Development Services

From Concept to Construction

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APPEAL SUMMARY Status: Item 1: Hold for Additional Information. Item 2: Hold for Additional Staff Review. - Held over from ID 24044 (9/30/20) for additional information Appeal ID: 25060 Project Address: 12000 SW 49th Ave Hearing Date: 8/11/21 Appellant Name: Ali Gens Case No.: B-013 Appellant Phone: 503-972-5332 Appeal Type: Building Plans Examiner/Inspector: Geoffrey Harker, John Cooley Project Type: commercial Stories: 4 Occupancy: A-3, A-4, B, S-1 Construction Type: II-A Building/Business Name: Portland Community College Fire Sprinklers: Yes - Throughout Health Technology (HT) Building Appeal Involves: Alteration of an existing LUR or Permit Application No.: 20-227703-CO structure, Reconsideration of appeal Plan Submitted Option: pdf [File 1] [File 2] [File 3] Proposed use: University Classroom [File 4] APPEAL INFORMATION SHEET Appeal item 1 **Code Section** 716.2 - Opening Fire Protection Assemblies Ratings and Markings Requires Opening protection for 1 hour rated stair enclosures - 1 hour Opening protection for other 1 hour rated separations - 45 minutes **Code Modification or** This appeal allows existing non-rated opening protection located in 1-hour rated occupancy Alternate Requested separation and stair enclosure walls to remain. Proposed Design RECONSIDERATION: It was requested that clarification be provided on the openings to each of the stairs at the gymnasium. The gymnasium is not within the project renovation scope. The north stair is constructed of 2-hour rated concrete walls and provides access to 3 stories, from Floor 1 to Floor 3. It does not connect to Floor 0. The stair discharges directly to the exterior at Floor 1. At Floor 3, there is no door between the stair and an adjacent mechanical room. On Floor 2 there is a nonrated door, within the stairwell, that separates the upper flight (to Floor 3) from the lower flights. This existing door has no landing. This door is locked and is accessed by maintenance only. At both Floor 1 and Floor 2, the stairs are separated from adjacent spaces by 90 minute rated doors. The south stair is of identical construction and layout, except that it extends to the basement, thereby connecting 4 floors. At Floor 1, the flight from Floor 0 is separated from the rest of the stairs by a non-rated door with a non-conforming landing. The doors separating the stair enclosure from Floor 0, Floor 1, and Floor 2 are all 90 minute rated doors.

ORIGINAL:

The existing building is four stories of construction Type II-A. It is fully sprinklered and contains separated mixed occupancies of A-3, A-4, B, and S-1. One-hour rated separations are required between the A and B and between A and S-1 occupancies per Table 508.4. The scope of the current renovations does not include an existing pool or the gymnasium, but does include more than 50% of the floor area of the building and an increase in floor area of approximately 4,000 SF.

A double height space containing the pool (A-4 occupancy) is located on the 1st Floor. This space is separated from the adjacent locker rooms and class rooms (B occupancy) by an 8" concrete wall. Five existing doors located within this wall are not 45-minute rated. One existing window is not 45-minute fire rated. The floor of the pool is a concrete slab that meets the 1-hour fire rating occupancy separation requirement. An observation mezzanine is being permanently closed in order to reduce the occupant load in the pool area.

A double height space containing the gymnasium (A-3 occupancy) is located on the 2nd Floor. This space is separated from the adjacent exit stair enclosure and the adjacent exercise rooms, classrooms and corridors (B-occupancy) by an 8" concrete wall. Two sets of existing doors are not 45-minute fire rated. One set of ventilation ducts do not have fire dampers. The floor of the gymnasium is a concrete slab that meets the 1-hour fire rating occupancy separation requirement.

The proposed design is to allow the existing non-rated opening protections to remain as they are outside the scope of the renovation as allowed by Chapter 34 (Existing Buildings) and the 2018 International Existing Building Code (IBEC) §403.1 (Alterations using the Prescriptive Compliance Path).

Reason for alternative RECONSIDERATION:

The exit stairs on both the north and south sides of the gymnasium are separated from the Floor 3 mechanical room by existing non-rated doors at Floor 2. The upper Floor is not normally occupied and can be accessed by maintenance staff only. These doors will assist in preventing smoke buildup in the stairs from Floor 2 down to the exit discharge at Floor 1. All other doors separating the 2-hour rated stair enclosure from the adjacent spaces are 90 minute rated and meet the requirements of OSSC Table 716.1.

ORIGINAL:

Context:

• The existing building was built in 1968 and pre-dates most modern building codes.

• The building is of Type II-A, non-combustible rated construction, primarily concrete, and fully sprinklered per NFPA 13. This minimizes fire risk in comparison to other construction types and materials.

• The building has several non-compliant existing conditions which are being improved. Total compliance with current code is not feasible within in the scope of this project.

• The proposed renovation includes removal of a vertical opening, bringing an existing noncompliant atrium closer to compliance, the addition of a new protected interior exit stairway, the addition of fire barriers to separate occupancies within the scope of work, and other life safety improvements to existing non-compliant areas.

• The pool and gymnasium are not included within this scope of work and will be occupied during the renovation.

Separated Occupancies:

• Currently a multistory, mixed occupancy sprinklered building. There will be approximately 4,000 square feet of additional floor area added to the building by infilling existing vertical openings. The building exceeds the allowable area for non-separated mixed occupancies and must meet the requirements for separated mixed use occupancies.

• The building is completely separated except for:

5 doors from the pool

	1 window between the pool and a classroom
	2 sets of doors from the gymnasium
	Vents without dampers between the gymnasium and the exit stair enclosure
	• These unprotected openings are outside the current scope of work and are allowed to remain under OSSC Chapter 34 and the 2018 IEBC.
	 The pool and gymnasium will remain occupied during the renovation. The openings cannot be replaced while these spaces are occupied as it will impact the use of these spaces. A viewing mezzanine in the pool area will be permanently closed. Access will only be allowed by maintenance personnel and city officials. This area will not be used for storage. By removing access to this mezzanine, the occupant load of the pool area is reduced from current conditions. Additionally the exit access travel distance in the pool area is also reduced. The pool area has an exit discharge that is direct to the exterior of the building. The gymnasium has direct access to an exit access stairwell. This allows quick egress of the occupants away from the non-rated openings in the occupancy separations. Both the gymnasium and the pool are large, double height rooms. They will have low fuel loads as they are mainly composed of open space. Additionally, with the high ceilings, any smoke that develops within these rooms will allow egress for a longer period of time that with a typical height
	space. Therefore, since the existing non-rated opening protections are outside the scope of work, the reduction in occupant load in the pool area, the load fuel loads in the pool and gymnasium, and the direct access to either the exterior or an enclosed exit stair, we request that this appeal be approved.
Appeal item 2	
Code Section	Table 716.2 – Opening Fire Protection Assemblies Ratings and Markings
Requires	Fire rated glazing is required at openings under Section 716.
Code Modification or Alternate Requested	This appeal allows fire sprinklered glass in lieu of rated glazing.
Proposed Design	The project proposes a fire sprinklered glass assembly as an equivalent to ³ / ₄ hour fire-rated glazing required at the sidelights in a 1 hour wall separation between A and B occupancies. The system will be designed to utilize a standard aluminum frame with gasketed glass and with sprinklers on both sides to achieve the required rating. We are proposing a 7'-2" maximum system height with no horizontal mullions. See attached plans for locations and details for configuration.
Reason for alternative	This design utilizes a visual connection between the classrooms and adjacent common area to provide natural light, visual security, and views. Per appeals 12062 and 14323, the use of sprinklered glass is a typical equivalent approach to achieve the necessary rating in lieu of rated

APPEAL DECISION

1. Existing non-rated openings located in interior exit stair enclosures to remain: Hold for additional information. See note below regarding the process for submitting additional information.

2. Use of non-rated glazing in 1 hour fire rated occupancy separation wall with additional sprinkler protection: Hold for additional staff review.

Appellant may contact John Butler (503 865-6427) or e-mail at John.Butler@portlandoregon.gov with questions.

For Item 1: Additional information is submitted as a no fee reconsideration, following the same submittal process and using the same appeals form as the original appeal. Indicate at the beginning of the appeal form that you are filing a reconsideration and include the original assigned Appeal ID number. The reconsideration will receive a new appeal number.

Include the original attachments and appeal language. Provide new text with only that information that is specific to the reconsideration in a separate paragraph(s) clearly identified as "Reconsideration Text" with any new attachments also referenced. Once submitted, the appeal cannot be revised. No additional fee is required.









ARCHITECTS



<u>GENERAL NOTES - EGRESS</u>

A. REFER TO REFLECTED CEILING PLANS AND ELECTRICAL LIGHTING PLANS FOR EMERGENCY LIGHT FIXTURE LOCATIONS. BACKUP POWER FOR EGRESS LIGHTING PROVIDED BY NEW GENERATOR. EGRESS ILLUMINATION 1FC AVERAGE OR HIGHER THROUGHOUT.

LIFE SAFETY PLAN LEGEND

	1 HOUR FIRE RATED SEPARATION
	2 HOUR FIRE RATED SEPARATION
	3 HOUR FIRE RATED SEPARATION
	PATH OF EGRESS (MAXIMUM DISTANCE INDICATED)
S	SMOKE BARRIER
••••••	DRAFT CURTAIN
	ROOM OR AREA NAME
AREA LOAD FACTOR	OCCUPANT LOAD FACTOR (NET OR GROSS)
OCC LOAD	NUMBER OF OCCUPANTS
	OCCUPANCY CLASS
*	ACCESSORY USE

T	
20	20 MIN LABELED, SELF CLOSING DOOR WITH 45 MIN RELITE WHERE APPLICABLE
LB	LOCK BOX
SP	STANDPIPE
FE	FIRE EXTINGUISHER
FAPS	FIRE ALARM PULL STATION
DFDE	DESIGNATED FIRE DEPARTMENT ENTRANCE
FRAP	FIREFIGHTER'S REMOTE ANNUNCIATION PANEL



BUILDING OR LEVEL EXIT (WITH NUMBER OF OCCUPANTS)

EXIT (WITH NUMBER OF OCCUPANTS)

2-HOUR CEILING ABOVE

ACCESSIBLE EXIT

EXIT SIGN



PORTLAND COMMUNITY COLLEGE 12000 SW 49th Ave, Portland, Oregon 97219 ISSUANCE CD / BID DOCUMENTS PROJECT NUMBER 01726 DATE 05/28/2021 SCALE As indicated DRAWING TITLE PROPOSED EGRESS PLANS

TRUE REAN PCC HEALTH TECHNOLOGY BUILDING RENOVATION

KEY PLAN - (NTS)

REVISION NO. 4 REV-2

DATE 05/28/2021

STAMP

ARCHITECTS

CONSULTANT

HACKER

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EXHIBIT B

SPRINKLERED

GLASS





TECHNOLOGY BUILDING RENOVATION PORTLAND COMMUNITY COLLEGE 12000 SW 49th Ave, Portland, Oregon 97219 ISSUANCE PERMIT DOCUMENTS

TRUE ROATH PCC HEALTH

KEY PLAN - (NTS)

STAMP Expires 12/31/2022 **REVISION NO.** DATE 4 REV-2 05/28/2021



HACKER

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ARCHITECTS

CONSULTANT

EXHIBIT D SPRINKLERED GLASS

Worldwide Contacts

www.tyco-fire.com

Model WS Specific Application Window Sprinklers Horizontal and Pendent Vertical Sidewall 5.6 K-factor

General **Description**

tyco

Fire Protection

Products

The TYCO Model WS Specific Application Window Sprinklers are fast response, glass bulb-type spray sprinklers available in Horizontal Sidewall and Pendent Vertical Sidewall models.

These sprinklers are the first to be specifically Listed to provide complete wetting and coverage for heat strengthened, tempered, or ceramic glass windows using closed sprinklers. As part of the testing, the gas flow required to achieve the time/temperature relationship specified in ASTM E119 was established in a test furnace without sprinkler protection. A window assembly protected with the TYCO Model WS Window Sprinklers was then installed in the test furnace, and the same gas flow conditions were maintained for a two-hour test period. No cracking or visible damage to the window was permitted during the test period, even when a hose stream was directed at the window.

The success of the Model WS Window Sprinklers is based on their fast response thermal sensitivity and on their specially designed deflectors that ensure that the spray pattern wets the entire surface of the window.

Based on successful testing, the Model WS Window Sprinklers can be used as interior protection of windows or glazing in a sprinklered building or non-sprinklered building in accordance with Section 104 of the IBC ("Alternate Materials, Design and Methods of Construction and Equipment"). Also,

IMPORTANT

Always refer to Technical Data Sheet TFP700 for the "INSTALLER WARNING" that provides cautions with respect to handling and installation of sprinkler systems and components. Improper handling and installation can permanently damage a sprinkler system or its components and cause the sprinkler to fail to operate in a fire situation or cause it to operate prematurely. the Model WS Window Sprinklers can be used as an open sprinkler for "Outside Sprinkler Protection against Exposure Fire", using the design requirements of NFPA.

As with any specific application sprinkler, the installation instructions included in this data sheet must be precisely followed. If there are additional local or jurisdictional installation standards/codes for window sprinklers on glazed window systems, this document does not relieve the designer/ installer from these requirements. Consult your local jurisdiction to verify if or when these additional guidelines must be followed.

NOTICE

TYCO Model WS Specific Application Window Sprinklers described herein must be installed and maintained in compliance with this document, as well as with the applicable standards recognized by the approval agency, in addition to the standards of any authorities having jurisdiction. Failure to do so may impair the performance of these devices.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or manufacturer should be contacted with any questions.

Sprinkler Identification Number (SIN)

TY3388 - Horizontal Sidewall TY3488 - Pendent Vertical Sidewall

TY3388 is a re-designation for C3388 TY3488 is a re-designation for C3488





Technical Components: 1 - Frame Data * Temperature 2 - Button 3 - Sealing rating is **Approvals** Assembly indicated on UL and C-UL Listed 4 - Bulb Deflector. - Compression NYC under MEA 289-04-E 5 Screw Approvals only apply to the service - Deflector * 6 conditions indicated in the Design 2 Criteria section. **CROSS SECTION PLAN Additional Recognition** ICC Evaluation Service (ESR-2397) **Ontario Building Code** INDICATED TOP THREAD SPRINKLER RELIEF FRAME ARMS OF SPRINKLER **Pipe Thread Connection** DEFLECTOR 1/2 inch NPT 1/2" **Discharge Coefficient** K=5.6 GPM/psi^{1/2} (80,6 LPM/bar^{1/2}) NPT 13/16" **Temperature Ratings** (20,6 mm) 155°F (68°C) 200°F (93°C) CENTERLINE OF SPRINKLER 1-5/8" DIA. WATERWAY (41,3 mm) Finish Natural Brass, Signal White (RAL9003) Polyester, and Chrome Plated 7/16" (11,1 mm) WRENCH **Physical Characteristics** NOMINAL MAKE-IN FLATS ORIENT Frame Brass DEFLECTOR Button....Bronze/Copper TOWARDS 2-1/8" Sealing Assembly. Beryllium Nickel (54,0 mm) WINDOW w/TEFLON Bulb Glass (3 mm dia.) SIDE ELEVATION Compression Screw. Brass FIGURE 1 Deflector.....Brass/Bronze MODEL WS WINDOW SPRINKLER HORIZONTAL SIDEWALL **Operation** The glass bulb contains a fluid that Components: expands when exposed to heat. When 1 - Frame 4 - Bulb * Temperature the rated temperature is reached, the 2 - Button 5 - Compression rating is indicated fluid expands sufficiently to shatter the 1/2" 3 - Sealing Screw on Deflector. glass bulb, allowing the sprinkler to NPT Assembly 6 - Deflector * activate and water to flow. 1 WRENCH FLATS



Design Criteria

The TYCO Model WS Specific Application Window Sprinklers are UL and C-UL Listed and NYC Approved (MEA 335-01-E) for use as "Specific Application Window Sprinkler" and as open sprinklers for "Outside" use.

These sprinklers are also recognized by Underwriters Laboratories of Canada (ULC), and the Ontario Building Code for use in the Province of Ontario, Canada as providing a two-hour equivalency for a fire separation assembly when installed in accordance with this code.

Area of Use

When acceptable to the Authority Having Jurisdiction and unless modified by a local jurisdictional standard or code mentioned previously, the TYCO Model WS Window Sprinklers may be used in either a sprinklered or unsprinklered building to protect non-operable window openings that are part of a fire separation provided:

- in an interior fire separation, the window sprinklers are installed on both sides of the window in the fire separation (Figure 3A-1),
- in jurisdictions where exterior spatial separation (that is, separation from adjacent space) is defined as protecting an adjacent building from a fire in your building, window sprinklers are installed on the interior side of the building (Figure 3A-2), or
- in jurisdictions where exterior spatial separation is defined as protecting your building from a fire in an adjacent building (that is, exposure protection), open window sprinklers are installed on the exterior side of the building (Figure 3A-3).

System Protection TypeInterior: Wet Systems

Outside Exposure: Deluge

Glass Type

The following types and thicknesses of glass are recognized for use with TYCO Model WS Window Sprinklers:

- Non-operable, heat-strengthened, tempered, single-glazed (single pane), not less than 1/4 in. (6 mm) thick;
- Non-operable, heat-strengthened, tempered, double-glazed (double pane or insulated), not less than 1/4 in. (6 mm) thick;
- Non-operable, UL Classified and labeled FireLite Plus WS ceramic glass by Technical Glass Products (TGP), not less than 5/16 in. (8 mm) thick; or,

NOTE: Refer to FireLite Plus WS ceramic glass technical data sheet for other classification limitations at www. fireglass.com.

• Non-operable, stronger glass window assemblies, not less than 1/4 in. (6 mm) thick.

Type of Window Frame/Mullion

Non-combustible Frame with a standard EPDM rubber gasket seal

Vertical joints of glass panes must be connected by butt-joints using a silicone sealant between the individual panes or by Noncombustible Mullions.

(Refer to Figures 3B-1 and 3B-2)

Maximum Length of Window Assembly Unlimited

Maximum Height of Window Assembly

13 ft. (3,96 m)

(Refer to Figures 3C and 3D)

Maximum Distance Between Window Sprinklers 8 ft. (2,44 m)

(Refer to Figures 3B-1 and 3B-2)

Minimum Distance Between Window Sprinklers

6 ft. (1,83 m) unless separated by a baffle or mullion of sufficient depth to act as a baffle.

A mullion will act as a baffle, when in the case of the Pendent Vertical Sidewall, the mullion extends to the back of the sprinkler deflector, and in the case of the Horizontal Sidewall, the mullion extends to the sprinkler wrench flat.

(Refer to Figures 3B-1 and 3B-2)

Minimum Distance from Standard Sprinklers

6 ft. (1,83 m) unless separated by a baffle

Sprinkler Location

- Mullioned Glazing Assemblies: Locate window sprinklers within each mullioned glazing segment. Refer to Figure 3B-1.
- Butt-Jointed Glazing Assemblies: Locate window sprinklers on maximum 8 ft. (2,44 m) centers. Refer to Figure 3B-2.

Maximum Distance from Vertical Mullion 4 ft. (1,22 m)

(Refer to Figure 3B-1)

Minimum Distance from Vertical Mullions 4 in. (101,6 mm) (Refer to Figure 3B-1)

Intermediate Horizontal Mullions

Intermediate Horizontal Mullions were not tested with the Model WS Window Sprinklers. Their use is outside the scope of the "Specific Application" Listing for the window sprinklers. Refer to Figure 3B-3.

Deflector Location

Sprinkler Deflectors must be located as described below in order to ensure that the entire surface of the glass window is covered. Sprinkler Deflectors are positioned with respect to the window frame, not the ceiling.

- Horizontal Sidewall: Locate within the outside edge of the window frame from 1/2 to 4 in. (12,7 mm to 101,6 mm) away from the glass and 2 ± 1 in. (50,8 mm ± 25,4 mm) down from the top of the exposed glass. Refer to Figure 3C.
- Pendent Vertical Sidewall: Locate 4 to 12 in. (101,6 mm to 304,8 mm) from the face of the glass and 3 ± 1 in. (76,2 mm \pm 25,4 mm) down from the top of exposed glass. Refer to Figure 3D.

Minimum Clearance from Face of Glass to Combustible Materials

For glass types other than FireLite Plus WS ceramic glass by TGP, all combustible materials shall be kept 2 in. (50,8 mm) from the front face of the glass. This can be accomplished by a minimum 36 in. (914,4 mm) pony wall or other method acceptable to the authority having jurisdiction.

Escutcheon Assemblies

The Model WS Window Sprinklers can be used with any metallic flush or extended escutcheons, provided the dimensions from the sprinkler deflector to the window frame and glass surface as specified in this data sheet are maintained. These sprinklers are not listed for recessed applications.

Recommended Hydraulic Requirements

The authority having jurisdiction should be consulted to determine the hydraulic requirements for each installation.

Interior Protection Sprinklered Building

Identify which compartmented area has the most hydraulically demanding window sprinklers. Calculate up to the most demanding 46.5 linear feet of Model WS Window Sprinklers on one side of the glazing. The 46.5 linear feet (14,2 linear meters) is based upon 1.2 x the square root of the system area of operation, when the system area of operation is 1500 sq.-ft. in accordance with NFPA 13 Light/Ordinary Hazard density curves.

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Where the area of Glazing is less than 14.2 linear meters, all window sprinklers on one side shall be calculated.

If an area reduction for quick response sprinklers is utilized, the linear length of the calculated window sprinklers may be reduced, but in no case shall be less than 36 linear feet ($1.2 \times \sqrt{900}$).

If a single fire can be expected to operate Model WS Window Sprinklers and sprinklers within the design area of a hydraulically calculated system, the water demand of the window sprinklers shall be added to the water demand of the hydraulic calculations and shall be balanced to the calculated area demand.

If the window sprinklers are located in an area other than the hydraulic design area, the demand of the window sprinklers is not required to be added to the demand of the remote hydraulic design area. However, it is necessary to prove hydraulically the simultaneous operation of the Model WS Window Sprinklers and the ceiling sprinklers adjacent to the window sprinklers.

Interior Protection Non-Sprinklered Building

Calculate all sprinklers on the most demanding side of the glazing assembly within the enclosure.

Exterior Exposure Protection

Calculate all sprinklers controlled by the deluge valve using the design requirements of NFPA.

Duration of Water Supply

Duration of water supply must comply with requirements of NFPA. If window sprinklers are used to provide the equivalency of a fire rating, the water supply must be capable of supplying water for the required rating period.

Minimum Flow per Sprinkler

20 GPM (75,7 LPM) for sprinkler spacing of 6 to 8 ft. (1,83 to 2,44 m) or 15 GPM (56,8 LPM) for sprinkler spacing less than 6 ft. (1,83 m).

Maximum Pressure per Sprinkler

Horizontal Sidewall: 70 psi (4,83 bar)*

- * The 70 psi is only for cold solder purposes. If there is a baffle or a mullion of sufficient depth to act as a baffle, separating the sprinklers, the maximum pressure is 175 psi (12,07 bar).
- Vertical Sidewall: 175 psi (12,07 bar)

When acceptable to the Authority Having Jurisdiction the Model WS Specific Application Window Sprinklers may be used in either a sprinklered or unsprinklered building to protect nonoperable window openings that are in an interior fire separation, the window sprinklers are installed on both sides of the window in the fire separation.



When acceptable to the Authority Having Jurisdiction the Model WS Specific Application Window Sprinklers may be used in either a sprinklered or unsprinklered building to protect nonoperable window openings that are part of a fire separation provided in jurisdictions where exterior spatial separation is defined as protecting an adjacent building from a fire in your building, window sprinklers are installed on the interior side of the glass.



FIGURE 3A-2 - EXTERIOR FIRE SEPARATION - SPRINKLERS INSIDE

When acceptable to the Authority Having Jurisdiction the Model WS Specific Application Window Sprinklers may be used in either a sprinklered or unsprinklered building to protect nonoperable window openings that are part of a fire separation provided in jurisdictions where exterior spatial separation is defined as protecting your building from a fire in an adjacent building, open window sprinklers are installed on the exterior side of the glass.







Installation

The TYCO Model WS Specific Application Window Sprinklers must be installed in accordance with this section.

General Instructions

Do not install any bulb-type sprinkler if the bulb is cracked or there is a loss of liquid from the bulb. With the sprinkler held horizontally, a small air bubble should be present. The diameter of the air bubble is approximately 1/16 in. (1,6 mm).

A leak-tight 1/2 inch NPT sprinkler joint should be obtained by applying a minimum-to-maximum torque of 7 to 14 ft.-lbs. (9,5 to 19,0 Nm). Higher levels of torque may distort the sprinkler inlet with consequent leakage or impairment of the sprinkler.

Step 1. Install the pendent vertical sidewall sprinkler only in the pendent position with the center-line of the sprinkler parallel to the glass surface. Orient the sprinkler so that the direction of flow indicated on the sprinkler deflector is facing the window.

Step 2. Install the horizontal sidewall sprinkler only in the horizontal position with the center-line of the sprinkler perpendicular to the glass surface. Orient the sprinkler so that the word "Top" indicated on the sprinkler deflector is facing the top of window frame.

Step 3. With pipe-thread sealant applied to the pipe threads, hand-tighten the sprinkler into the sprinkler fitting.

Step 4. With reference to Figures 1 or 2, apply End A of W-Type 20 Sprinkler Wrench only (Figure 4) to the sprinkler wrench flats and tighten the sprinkler into the sprinkler fitting.

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Care and Maintenance

The TYCO Model WS Specific Application Window Sprinklers must be maintained and serviced in accordance with this section.

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, obtain permission to shut down the affected fire protection systems from the proper authorities and notify all personnel who may be affected by this action.

Sprinklers which are found to be leaking or exhibiting visible signs of corrosion must be replaced.

Automatic sprinklers must never be painted, plated, coated, or otherwise altered after leaving the factory. Modified sprinklers must be replaced. Sprinklers that have been exposed to corrosive products of combustion, but have not operated, should be replaced if they cannot be completely cleaned by wiping the sprinkler with a cloth or by brushing it with a soft bristle brush.

Care must be exercised to avoid damage to the sprinklers - before, during, and after installation. Sprinklers damaged by dropping, striking, wrench twist/slippage, or the like, must be replaced. Also, replace any sprinkler that has a cracked bulb or that has lost liquid from its bulb. (Ref. Installation Section.)

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards recognized by the Approval agency (e.g., NFPA 25), in addition to the standards of any authorities having jurisdiction. Contact the installing contractor or sprinkler manufacturer regarding any questions.

Automatic sprinkler systems are recommended to be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

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Limited Warranty

For warranty terms and conditions, visit www.tyco-fire.com.

Ordering Procedure

Contact your local distributor for availability. When placing an order, indicate the full product name and Part Number (P/N).

Model WS HSW Window Sprinkler with NPT Thread

Specify: Model WS Specific Application Window Sprinkler TY3388, Horizontal Sidewall, with (specify) temperature rating, (specify) finish, and P/N (specify)

155°F (68°C)

Model WS Pendent Vertical Sidewall Window Sprinkler with NPT Thread

Specify: Model WS Specific Application Window Sprinkler TY3488, Pendent Vertical Sidewall, with (specify) temperature rating, (specify) finish, and P/N (specify)

155°F (68°C)

Natural Brass	P/N 50-304-1-155
Signal White (RAL9003)	3)
Polyester	. P/N 50-304-4-155
Chrome Plated	. P/N 50-304-9-155
200°F (93°C)	
Natural Brass	. P/N 50-304-1-200
Signal White (RAL9003)	3)
Polyester	. P/N 50-304-4-200
Chrome Plated	. P/N 50-304-9-200
Sprinkler Wrench	
	<u> </u>

Specify: W-Type 20 Sprinkler Wrench, P/N 56-000-1-106

GLOBAL HEADQUARTERS | 1400 Pennbrook Parkway, Lansdale, PA 19446 | Telephone +1-215-362-0700

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