1 General

1.1 SUMMARY

.1 Section includes:

.1 Fire rated glazing and framing systems for installation as sidelights, windows, and wall sections in interior openings.

1.2 RELATED REQUIREMENTS

.1 Section 05 50 00 Miscellaneous Metals

.2 Section 07 84 00 Firestopping and Smokeseals

.3 Section 08 11 13 Steel Doors and Frames

.4 Section 08 70 00 Hardware

.5 Section 08 71 13 Automatic Door Operators

1.3 REFERENCE STANDARDS

.1 American Society for Testing and Materials (ASTM):

.1 ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007.

.2 ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2006b.

.3 ASTM E119: Methods for Fire Tests of Building Construction and Materials.

.2 American Welding Society (AWS)

.1 AWS D1.3 - Structural Welding Code - Sheet Steel; 2007

.3 Builders Hardware Manufacturers Association, Inc.

.1 BHMA A156 - American National Standards for door hardware; 2006 (ANSI/BHMA A156).

.4 Canadian Standards

.1 CAN-S101 Fire Endurance Tests of Building Construction and Materials

.2 CAN/ULC S104-M, “Fire Tests of Door Assemblies”

.3 CAN/ULC S106-M, “Standard Method for Fire Tests of Window and Glass Block Assemblies”

.5 National Fire Protection Association (NFPA):

.1 NFPA 80: Fire Doors and Windows.

.2 NFPA 251: Fire Tests of Building Construction & Materials

.3 NFPA 252: Fire Tests of Door Assemblies

.4 NFPA 257: Fire Test of Window Assemblies

.6 Underwriters Laboratories, Inc. (UL):

.1 UL 9: Fire Tests of Window Assemblies.

.2 UL 10 B: Fire Tests of Door Assemblies

.3 UL 10 C: Positive Pressure Fire Tests of Window & Door Assemblies

.4 UL 263: Fire tests of Building Construction and Materials

.5 UL-752 Ratings of Bullet-Resistant Materials

.7 American National Standards Institute (ANSI):

.1 ANSI Z97.1: Standard for Safety Glazing Materials Used in Buildings

.8 Consumer Product Safety Commission (CPSC):

.1 CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials

.9 American Society of Civil Engineers (ASCE)

.1 ASCE 7 – Minimum Design Loads for Buildings and Other Structures; 2005

1.4 DEFINITIONS

.1 Manufacturer: A firm that produces primary glass, fabricated glass or framing as defined in referenced glazing publications.

1.5 SUBMITTALS

.1 Submit in accordance with Section 01 33 00.

.2 Product Data:

.1 Technical Information: Submit latest edition of manufacturer's product data providing product descriptions, technical data, Underwriters Laboratories, Inc. listings and installation instructions.

.3 Shop Drawings:

.1 Include plans, elevations and details of product showing component dimensions; framing opening requirements, dimensions, tolerances, and attachment to structure

.2 Provide templates for the location of embeds and anchor locations required for any adjoining work (if applicable).

.4 Structural Calculations (optional):

.1 Provide structural calculations sealed by a licensed professional engineer in the Province of Ontario; prepared in compliance with referenced documents and these specifications.

.5 Samples:

.1 Glass sample-as provided by manufacturer

.2 Sample of frame

.3 Verification of sample of selected finish

.6 Glazing Schedule: Use same designations indicated on drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.

.7 Warranties: Submit manufacturer's warranty.

.8 Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements.

.1 Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction

1.6 QUALITY ASSURANCE

.1 Testing Agency Qualifications: Qualifications according to:

.1 International Accreditation Service for a Type A Third-Party Inspection Body (Field Services ICC-ES Third-Party Inspections Standard Operating Procedures, 00-BL-S0400 and S0401)

.2 International Accreditation Service for Testing Body-Building Materials and Systems

.1 Fire Testing

.1 ASTM Standards E 119

.2 CPSC Standards 16 CFR 1201

.3 NFPA Standards 251, 252, 257

.4 UL Standards 9, 10B, 10C, 1784, UL Subject 63

.5 BS 476; Part 22: 1987

.6 CAN Standards S 101, S 104, S 106

.2 Fire-Rated Wall Assemblies: Assemblies complying with ASTM E119 that are classified and labeled by UL, for fire ratings indicated, based on testing in accordance with UL 263, ASTM E119.

.3 Listings and Labels - Fire Rated Assemblies: Under current follow-up service by Underwriters Laboratories maintaining a current listing or certification. Label assemblies accordance with limits of manufacturer's listing.

1.7 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle under provisions specified by manufacturer.

1.8 PROJECT CONDITIONS

.1 Obtain field measurements prior to fabrication of frame units. If field measurements will not be available in a timely manner coordinate planned measurements with the work of other sections.

.1 Note whether field or planned dimensions were used in the creation of the shop drawings.

.2 Coordinate the work of this section with others effected including but not limited to: other interior components and door hardware beyond that provided by this section

1.9 WARRANTY

.1 Provide the standard five (5) year manufacturer warranty.

2 Products

2.1 MANUFACTURERS - (ACCEPTABLE MANUFACTURERS/PRODUCTS]

.1 Manufacturer Glazing Material: "Pilkington Pyrostop®" fire-rated glazing as manufactured by the Pilkington Group and distributed by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail sales@fireglass.com, web site http://www.fireglass.com

.2 Frame System: "Fireframes® Aluminum Series" fire-rated frame system as manufactured and supplied by Technical Glass Products, 8107 Bracken Place SE, Snoqualmie, WA 98065 (800-426-0279) fax (800-451-9857) e-mail sales@fireglass.com web site http://www.fireglass.com

2.2 PERFORMANCE REQUIREMENTS

.1 System Description:

.1 Steel fire-rated glazed wall and/or window system, dual aluminum cover cap format

.1 Face widths available:

.1 50mm (2")

.2 Custom extruded aluminum cover caps

.2 Duration – Windows Capable of providing a fire rating for 45 minutes.

.3 Duration – Walls: Capable of providing a fire rating for 60 minutes.

.2 Delegated design: For the performance requirements listed below requiring structural design provide data, calculations and drawings signed and sealed by an engineer licensed in the Province of Ontario.

2.3 MATERIALS - GLASS

.1 Fire Rated Glazing: Composed of multiple sheets of Pilkington Optiwhite™ high visible light transmission glass laminated with an intumescent interlayer.

.2 Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201(Cat. I and II).

.3 Properties Interior Glazing

Property	
Fire Rating	45 minute
Manufacturer's designation	45-200
Glazing type	single
Nominal Thickness	3/4" (19mm)
Weight in lbs/sf	9.2
Daylight Transmission	86
Sound Transmission Coefficient	40dB

.4 Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, manufacture, testing laboratory (UL), fire rating period, safety glazing standards, and date of manufacture.

.5 Glazing Accessories: Manufacturer's standard compression gaskets, standoff, spacers, setting blocks and other accessories necessary for a complete installation.

2.4 MATERIALS –ALUMINUM FRAMES

.1 Aluminum Framing System 60 min.

.1 Steel Frame — The steel framing members are made of two halves, nom. 1.9 in. wide (48.3 mm) with a nom. minimum depth of 1.38 in. (35 mm) with lengths cut according to glazing size.

.2 Aluminum Trim — Supplied with the steel framing members. Nom. 2 in. (50.8 mm) wide with a nom. depth of 1.54 in. (39 mm) with lengths cut according to glazing size.

.3 Framing Member Fasteners — Supplied with the steel framing members. Screws are M6 x16mm Button Head Socket Cap Screws for frame assembly and #6 x 1" Pan Head Sheet Metal Screws for door installation.

.4 Glazing Gasket — Supplied with the steel framing members. Nom. 3/4 in. (19 mm) by 3/16 in. (4.5 mm) black applied to the steel framing members to cushion and seal the glazing material when installed.

2.5 DOOR HARDWARE

.1 Manufacturer's heavy duty hardware units in sizes and types as required to meet fire rated entrance use as indicated on Drawings.

.1 Provide door hardware in accordance with the requirements of this Section; using products that are recommended and supplied by entrance system manufacturer; in accordance with referenced standards, meeting requirements for description, quality, type, and function listed in hardware schedule.

2.6 FABRICATION

.1 Obtain reviewed shop drawings prior to fabrication.

.2 Fabrication Dimensions: Fabricate fire-rated assembly to field dimensions.

.3 Factory prepared, fire-rated steel door assemblies by TGP to be prehung, prefinished with hardware preinstalled for field mounting.

.4 Field glaze door and frame assemblies.

2.7 FINISHES, GENERAL

.1 Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

.2 Finish frames after assembly.

.3 Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

2.8 FINISHES

.1 Finish after fabrication.

.2 Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable. Noticeable variations in the same piece are not acceptable.

.3 Anodized Finishes

.1 Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

.2 Class II, Clear Anodic Finish: AA-M12C22A31 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.010 mm or thicker) complying with AAMA 611.

.4 Steel (Concealed):

.1 Hot-dip galvanized, or zinc rich paint.

.5 Isolate where necessary to prevent electrolysis due to dissimilar metal-to-metal contact or metal-to-masonry and concrete contact. Use bituminous paint, butyl tape or other approved divorcing material.

.1 Bituminous Paint: Cold-applied, asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos; formulated for 0.762-mm thickness per coat.

3 Execution

3.1 EXAMINATION

.1 Site Verification of Conditions: Examine substrates and members to which the work of this section attaches or adjoins prior to frame installation are acceptable for product installation in accordance with manufacturer’s instructions. Provide openings plumb, square and within allowable tolerances. The manufacturer recommends 3/8 inch shim space at all walls

.2 Notify Architect of any conditions which jeopardize the integrity of the proposed fire wall / door system.

.3 Do not proceed until such conditions are corrected.

3.2 INSTALLATION

.1 Install as per manufacturer’s instructions.

.2 General:

.1 Erect fire rated aluminum framed entrances plumb, level and square, in correct relation to work of other sections, within a maximum non-cumulative deviation of 1/8" per 12'-0" length of member, and with members accurately fitted and aligned at joints and intersections.

.2 Anchor system to building structure, adjusting as required to meet erection tolerances and secure to prevent movement other than that which is expected due to structural deflection and creep and thermal expansion and contraction.

.3 Provide all devices and components required for erection of system.

.4 Use concealed fastenings only.

.5 Touch up steel anchoring components, after installation, with zinc rich paint.

.6 Provide aluminum flashings, fillers, covers and sealants indicated and as required to render system weather tight and to meet specified performance criteria. Ensure effective seal at laps, end joints and changes of direction.

.7 Seal joints between storefront framing system and adjacent building elements, and between frames, sills and other materials. Caulk inside and outside, with sealant as specified herein.

.8 Install all door hardware on doors. Test all doors on completion of installation and adjust as required for smooth and efficient operation.

.9 Completed installation shall be of adequate strength to support operating entrance doors, and wind loading as specified without glass shaking or vibrating when entrance doors are in use.

.3 Glazing:

.1 Install glass types as indicated in Section 08 80 00.

.2 Size glass units to accurately fit openings with appropriate clearance all around.

.3 Identify glazed openings, mark each light of glass. Indicate presence of glass.

.4 Replace all damaged or broken glass at no expense to Owner, prior to completion of work. Remove all broken glass from premises.

.5 Locate and install setting blocks and spacers according to glass manufacturer's directions. Centre and space each piece of glass on premoulded neoprene rubber spacers. Provide minimum of two spacers on each edge of each piece of glass and four where dimension exceeds 4'. Use spacers of size to accurately fit each thickness of glass.

.6 Clean glass and metal surfaces to present clean, dry, grease and oil free surfaces to receive glazing tapes, gaskets or seals.

.7 Glazing to be undertaken at temperatures recommended by manufacturer of glazing materials.

.8 Provide sealed double glazed units at all locations.

3.3 REPAIR AND TOUCH UP

.1 Anodized Finishes:

.1 Protect the anodized finish from harsh chemicals such as concrete/mortar or muriatic acid/brick wash. If reasonable care is taken during handling and high and low pH chemicals can be avoided, repair and/or touch-up of an anodize finish will not be needed.

.2 Some rub marks on an anodized surface can be removed with a mild abrasive pad such as a Scotch-Brite pad prior to touch up painting.

.3 Touch-up paint should be used even more sparingly over anodize. Only the visible raw aluminum in the scratch or gouge should be touched up with a matching paint.

.2 Remove and replace glass that is broken, chipped, cracked, abraded, or damaged.

3.4 PROTECTION AND CLEANING

.1 Protect glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

.1 Do not clean with astringent cleaners. Use a clean “grit free” cloth and a small amount of mild soap and water or mild detergent.

.2 Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

END OF SECTION