TIME HAS COME FOR RESIDENTIAL FIRE SPRINKLERS

INTRODUCTION: Robert Labre, CBO and Fire Prevention Officer for Head Clara and Maria

My intention is to introduce information on Residential Fire Sprinkler to the council so a Bylaw could be introduced for all NEW SINGLE OR DOUBLE FAMILY DWELLING. THIS MEANS not for seasonal dwelling (camp or cottage) or additions to existing building.

This community has no Fire Department so the only line of defense we have is prevention. We have had many residential fires and injuries in our community. I am sure you must know someone personally who is family or friend and went this horrible experience. In the last 3 years we had one residential home and one seasonal building destroyed with some injuries.

WHAT DOES A RESIDENTIAL SPRINKLER DO?

-HELP TO SAVE LIVES

-REDUCE INJURIES

-SAVE MILLIONS OF DOLLARS IN PROPERTY LOST

A FIRE OCCURS EVERY 24 MINUTES IN CANADA IN SINGLE OR DOUBLE FAMILY DWELLINGS RESULTING IN:

-71% DEATHS

-60% INJURIES

-71% FIRE DAMAGE

VICTIMS ARE UNDER 10 YRS AND OVER 70 YRS

INSTALLATION OF BOTH SMOKE ALARM & SPRINKLER SYTEMS REDUCES THE RISK OF DEATH IN HOMES BY 82%

LIGHT WEIGHT CONSTRUCTION; ALMOST ALL OUR NEW HOMES ARE CONSTRUCTED WITH LIGHT WEIGHT MATERIAL SUCH AS TRUSSES , MDF ,OSB , WOOD LAMINATED BEAMS ETC. WITH CONVENTIONAL LUMBER IT WOULD TAKE 15-20 MINUTES FOR FLASH OVER , IN LIGHT WEIGHT CONSTRUCTION FLASH OVER OCCURES IN 3 MINUTES OR LESS.....

REDUCE PROPERTY LOSS

-CONTAINS & MAY EXTINGUISH A FIRE IN ORDER TO GIVE TIME TO GET OUT OF YOUR HOME

WATER DAMAGE; 14 GAL/MIN VS BURNED BUILDING

-90% OF FIRE IS CONTAINED BY ONE SPRINKLER

CO$T

3% OF TOTAL VALUE OF THE HOME (INSTALLATION AND MATERIAL)

REDUCTION IN INSURANCE:

STATE FARM CO OPERATOR UP TO 10%

HOW DO RESIDENTIAL FIRE SPRINKLERS WORK??

EACH SPRINKLER HEAD COVERS APPROX 12' X 12'

MADE OF CPVC OR PEX PIPE OR COPPER

THE HEAD IS HEAT ACTIVATED AT 135 DEGREES F OR 165 DEGRESS F

ALL PIPING IS BEHIND WALLS AND CEILINGS IN FINISHED AREA

ACTIVATED INDEPENDENTLLY (90 % OF ALL FIRES, ONLY (1) SPRINKLER IS ACTIVATED)

NFPA 13D (NATIONAL FIRE PROTECTION ASS.) REQUIRES 2 SPRINKLER HEADS TO RUN FOR 10 MINUTES (280 GALLONS)

3 KINDS OF SPRINKLERS HEADS - SIDEWALL (ON WALL)

- CONCEALED
- PENDANT

SYSTEM NEEDS TO BE TESTED YEARLY WITH FLOWS, SWITCH & WATER FLOW ALARM BY HOME OWNER

TWO SYSTEMS (FOR WELLS)

1) FULL FLOW: WATER IS CIRCULATED THROUGH THE HOUSE WHEN WATER IS UTILIZED (FLUSHING TOILET)
2) CLOSE LOOP (STAND ALONE): A RESERVOIR (2501-300GAL) AND PUMP IS NEEDED. ONLY UTILIZED FOR SPRINKLER SYSTEM.

ONTARIO BUILDING CODE FOR SET BACKS 9.10.14.3

DIV B –A-3.2.5.7

TWO FILM PRESENTATION ON SPRINKLERS

9.10.14.2. Area and Location of Exposing Building Face

(1) The area of an *exposing building face* shall be,
(a) taken as the exterior wall area facing in one direction on any side of a *building*, and
(b) calculated as,
  (i) the total area measured from the finished ground level to the uppermost ceiling, or
  (ii) the area for each *fire compartment* where a *building* is divided into *fire compartments* by *fire separations* with *fire-resistance ratings* not less than 45 min.

(2) For the purpose of using Table 9.10.14.4. to determine the maximum aggregate area of *unprotected openings* permitted in an irregularly-shaped or skewed exterior wall, the location of the *exposing building face* shall be taken as a vertical plane located so that there are no *unprotected openings* between the vertical plane and the line to which *limiting distance* is measured.

(3) For the purpose of using Table 9.10.14.5. to determine the required type of construction, cladding and *fire-resistance rating* for an irregularly-shaped or skewed exterior wall,
(a) the *exposing building face* is permitted to be divided into any number of portions and the *fire-resistance rating*, type of cladding and percentage of *unprotected openings* limitations is permitted to be determined individually for each portion based on the *limiting distance* for each portion so divided,
(b) the *exposing building face* shall be taken as the projection of the exterior wall onto a vertical plane located so that no portion of the exterior wall of the *building* is between the vertical plane and the line to which the *limiting distance* is established in Clause (a), and
(c) for the purpose of determining the actual area of *unprotected openings* permitted in an exterior wall, the *unprotected openings* shall be projected onto the vertical plane established in Clause (b).

(4) The required *limiting distance* for an *exposing building face* is permitted to be measured to a point beyond the property line that is not the centre line of a *street*, lane or public thoroughfare if,
(a) the owners of the properties on which the *limiting distance* is measured and the *municipality* enter into an agreement in which such owners agree that,
  (i) each owner covenants that, for the benefit of land owned by the other covenantors, the owner will not *construct* a *building* on his or her property unless the *limiting distance* for *exposing building faces* in respect of the proposed *construction* is measured in accordance with the agreement,
  (ii) the covenants contained in the agreement are intended to run with the lands, and the agreement shall be binding on the parties and their respective heirs, executors, administrators, successors and assigns,
  (iii) the agreement shall not be amended or deleted from title without the consent of the *municipality*, and
  (iv) they will comply with such other conditions as the *municipality* considers necessary, including indemnification of the *municipality* by the other parties, and
(b) the agreement referred to in Clause (a) is registered against the title of the properties to which it applies.

(5) Where an agreement referred to in Sentence (4) is registered against the title of a property, the *limiting distance* for *exposing building faces* in respect of the *construction* of any *buildings* on the property shall be measured to the point referred to in the agreement.

9.10.14.3. Inadequate Fire Fighting Facilities

(1) Where there is no fire department or where a fire department is not organized, trained and equipped to meet the needs of the community, the required *limiting distance* determined from Sentences 9.10.14.4.(2), (5) and (6) and Sentence 9.10.14.5.(6), shall be doubled for a *building* that is not *sprinklered*.

Minimum requirements for water supply for fire fighting are relevant mainly to building sites not serviced by municipal water supply systems. For building sites serviced by municipal water supply systems where the water supply duration is not a concern, water supply flow rates at minimum pressures would be the main focus of this Appendix note. However, where municipal water supply capacities are limited, it would be necessary for buildings to have on-site supplemental water supply.

An adequate water supply for fire fighting should be an immediately available and accessible water supply with sufficient volume and/or flow to enable fire department personnel using fire hoses to control fire growth until the building is safely evacuated, prevent the fire from spreading to adjacent buildings, limit environmental impact of the fire, and provide a limited measure of property protection.

The sources of water supply for fire fighting purposes may be natural or man-made. Natural sources may include ponds, lakes, rivers, streams, bays, creeks, springs, artesian wells, and irrigation canals. Man-made sources may include aboveground tanks, elevated gravity tanks, cisterns, swimming pools, wells, reservoirs, aqueducts, tankers, and hydrants served by a public or private water system. It is imperative that such sources of water be accessible to fire department equipment under all climate conditions.

The available water supply would allow arriving fire department personnel to use the water at their discretion when entering a burning building with hose lines. During the search and evacuation operation, hose streams may be needed for fire suppression to limit fire spread. The duration of the water supply should be sufficient to allow complete search and evacuation of the building. Once the search and rescue operations are complete, additional water may be required for exposure protection or fire suppression to limit property damage.

Fire departments serving remote or rural areas often have to respond to a fire with a transportable water supply of sufficient volume for approximately 5 to 10 minutes when using one or two 38 mm hose lines. This would provide minimal hose streams allowing immediate search and rescue operations in small buildings with simple layouts but limited fire suppression capabilities, especially if a fire is already well-established.

For larger more complex buildings, an on-site water supply for fire fighting would be needed to provide an extended duration of hose stream use by the fire department to allow search and evacuation of the building, exposure protection and fire suppression. The volume of this on-site water supply would be dependent on the building size, construction, occupancy, exposure and environmental impact potential, and should be sufficient to allow at least 30 minutes of fire department hose stream use.

The recommendations of this Appendix note are predicated on prompt response by a well equipped fire department using modern fire fighting techniques, and buildings being evacuated in accordance with established building fire safety plans and fire department pre-fire plans. For buildings constructed in areas where fire department response is not expected at all or in a reasonable time, sprinkler protection should be considered to ensure safe evacuation.

Elementary and secondary schools usually have a record of well established and practiced fire safety plans which would allow complete evacuations within 4 minutes. Because of this and the inherent high level of supervision in these buildings, a reduction of the water supply for fire fighting may be considered. It is suggested that the level of reduction should be determined by the local jurisdictional authority based on the resources and response time of the fire department, and the size and complexity of the buildings.

When designing open, unheated reservoirs as sources of fire protection water, a 600 mm ice depth allowance should be included in the water volume calculations, except where local winter temperature conditions result in a greater ice depth (as typically found on local lakes or ponds). As well, make-up water supplies should be provided to maintain the design volumes, taking into account volume loss due to evaporation during drought periods.

1. Buildings not Requiring an On-Site Water Supply
   (a) A building would not require an on-site water supply for fire fighting if the building satisfies the criteria set out in Item 1(b) or Item 1(c) provided that:
      (i) the building is serviced by a municipal water supply system that satisfies Item 3(b), or
      (ii) the fire department can respond with a transportable water supply of sufficient quantity to allow them to