GOVERNMENT OF WEST BENGAL
OFFICE OF THE DIRECTOR GENERAL
WEST BENGAL FIRE & EMERGENCY SERVICES
13-D Mirza Ghalib Street, Kolkata- 700 016

Memo No : IND/WB/FES/20172018/11569 DATE: 02/11/2018

From :
The Director
Fire Prevention Wing,
West Bengal Fire & Emergency Services.

To :
Prakash Distillery and Chemicals Co Ltd and Others
Hill Cart Road; Dagapur; Siliguri; Mouza - Baraghria; J.L. no.- 82; L.R. Khatian no. - 75; L.R. Plot no. - 424,425,426,427, 428,429; Pargana - Patharghata
Matigara F.S., Pradhanagar,
Darjeeling - 734003 .

Sub :Fire Safety Recommendation for a proposed construction of B + G + 13 storied building under group Residential at the premises no.- Dagapur; Hill Cart Road; Siliguri; Mouza – Baragharia; J.L. no. – 82; L.R. Khatian no. – 75; L.R. Plot no. – 424, 425, 426, 427, 428, 429; Pargana – Patharghata; P.S. – Pradhan Nagar under the Patharghata Gram panchayat in the district of Darjeeling.

This is in reference to your Application No. IND/WB/FES/20172018/11569,dated 02/11/2018, regarding the Fire Safety Measure for a proposed construction of B + G + 13 storied building under group Residential at the premises no.- Dagapur; Hill Cart Road; Siliguri; Mouza – Baragharia; J.L. no. – 82; L.R. Khatian no. – 75; L.R. Plot no. – 424, 425, 426, 427, 428, 429; Pargana – Patharghata; P.S. – Pradhan Nagar under the Patharghata Gram panchayat in the district of Darjeeling..

The plan submitted by you was scrutinized and marked as found necessary from Fire Safety point of view. In returning one set of plan with recommendation, this is issuing Fire Safety Recommendation in favour of the aforesaid building subject to the compliance of the following fire safety measure.

Recommendation:

1. Construction Part:- i) The whole construction of the proposed building shall be carried out as per approved plan drawings and conforming all the relevant building rules of local authority. ii) No addition / alteration of the building shall be allowed without the concurrence of this department except the construction works of the means of escape. iii) The interior finish decoration of the building shall be made of low flame spread materials conforming I.S. specification. iv) No hazardous articles/Inflammable articles shall be allowed in the building other than official goods. v) All underground floors area not exceeding 500 sq. meter and other floors area not exceeding 750 sq. meter shall be suitably compartmented by separation walls up to ceiling level having at least two hours Fire resisting capacity. Where this is not possible the spacing of sprinklers shall be suitably reduced. vi) All opening of vertical and horizontal service ducts, void gap, and joints should be sealed with Fire resting materials.
2. In case of Basement: - i) In multistoried underground structures, intake ducts may serve all basement levels, but each basement levels and basement compartment shall have separate smoke outlet ducts having the same fire resistance rating as the compartment itself. ii) Lift shaft shall not normally communicate with the underground floors. If, however, lifts are in communication, the lift lobby of the underground floors shall be pressurized with self-closing doors in accordance with relevant standard in this respect. iii) Adequate means of escape from the underground structures shall be provided in accordance with relevant codes and standard specification. iv) Building services such as electrical substation, boiler room operated by electricity, etc. in the basement shall comply with the provisions of Indian Electricity Act / Rules. v) Any basement exceeding 200 sq. mt. and multilevel basement irrespective of area or storage occupancy shall be provided with automatic sprinklers, excluding any area to be used for electric sub-station, air conditioning plant and diesel generator set room. vi) Other manual firefighting equipment such as stand pipe and hose systems, hose reels, fire extinguishers, etc. shall be installed in the basement in accordance with relevant standard for quick extinguishments of fire in its incipient stage. Fire curtain should be provided for compartmentalization of basement. vii) Have adequate arrangement so that surface drainage does not enter the basement, and have adequate arrangement for pumping out water, if necessary. viii) In case the parking area in the basement is more than 1000 sq. meter at least two ramps shall be provided. Wide of each ramp shall not be less than 3.5 meter as per W.B Municipal (Building) Rules, 2016. ix) As per W.B Municipal (Building) Rules, 2016 the slope of the ramp shall not be steeper than one vertical to six horizontal and the distance between the ramps shall be such as may be determined by the Municipal Authority. x) If the basement is not used for car parking purpose, ramps will not have to be required. In such cases at least two staircases of minimum width as peruse group shall have to be provided up to ground floor. Such staircases shall be enclosed type at least two hours fire rating and segregated from the other floors. The staircase(s) shall be installed at the periphery of the basement. The entry of such staircases shall be made at ground level only from open and in such position that smoke from any fire in the basement shall not

obstruct any exit serving upper floors of the building. xi) Basement should not be used as storage of any combustible and hazardous articles and residential purpose. xii) Available passage shall be kept in the basement for easy access of the fire fighter.

3. Ventilation:- i) Sufficient ventilation will be provided at every place of the building. It should be designed as auto opening system in case of emergency. ii) Provision of ventilation at the crown of the central core-duct of the building shall be provided. iii) Effective ventilation of the basement(s) shall be ensured by provident vents with cross sectional area (aggregate) not less than 2.5 percent of the floor area which shall be distributed evenly round the perimeter of the basement. This can be achieved in the form of grills, or breakable stall board lights or pavement lights or by any other suitable means. As a alternative method, a system of air inlets and smoke outlets may be provided at basement floor level and ceiling level respectively. Open able windows if fitted in the external wall shall be fitted with such locks that can be opened by a fire man's axe. iv) Mechanical extractor for smoke venting system from lower / upper basement levels shall also be provided. The design operating mechanism of the system shall be such that the system shall operate on actuation of heat / smoke sensitive detector and sprinklers. It shall also have an arrangement to start it automatically or manually. It shall have an interlocking arrangement, so that the extractors shall continue to operate and supply fans shall stop automatically with the actuation of fire detectors. This ventilation system designed 30 air changes per hour than that of the scheduled air changes for normal operation shall be ensured in the system in case of fire or distress call. Mechanical extractors shall have an alternative source of power supply. v) Smoke venting facilities for safe use of escape routes shall be automatic in action with manual control in addition in the windowless (sealed box type) buildings. vi) It is recommended that smoke exhaust equipment should have a minimum capacity of 12 air changes per hour. vii) Roof vents and vents in walls at or near the ceiling level work satisfactorily as natural draft smoke venting which shall be open normally. If closed, system shall be designed for automatic opening in case of fire, by release of smoke sensitive devices.

viii) The discharge aperatures (opening) of all natural draft smoke vents shall be so arranged as to be readily accessible for opening by fire service people. ix) Natural draft smoke venting can only be substituted by power operated smoke exhausting systems subject to specific permission from fire authority. x) Ventilation in the staircases at each landing and at the top shall be provided at the rate of minimum 0.5 sq. meters per vent opening. The pressurizing mechanism shall operate automatically with the fire alarm.

4. Open Space & approach: - i) The open space surrounding the building shall be conforming the relevant building rules as well as to permit the accessibility and maneuverability of fire appliance to turning facility. The minimum open space surrounded the building should be followed by W. B. Municipal (Building) Rules, 2016 and it should be free from any obstruction at all times. ii) The approach roads shall be sufficiently strong to withstand the load of fire engine weighting up to 45 Metric Ton. iii) The width and height of the access gates into the

premises shall not be less than 4.5miters and 5miters respectively abutting the roads. iv) The open space surrounding the building should be kept free from any obstruction.

5. Means of escape: - i) All the staircases should be from the terrace to the ground floor of the building and shall be negotiable to each other entering into any floor and in no way the travel distance from any point of the building exceeds the limit of 30 meters. The distance to an exit from the dead end of a corridor shall not exceed half of the aforesaid distance. If the corridors are covered with sprinklers the distance of the travel distance may be increased by fifty per cent. Time of evacuation should be as per IS 1644:1988 (i.e. 2.30 minute). ii) The staircases of the building will be enclosed type & construction to be made of bricked or RCC type and the head of stairs shall be ventilated to prevent mushrooming. iii) The staircases of the building shall have permanent vent at the top and open able sashes at each floor level in the external wall of the building and the treads, flights and risers of the staircases shall be made as per W. B. Municipal (Building) Rules, 2016. Corridors of the building and the exit doors should be confirm the relevant building rules. iv) There should be a separate entrance and escape routes from the every floor of the building. Horizontal exits should be given priority. All the staircases shall be extended up to terrace of the building and shall be negotiable to each floor. v) The staircases, corridors & all the means of escape should be free from any obstruction. vi) Fire and smoke doors at the entrances of all the staircase enclosures as marked in the plan at each floor level shall be provided. The F.C.D. shall be of at least one hour Fire resisting wire glass window fitted with self-closing type open able in the direction of escape.

6. In case of Lift:- i) The walls of the lifts enclosures shall be at least two hour fire resisting type and collapsible gate shall not be permitted. The lifts materials should be 4 hours fire resisting type, the door of the lifts should be 1hour fire resisting type, the landing door should be ½ an hour fire resisting type & Area of the lift car should be minimum 1.4 sq. meters. ii) The load bearing capacity of the lifts should be minimum 554 kg each. iii) In case of failure of normal power supply it shall automatically trip over to alternate power supply. This change over of supply could be done through auto-change over switch alternatively; the lift shall be so designed that in case of any power failure, it comes down at the ground level and comes to stand still with door open. iv) A sign shall be posted and maintained on every floor at or near the lifts indicating that incase of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the locations of the stairways. v) One of the lift shall be designed for Fire Lift. The word 'FIRE LIFT' shall conspicuously write at ground floor. vi) Lift and lift lobby communicate to the basement shall have to be pressurized as per guide line of N.B.C. – IV, Annex 'C'.

7. Refuge Area:- National building Code and Standard Specifications recommended the creation of refuge area for buildings more than 24 meters in height at the rate of 15 sq. meters or an area equivalent to 0.3 sq. meters per person to accommodate the occupants of two consecutive floors, whichever is higher, shall be provided as below :- For floors above 24

meter and up to 39 meter – i) One refuge area on the floor immediately above 24 meter. ii) The Refuge area shall be provided on the periphery of the floor or periphery on a cantilever projection and open to air and at least one side projected with suitable railings. It should be constructed by fire resisting materials and protected with self – closing F.C.D. at the entrance from the corridors at staircase lobbies. iii) The position of Refuge areas shall be such so that they are negotiable by the fire services ladder from the ground.

8. Fire Tower:- At least one required means of egress shall preferably be a fire tower if the height of the building will be above 24 meters. The fire towers shall be constructed of walls with a 2 hours fire resistance rating without openings other than the exit doorways, with platforms, landings and balconies having the same fire-resistance rating.

9. In case of Air Condition (IS - 659:1991):- It shall conform to the following:- i) Escape routes like staircases, common corridors, lift lobbies etc. shall not be used as return air passages. ii) Regular checkup of all split type window machine to prevent dust, foreign materials in the air inlet should maintained to prevent spontaneous combustion. iii) In case of central A.C. system, the same shall be incorporated with automatic dampers with fusible link with a view to shut down the system automatically in case of any fire in A.C system. iv) Regular checking, testing, cleaning the Air inlet is must. v) Arrangements shall be made for isolation at the strategic locations by incorporating auto dampers in the Air Conditioning system. vi) Wherever the ducts pass through fire walls of floors, the opening around the ducts shall be sealed with fire resisting materials such as asbestos rope, vermiculite concrete etc. vii) As far as possible metallic ducts shall be used even for the return air instead of space above the false ceiling. viii) The materials used for insulating the ducts system (inside or outside) shall be of non-combustible materials glass wool shall not be wrapped or secured by any materials of combustible nature. ix) Area more than 750 square meter on individual floor shall be segregated by a fire wall and automatic fire dampers for isolation shall be provided. x) Air ducts serving main floor area, corridors etc. shall not pass through the staircase enclosure. xi) The vertical shaft for treated fresh air shall be of masonry construction. xii) The Air Handling Unit room shall not be used for storage of any combustible materials. xiii) The Air Handling Units shall be separated for each floor with the system of air ducts for every individual floors shall be separate and in no way interconnected with the ducting of any other floor. xiv) The air filters for Air Handling Units shall be of non-combustible materials. xv) If the Air Handling Units serve more than one floor, the recommendation given above shall be complied with in addition to the conditions given below: -

A) Proper arrangements by way of automatic fire dampers working on fusible links for isolating all ducting at every floor from the main riser shall be made.

B) When the automatic fire alarm operates the respective Air Handling Units of the air conditioning system shall automatically be switched off. xvi) The system of auto shut down of Air Handling Units shall be incorporated with the auto detection and alarm system. xvii) Inspection panel shall be provided in the main trucking to facilitate the cleaning of ducts of accumulated dust and to obtain access for maintenance of fire dampers. xviii) No

combustible materials shall be fixed nearer than 15 cm. to any duct unless such duct is properly enclosed and protected with non-combustible material (glass wool or spun wool with neoprene facing enclosed and wrapped with aluminum sheeting) at least 3.2 mm. thick and which would not readily conduct heat.

10. Fire Dampers: - i) There shall be located in conditioned are ducts and return air ducts / passages at the following points – 1) At the Fire separation wall. 2) Where ducts / passages enter the central vertical shaft. 3) Where the ducts pass through floors. 4) At the inlet of supply air duct and the return air duct of each compartment on every floor.
ii) The dampers shall operate automatically and shall simultaneously switch off the air handling fans. Manual operation facilities shall also be provided. iii) Automatic Fire dampers shall be so arranged so as to close by gravity in the direction of air movement and to remain rightly closed open operation of a fusible link.

11. Electrical Installation (IS – 694:1946-1982):- i) All electrical installation should be done in accordance with National Electrical Code & Part –VIII "Building Service" Section -2 "Electrical installation" good practice. [4(10)]. ii) The electrical installation including transformers, switch gears, main and miter etc. and the distribution system of the premises shall be made satisfying the code of practice for Fire Safety in general building as laid down in I.S. specification. iii) The vertical and horizontal electrical ducts shall be sealed at each floor level by fire resisting material and the electrical installation shall be adequately protected with ABC & CO2 type extinguisher. iv) All cable should be of FRLS type & all wiring should be done by the copper wire along with appropriate gauge such as 1.2 mm. for light, fan, bulbs etc., 2.5 mm. for television, freeze & washing machine etc., 4 mm. for geezer, air condition machine etc.
12. Alternate power supply:- Arrangement shall be made to supply power with the help of a Generator to operate at least the fire pump, pump for deep tube-well, Fire alarm system, Fire Lift , illumination of stairs, corridors, means of escape etc. in case of normal power failure.
13. Fire Fighting Water: - i) A satisfactory supply of water for the purpose of firefighting shall always be available in the form of underground reservoirs with 2,50,000 liters capacity of stored water for each and every wing with replenishing arrangement @ 1000 liters of water per minutes preferably from two different sources. When this is not practicable, the capacity of the static storage tank shall be increased proportionately. The height of the reservoir should not be exceeding 30 cm from the ground level. Static fire water reservoir shall have overflow and connected with the domestic water reservoir as well as to avoid stagnancy of water. The water reservoir shall be kept full at all times. ii) Suitable number of manholes shall be made available in the static tanks for inspection, repair, cleaning and insertion of suction hose, etc. iii) The covering slab shall be strong enough to withstand the total vehicular load of 45 T. equally divided as a four point load when the slab forms a part of pathway / driveway.
iv) The location of the underground reservoir should be such so that the Fire Service vehicle

may get access to the site of the reservoir with a view to drawn the water from said reservoir. v) If the static water storage tank is in the basement or in a location not approachable for fire engines, provision of fire brigade collecting head with Four number 63mm. diameter (Two number 63mm. diameter for pump with capacity 1400 liters per minute) instantaneous male inlets arranged in a valve box at a suitable point at street level connected to the tank by suitable fixed pipe not less than 150 mm in diameter shall be made to discharge water into the tank when required at the rate of 2250 liters per minute from fire engines.

14. Terrace Tank:- One Terrace Tank of capacity Minimum 5,000 liter should be installed at the every wing of the building complex along with suitable terrace pump & Wet Riser cum Down comer system. Proper replenishing arrangement shall have to be made to keep the Over Head Water Reservoir full at all time.

15. Pumps for firefighting Installation (IS – 12469:1988):- i) The standard code of practice recommended that all water based fixed firefighting installations should be fed by Three separate automatic pumps, one of which should act as stand by. Each pump should be designed to deliver water at required pressure and discharge, taking into accounts the height and volume of the building. ii) The Fire pumps should be provided near the underground static water storage tank with minimum pressure of 3.5 kg. / sq. cm. at terrace level or farthest point. iii) One electric and one diesel pump of capacity 2850 LPM and One electric pump of capacity 180 LPM should be install. iv) The pumps should be installed and arranged in such manner so that it will start automatically due to fall in pressure as prefixed in the installation by installing a Jockey pump. Provision of Jockey pump shall also be made to keep the water-based system under pressurized condition at all times. v) All the pumps shall be so designed as to supply water at the designed pressure and discharge into the water-based system which shall be installed in the buildings. vi) An independent identical pump for the purpose of sprinkler installation shall be made available. All such arrangement shall be done as per above code of practice. vii) All the pumps shall be incorporated with both manual and auto starting facilities, the suction of the pump shall preferably of positive type or in case of negative suction the system shall be wet riser- cum- down comers with suitable terrace pump fitted with overhead tank.

16. External Hydrant System (IS – 13039:1991):- The surrounding of the buildings should be protected by adequate no. of pillar type yard hydrants system as per the IS code of practice. i.e. @ one pillar hydrant per 1000 sq. meters of floor area or as per the vulnerability of the area.

17. Internal Hydrant System (IS – 3844:1989):- The building should be provided with pressurized wet risers of 100 mm. internal diameter pipe line at each staircase with provision of single outlet landing and half landing valves @ one such riser for each 1000 sq. miter of floor area or as per the vulnerability of the area. This system shall be designed in such a manner that it should be kept charged with water at all times and capable of discharge 2850 liters of water per minute at the ground level and 900 liters per minutes at the top mist outlets of the building. In both the cases, the running pressure at the ground level shall be 3.5 kg. /

sq. cm. and 2.5 kg. / sq. cm. at the top most landing valves should be ensured.
18. Hose Reel System (IS - 884:1985):- i) Provision for Hose Reel in conjunction with wet riser shall be made at each floor of the building level from the overhead or underground reservoir through Booster pump conforming the relevant I.S. specification, ii) The Hose reel hose system should be provided at each floor of the buildings. The internal dia. of the said hose reel shall be 19 mm to 32 mm and the discharge capacity not less than 22.5 LPM. While the length of the hose reel not more than 36.50 miters. The distance of such installation should be in such a way that no part of the floor is more than 6 miters distance from a hose nozzle when fully extended.
19. Sprinkler Installation (IS - 9972:2002):- The automatic sprinkler installation shall be provided in the corridors, parking zone, means of escape and all strategic location of the building as per the I.S Code of practice. Alarm gang to be incorporated along with the sprinkler system.
20. First aid firefighting system (IS – 2190:1992):- Sufficient Nos. of Portable fire extinguishers of ABC type, CO2 type and Sand and water bucket should be provided at different places of the buildings and it should be within the reach of all concern as stated in the IS Code i.e. one no. @ 1000 sq. meters floor area or as per the vulnerability of the area.
21. Small gears (IS – 903:1993):- Hose box, 15 miters permoline delivery hose & gun metal short branch half inch dia. @ one set each at or near the entire pillar hydrant, landing valve on all floors of the building should be installed.
22. Detection & Alarm System, Suppression system & Public address system (IS – 2189:1988):- i) Sufficient nos. of manually operated electrical fire alarm system of break glass type call boxes and fitted with alarm like Hooters with public address system, talk back system at different places of the buildings should be installed & connecting with audio visual panel board shall be made in Control Room as per the IS Code of practice. ii) Automatic fire detection system with the help of smoke & heat detectors shall be installed at all places of below and preferably above false ceiling of the buildings. This system shall also be made available in places of rooms where valuables have been kept. Other requirements shall be made in accordance with the IS code of practice. iii) Public address system linked between all floors and control room shall have to establish.
23. Lighting Protection of the Building: - This protection for buildings shall be provided as given in Part-VIII Building Services, Section-2 Electrical installation.
24. Gas Bank (IS – 6044:2000):- In case of any cooking gas bank, the same should be installed conforming serial no. 4.1.5 and 4.1.6 of the aforesaid IS code of practice.
25. General recommendations: - i) A resister for the recording of mock fire drill, evacuation drill, testing and checking of whole firefighting installation, electrical installation should be maintained & shall be liable to produce the same to the authorized Officer of this department on demand. ii) Fire notice for firefighting and evacuation from the building should be provided and shall be displayed at all places of the building as per clause 5.5 of N.B C. iii) Floor No. and Directional Sign of escape route should be displayed prominently as per clause 5.5 of

the N.B Code. (Auto glow type). iv) All the occupants and other peoples shall be conversant with the installed firefighting equipment of the building so that they can operate the same in case of exigency. v) Arrangement shall be made for regular checking, testing and proper maintenance of all firefighting equipment and keep them in good working condition at all time it should be written in the Register. vi) In case there are any Balcony and also Terrace both should be used as refuge area. vii) To eliminate the risk of Fire Hazards, good housekeeping for both insides and outsides of the premises will be strictly maintaining. viii) Mock fire drill and evacuation drill should be done periodically with participation of all occupants. ix) After issuing the work orders of the above mentioned recommendations to any authorized agency from your side for the installations of the same, and on compliance of the same up to the satisfactions of this department & as per the scale as advised from this end, Final Fire Safety Certificate (NOC) shall be issued. x) Fire license to be obtained from The Collector, North Zone, West Bengal Fire & Emergency Services, Siliguri for the hazardous articles in the premises (If Any) which attracts Sec-12 of Fire Service Act.1950 (subsequently amendment) after getting the Final Fire safety certificate. xi) The Fire Service recommendations are issue subject to the free from any Court Case or legal re-encumbrances.

Director
West Bengal Fire & Emergency Services

Signature valid
Digitally signed by ABHIJIT PANDEY
Date: 2018.11.02 15:54:30 IST