

ITEM	8
MANAGER'S REPORT NO.	72
COUNCIL MEETING	1978 10 16

RE: CORRECTIVE ORDER TO INSTALL A SPRINKLER SYSTEM IN
PAINT SPRAY BOOTHS
(ITEM 9, REPORT NO. 68, 1978 OCTOBER 02)

On 1978 October 02, Mr. Donn Dean appeared before Council in connection with a corrective order which had been issued by the Fire Department. Council also considered a report in which the following recommendations were made:

- "1. THAT Donn Dean Collision Limited be advised to appeal the order issued on 1978 September 25 to the Provincial Fire Marshall in accordance with Burnaby Fire Prevention By-Law No. 5096, Section 1.3.3.1; and
2. THAT a copy of this report be sent to Mr. Donn Dean, 6919 Merritt Avenue, Burnaby, B.C. V5J 4R7."

Following is the motion that was passed by Council on this occasion:

"THAT the Municipal Manager bring forward a report on the questions raised in Council this evening, and that no action be taken on the aforementioned recommendations of the Municipal Manager until such time as said report has been received by Council."

Following is a further report from the Director of Fire Services on this matter.

RECOMMENDATION:

1. THAT the recommendations of the Director-Fire Services be adopted.

* * * * *

1978 OCTOBER 06

FIRE DEPARTMENT

TO: MUNICIPAL MANAGER
FROM: DIRECTOR-FIRE SERVICES
SUBJECT: FIRE PREVENTION BUREAU - CORRECTIVE ORDER ISSUED TO
DONN DEAN COLLISION LIMITED - 6919 MERRITT AVENUE

RECOMMENDATIONS:

1. THAT Council confirm the need for Automatic Sprinkler Systems in paint spray booths and spray rooms, in accordance with the Burnaby Fire Prevention By-law, No. 5096, Section 3.2.8., Spraying and Dipping of Flammable Finishes.
2. THAT a copy of this report be sent to Mr. Donn Dean, 6919 Merritt Avenue, Burnaby, B.C., V5J 4R7.

REPORT

1. Aims and objectives of the Associate Committee on National Fire Codes:

The Associate Committee on National Fire Codes was established by the National Research Council in 1956 at the request of the Canadian Federation of Mayors and Municipalities, the Association of Canadian Fire Marshals and the Canadian Association of Fire Chiefs. The Associate Committee consists of a group of about twenty Canadian citizens appointed for three-year terms by the Council. They sit on the Committee as individuals and not as representatives of any organization. The major task of the Committee is to further the development of codes of procedure for the establishment, organization and operation of municipal fire departments, and to assist in the promotion of uniformity in

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local fire prevention and fire protection measures. Continued study and improvement to maintain fire prevention and protection laws which it produces as satisfactory documents which can be conveniently enacted for local use will always be an important part of the Committee's work.

The Associate Committee is generally representative of all the major fire prevention and protection interests in Canada. Its direct responsibility for the preparation and publication of codes ensures the independence of these documents. The staff of the Council are responsible only for the necessary technical and secretarial work, all of which is done to the direction of the Associate Committee.

The actual work of preparing new codes and of revising existing parts is delegated by the Associate Committee to special technical committees. Fire marshals, fire chiefs, municipal managers, fire fighters, union officials, provincial legislative counsels and municipal affairs officials, fire insurance interests and other technical experts sit upon these committees in order that the resulting documents may represent contemporary practice in the fire service in Canada interpreted as necessary to frame the minimum requirements of which the codes consist. These committees always issue drafts of the new documents which they prepare and these are sent for comment to those who express interest in them.

2. Organizations in Canada who commend the adoption of the National Fire Code of Canada, 1963:

- All Canada Insurance Federation
- Association of Canadian Fire Marshals
- Association of Consulting Engineers of Canada
- Canadian Association of Fire Chiefs
- Canadian Construction Association
- Canadian Federation of Mayors and Municipalities
- Canadian Labour Congress
- Canadian Underwriters' Association
- Engineering Institute of Canada
- Royal Architectural Institute of Canada

3. Extract from the N.F.C. of Canada, 1963 as amended by the Burnaby Fire Prevention By-law, No. 5096, requiring the provision of automatic sprinkler protection in paint spray booths and spray rooms:

- 3.2.8.8. (1) Automatic sprinkler protection shall be provided throughout the SPRAY ROOM on a wet pipe system and the spacing of sprinkler heads shall be such that adequate protection, satisfactory to the AUTHORITY HAVING JURISDICTION, is provided commensurable with the amount of flammables and the construction of the SPRAY ROOM.
- (2) Each SPRAY BOOTH having an area in excess of 9 square feet shall be protected with automatic sprinklers with control provided by readily accessible outside screw and yoke valves for each booth or group of booths.
- (3) Interior of ducts in SPRAY ROOMS shall be protected with automatic sprinklers except where there is danger from freezing when open sprinklers controlled by a normally closed, readily accessible valve may be used.
- (4) Sprinklers in paint SPRAYING AREA shall be protected from coating by paint deposits with a thorough application of grease or a light-weight paper bag.

Amendments

- 3.2.8.8. (1) ...is amended by deleting the words "authority having jurisdiction" and substituting therefore the word "Inspector."
- 3.2.8.8. (5) is further amended by adding the following as subsection (5):
 - (5) No heating system shall be installed in a spraying area without first obtaining a permit and the approval of an Inspector.

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4. Spray Booth Construction

As pointed out in Item 9, Manager's Report No. 68, Council Meeting 1978 October 02, paint spray booths and spray rooms are considered to be high hazard areas by the Associate Committee on National Fire Codes.

To reduce this potential for fire and explosion, spray booth designers and manufacturers have, in accordance with the Committee's recommendations, incorporated the following safeguards:

- a) Interior surfaces to have a smooth and continuous surface.
- b) Floors of spray-booths and the operators working area to be of non-combustible and non-sparking material.
- c) Mechanical ventilation designed to create sufficient air movement to reduce flammable vapour concentrations to a minimum.
- d) Fan blades and casings to be of non-ferrous material.
- e) Electrical equipment including light fixtures to conform to Class 1, Division 1, Hazardous Locations.
- f) All metal parts of spray booths, exhaust ducts and piping systems conveying flammable liquids interconnected and electrically grounded.
- g) Automatic sprinkler protection as contained in paragraph 3.

5. Properties of Solvents & Related Flammable Liquids Used in Paint Spray Booths & Spray Rooms

Paints, varnishes, lacquers and other coating materials usually contain volatile flammable solvents, with the additional hazard such solvents may be added as thinners.

These solvents when exposed to the atmosphere give off vapours which mix with the surrounding air. This mixture of vapours and air can at approximately one (1) percent explode if subjected to a spark or other source of ignition.

Theoretical considerations in determining hazard evaluation is an aid when analysing the explosive potential of solvents, for example one liquid gallon of the average flammable solvent, naphtha, turpentine, etc., will occupy approximately 23 cubic feet when evaporated into vapour form at average room temperature. Therefore, if one gallon of liquid solvent is completely evaporated and thoroughly mixed with the surrounding air the enclosure would be required to have a volume of more than 2,300 cu. ft. (approximately 13' X 13' X 13') to avoid an explosive mixture, if the lower limit of the explosive range of the solvent is one (1) percent in air.

In arriving at the foregoing it should not be overlooked that most solvent vapours are heavier than air, so that one may encounter stratification of vapour mixtures ranging from too rich to too lean to explode when tested at this floor and ceiling level; this factor is most fortuitous, otherwise many more fires and explosions would occur in industries using solvents.

Apart from the foregoing example which I trust illustrates the potential for fire and explosion, it is most obvious and notwithstanding the built-in safety factors, personnel employed in the spraying area are subject to serious flash-fire burns should a means of ignition be present during spray paint operations.

6. Fire Suppression Agents

Flammable liquid fires can be suppressed by a variety of agents, the most common being dry chemical, carbon dioxide, foam and water. Each of these extinguishants provides the trained operator with a variety of options in any given situation.

Dry Chemical

Fundamentally a smothering agent, but with little or no cooling properties.

Carbon Dioxide (CO²)

Designed to smother by excluding oxygen with little or no cooling effect.

A major defect of CO² is its inability to eliminate flash back, a condition quite common in spray booths and occurring when the extinguished flammable vapours make contact with hot metal or heated carbon particles.

Foam Extinguishers (Chemical Type)

120

This type of suppressant is now obsolete having been replaced primarily with dry chemical extinguishers.

Water

Much has been written about the use of water in controlling the emission of heat from burning flammable liquids, so that somewhat erroneously, the general concept has arisen that it has no place in suppressing flammable liquid fires.

To dispel this misconception one must understand the mode of application when sprinklers are activated within a spray booth; essentially a sprinkler system performs four (4) functions:

- (i) detects a fire
- (ii) sounds an alarm
- (iii) attacks the fire
- (iv) restricts the spread of fire

In the performance of these tasks, water is discharged in droplet form which provides for the maximum surface exposure of the water, the end result being that through the latent heat of vapourization, heat is extracted from the burning fuel causing the water to convert into steam with an expansion ratio of 1,700 - 1, which in turn creates a smothering effect, with a resultant insulation of adjacent flammable and combustible materials.

In layman's language, the foregoing may be summarized as follows: the water will absorb 85 calories per gram when heated to boiling point and 540 calories per gram in conversion to steam at this boiling point. If this process is continued, e.g; the water from the sprinkler absorbing more heat than that which is now given off, then the fire will subside to the point of extinguishment.

In summation of the foregoing it is interesting to note the National Fire Code, 1977 Edition, which is expected to be adopted by the Provincial Government within the next twelve months, requires that sprinkler systems be installed in paint spray booths and spray rooms: (QUOTE)

SUBSECTION 5.12.8. FIRE PROTECTION EQUIPMENT

5.12.8.1. Portable extinguishers shall be installed near all SPRAYING AREAS in conformance with Part 6.

5.12.8.2. Automatic sprinkler protection shall be provided throughout the SPRAY ROOM in conformance with the National Building Code of Canada 1977.

5.12.8.3. Sprinkler heads in SPRAY BOOTHS shall be protected with lightweight paper or thin polyethylene bags which shall be replaced before they have accumulated excessive deposits.

The continued inclusion of this requirement must lead one to assume that the decision made by the Associate Committee on the 1963 N.F.C. to include sprinkler systems in spray paint booths and spray rooms was a valid one.

7. Lack of Uniformity in Fire Prevention Regulations

Item 9, Manager's Report No. 68, Council meeting 1978 10 02, ATTACHMENT "C" confirms the lack of uniformity presently existing throughout the lower mainland Fire Departments. Not only in the enforcement of automatic sprinkler system in paint spray booths and spray rooms but in many other important areas.

This situation has unfortunately arisen in my opinion due to many factors:

- a) Lack of leadership from the appropriate Provincial Authority.
- b) Municipal Authorities allocating a low priority to Fire Prevention programs.
- c) Failure on the Department's part to recognize the need for good fire

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Fire Prevention regulations;
to name but a few.

By way of possible explanation as to why Burnaby has continued as a leader in the Fire Prevention field, it should be noted the former Municipal Manager, Mr. H.W. Balfour, was for many years Chairman of the Technical Committee on Municipal Fire Codes, a position which required that he have a thorough knowledge as to the need for adequate Fire Prevention Codes.

With the projected upgrading of the Provincial Fire Marshal's Office, and the enactment of the necessary legislation by the Provincial Government it is fully expected the present lack of uniformity being experienced within the Fire Prevention Bureaus of the lower mainland Fire Departments will be overcome by 1979.

8. Enforcement of the Burnaby Fire Prevention By-law

A review of our records since the adoption of the Burnaby Fire Prevention By-law, 1968 August 05, points to all major agencies having complied with the requirements pertaining to paint spray booths and spray rooms. ATTACHMENT "A" refers.

Naturally there still remains a constant need to ensure that unauthorized operations are not introduced into non-conforming buildings, a task which is carried out in conjunction with other Departments, who have an interest and responsibility in this field, ATTACHMENT "B" refers.

To this end the Fire Prevention Bureau are monitoring all commercial businesses during their normal tour of inspections.


T.G. Nairn
DIRECTOR-FIRE SERVICES

TGN/jlm

ATTACHMENTS: 2

ATTACHMENT "A"

A review of our records denotes the following major operations meet the standards required by By-Law 5096:

Boundary Auto Refinishing Limited
1125 Boundary Road, (rear)
Burnaby, B.C.

B.C. Collisions Ltd.
6101 E. Hastings Street
Burnaby, B.C.

Burnaby Auto Collision Limited
7480 Edmonds Street
Burnaby, B.C.

Capri Auto Body Division of Normich Holdings Ltd.
1246 & 1250 Boundary Road
Burnaby, B.C.

Eagle Ford Sales Limited
3841 Still Creek Road
Burnaby, B.C.

Galaxie Collision Limited
7498 A Griffiths Street
Burnaby, B.C.

INOUYE, Robert
3995 Hastings Street (rear)
Burnaby, B.C.

Marcus-Auto Body & Collision Ltd.
3776 East First Avenue
Burnaby, B.C.

Marrone's Auto Body Limited
6624 E. Hastings Street (rear)

Mid Van Motors Limited
3910 Charles Street
Burnaby, B.C.

Raimondo Enterprises Ltd.
2447 Beta Avenue
Burnaby, B.C.

Roger Bros. Auto Body Ltd.
7092 Curragh Avenue
Burnaby, B.C.

Telford Auto Body Limited
6660 Royal Oak Avenue
Burnaby, B.C.

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TRITHARDT, Cliff
5586 Short Street
Burnaby, B.C.

ZANATTA, Joe - Truck Painting Co. Ltd.
3183 Norland Avenue
Burnaby, B.C.

Bellet Truck Repair Ltd.
3160 E. Norland Ave.
Burnaby, B.C.

PATTISON, Jim Industries Limited
5400 Kingsway
Burnaby, B.C.

Renault North Road Ltd.
4441 North Road
Burnaby, B.C.

Volkswagen Pacific Sales & Service Ltd.
4444 Lougheed Hwy.
Burnaby, B.C.

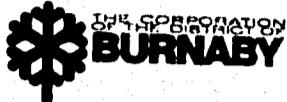
White Motor Corporation of Canada LTD.
4180 Dawson Street
Burnaby, B.C.

Inter-City Motors
4330 Kingsway
Burnaby, B.C.

Freightliner of Canada Limited
4342 Phillips Avenue
Burnaby, B.C.

Fraser Valley Milk Producer's Assoc. (Dairyland)
68 Lougheed Highway,
Burnaby, B. C.

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Attachment "B"

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INTER-OFFICE COMMUNICATION

TO: DIRECTOR - FIRE SERVICES DEPARTMENT:
FROM: CHIEF LICENCE INSPECTOR DEPARTMENT:
SUBJECT: AUTOBODY REPAIR SHOPS

DATE: 1978 October 06

OUR FILE #

YOUR FILE #

Every person conducting a business in the Municipality is required to be in possession of a valid licence issued pursuant to the Trades Licence By-law. Prior to issuing a licence, it is determined that the location at which the proposed business will be conducted is in an appropriate zone in accordance with the Burnaby Zoning By-law, and that the operator and premises are conforming to the applicable regulations of Building, Fire and Health Departments. In some classifications, compliance with applicable Provincial Statutes is determined also.

The operation of autobody repair shops on property zoned as residential is contrary to the Zoning By-law, therefore a business licence cannot be issued. When the Licence Department becomes aware of such an operation, an inspection of the premises is carried out and the operator is advised, in writing, that the activity must be terminated. Failure to comply means that we proceed with a charge for misuse of property under the Zoning By-law, and operating without a licence under the Trades Licence By-law.

Information that reveals the existence of such operations usually originates from neighbors, licenced operators, or observation by staff, and, occasionally from a dissatisfied customer. It should be noted that it can be extremely difficult to prove that a business is being operated if the activity is intermittent. However, investigation of such matters is regularly co-ordinated with other Municipal Departments.

In my opinion, the aforementioned course of action is effective in dealing with illegal auto repair businesses operating on property zoned as residential.


P. Kenzie
CHIEF LICENCE INSPECTOR

PK:aa