Recent Inspect	VIOLATIONS 2				TESTABLE BACKFLOW PREVENTERS				5 Comments
			Number Found	Number Uncorr	3 Status	Device Type	Number Of Devices				
							Total	Tested	Failed	Repaired	
NEW LONDON TPKE 386	2	03/13/2012	0	0		DCVA RPD	0 1	0 1	0 0	0 0	
ALDIN ASSOCIATES NEW LONDON TPKE 489	2,5	07/11/2012	0	0		PVB DCVA RPD	0 0 2	0 0 2	0 0 0	0 0 0	
TILCON OF CT RYAN READY MIX NEW LONDON TPKE 710	2,3	04/09/2012	0	0		PVB DCVA RPD	0 0 1	0 0 1	0 0 0	0 0 0	

Consumer Name And Address	Categories Of Concern	Date Of most Recent Inspect	VIOLATIONS		
			Number Found	Number Uncorr	Status
EASTERN FEDERAL BANK MAIN ST 255	2	06/13/2012	0	0	
VACANT MAIN ST 337	2,4,5	05/25/2012	0	0	4

PWS Annual Inspection Summary

"Categories of Concern" Codes:

(1) Any water supply source other than that of the public water system is known to exist.

(2) Toxic or objectionable chemical or biological substances are used in water solution on public, commercial or industrial premises.

(3) Water pressure is raised by pumping on other than residential premises above that furnished by the supplier.

(4) There is a water storage tank, public swimming pool or water filter, for other than residential use.

(5) There is known to be a sprinkler system for either fire protection or irrigation.

PWS Annual Inspection Summary

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			0	0		PVB DCVA RPD	0 0 0	0 0 0	0 0 0	0 0 0	
			0	0		PVB DCVA RPD	0 0 3	0 0 3	0 0 0	0 0 0	
			0	0	4	PVB DCVA RPD	0 0 2	0 0 0	0 0 0	0 0 0	✓
TILCON OF CT RYAN READY MIX NEW LONDON TPKE 710	2,3	04/09/2012	0	0		PVB DCVA RPD	0 0 1	0 0 1	0 0 0	0 0 0	

PWS Annual Inspection Summary

"Violations - Status" Codes:

(1) Correction has been scheduled (include the completion date on the Comments page).

(2) Referred to local director of health for enforcement

(3) Referred to State Department of Public Health for enforcement

(4) Service terminated

(5) Violation letter issued

(6) Other (provide specific information on Comments page)

Case Studies: Salons

Equipment of Concern:

- Shampoo Basins
- Pedicure Basins
- Sinks
- Tank & Tank w/i Tank Toilets; Urinals
- Water Conditioning & Pressure-boosting Systems
- Fire Sprinkler Systems
- Properties with Public Water Supply AND a Well

Salons

Shampoo Sink Case

-A formerly Closed Salon was discovered Reopened w/Change Owner

- Did not submit 'Plan Review'
- Local Sanitarian found:
  - Older model sink similar to Sink "B".
  - No apparent vacuum breaker
  - No hose submersion control
  - No Air gap visible
    - 1" minimum, or
    - 2x diameter of pipe

Salons

Shampoo Sink Case

Local Sanitarian could not find backflow prevention – so:

- Made a note on the inspection report;
  - Back at the office - phoned Norwich Public Utilities;
  - NPU sent an inspector out;
  - NPU inspector contacted LHD - the sink was indeed in violation;
  - LHD sent an order and withheld permit until resolved.

Salons

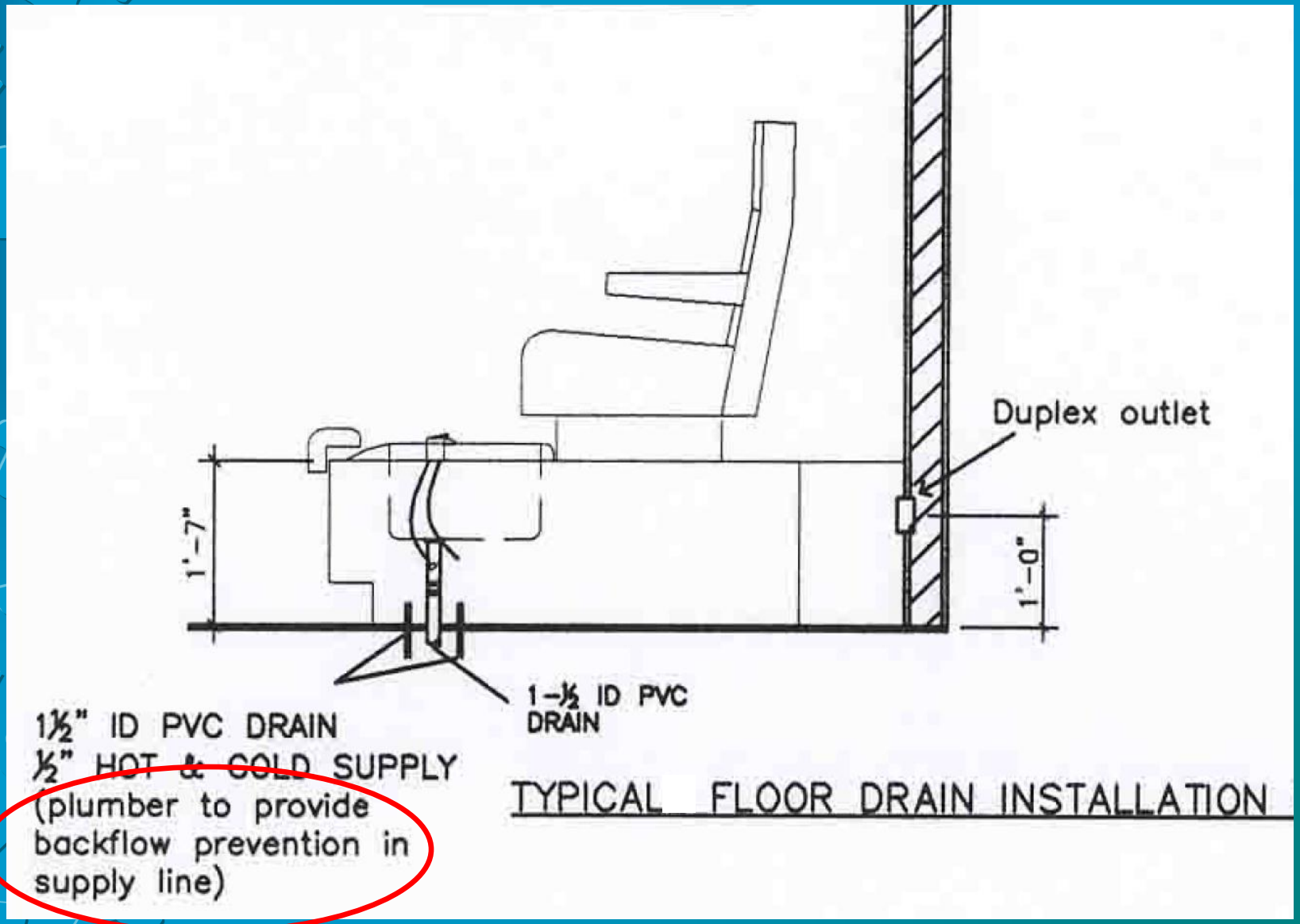
Nail Salon Case – Pedicure Stations

After Plan Review, the Local Sanitarian conducted a pre-operational inspection of a new Nail Salon, in conjunction with the City Building Official;

- A row of Pedicure Spa Chair/Basin units were being installed by a contractor for the owner;
- The backs of some of the chairs were still open;
- The inspectors could not find backflow prevention devices associated with the Pedicure stations;
- The local sanitarian returned to the office and contacted NPU;
- NPU inspector found that no backflow prevention had been installed;
- Owner was required to pull out all units and install BFP devices prior to opening shop.

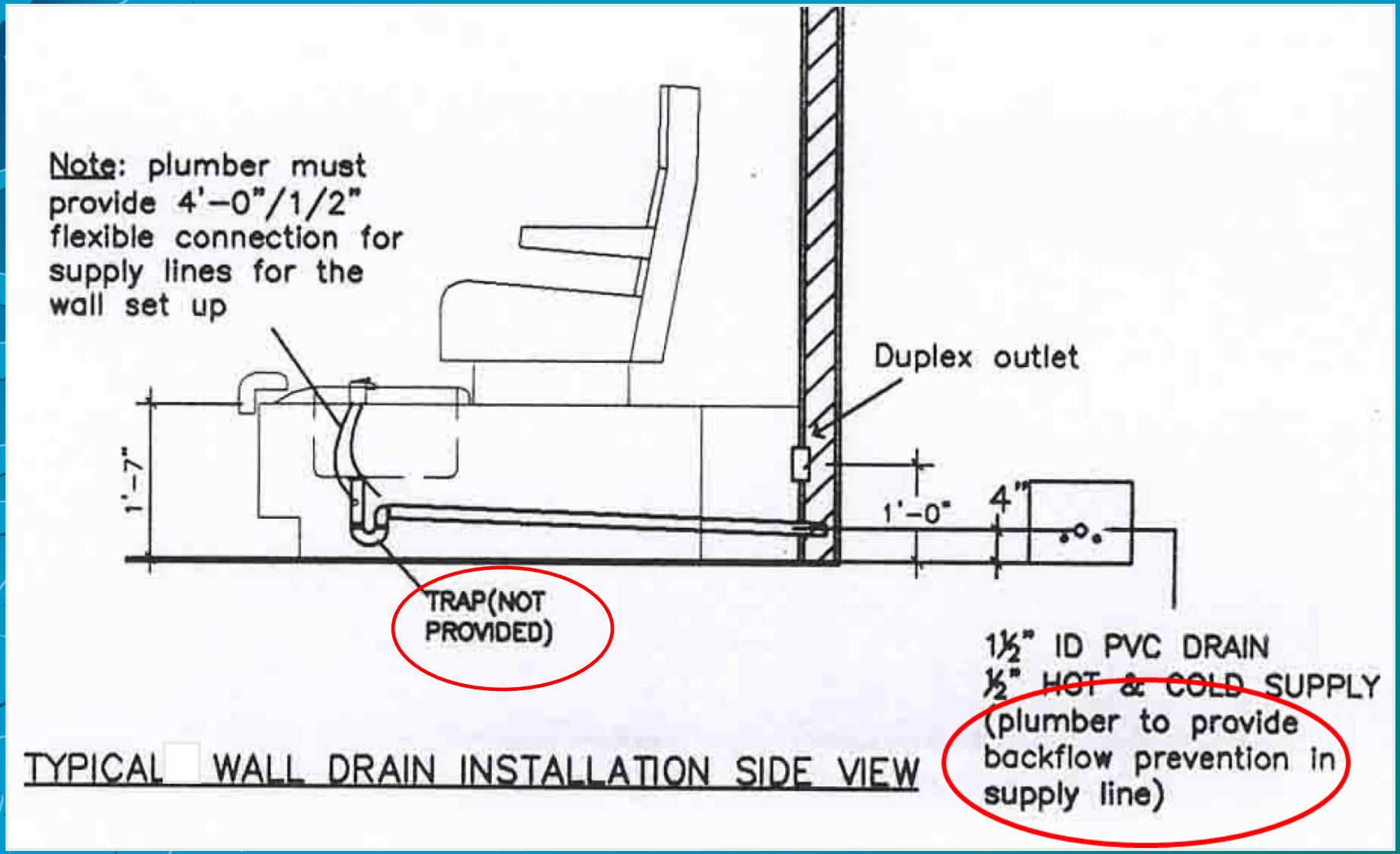
Salons

Nail Salon Case – Pedicure Stations



Salons

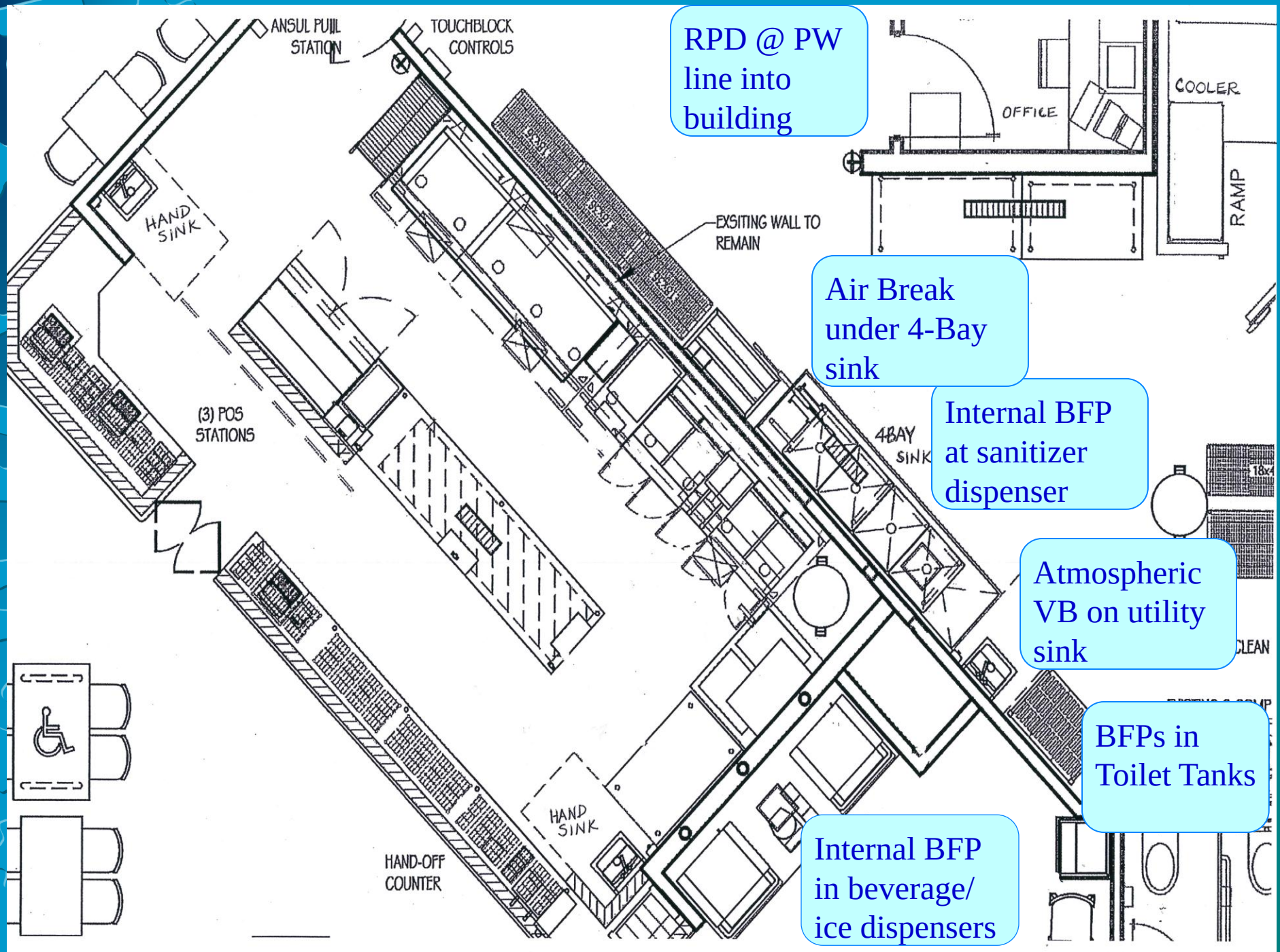
Nail Salon Case

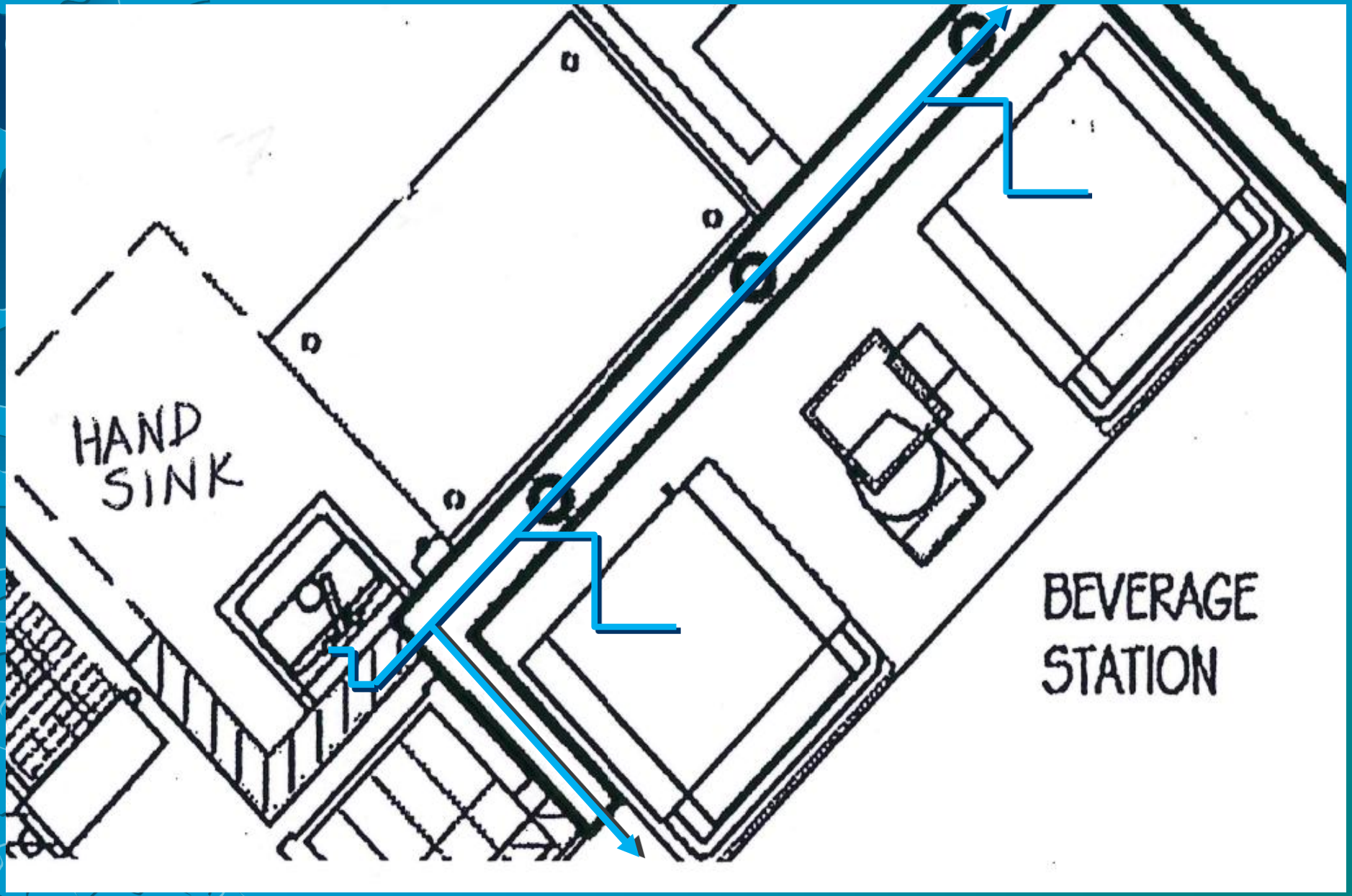


Case Studies: Food Service

Equipment of Concern:

- Plumbed Equipment:
  - Carbonators for Beverage Dispensers & Soda Guns
  - Coffee Machines
  - Ice makers
  - Chemical Proportioners
- Sinks with Threaded Faucets & Hose Attachments
- Water Wash Exhaust Hoods
- Tank & Tank w/i Tank Toilets; Urinals
- Water Conditioning & Pressure-boosting Systems
- Fire Sprinkler Systems
- Properties with Public Water Supply AND a Well


ANSUL PULL STATION
TOUCHBLOCK CONTROLS
HAND SINK
(3) POS STATIONS
EXSITING WALL TO REMAIN
4BAY SINK
HAND SINK
HAND-OFF COUNTER
OFFICE
COOLER
RAMP
CLEAN
RPD @ PW line into building
Air Break under 4-Bay sink
Internal BFP at sanitizer dispenser
Atmospheric VB on utility sink
BFPs in Toilet Tanks
Internal BFP in beverage/ ice dispensers


HAND
SINK
BEVERAGE
STATION

Food Service Establishments

Mop Sink Case #1

During a routine Food Establishment (Chain) inspection, a Local Sanitarian (RS) encountered a mop sink in a small closet:

- Integral to the faucet was an atmospheric backflow preventer .
- A splitter device with stop cocks was installed at the end of the faucet spigot;
- Two hoses were attached to the threaded faucet;
- One hose was connected from the splitter to the sanitizer dispenser;
- A label on the sanitizer dispenser indicated internal backflow prevention;
- The other hose was connected to the other side of the splitter and the ‘open’ end of the hose was sitting in the mop sink basin;
- A jet spray nozzle was “sometimes” attached to the second hose.

Food Service Establishments

The Mop Sink

Food Service Establishments

Mop Sink Case #1

1) Does the splitter device with stop cocks provide the required backflow prevention?
2) With the hose sitting in the mop sink basin, is there the potential for a cross-connection?
3) What is the impact of the jet spray nozzle, when attached to the other end of the hose?
4) Can the valves of the sink be left open, placing more than atmospheric pressure on the system?
5) Is this a violation?

(When the valves were turned on, water began to leak up through the atmospheric backflow preventer)

Food Service Establishments

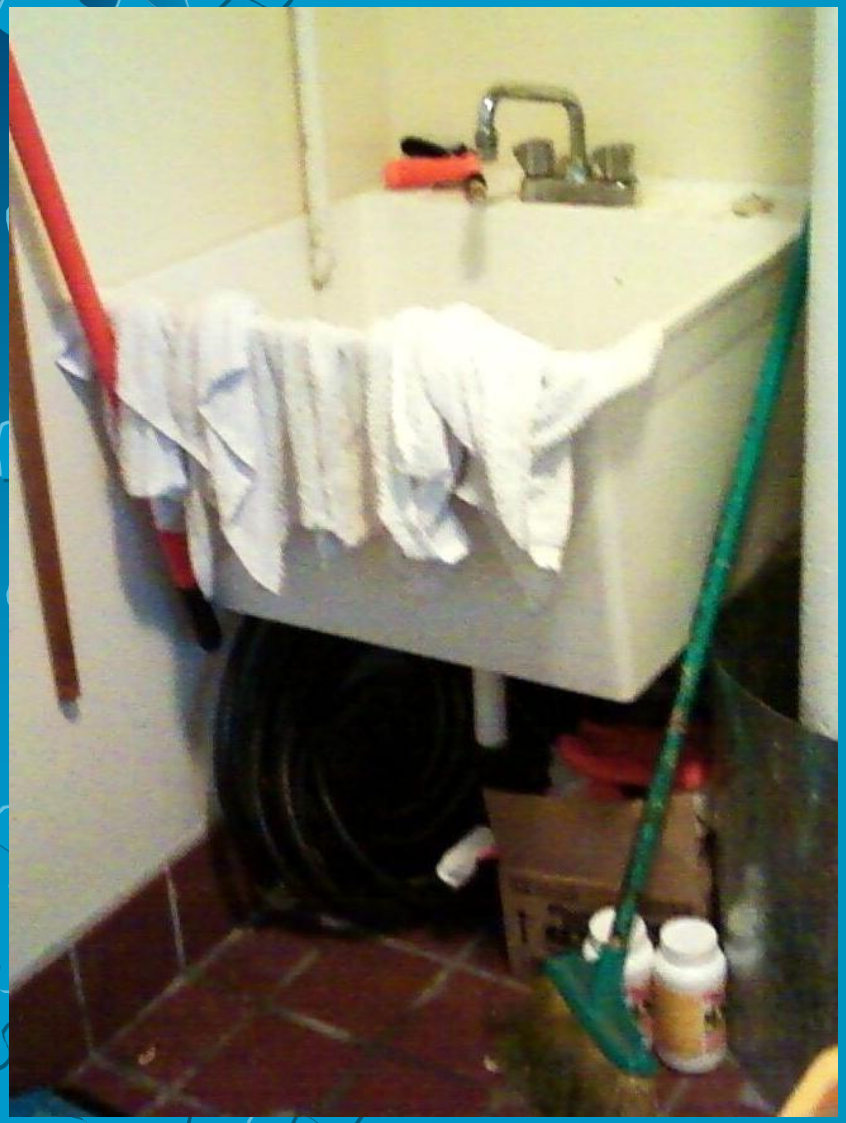
Mop Sink Case #2

In another Local Food Establishment (Chain), the RS encountered a mop sink, also in a small closet:

- The sink drain pipe was plumbed directly; no air gap or air break;
- A hose was coiled up under the mop sink WITH a jet spray nozzle attached to the end of the hose (removed before photo was taken).
- What is that device at the end of the spigot? Does the sink faucet have a hose bib vacuum breaker?
- Does the sink have any vacuum breaker ?
- Is this a violation?

Food Service Establishments

The Mop Sink - #2



Food Service Establishments

Mop Sink Cases - Resolutions

- After observing Case #1, RS took photos and sent them with referral via email to NPU.

  NPU confirmed the violation and did the follow-up to bring the Food Service Establishment into compliance.

- In Case #2, the RS was able to identify the device on the mop sink spigot as an aerator, not a backflow preventer. However, the hose was <u>not</u> attached to the mop sink at time of inspection. Therefore, the RS educated the Qualified Food Operator (QFO) as to the "potential" cross-connection violation, and, the QFO removed the jet spray nozzle and hose from the area.
  - The RS followed up by notifying NPU via emailing the information, including photos to her NPU contact.

Recommendations to Increase Collaboration

- Get to know the people involved;
- Know the frequency of each other's inspections;
- LHDs should have copies of Utility's DPH Reports;
- Become Aware of what each other does;
- Have a general knowledge of potential violations;
- Make referrals (discuss preferred methods)