Permit Number: 2 4 0 0 8 6 1 6 G P

Applicant: Snyder Architects Inc.

Permit Address: **143 Townsend Ave.**
Burlington

Notice of inspection at each construction stage

The permit holder shall notify the Chief Building Official of each stage of construction for which a mandatory notice is required under Div.C, 1.3.5.1 of the 2012 Ontario Building Code. The permit holder shall provide the notice of completion as prescribed by Section 11 of the *Act*, or where occupancy is required prior to completion, notice of inspection to ensure compliance with Section 11 of the *Act* and Div. C, 1.3.3.1 of the 2012 OBC.

To book your inspections please call your inspector directly using the inspector's call number provided. We will make every attempt to meet your inspection request; however, we cannot guarantee arrival times. Reviewed permit drawings **must** be on site.

CALL FOR INSPECTIONS AT THESE CONSTRUCTION STAGES

Building

INSPECTION

- Commencement of Construction
- Footings
- Foundation prior to Backfill
- Structural Framing per Storey
- Fire Separations
- Completion of Interior Finish
- Pool – Deck / Dressing Rooms
- Pool – Emergency Stop System
- Occupancy
- Final

Plumbing

INSPECTION

- Commencement of Construction
- Sewers & Drains
- Water Service Pipes
- Fire Service Mains
- Water Distribution
- Drainage & Venting
- Fixtures/Appliances
- Plumbing Outside a Structure
- Pool - Suction/Gravity Outlets/Piping
- Pool - Circulation/Recirculation Completion
- Occupancy
- Final

HVAC (Heating/Ventilating/Air Conditioning)

INSPECTION

- Commencement of Construction
- Rough-in
- Insulation/Vapour
- Air Barrier
- Fire Separations
- Masonry Fireplace & Chimney
- Factory Built Fireplace & Chimney
- Solid Fuel Appliance & Chimney
- Occupancy
- Final

Life Safety

INSPECTION

- Commencement of Construction (Fire Protection Systems)
- Rough-in of Fire Protection System (Floor by Floor)
- Completion of Fire Protection Systems
- Fire Access Route
- Occupancy
- Final

Septic

INSPECTION

- Septic - Readiness to Construct
- Septic - Prior to Backfill
- Septic – Final

Prescribed Inspection Timeframes (OBC Div. C, Article 1.3.5.3.)

(1) Except as provided in Sentence (2), an *inspector* shall, not later than two days after receipt of a notice given, undertake a site inspection of the *building* to which the notice relates.

(2) Where a notice is given, an *inspector* shall, not later than five days after receipt of the notice, undertake a site inspection of the *sewage system* to which the notice relates.

(3) When undertaking an inspection required under Sentence (1) or (2), the *inspector* may consider reports concerning whether the *building* or a part of the *building* complies with the Act or the Ontario Building Code.

(4) The time periods referred to in Sentences (1) and (2) shall begin on the day following the day on which the notice is given.

(5) The time periods referred to in Sentences (1) and (2) shall not include Saturdays, holidays and all other days when the offices of the *principal authority* are not open for the transaction of business with the public.

NOTE: Section 13. (6) Order to Uncover of the Building Code Act states as follows:

"A Chief Building Official or registered code agency who has reason to believe that part of the building that is covered or enclosed has not been constructed in compliance with this Act or the Building Code may order the persons responsible for the construction, to uncover the part at their own expense for the purpose of an inspection."

COB - Building Department
Page 1 of 34

REMEMBER TO CALL FOR INSPECTIONS

OVER

GENERAL NOTES

All construction to meet the requirements of the 2012 Ontario Building Code.

Separate permits required for any further work not shown on these drawings.

Existing construction may require upgrading - subject to field inspection.

Where non-combustible construction is required, any combustible materials to comply with Div. B, 3.1.5 OBC (non-combustible construction).

Integrity of existing corridors, exiting, and fire separations to be maintained.

Gas lines to be located, installed and pressure tested in accordance with the Gas Utilization Code.

The exposed surface of every wall and ceiling shall have a **SURFACE FLAME SPREAD** of not more than 150. (Not over 25 in exits).

LOCKING, LATCHING and other fastening devices on every *exit* door shall permit the door to be readily opened from the inside with not more than one releasing operation and without requiring keys, special devices or specialized knowledge of the door opening mechanism except as provided in Div. B, 3.4.6.11 OBC.

All PLUMBING AND DRAIN WORK to be carried out in accordance with Div. B, Part 7 of the Ontario Building Code and to the satisfaction of the Burlington Plumbing Inspector. Lead free solder required in potable water system.

FIRE DAMPERS to be installed wherever ducts pierce required fire separations.

BARRIER-FREE DESIGN New building or addition to be designed in accordance with Div. B, Section 3.8 OBC,

EMERGENCY LIGHTING to be provided to average levels at least 0.9 ft-candles (10 lx), minimum (1 lx), at floor or tread level in exits, corridors used by the public, and in principal routes providing access to exit in open floor areas (see Div. B, 3.2.7.3. OBC). Exit Signs in accordance with Div. B, 3.4.5. OBC.
Additional and/or revised emergency lighting, exit lighting may be required subject to field approval.

FIRE EXTINGUISHERS to be provided in conformance with the Ontario Fire Code and to the satisfaction of the Burlington Building Inspector.

FIRE ALARM SYSTEM to be installed and verified by manufacturer's representative, to the requirements of OBC Div. B, 3.2.4 and CAN/ULC-S524-M and CAN/ULC-S537-M. Separate Ontario Hydro Fire Alarm Permit is also required.
Additional fire alarm devices may be required subject to field approval.

SPRINKLER SYSTEM & MONITORING to be in conformance with NFPA-13 and Div. B, 3.2.2.18 OBC. Siamese connection to be within 148' (45m) of a fire hydrant.

SEPARATE BUILDING PERMIT REQUIRED FOR SIGNS (Div. B, 3.15 OBC). Signs to meet City of Burlington Sign By-law also. For information, contact a By-law Enforcement Officer in the Building Department.

NOTICE

It is the responsibility of the Designer, Owner and/or Operator to ensure that the building and processes to be carried on following occupancy, will meet the requirements of the Ontario Fire Code, to the satisfaction of the Burlington Fire Department. Please Contact the **Fire Prevention Office at 905-637-9536**.

COB - Building Department
Page 2 of 34

OWNER COMMITMENT TO HAVE GENERAL REVIEW UNDERTAKEN BY ARCHITECTS AND/OR PROFESSIONAL ENGINEERS

PART A – TO BE COMPLETED BY OWNER

Project Description:

Proposed 1-storey 635 sqm Gym addition to replace the existing demolished 305 sqm Gym.

Permit Application No.

24 008616

Address of Project:

143 Townsend Ave., Burlington, ON. L7T 1Z1

Municipality:

Burlington, ON.

WHEREAS the Building Code Act prohibits the construction or demolition of a building if a permit authorizing the construction or demolition has not been issued, and

WHEREAS the Building Code requires that the construction or demolition of the project indicated have general review undertaken by architects and/or professional engineers that are licensed to practice in Ontario, and

WHEREAS general review shall not commence until a permit is issued.

NOW THEREFORE the Owner, who intends to construct or demolish or have the project indicated constructed or demolished, hereby confirms that:

1. The undersigned architect(s) and/or professional engineer(s) have been retained to undertake general review of the construction or demolition of the project indicated to determine whether construction or demolition of the project indicated is in general conformity with the plans and other documents that form the basis for the issuance of a permit, with general review undertaken in accordance with the performance standards of the Ontario Association of Architects (OAA) and/or Professional Engineers Ontario (PEO);
2. All general review reports by the architect(s) and/or professional engineer(s) will be forwarded promptly to the Chief Building Official;
3. Should any retained architect or professional engineer cease to provide general review for any reason during construction or demolition, the Chief Building Official will be notified in writing immediately, and another architect or professional engineer will be retained so that general review continues without interruption;
4. Construction or demolition of the project indicated will only be undertaken if architect(s) and/or professional engineer(s) are retained to undertake general review and a permit authorizing the construction or demolition has been issued; and
5. The architect(s) and/or professional engineer(s) listed below will be notified in writing of the start date of the construction or demolition of the project indicated and that no construction or demolition will commence before the start date given in the notification.

The undersigned hereby certifies that he or she has read and agrees to the above.

RECEIVED
MAY 03 2024
CITY OF BURLINGTON
BUILDING DEPARTMENT

Owner's Company Name:	First and Last Name:	Signature:	Date:
Halton District School Board	Michael Wildfong		April 22, 2024

Owner's Address:	Telephone:	Fax:	Email:
2050 Guelph Line, Burlington, ON. L7P 5A8	905-335-3665 ext. 3236		wildfongm@hdsb.ca

Company name of the coordinator of the work of all architects and professional engineers:	First and Last Name:
Snyder Architects Inc.	Amit Patel

Address:	Telephone:	Fax:	Email:
100 Broadview Ave., Suite 301 Toronto, ON. M4M 3H3	437-776-9796 (Cell)		apatel@snyderarchitects.ca

PART B – TO BE COMPLETED BY ARCHITECTS AND PROFESSIONAL ENGINEERS

The undersigned architect(s) and/or professional engineer(s) hereby declare that they are licensed to practice in Ontario and have been retained to undertake general review of the parts of construction or demolition of the project indicated to determine whether the construction or demolition is in general conformity with the plans and other documents that form the basis for the issuance of a permit, with general review completed in accordance with the performance standards of the OAA and/or PEO.

☒ **ARCHITECTURAL** ☐ **STRUCTURAL** ☐ **MECHANICAL** ☐ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:
Snyder Architects Inc.	Avinash Garde		Apr 19, 2024

Address:	Telephone:	Fax:	Email:
100 Broadview Ave., Suite 301 Toronto, ON. M4M 3H3	416-500-1399 (Cell)		agarde@snyderarchitects.ca

☐ **ARCHITECTURAL** ☒ **STRUCTURAL** ☐ **MECHANICAL** ☐ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:
Kalos Engineering Inc.	Hank Huitema		April 19, 2024

Address:	Telephone:	Fax:	Email:
300 York Boulevard, Hamilton, ON. L8R 3K6	905-512-2619		hankh@kaloseng.ca

☐ **ARCHITECTURAL** ☐ **STRUCTURAL** ☒ **MECHANICAL** ☐ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:
DEI & Associates Inc.	Leon Demaiter		April19 2024

Address:	Telephone:	Fax:	Email:
55 Northland Road, Waterloo, ON. N2V 1Y8	519-725-3555		ldemaiter@deiassociates.ca

☐ **ARCHITECTURAL** ☐ **STRUCTURAL** ☐ **MECHANICAL** ☒ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:
DEI & Associates Inc.	Jeremy Jackson		April 19, 2024

Address:	Telephone:	Fax:	Email:
55 Northland Road, Waterloo, ON. N2V 1Y8	519-725-3555		jjackson@deiassociates.ca

OWNER COMMITMENT TO HAVE GENERAL REVIEW UNDERTAKEN BY ARCHITECTS AND/OR PROFESSIONAL ENGINEERS

PART A – TO BE COMPLETED BY OWNER

Project Description:

Proposed 1-storey 635 sqm Gym addition to replace the existing demolished 305 sqm Gym.

Permit Application No.: 24 008616

Address of Project: 143 Townsend Ave., Burlington, ON. L7T 1Z1

Municipality: Burlington, ON.

WHEREAS the Building Code Act prohibits the construction or demolition of a building if a permit authorizing the construction or demolition has not been issued, and

WHEREAS the Building Code requires that the construction or demolition of the project indicated have general review undertaken by architects and/or professional engineers that are licensed to practice in Ontario, and

WHEREAS general review shall not commence until a permit is issued.

NOW THEREFORE the Owner, who intends to construct or demolish or have the project indicated constructed or demolished, hereby confirms that:

1. The undersigned architect(s) and/or professional engineer(s) have been retained to undertake general review of the construction or demolition of the project indicated to determine whether construction or demolition of the project indicated is in general conformity with the plans and other documents that form the basis for the issuance of a permit, with general review undertaken in accordance with the performance standards of the Ontario Association of Architects (OAA) and/or Professional Engineers Ontario (PEO);
2. All general review reports by the architect(s) and/or professional engineer(s) will be forwarded promptly to the Chief Building Official;
3. Should any retained architect or professional engineer cease to provide general review for any reason during construction or demolition, the Chief Building Official will be notified in writing immediately, and another architect or professional engineer will be retained so that general review continues without interruption;
4. Construction or demolition of the project indicated will only be undertaken if architect(s) and/or professional engineer(s) are retained to undertake general review and a permit authorizing the construction or demolition has been issued; and
5. The architect(s) and/or professional engineer(s) listed below will be notified in writing of the start date of the construction or demolition of the project indicated and that no construction or demolition will commence before the start date given in the notification.

The undersigned hereby certifies that he or she has read and agrees to the above.

Owner's Company Name:	First and Last Name:	Signature:	Date:
Halton District School Board	Michael Wildfong		April 22, 2024

Owner's Address:	Telephone:	Fax:	Email:
2050 Guelph Line, Burlington, ON. L7P 5A8	905-335-3665 ext. 3236		wildfongm@hdsb.ca

Company name of the coordinator of the work of all architects and professional engineers:	First and Last Name:
Snyder Architects Inc.	Amit Patel

Address:	Telephone:	Fax:	Email:
100 Broadview Ave., Suite 301 Toronto, ON. M4M 3H3	437-776-9796 (Cell)		apatel@snyderarchitects.ca

PART B – TO BE COMPLETED BY ARCHITECTS AND PROFESSIONAL ENGINEERS

The undersigned architect(s) and/or professional engineer(s) hereby declare that they are licensed to practice in Ontario and have been retained to undertake general review of the parts of construction or demolition of the project indicated to determine whether the construction or demolition is in general conformity with the plans and other documents that form the basis for the issuance of a permit, with general review completed in accordance with the performance standards of the OAA and/or PEO.

☐ **ARCHITECTURAL** ☐ **STRUCTURAL** ☐ **MECHANICAL** ☐ **ELECTRICAL** ☒ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:
Flora Designs Inc.	Chirag Patel		Apr 19, 2024

Address:	Telephone:	Fax:	Email:
1109 Britannia Rd. E., Mississauga, ON. L4W 3X1	416-828-9646 (Cell)		chirag@floradesigns.net

☐ **ARCHITECTURAL** ☒ **STRUCTURAL** ☐ **MECHANICAL** ☐ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:

Address:	Telephone:	Fax:	Email:

☐ **ARCHITECTURAL** ☐ **STRUCTURAL** ☒ **MECHANICAL** ☐ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:

Address:	Telephone:	Fax:	Email:

☐ **ARCHITECTURAL** ☐ **STRUCTURAL** ☐ **MECHANICAL** ☒ **ELECTRICAL** ☐ **SITE SERVICES** ☐ **OTHER:** _____

Company Name:	First and Last Name:	Signature:	Date:

Address:	Telephone:	Fax:	Email:

snyderarchitects

Jul 02 2024

File: 2314 / 4.4.1 Building Permit

Building Department
City of Burlington

Attn : Nick Anastasopoulos
Chief Building Official, Building Department

Re: Application # 24 008616
Address: 143 Townsend Avenue
Project Description: Glenview Public School Gym Addition

Nick,

Along with the attached resubmission package, find below our comments response matrix:

Item numbers below correspond to item numbers in your Building Permit Application Status Report document dated June 10, 2024 regarding application #24 008616:

Item #	
	Architectural/Structural
1.	Refer to attached updated Site Plan drawing A101 resubmitted for SPA, incorporating comments received from Planning and Zoning. We are awaiting final SPA approval but Planning has confirmed that there are no outstanding comments and approval will be issued shortly. No approval required from Ministry of Education regarding section 194 of the Education Act as there is no building demolition involved in this building permit application.
2.	Refer to attached completed Development Charges data form.
3.	Refer to attached permit response letter and updated structural drawings prepared by Kalos Engineering dated June 27, 2024.
4.	Refer to attached permit response letter and updated structural drawings prepared by Kalos Engineering dated June 27, 2024.
5.	Refer to attached permit response letter prepared by Kalos Engineering dated June 27, 2024.
6.	There is an existing universal washroom in the existing school within 45m of the new Gym change room washroom. Refer to attached letter confirming the gym is ancillary to the existing school and the gym occupancy is derived from the school occupancy.
7.	Refer to attached letters from Owner and Snyder Architects confirming the gym is ancillary to the existing school and the gym occupancy is derived from the school occupancy.
8.	Refer to attached updated site plan drawing A101 and A102 which indicates a 6m wide access route from Townsend Ave for both existing and proposed new gym building.

COB - Building Department
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sn/der architects

	Existing fire access route plan for existing building has been retained as existing. Principal entrances to both existing and new building are facing fire access route conforming to Article 3.2.5.1 as per Div, B. 3.2.5.4 OBC 2012. Drawing A101 confirms the central radius of access route is not less than 12m and dead end portion is 73m (less than 90m). Refer to attached updated drawing A102A for updated EBF4 with window W2 relocated to conform to Div, B. 3.2.5.1(1) OBC 2012. Site Plan drawing A101 and floor plan drawing A202 are updated to indicate principal entrance and barrier free entrance to door V4A.
9.	Refer to attached drawing A102A for revised spatial separation matrix. Limiting Distance for EBF 1 has been assumed as 6.36m and EBF 2 has been revised with door 139D as 45m fire rated HM door (so D_0 is not applicable). Refer to drawing A202 for plan layout of EBF1. Spatial Separation Matrix has been updated to indicate all Limiting Distances as actual. Existing building exterior wall assembly comprises of 4" face brick on 8" concrete block which would provide required minimum 45 min rating.
10.	190mm Fire wall is proposed to be constructed with Lightweight Block to achieve required 2hr fire rating. Refer to attached drawing A202 for revised Fire Protection Schedule indicating ULC listing details and clarifying there are no columns requiring fire protection.
11.	Refer to attached drawing A202 General Note #4. Enclosed copy of Geotechnical Report prepared by Peto MacCallum Ltd. dated Nov 16, 2023 as requested.
12.	Refer to attached permit response letter prepared by Kalos Engineering dated June 27, 2024.
13.	Only new 240mm CMU wall along Grid Line 5 between Grid Line 5 & 6 is a Firewall and existing building wall is not required to be a firewall. Fire shutter is installed in the 240mm CMU Firewall. Refer to attached Fire Shutter specifications. Requested General Notes added - refer to A202 General Note #9 & #10.
14.	Refer to attached A402 - section 1/A402, 2/A402, 3/A402 and 4/A402 for parapet heights of existing and proposed building conforming to Div 3.1.10.4(2) OBC 2012. Note that where the two building roofs are at different heights, the difference in elevation between the roofs is more than 3m so per 3.1.10.4(2), the firewall does not need to extend above the upper roof surface.
15.	Refer to attached A101 for revised curb detail 7/A101 conforming to Div. B, 3.8.3.2(3) OBC 2012.
16.	The Gym including its ancillary rooms (storage rooms and change rooms) are collectively separated from the rest of the floor area with a min 1hr fire separation as shown on the fire separation dwg. A102.
17.	Refer to attached drawing A102 indicating travel distances for new addition and existing building. Door 136 is not considered as an exit.
18.	Noted.
New	*Dwgs A601, A602 and A603 (showing architectural details) have been added to this resubmission.*

COB - Building Department
Page 6 of 34

	Mechanical / Life Safety
1.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
2.	Refer to attached updated Site Services drawing SS-1 incorporating comments received from City of Burlington, Engineering Department. We are yet to formally receive approved site servicing drawings, however we are informed by the Site Plan Reviewer that there are no outstanding comments to be addressed and approval will be issued shortly.
3.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
4.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
5.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
6.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
7.	Refer to attached drawing A202 for size and location of scuppers in conformance with Div. B, 7.4.10.4.(3)(a).
8.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
9.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
10.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.
11.	Refer to attached permit response letter prepared by DEI Consulting Engineers, dated June 24, 2024.

List of Attachments:

1. 143 Townsend Ave_DWG ARCH_R1
2. 143 Townsend Ave_DWG CIV_R1
3. 143 Townsend Ave_DWG STR_R1
4. 143 Townsend Ave_STR - Permit Response Letter
5. 143 Townsend Ave_MECHELEC - Permit Response Letter
6. 143 Townsend Ave_DCD
7. 143 Townsend Ave_SUP - Fire Shutter Specs
8. 143 Townsend Ave_SUP ARC - Plumbing Requirements
9. 143 Townsend Ave_SUP HDSB - Plumbing Requirements
10. 143 Townsend Ave_REP#1 - GEOTECH

We look forward to your approval.

Yt,
Avinash Garde OAA MRAIC LEED AP
Principal
Snyder Architects Inc

COB - Building Department
Page 7 of 34

snyderarchitects

Jul 10 2024

File: 2314 / 4.4.1 Building Permit

Building Department
City of Burlington

Attn : Nick Anastasopoulos
Chief Building Official, Building Department

Re: Application # 24 008616
Address: 143 Townsend Avenue
Project Description: Glenview Public School Gym Addition

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

Nick,

As per our discussion with Anil Kumar on Friday July 05, find attached revised drawings and our comments response below as supplementary information which supersedes our response dated July 02, 2024:

Item numbers below correspond to item numbers in your Building Permit Application Status Report document dated June 10, 2024 regarding application #24 008616:

Item #	
	Architectural/Structural
8.	Refer to attached updated drawing A102A for updated EBF4 with window W2 relocated to conform to Div, B. 3.2.5.1(1) OBC 2012. EBF4 dimensions are also noted.
9.	Refer to attached drawing A102A for revised spatial separation matrix. Limiting Distance for EBF 1 has been assumed as 7.5m. EBF 2 has been revised to have no unprotected openings (door 139D is now 1hr fire rated; so D_0 is not applicable). Limiting Distance for EBF 5 has been assumed as 1.2m. EBF 5 has been revised to have no unprotected openings (door 140 has been revised to 1hr fire rated door). Spatial Separation Matrix has been updated to indicate all Limiting Distances.
10.	Refer to attached drawing A202 for revised Fire Protection Schedule indicating Intumescent Coating System for all exposed faces of lintels and angles. Intumescent paint UL assemblies only exist for steel columns or beams supporting floor or roof assemblies – we don't have any such columns or beams requiring fire protection, only lintels with miscellaneous shapes like channels and angles – for which UL assemblies don't exist. The intumescent paint thickness for these members will comply with the manufacturer's recommendations to achieve the noted fire protection. Provide Engineering judgment letter to Building Inspector from Fire protection Engineer. Final approval subject to Field inspection by inspector. Please discuss with inspector before application of Intumescent coating.
12.	We confirm that no portion of existing wooden roof structure will project beyond the face of the existing building and will stop short of the fire wall, complying with Div.B, 3.1.10.7 OBC 2012.

Snyder Architects Inc. 100 Broadview Ave, Suite 301, Toronto, ON M4M 3H3 www.snyderarchitects.ca t.416.966.5444

List of Attachments:

1. 143 Townsend Ave_DWG ARCH_R1

We look forward to your approval.

Yt,
Avinash Garde OAA MRAIC LEED AP
Principal
Snyder Architects Inc

RECEIVED
JUL 10 2024
CITY OF BURLINGTON
BUILDING DEPARTMENT

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

snyderarchitects

Jun 20 2024

File: 2314 / 4.4.1 Building Permit

Building Department
City of Burlington

Attn : Nick Anastasopoulos
Chief Building Official, Building Department

Re: Application # 24 008616
Address: 143 Townsend Avenue
Project Description: Glenview Public School Gym Addition
Plumbing Requirements

Further to our discussions regarding the plumbing requirements applicable to the gym addition to the existing Glenview Public School, we confirm the following:

The proposed gym addition will be separated from the existing building with a fire wall. The occupant load in the gym is 600 persons – this occupant load is non-concurrent as the gym is ancillary to the existing school and the gym occupant load is based on the students within the school itself.
It is not practical to provide new student washrooms for 600 persons in the gym addition while adequate number of washrooms exists in the rest of the school. Similarly, there is an existing universal washroom in the existing school within 45m of the Gym change room washrooms.

Both washrooms and the exits will be accessible for both buildings at all times.

Sincerely,

Avgarde

Yt,
Avinash Garde OAA MRAIC LEED AP
Principal
Snyder Architects Inc

Snyder Architects Inc. 100 Broadview Ave, Suite 301, Toronto, ON M4M 3H3 www.snyderarchitects.ca t.416.966.5444

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

Date: **June 21, 2024**

Attn: Nick Anastasopoulos
Chief Building Official, Building Department
City of Burlington

Re: Application # 24 008616
Address: 143 Townsend Avenue
Project Description: Glenview Public School Gym Addition
Plumbing Requirements

We refer to the letter prepared by Snyder Architects dated Jun 20, 2024 regarding the plumbing requirements for the proposed gym addition to the existing Glenview Public School.

HDSB concurs with the letter including the non-concurrent nature of the gym occupancy and the accessibility of washrooms and exits to both buildings at all times.

Sincerely,

Michael Wildfong
Manager - Capital Projects
Facility Services and Planning
Halton District School Board

Street Address: J.W. Singleton Education Centre • 2050 Guelph Line, Burlington, Ontario L7P 5A8
Mailing Address: J.W. Singleton Education Centre • P.O. Box 5005, Stn. LCD 1, Burlington, Ontario L7R 3Z2
Phone: 905-335-3663 | 1-877-618-3456
www.hdsb.ca

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1 General

1.1 RELATED SECTIONS

.1 Section 04 22 00 - Concrete Unit Masonry.

.2 Section 05 10 00 - Structural Metal Framing.

.3 Section 05 50 00 - Metal Fabrications.

.4 Section 09 90 00 - Painting and Coating.

1.2 REFERENCES

.1 AAMA 2604-22: Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (With Coil Coating Appendix).

.2 ASTM A123/A123M-17: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.3 ASTM A153/A153M-23: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.4 ASTM A229/A229M-18: Standard Specification for Steel Wire, Quenched and Tempered for Mechanical Springs.

.5 ASTM A653/A653M-23: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

.6 ASTM A780/A780M-09(2015): Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

.7 CSA G40.20-13 (R2018): General Requirements for Rolled or Welded Structural Quality Steel.

.8 CSA G40.21-13 (R2018): Structural Quality Steel.

.9 CSA W47.1:19: Certification of Companies for Fusion Welding of Steel.

.10 CSA W55.3-08 (R2018): Certification of Companies for Resistance Welding of Steel and Aluminum.

.11 CSA W59-18: Welded Steel Construction (Metal Arc Welding).

.12 DASMA 204-2018: Standard for Fire Rated Rolling Door Assemblies.

.13 NFPA 80-2007: Fire Doors and Other Opening Protectives.

1.3 SHOP DRAWINGS

.1 Submit Shop Drawings as specified in Section 01 33 00.

.2 Shop Drawings: Project-specific drawings, illustrating sizes, closure type, arrangement of hardware, required clearances, fabrication methods, and anchorage details.

1.4 CLOSEOUT SUBMITTALS

.1 Submit closeout submittals as specified in Section 01 78 00.

.2 Operation and Maintenance Data: Manufacturer's standard operating instructions, and maintenance and cleaning guidelines; sufficient quantity for inclusion in operation and maintenance manual.

1.5 QUALIFICATIONS

.1 Fabricator: A firm specializing in fabricating coiling counter shutters, having minimum 3 years documented experience and a member of DASMA.

.2 Welders: Workers certified by CWB to CSA W47.1 and CSA W55.3.

2 Products

2.1 MANUFACTURERS

.1 Manufacturers having Product considered acceptable for use:
- .1 Amstel Manufacturing.
- .2 Atlas Door.
- .3 Cookson Company, Inc.
- .4 McKeon Door Company.
- .5 Overhead Door Corporation.
- .6 Security Rollo Ltd.
- .7 Wayne-Dalton Corporation.

.2 Substitution Procedures: Refer to Section 01 25 00.

2.2 DESCRIPTION

.1 Counter Shutter - Fire Rated: Galvanized steel construction; 3 hour fire rating with ULC label and automatic closing operation activated by fusible link mechanism; complete with a governor regulating shutter's rate of descent during automatic door closure to a safe closing speed; manual push-up operation; powder coated finish; eg. Firestar 540 Series by Wayne-Dalton Corporation.

2.3 REGULATORY REQUIREMENTS

.1 Fire Rated Closure: To NFPA 80.

2.4 MATERIALS

.1 Sheet Steel: To ASTM A653/A653M, Structural Steel (SS) Grade 230, Types 1 and 2; cold-rolled sheet steel, galvanized.

.2 Steel Sections and Plates: To CSA G40.20 and CSA G40.21, Grade 300W.

.3 Fasteners: Series 300 stainless steel.

.4 Welding Materials: To CSA W59.

.5 Touch-up Primer: Zinc-rich paint type.

2.5 COMPONENTS

.1 Curtain Slat: 0.76 mm thick galvanized sheet steel; 13 mm deep, 48 mm wide flat profile; eg. No. 17 Slat by Wayne-Dalton Corporation.

.2 Bottom Slat: Galvanized steel, tubular shape, complete with slide bolt locks.

.3 Counterbalance Assembly: Oil tempered torsion type helical springs to ASTM A229/A229M, complete with spring barrel.

.4 Curtain Hood: 174 x 174 mm size hood enclosure; fabricated from 0.46 mm thick galvanized steel sheet.

.5 Brackets: 4.76 mm thick galvanized steel plates, with permanently sealed bearings.

.6 Guides: Galvanized steel, sealed box-type guides, upward expandable.

.7 Automatic Release Mechanism: Thermally-actuated fusible link, rated at 74 degrees C.

.8 Manual Release Mechanism: Manufacturer's standard release handle.

.9 Governor: Engagement only after cable release, restricting automatic door closing speed to between 0.15 m/s and 0.61 m/s.

.10 Seals: Flexible vinyl type.

2.6 FABRICATION

.1 Prior to fabrication, verify existing conditions and take field measurements necessary to ensure a perfect fit.

.2 Fabricate fire-rated coiling shutters to DASMA 204; complete with fire rating label clearly visible.

.3 Provide endlocks fitted to ends of alternate slats.

.4 Provide counter balance assembly with torsion spring for easy manual operation.

.5 Store curtain in metal hood.

.6 Provide automatic closure operation activated by fusible link mechanism.

.7 Provide slide bolt lock mechanisms to secure coiling counter shutter in closed position.

2.7 FINISHES

.1 Shop Priming:
- .1 Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- .2 Do not prime surfaces designated to come into direct contact with concrete, or where field welding is required.
- .3 Prime paint components using minimum two coats primer.

.2 Galvanized Coating on Steel Components: To ASTM A123/A123M, Coating Grade 55; hot dipped zinc alloy coating.

.3 Galvanized Coating on Steel Hardware: To ASTM A153/A153M, Classes B3, C or D; hot dipped zinc alloy coating.

.4 Galvanized Coating on Sheet Steel: To ASTM A653/A653M, Coating Designation Z275; hot dipped zinc alloy coating.

.5 Powder Coated Finish on Sheet Steel: To AAMA 2604; electrostatically sprayed polymer powder, factory-applied to 0.05 mm dry film thickness; colour as selected by Consultant.

3 Execution

3.1 EXAMINATION

.1 Refer to Section 01 71 00.

.2 Verify site measurements of existing openings to ensure suitability.

3.2 INSTALLATION

.1 Securely install Products to DASMA 204; complete with necessary fitments and trim.

.2 Install Products straight, plumb and square, in accordance with accepted Shop Drawings.

.3 Connect fire-rated coiling shutters to fusible link mechanism.

3.3 FIELD QUALITY CONTROL

.1 Drop test fire-rated coiling shutters to NFPA 80.

.2 Submit written statement attesting to successful operation at time of installation.

3.4 ADJUSTING

.1 Adjust Products to operate smoothly and correctly.

.2 Make Good damaged or defective galvanized coatings to ASTM A780/A780M.

3.5 DEMONSTRATION

.1 Refer to Section 01 79 00.

.2 Instruct Owner's personnel in proper operating and maintenance procedures.

.3 Demonstrate fire-rated coiling shutter drop test device operation and coiling shutter re-setting procedure.

3.6 MAINTENANCE

.1 Adjust and maintain completed installation during warranty period.

.2 Upon completion of warranty period, test fire-rated coiling shutters for proper operation and full closure. Re-set release mechanism.

.3 Submit a written record to Owner and authority having jurisdiction, verifying fire-rated coiling shutters operate properly at completion of warranty period.

END OF SECTION

KALOS ENGINEERING

Email: anil.kumar@burlington.ca

June 27, 2024
Our file: 23199

CITY OF BURLINGTON
Building and By-Law Department
426 Brant Street, P.O. Box 5013
Burlington, Ontario L7R 3Z6

Attention: Anil Kumar, Senior Plans Examiner

Re: City of Burlington - Building Permit Application Status Report Responses
143 Townsend Avenue, Burlington – Permit Application Number 24 008616

Dear Anil,

In response to your letter dated June 10, 2024 pertaining to 143 Townsend Avenue, Burlington, we provide the following response to comments related to the structure:

Item 3: *Verify how the prevention of fire wall collapse shall be achieved as per Div.B, 3.1.10.1(1)(2) OBC 2012. The structural drawings indicate typical W310X39 beams supporting by fire wall and between grid line 2-3, the Mechanical units having 13.5 KN wt also supported by typical beams and these beams are resting on Fire wall. Please note that there are no two-fire wall provided as per Div.B, 3.1.10.1(2) OBC 2012. The sentence 3.1.10.1(1) requires that the connections and supports of framing members, which are expected to collapse with in fire rated period of fire wall, be detailed such that collapse of framing members will not cause a premature failure of the Fire wall and sentence 3.1.10.1(2) indicates that sentence 3.1.10.1(1) does not apply if Fire wall consists of two separate wall assemblies each tied to its respective building frame but not to each other and designed in such a way that collapse of one wall will not collapse the other . The structural drawings do not show sufficiency of compliance so please review CCMA document as Guideline for Masonry fire wall and NBC commentary C as a guide for these load bearing conditions. Provide structural adequacy of the fire wall as explained above under worst case scenario (at Grid line 2-3) and provide calculation to verify same typical beams are sufficient between even at grid line 2-3 also. Please revise Structural design layout to satisfy all conditions detailed above and coordinate with Architect of record.*

Response 3: The prevention of fire wall collapse shall be achieved as per Div.B, 3.1.10.1(1) OBC 2012. The firewall is designed so that the wall will not be compromised in the event of the failure of the structural system. Refer to structural drawings on S1.3, for

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ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

firewall connection detail to satisfy sentence Div.B, 3.1.10.1(1) OBC 2012. Please refer to firewall breakaway connection detail. In addition to resisting normal lateral loads as described in Part 4, the wall has been designed to resist a lateral load of 0.5 kPa under fire condition in accordance with article 4.1.5.17.(1)(2) of Part 4 of the National Building Code 2010 (NBCC-10).

Item 4: *The drawings A201 and site plan indicates partial demolition so provide sealed structural drawings for partial demolition and structural Engineer to verify if any shoring is required. Provide demolition report/letter indicating sequence of demolition.*

Response 4: Refer to structural drawings S1.3 for extent of existing structural to be removed including extent of existing 190 concrete block wall and existing 89x405 roof joists with roof decks to be removed. Refer to structural framing notes indicating areas of shoring to be provided.

Item 5: *The loading on Fire wall to comply Div., B 4.1.5.17 OBC 2012. Please note the structural drawing S1.1 has no information about factored lateral load. Verify during fire conditions the fire wall will not collapse due to glancing blows of debris, thermal shock of firehose stream, thermal expansion of steel members, wind and earthquake pressure and will provide structural integrity as per NBC commentary B. The roof access ladder is also attached to Fire wall so verify integrity of Fire wall and consider Fire wall lateral loads and outward pull as per SB-8 and Ministry of labor requirements.*

Response 5: Please refer S1.1 in the loading design for factored lateral loads expected during fire conditions. The firewall has been designed to support a minimum factored lateral load of 0.5 kPa under fire conditions in accordance with article 4.1.5.17(1)(2) Part 4, Division B of the NBC 2010. Firewall has been designed to support the roof access ladder as per SB-8 and Ministry of labor requirements.

Item 12: *Verify existing building construction along the fire wall is constructed with Noncombustible construction and combustible projection condition is not applicable as Div.B, 3.1.10.7 OBC 2012. Provide structural framing details including load bearing members of the existing building along proposed fire wall.*

Response 12: Existing building roof structure is composed of 89x405 Douglas Fir roof joists complete with tongue & groove wood decking. As per *Div.B, 3.1.4.7.* this roof structure is classified as Heavy Timber construction. Integrity of all/any existing fire separations shall be maintained and verified by architectural. Refer to Architectural for fire rating.

We trust that this is acceptable to you and welcome your comments or questions.

Kalos Engineering Inc.
300 York Boulevard, Hamilton, Ontario L8R 3K6
Tel.: (905) 333-9119, E-mail: info@kaloseng.ca

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

City of Burlington
Building Permit Application 24 008616
143 Townsend Avenue
June 24, 2024

Yours very truly,
Kalos Engineering Inc.

Per: JP Campana, P. Eng.
Sr. Structural Engineer
JPC/QN/vdm

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KALOS ENGINEERING

Email: anil.kumar@burlington.ca

July 10, 2024
Our file: 23199

CITY OF BURLINGTON
Building and By-Law Department
426 Brant Street, P.O. Box 5013
Burlington, Ontario L7R 3Z6

Attention: Anil Kumar, Senior Plans Examiner

Re: City of Burlington - Building Permit Application Status Report Responses
143 Townsend Avenue, Burlington – Permit Application Number 24 008616

Dear Anil,

In response to our discussion on dated July 5th, 2024 pertaining to 143 Townsend Avenue, Burlington, we provide the following response to comments related to the structure.

A 190mm, lightweight, cantilevered, 2HR rated, concrete block firewall along GL E is proposed to isolate the addition from the existing building. The concrete block firewall is stabilized by 5 perpendicular buttress walls complete with footings (Refer to updated S1.3 with the footings shown). The top of the firewall and supporting buttress walls are tied together with a reinforced lintel block. In the event of a fire and the loss of the roof stability for the new addition, the combination of the lintel block and buttresses have been designed to withstand the applied forces and ensure the firewall remains structurally stable and adequate for the designed 2HR fire duration. The firewall has been designed in general accordance with the CCMPA document on firewalls. The condition of the wall collapsing on GL B and the structural impacts to the wall along GL E have been considered and designed for.

The prevention of fire wall collapse shall be achieved as per Div.B, 3.1.10.1(1) OBC 2012. The firewall is designed so that the wall will not be compromised in the event of the failure of the structural system or the blows or debris, thermal expansion, thermal shock of firehose as per the Functional Statements of Part 3 Division A.

Refer to structural drawings on S1.3, for firewall connection detail to satisfy sentence Div.B, 3.1.10.1(1) OBC 2012. Please refer to firewall breakaway connection detail. In addition to resisting normal lateral loads as described in Part 4, the wall has been designed to resist a lateral load of 0.5 kPa under fire condition in accordance with article 4.1.5.17.(1)(2) of Part 4 of the National Building Code 2010 (NBCC-10) and NBC Commentary C.

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City of Burlington

Building Permit Application 24 008616
143 Townsend Avenue
June 24, 2024

The ladder affixed to the firewall is for maintenance extended from the existing low roof to the high new roof elevation. The ladder was designed in accordance with SB-8 for lateral and outward full forces.

The W200x36 beam along GL E is a lintel embedded in the concrete block at a lower elevation. The typical connection for the W310 beam to firewall is detailed on S1.3 “Break-Away Firewall Connection”. All of the W310 beams including those supporting the mechanical units as are designed to break away from the firewall. The W310 beam roof structure is designed to break away from the firewall with the use of the Fero Fire Release Connector. Refer to the attached product diagram. The connector is designed to deflect at 75 degrees Celsius and the Nylon washer in the connector is designed to melt at a temperature of 260 degrees Celsius.

In summary, we have considered various scenarios for the directly and indirectly applied loads to the firewall as mentioned above. The firewall complete with buttresses and footings are a robust and designed accordingly.

We trust that this is acceptable to you and welcome your comments or questions.

Yours very truly,
Kalos Engineering Inc.

Per: JP Campana, P. Eng.
Sr. Structural Engineer
JPC/QN/vdm

Encl:
Fero Break Away
S1.3 Revised.
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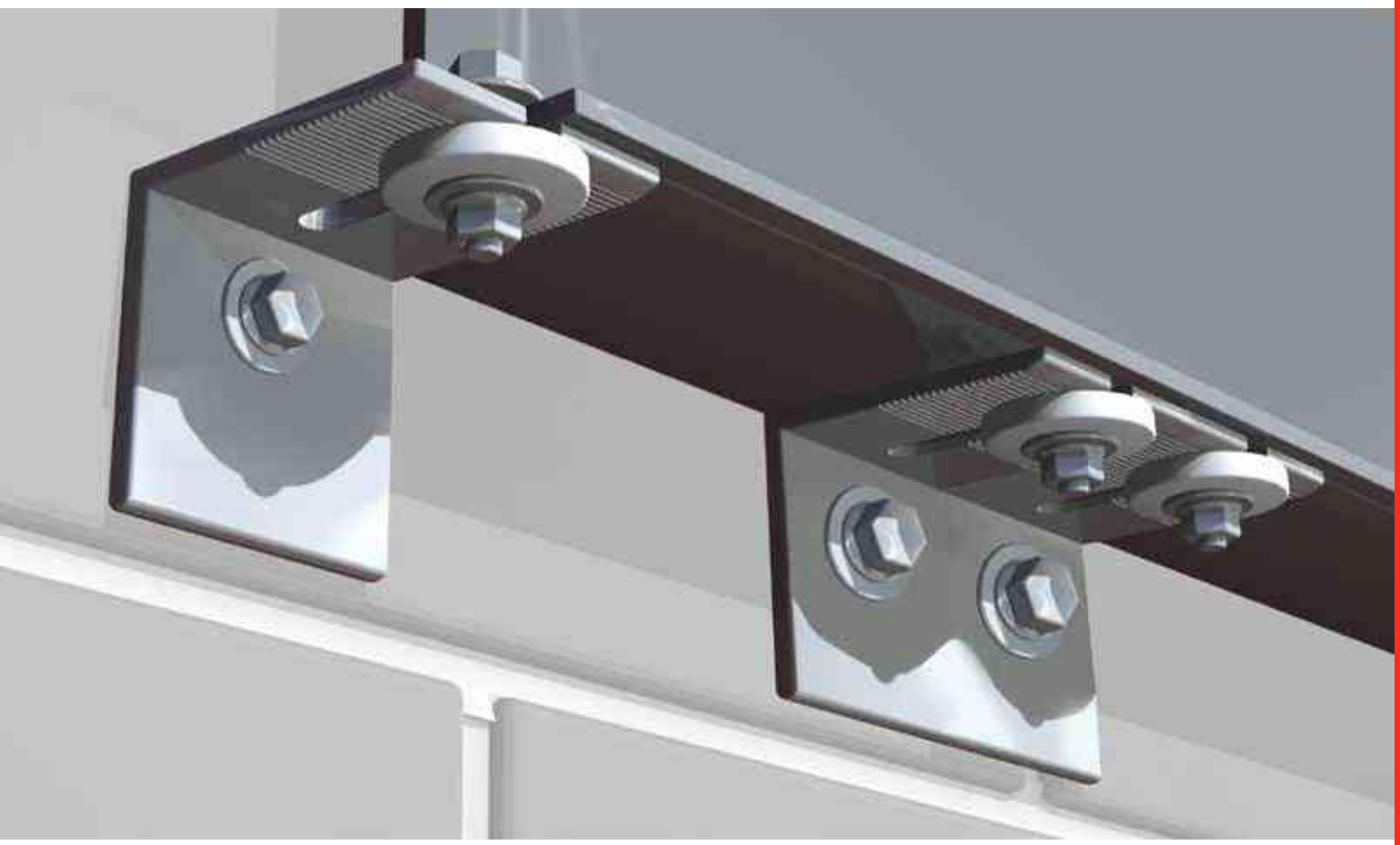
FERO

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

BREAK-AWAY™ FIRE-RELEASE CONNECTORS



MAINTAIN FIREWALL INTEGRITY
EXTEND FIRE ESCAPE TIMES

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BREAK-AWAY™ FIRE-RELEASE CONNECTORS

FERO Break-Away™ Fire-Release Connectors are designed to meet the National Building Code of Canada requirement that in the event of a fire a failing structural member may collapse without causing damage to the firewall.

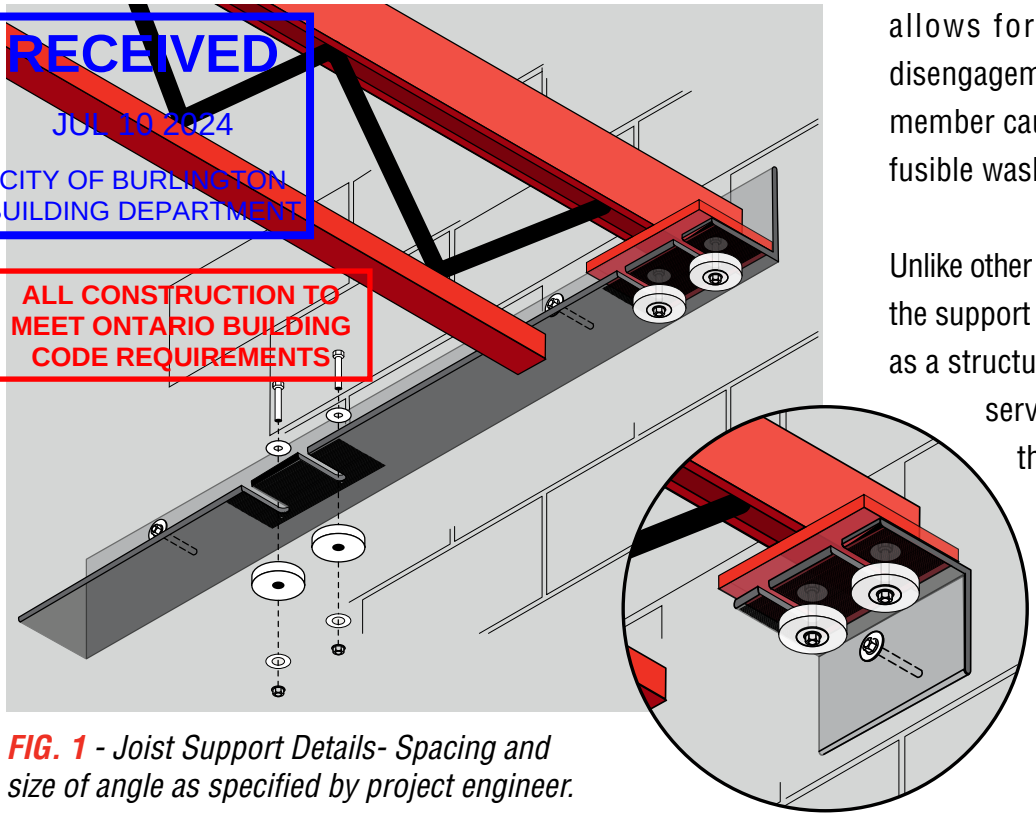

FIG. 1 *- Joist Support Details- Spacing and size of angle as specified by project engineer.*

COMPONENTS

This innovative break-away connector differs from conventional connectors by the use of a slotted support angle that allows for movement and total disengagement of the failing structural member caused by the melting of the fusible washer in the event of a fire.

Unlike other available fire release systems, the support angle of our system functions as a structural member under normal service conditions. Accordingly, the load bearing capacity of ***FERO Break-Away™ Fire-Release Connector*** is not limited by the load bearing capacity of the fusible washer.

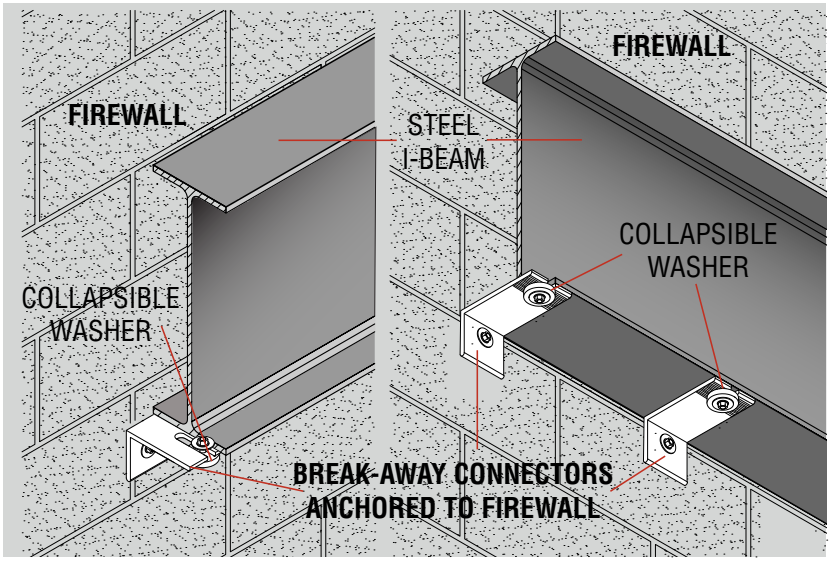

FIG. 2 *– Beam Support Detail. For lateral support of the firewall*

FERO Break-Away™ Fire-Release Connector:

- delays or prevents the collapse of firewalls in the event of a fire
- increases the fire escape time for occupants and firefighters
- minimizes the damage caused by fire
- maintains the structural capacity of the connection under normal service conditions.

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INSTALLATION

FERO Break-Away™ Fire-Release Connectors consist of:

a) a support steel angle connected to the firewall for securing a floor or ceiling to the firewall and

b) a fusible washer with a lower melting point than the support angle.

The surface of the angle in contact with the washer is grooved for maximum lateral load resistance under normal conditions.

The fusible washer is made of Nylon having a melting point of approximately 260°C, which is much lower than that for the steel support angle. Nylon is commonly used in commercial products and generally has high chemical resistance. It has a heat deflection temperature of 75°C at 1.82 MPa, and a maximum resistance to continuous heat of 120°C, ensuring a satisfactory performance up to the point of fire.

The floor framing members are connected to the masonry firewall by a slotted steel angle that is bolted to the firewall. A fusible washer is placed between the nuts of the bolts securing the framing members and the steel angle. The slots in the angle allow for the movement of the floor framing when the fusible washer is softened or melted during a fire. This movement relieves the lateral stresses caused by the deformation of the framing members in a fire event, and under extreme deformations allows the framing members to disengage from the firewall.

It is beneficial to release the affected structural member from the firewall to separate the heat source from the firewall. This release allows the firewall to remain intact for a longer duration. As a result, firefighters would have sufficient time to prevent the spread of fire to adjacent spaces and occupants would be provided with sufficient time to escape before the firewall is compromised and the fire spreads.

FIG 3 *– Connector Details*

Other manufacturers have attempted to develop fire release systems. However, in all these systems, the anchor/connector is designed to melt in its entirety during a fire, causing total collapse of the structural framing solely due to heat, regardless of whether or not this is necessary to protect the firewall. Another major disadvantage of these systems manufactured by others is that, unlike FERO's system, the structural capacity of their support members is limited because the entire system is made of a material of low melting point.

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Ontario

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

Ministry of Labour

Fixed Access Ladders

Engineering Data Sheet 2-04
Revised: January 1997

Table of Contents

1. Legislative Requirements

1. Section 19 of the Regulations for Industrial Establishments states:

   Where frequent access is required to equipment elevated above or located below floor level, permanent platforms shall be provided with access by a fixed stair or access ladder.

2. Section 18 (1) of the regulation states:

   An access ladder fixed in position shall,

   a. be vertical;
   b. have rest platforms at not more than 9 metre (30 ft) intervals;
   c. be offset at each rest platform;

d. where the ladder extends over 5 metres (16 ft) above grade, floor or landing, have a safety cage commencing not more than 2.2 metres (7 ft) above grade and continuing at least 90 centimetres (36 inches) above the top landing with openings to permit access by a worker to rest platforms or to the top landing;
e. have side rails that extend 90 centimetres (36 inches) above the landing; and
f. have rungs which are at least 15 centimetres (6 inches) from the wall and spaced at regular intervals.

3. Section 18 (2) of the regulation also states that:

   Subsection (1) does not apply to an access ladder on a tower, water tank, chimney or similar structure which has a safety device which will provide protection should a worker using the ladder fall.

2. General

1. Fixed access ladders must be designed, constructed, installed and maintained so as not to endanger a worker, and must be capable of withstanding all loads to which they may be subjected.
   1. Structural design, including attachment methods should be performed by a Professional Engineer.
   2. The minimum design live load imposed by persons should be two loads of 1.1 kN (250 lb) each concentrated between any two consecutive attachments. Each rung in the ladder should be designed for a single concentrated live load of 1.1 kN (250 lb) minimum.
   3. Other loads, such as concentrated loads, loads due to ice, wind, rigging or impact, and dead loads, must be considered in the design.
   4. A safety factor of at least 4:1 should be applied in designing components for normal usage, and at least 10:1 for components supporting fall arrest systems.
2. All parts and surfaces of fixed ladder installations must be free of sharp edges, burrs, or other details that may be hazardous to the person using the ladder.
3. Prevention of unauthorized access may be achieved only by methods which do not compromise the safety or structural integrity of the ladder. For example:
   1. A smooth panel may be locked over the lower rungs.
   2. The bottom portion of an existing ladder must not be cut off for security purposes.
4. Design, condition and surface finish of rungs and side rails must permit secure foothold and handhold. Avoid highly polished surfaces which may become slippery, especially when wet. Avoid designs having rungs with sloping upper surfaces (a condition which may occur when a step-ladder is converted into a fixed ladder).
5. Where access is required to Heating, Ventilating and Air Conditioning (HVAC) or other equipment mounted on a roof or slung under a ceiling, the building design should ensure safe means of access for service or other personnel.
6. Roof access hatches served by fixed ladders must be at least 550 mm (21 5/8 in.) by 900 mm (2 ft 11 in.) on buildings more than 3 stories in building height, where the slope of the roof is less than 1 in 4.
7. When oversized clothing or equipment is anticipated (eg: self contained breathing apparatus), the ladder design should take such needs into consideration. However, dimensional extremes should be avoided to ensure that the ladder remains suitable for normal use.
8. Materials of construction shall be compatible with intended conditions of use. For example:
   - Aluminum ladders must not be used in caustic environments.
   - Ladders made of dissimilar metals should be protected against deterioration due to galvanic or electrolytic corrosion.

- Wooden ladders should not be used in humid environments, or should be protected against deterioration from exposure to moisture.

9. If the distance from the top of a parapet to the roof top exceeds one rung-space (ie: max. 300 mm or 12 inches) a means of climbing to and from the top of the parapet should be provided.
10. Fixed ladders should not be located in areas where the atmosphere creates or contributes to unsafe conditions. For example:
    - where ice may build up or steam may condense on a ladder,
    - where oil-or grease-laden air is present, such as cooking areas in commercial kitchens.

3. Rungs

1. The top of the uppermost rung of a ladder must be level with the top of the access/egress level or landing platform served by the ladder. Where there is a parapet, the access/egress level would be the roof if the parapet is cut to permit passage through the parapet. However, if the parapet is continuous, the access/egress level would be the top of the parapet.
2. Rungs should have a non-slip surface.
3. To accommodate functional or additional safety requirements, dimensions which exceed the minimum specified dimensions in Figures 1, 2 and 3 may be used provided sizes are increased from the minimum specified sizes to maintain the same factor of safety. In the design example attached (Fig. 1, "Typical Steel Access Ladder"), increasing the inside clear width of rungs from 400 mm (16") to 600 mm (24") would require an increase in the rung diameter from 20 mm (3/4") to 25 mm (1").

4. Side Rails

1. Any shape of side rail may be used that provides a uniform gripping surface for the hands of workers using the ladder, as long as the shape permits a power grip.
    1. Side rail shapes that do not permit a power grip should not be used.
    2. The same shape of side rails should be maintained for all ladders in the same length of climb.
2. The minimum size (cross-section) of side rails recommended in this section (4.2) are based on satisfying the design criteria of section 2.1 (above), assuming the maximum spacing of supports specified in section 6.2.4 (below).
    1. For different design loads or support spacing, the minimum size of side rails must be adjusted in accordance with recognized design practice.
    2. The same size (cross-section) of side rails should be maintained for all ladders in the same length of climb.
    3. The minimum size (cross-section) recommended for a steel ladder (subject to normal atmospheric exposures) is 10 mm x 65 mm (3/8 inch x 2½ inch) solid flat-bar stock.
    4. For different materials the minimum recommended size must be adjusted in accordance with recognized design practice.
3. Where it is not practicable to have fixed extensions of side rails above a landing, equivalent provisions must be arranged. Extensions integrated into guardrails, telescoping side rails, extensions incorporated into roof hatches, etc., may be accepted by this Ministry. **Centre-post extensions are not considered acceptable.**

5. Safety Cages

1. With an elevated access, a cage must be provided where the top of the ladder is greater than 5 metres (16 feet) above ground level, roof or floor and where there is a danger of a worker falling from the ladder to the ground level, roof or floor, even if the length of the climb is less than 5 metres (16 ft). (See Fig. 3 and 4.)
    1. An elevated access from a platform having 1.2 metres (48 inches) (or more) clearance between the ladder and any adjacent guard or rail, may utilize a standard cage (as per Figure 3).
    2. An elevated access from a platform having less than 1.2 metres (48 inches) clearance between the ladder and any adjacent guardrail should have a cage continuous with the guardrail on the side(s) with clearance less than 1.2 metres (48 inches) (Figure 4).
2. Cages should be provided with horizontal hoops or bands to help impede the fall of a worker.
3. Cages should not be less than 680 mm (27") in width and should extend not less than 680 mm (27") and not more than 760 mm (30") from the centre-line of the rung (measured on the climbed side of the ladder, horizontally and perpendicular to the rung). These restrictions do not apply to the bottom flare of cages.
4. The inside of cages must be free of obstructions.
5. Cages must be designed to withstand all loads to which they may be subjected.

6. Attachment & Anchoring

1. Structural soundness of the wall, member or piece of equipment to which the ladder is to be attached must be confirmed by a competent person, prior to installation of the ladder.
2. Attachment method (eg: through-bolting, anchoring, welding, etc.) must be rated for the intended structural service and for the type of wall, member or piece of equipment.
    1. Expansion anchors of all descriptions should be avoided with masonry walls, since anchor manufacturers' pull-out ratings are invariably given for poured concrete walls, and cannot be reliably attained in masonry walls.
    2. Through-bolted connections (or equivalent) must be used for masonry walls, and other walls for which there is no anchor manufacturers' pull-out rating. Generally, through-bolted connections should be used wherever practicable.
    3. Attachment and anchor bolts should have a minimum diameter of 12 mm (½ inch).
    4. Maximum spacing of attachment points for a steel ladder with side rails should be 3 m (10 feet). For different materials or extra loads, this maximum spacing must be adjusted in accordance with recognized design practice.
3. To provide an improved margin of safety, there should be two means of anchoring the top of the ladder. This may be accomplished by fastening the side rail extension above the top of the access/egress level to the structure, building or equipment.
4. Modifications to the attachment of the ladder to the structure, building or equipment should be approved by a professional engineer.

7. Platforms

1. Suitable platforms should be provided along a ladder where worker activity is anticipated and where lack of such a platform will incur significant additional hazard to workers. For example:
    - At the top of a ladder on a tower or similar structure, where work of significant duration can be anticipated (such as gathering of emissions information), a work platform should be provided.

- On a roof access ladder, just under the roof hatch, where it can be anticipated that workers encumbered with tools and/or supplies need to unlock a roof hatch, a rest or landing platform should be provided.

2. Rest platforms (per section 1.2.(b), above) may be used for this purpose, where practicable.
3. Minimum total depth of the platform (from climbed side of ladder to guardrail) should be 760 mm (30 inches) and the minimum width of the platform should be 760 mm (30 inches).
4. Self-closing safety gates should be provided on platforms next to a ladder, whenever worker activity near the ladder can be foreseen.

8. Inspection

1. Fixed access ladder installations must be periodically inspected by a competent person for rust, corrosion and structural integrity, and must be maintained in a good condition, not likely to endanger any worker. These inspections should be conducted at least once per year.
2. Records of inspections and maintenance to fixed access ladder systems should be maintained.

9. References

ANSI A14.3 - 1992

America National Standard for Ladders, Fixed - Safety Requirements.

USDOL - OSHA

1910.27 Fixed Ladders

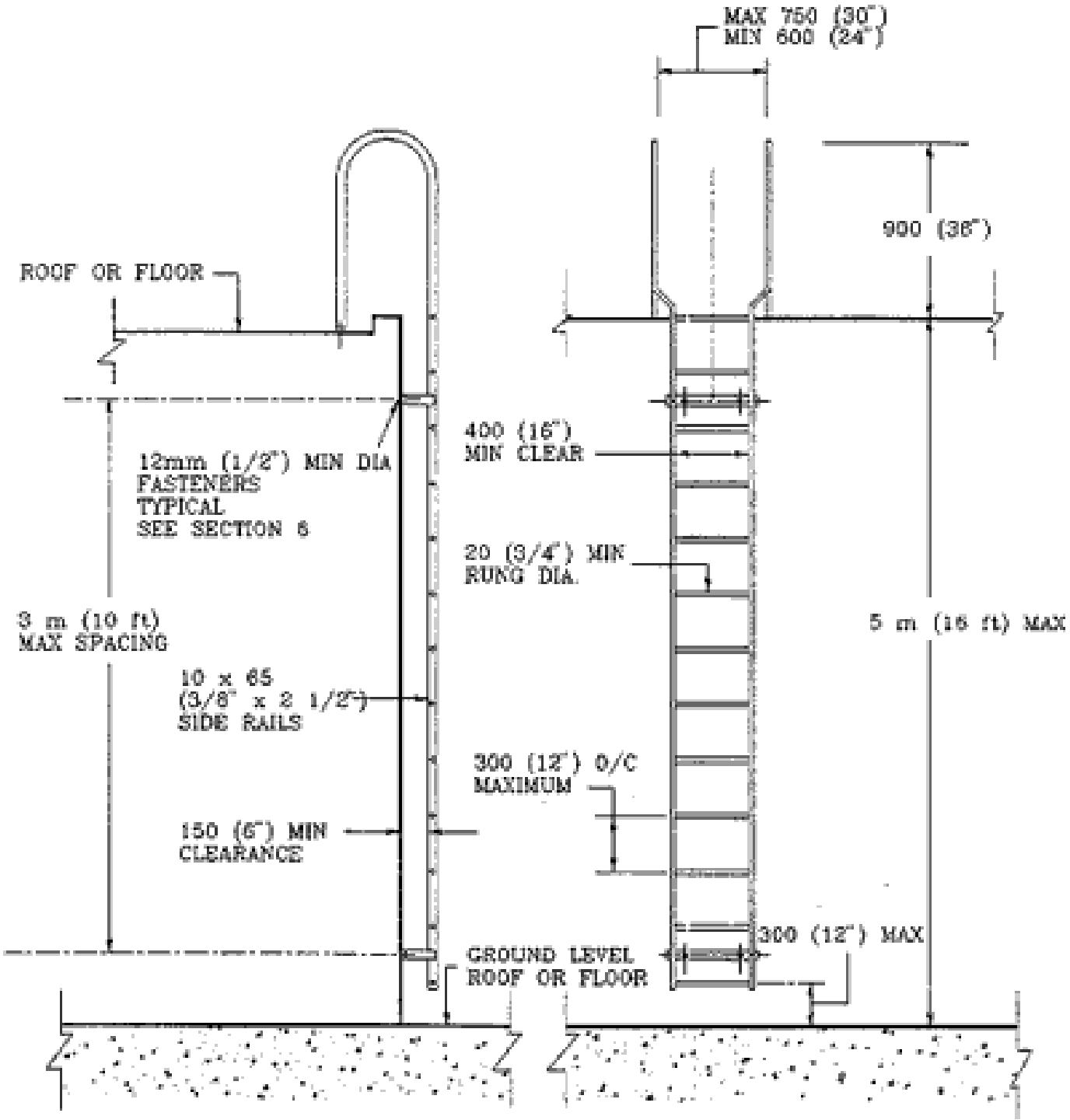
O.B.C. - 1990

Ontario Building Code

Figure 1. Typical Steel Access Ladder

General Arrangement: Cage Not Required

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

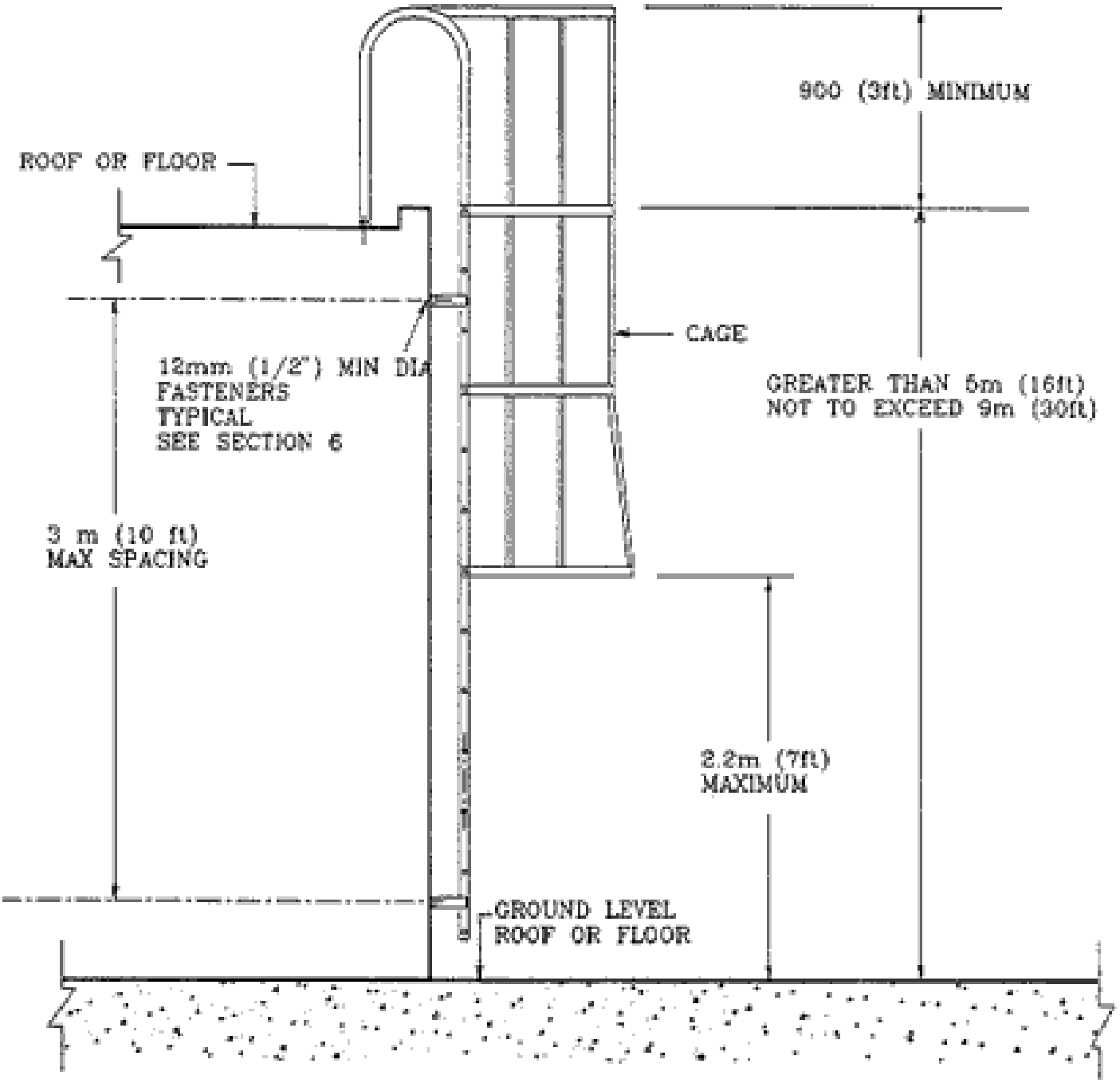


Fixed Access Ladders

ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS

Figure 2. Typical Steel Access Ladder

General Arrangement: Cage Required



Fixed Access Ladders

Figure 3. Typical Steel Access Ladder – Elevated Access

General Arrangement: Cage Requirement for Wide Landings

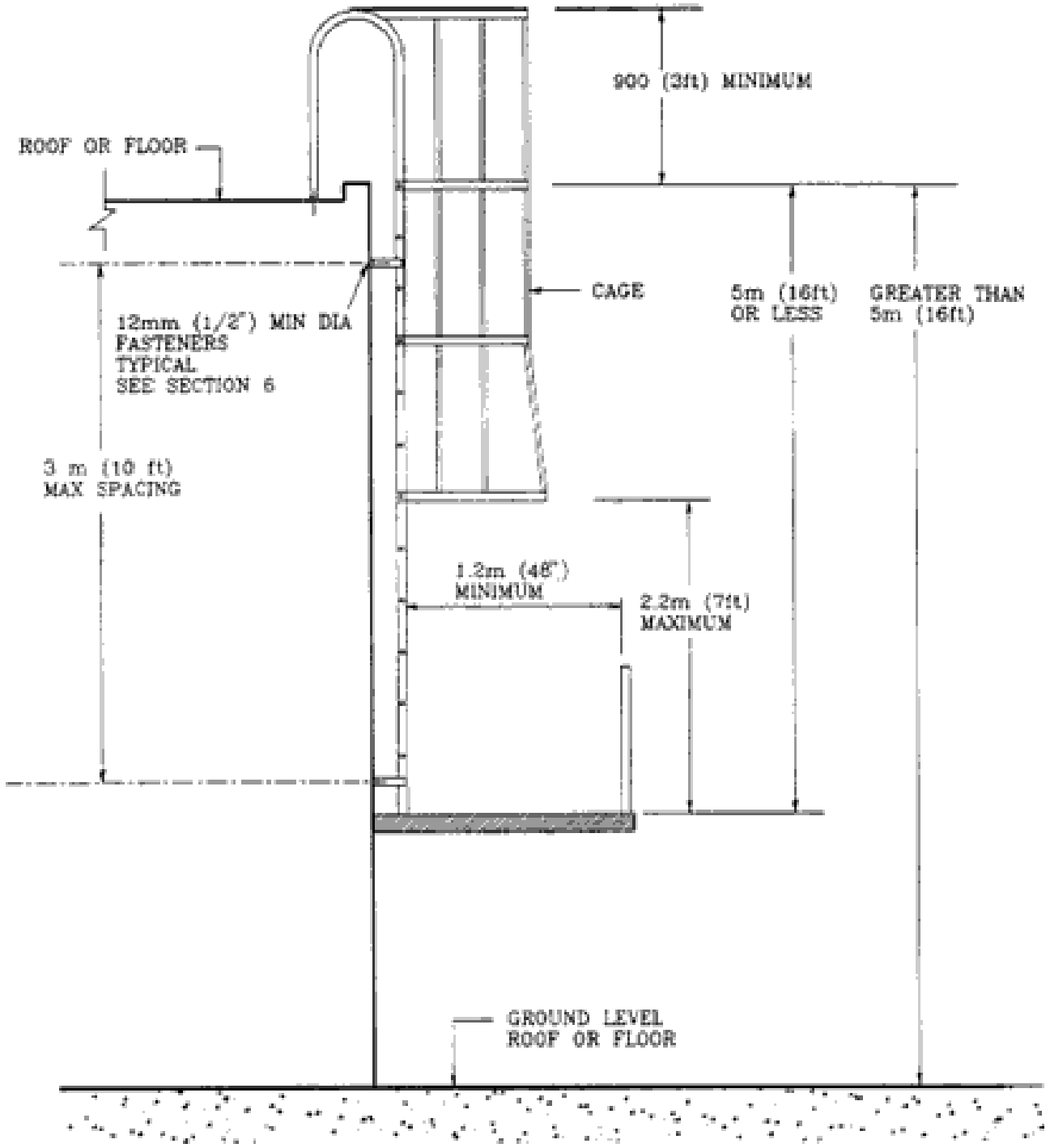
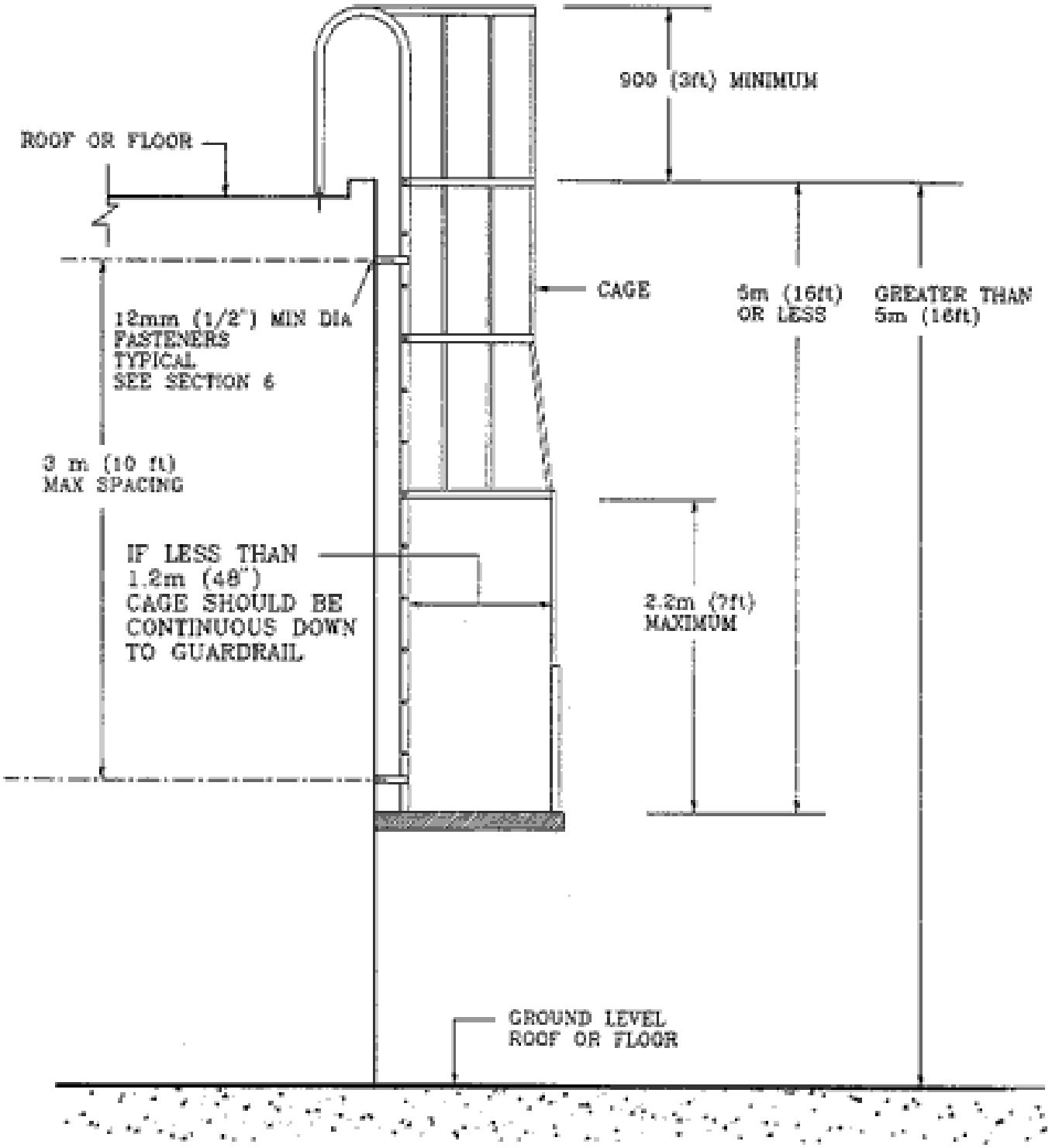


Figure 4. Typical Steel Access Ladder – Elevated Access

General Arrangement: Cage Requirement for Narrow Landings



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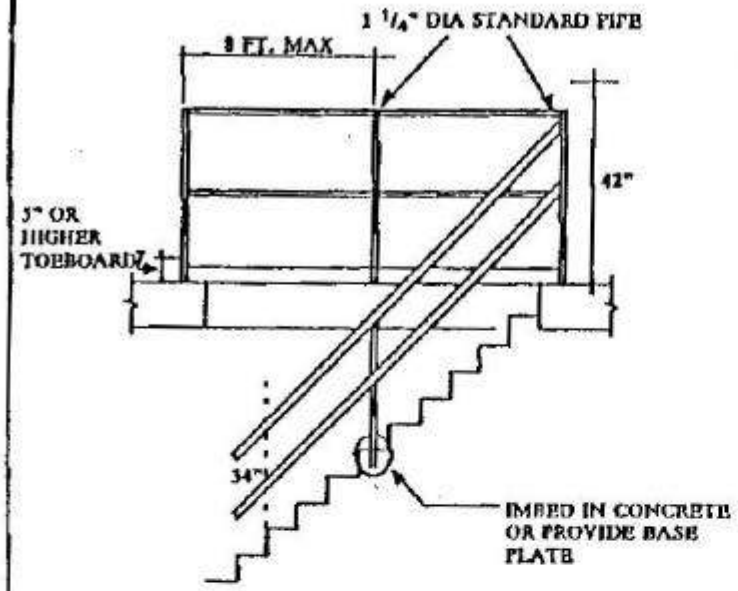
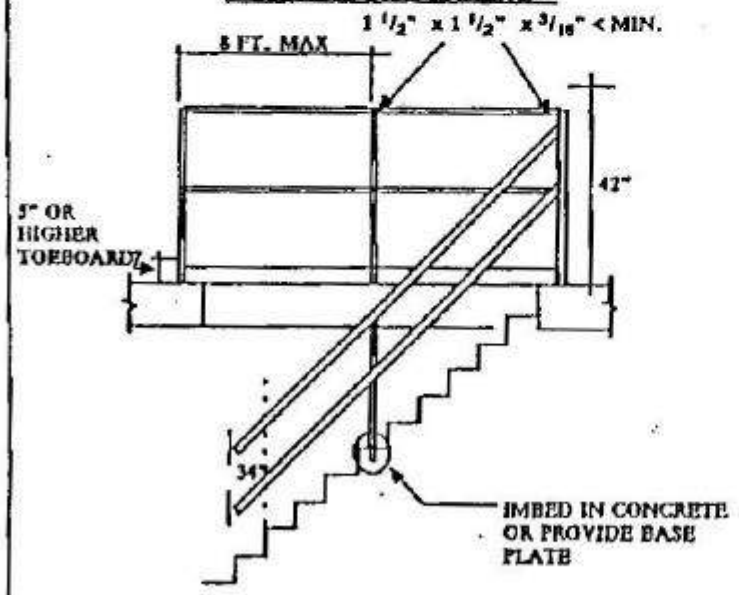
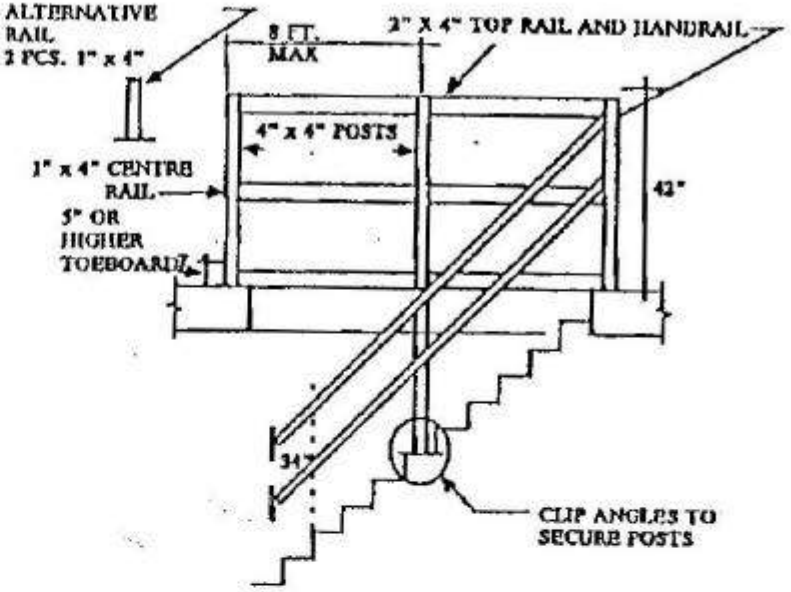
Branch



• TYPICAL PIPE RAILING •



• TYPICAL STRUCTURAL STEEL RAILING •



• TYPICAL WOODEN RAILING •

• NOTES •

1. GUARDRAILS TO BE SECURELY ANCHORED TO FLOOR. WHEN USED AROUND HATCHWAYS, ONE OR MORE SIDES MAY BE HINGED OR IN SOCKETS.
2. CENTRE RAIL TO BE MIDWAY BETWEEN FLOOR AND TOP RAIL. IF SPACE BETWEEN FLOOR AND TOE RAIL IS FILLED IN (SOLID OR WIRE SCREEN), TOPBOARD AND CENTRE RAIL MAY BE OMITTED.
3. IF WIRE SCREEN IS USED BETWEEN FLOOR AND TOP RAIL, NO 12 G.A. OR HEAVIER WIRE AND NOT OVER 2" MESH IS TO BE USED.

RAILINGS AND TOEBOARDS

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ITEM-4(TYP. STRU. STEEL RAIL)/#2/IIISB/SCHEMS

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ALL CONSTRUCTION TO MEET ONTARIO BUILDING CODE REQUIREMENTS