VIKING SYSTEM SPECIFICATIONS

WET SYSTEM

The fire sprinkler system shall be a wet pipe type sprinkler system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials utilized shall be UL Listed and Factory Mutual Approved. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

Sprinkler Heads
(Insert applicable product specifications.)

System Control Valve
The wet system control valve shall be a listed indicating type valve. Control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. System control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Alarm Check Valve
The alarm valve shall be UL Listed and Factory Mutual Approved. The alarm valve shall be equipped with a removable cover assembly. The alarm valve shall be listed for installation in the vertical or horizontal position. The alarm valve shall be equipped with gauge connections on the system side and supply side of the valve clapper. The alarm valve shall be equipped with an external bypass to eliminate false water flow alarms. The alarm valve trim piping shall be externally galvanized. Maximum water working pressure to 250 PSI. Alarm Valve manufacturer to be The Viking Corporation. Alarm Valve to be Viking Model J-1.

Retard Chamber
Ported alarm connections on sprinkler riser valve to be piped to a retard chamber to absorb variable pressure surges. Circuit Closer to be installed on retard chamber with proper venting capabilities to eliminate vapor or hydraulic lock against circuit closer. The Retard Chamber manufacturer to be The Viking Corporation. Retard Chamber to be Viking Model C-1.

Water Flow Switch (Optional)
Wet type fire sprinkler systems shall be equipped with the means to provide an alarm when a water flow condition exists. This shall be accomplished through the provision of a vane or paddle type water flow switch affixed to the system riser. Water vane type switch shall be labeled as to the correct orientation of flow when mounted on system piping. If drilling of the system riser is necessary to mount flow switch, the drilled out disc shall be retrieved and attached to the mounting u-bolt of the flow switch. The vane type flow switch shall be equipped with an adjustable delay of audible alarm initiation. Adjustment range shall be from 0 seconds to 120 seconds. Vane type water flow switch shall be Viking Model VSR-S, VSR-2, VSR-2-1/2, VSR-3, VSR-3, VSR-3-1/2, VSR-4, VSR-5, VSR-6, VSR-8, or VSR-10.

Water Flow Indicating Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The alarm pressure switch manufacturer shall be Potter, Model Number PS101A or PS102A..

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The water motor alarm manufacturer to be The Viking Corporation. Water motor alarm model to be Viking Model F-2 or G-2 (G-2 not FM).

Hangers and Supports
System piping shall be substantially supported to the building structure. The installation of hangers and supports shall adhere to the requirements set forth in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Materials used in the installation or construction of hangers and supports shall be listed and approved for such application. Hangers or supports not specifically listed for service shall be designed and bear the seal of a professional engineer.

Underground Piping
Piping and fittings used for the installation of underground water mains shall be listed for such service.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Fire department connection shall be constructed of a brass body with an integral clapper assembly to separate flow between inlets. Fire department connection shall be installed in an area accessible for the first response unit. Fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

WET SYSTEM – EASY RISER

The fire sprinkler system shall be a wet pipe type sprinkler system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials utilized shall be UL Listed and Factory Mutual Approved. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

Sprinkler Heads
(Insert applicable product specifications.)

System Control Valve
The wet system control valve shall be a listed indicating type valve. Control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Riser Check Valve
The riser check valve shall be UL Listed and Factory Mutual Approved. The riser check valve shall be equipped with a removable cover assembly. The riser check valve shall be listed for installation in the vertical or horizontal position. The riser check valve shall be equipped with gauge connections on the system side and supply side of the valve clapper. The riser check valve shall be equipped with a main drain outlet in the body of the valve above the rubber faced clapper assembly. The riser check valve trim piping to be externally galvanized. Maximum water working pressure to 250 PSI. The Riser Check Valve manufacturer to be The Viking Corporation. The Check Valve to be a Viking Easy Riser Swing Check Valve, Model E-1 or F-1.

Water Flow Switch
Wet type fire sprinkler systems shall be equipped with the means to provide an alarm when a water flow condition exists. This shall be accomplished through the provision of a vane or paddle type water flow switch affixed to the system riser. Water vane type switch shall be labeled as to the correct orientation of flow when mounted on system piping. If drilling of the system riser is necessary to mount flow switch, the drilled out disc shall be retrieved and attached to the mounting u-bolt of the flow switch. The vane type flow switch shall be equipped with an adjustable delay of audible alarm initiation. Adjustment range shall be from 0 to 120 seconds. The Vane Type Water Flow Switch shall be Viking Model VSR-F, VSR-2, VSR-2-1/2, VSR-3, VSR-3, VSR-3-1/2, VSR-4, VSR-5, VSR-6, VSR-8, or VSR-10.

Hangers and Supports
System piping shall be substantially supported to the building structure. The installation of hangers and supports shall adhere to the requirements set forth in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Materials used in the installation or construction of hangers and supports shall be listed and approved for such application. Hangers or supports not specifically listed for service shall be designed and bear the seal of a professional engineer.

Underground Piping
Piping and fittings used for the installation of underground water mains shall be listed for such service.

Overhead Piping
Piping utilized for the installation of sprinkler systems shall be listed for the application in which it is to be installed.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

VIKING SYSTEM SPECIFICATIONS

DRY PIPE SYSTEM

The fire sprinkler system installed in areas with temperatures that cannot be reliably maintained above 40°F shall be a dry pipe system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

Dry Pipe Valve
All dry pipe systems shall be equipped with a dry pipe valve. The dry pipe valve shall be a positive latching clapper, differential type dry valve. Dry valve shall be UL Listed and Factory Mutual Approved. Air pressure to water pressure area differential to be approximately 6 to 1. Dry pipe valve trim shall be galvanized. Dry Pipe Valve manufacturer to be The Viking Corporation. The Dry Pipe Valve to be Viking Model F-1 or F-2.

System Control Valve
The dry system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal working pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers
(Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Drains
Where the capacity of trapped sections of piping is less than 5 gallons, an auxiliary drain consisting of not less than a ½" valve and plug shall be provided. Where the capacity of trapped sections of piping is more than 5 gallons, a drain consisting of two 1" valves and a 2" by 12" condensate nipple (drum drip) shall be provided.

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. Riser mounted air compressor listed as an air maintenance compressor. Such compressor shall be a Viking Model F-1 Air Maintenance Compressor.

Air Compressor
(Insert applicable product specification.)

Air Maintenance Device
Air supplies provided for sprinkler systems shall be equipped with an automatic air pressure maintenance device. Air maintenance device shall be equipped with a ¼" air supply bypass with a field adjustable air pressure regulator with a built-in ball check valve to eliminate air loss when system is in service. Air maintenance device shall have a factory setting of 40 PSI. Air Maintenance Device manufacturer to be The Viking Corporation. Air Maintenance Device to be Viking Model D-2.

Quick Opening Device
If water cannot be delivered to the dry system inspectors test connection within a minute of opening, a quick opening device shall be provided on the system riser. The quick opening device shall be of the same manufacturer as the dry pipe valve. The sprinkler system quick opening device shall be an accelerator with an external anti-flooding device. Accelerator manufacturer to be The Viking Corporation. Accelerator to be Viking Model E-1.

Anti-Flooding Device
Accelerators installed on sprinkler systems shall be equipped with an external anti-flooding device. Anti-flooding device shall be of a brass body. Anti-flooding device shall be UL Listed and Factory Mutual Approved. Anti-Flooding Device manufacturer to be The Viking Corporation. Anti-Flooding Device to be Viking Model B-1.

Quick Opening Device (Optional)
Where required, the sprinkler system quick opening device shall be a UL Listed and Factory Mutual Approved accelerator with an internal anti-flooding device. Accelerator shall have an air source from a dependable air source regulated through an approved air maintenance device. Accelerator shall be of the same manufacturer as the dry pipe valve or deluge valve and be listed for use together. Accelerator manufacturer to be The Viking Corporation. Accelerator to be Viking Model D-2.

Anti-Column Device
Dry pipe systems that are using pneumatic devices, which may be subject to water column, shall incorporate an automatic anti-column device. The anti-column device shall have a stainless steel body. The anti-column device shall utilize a stainless steel float ball which rises when water in the system accumulates to the level of the anti-column device. When the float ball rises, water is automatically drained from the system. The anti-column device shall be UL listed and FM approved. The anti-column device shall be manufactured by the Viking Corporation. The anti-column device model to be LD-1.

Pressure Supervisory Switch
Low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. Low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. Low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. Low Air Pressure Alarm Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with system devices. Alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. Alarm pressure switch shall have the ability to be wired for Class A or Class B service. Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. Fire department connection shall be installed in an area accessible for the first response unit. Fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. Check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. Check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. Check valves shall have a working water pressure of 250 PSI. Check Valve manufacturer to be The Viking Corporation. Check Valve to be Viking Model D-1 or G-1.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. Water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. Water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. Water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm Model to be Viking Model F-2.

VIKING SYSTEM SPECIFICATIONS

HP® DRY PIPE SYSTEM

The fire sprinkler systems installed in areas with temperatures that cannot be reliably maintained above 40°F and the system supply pressure is above 175 PSI shall be a HP dry pipe system. System shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

Deluge Valve
HP dry systems shall utilize a 90° pattern type deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a prime shut off valve, which shall provide a positive shutoff to the prime water supply. Inlet and outlet connections of the deluge valve can be flanged by flanged or flanged by grooved, respectfully. The deluge valve shall be UL Listed and Factory Mutual Approved with a ductile iron body. Deluge valve shall have a working pressure up to 250 PSI. Valve trim shall be galvanized, compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1**.**

System Control Valve
The dry system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal working pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers
(Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Drains
Where the capacity of trapped sections of piping is less than 5 gallons, an auxiliary drain consisting of not less than a ½" valve and plug shall be provided. Where the capacity of trapped sections of piping is more than 5 gallons, a drain consisting of two 1" valves and a 2" by 12" condensate nipple (drum drip) shall be provided.

Compressed Air Supply
The air supply compressor should be sized to establish total required air pressure in 30 minutes. The air supply must be regulated, restricted and maintained automatically. The air supply must be regulated to maintain the pressure desired in the system piping. The air pressure settings shall be in accordance with the manufacturer's instructions. The air supply must be restricted to ensure that the automatic air supply cannot replace air as fast as it escapes when a sprinkler on the system operates.

Float Check Valve
The system shall have a float check valve installed between the anti-flood device and the system riser. The float check valve shall allow air to pass from the system riser to the anti-flood device to set the system. When the system discharges the float check valve closes when water flows to the inlet side of the device, protecting the anti-flood device from water pressure on its inlet and protecting the deluge valve from resetting. Float Check Valve manufacturer to be The Viking Corporation. Float Check to be Viking Model A-1.

Air Compressor
(Insert applicable product specification.)

Air Maintenance Device
Air supplies provided for sprinkler systems shall be equipped with an automatic air pressure maintenance device.

The air maintenance device shall be equipped with a ¼" air supply bypass with a field adjustable air pressure regulator with a built-in ball check valve to eliminate air loss when system is in service. The air maintenance device shall have a factory setting of 40 PSI. The Air Maintenance Device manufacturer to be The Viking Corporation. Air Maintenance Device to be Viking Model D-2.

Anti-Flooding Device
Accelerators installed on sprinkler systems shall be equipped with an external anti-flooding device. The anti-flooding device shall be of a brass body. The anti-flooding device shall be UL Listed and Factory Mutual Approved. The Anti-Flooding Device manufacturer to be The Viking Corporation. Anti-Flooding Device to be Viking Model B-1.

Quick Opening Device (Optional)
Where required, the sprinkler system quick opening device shall be a UL Listed and Factory Mutual Approved accelerator with an internal anti-flooding device. The accelerator shall have an air source from a dependable air source regulated through an approved air maintenance device. The accelerator shall be of the same manufacturer as the dry pipe valve or deluge valve and be listed for use together. The Accelerator manufacturer to be The Viking Corporation. Accelerator to be Viking Model D-2.

Pressure Supervisory Switch
Low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Alarm Switch shall be Viking, part number 09472 or 09473.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Viking, part number 09470 or 09471.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. Check Valve manufacturer to be The Viking Corporation. Check Valve to be Viking Model D-1 or G-1.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2.

VIKING SYSTEM SPECIFICATIONS

DELUGE SYSTEM

Hydraulically Operated Deluge System

The fire sprinkler system shall be a hydraulically operated deluge system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

System Control Valve
The system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. System control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Control Valve Supervision
The system control valve shall be secured in the open position by means of a chain and lock or a valve supervisory switch connected to a constantly attended central station.

System Drain
The system main drain shall be sized according to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system main drain shall be piped to an adequately sized drain or out an exterior wall. Drains that terminate out an exterior wall shall be equipped with a galvanized 45° elbow pointed towards an adequately sized splash-block.

Water Control Valve
The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Water Control Valve Trim
The deluge valve trim shall incorporate a pressure operated relief valve (PORV) of the same manufacturer as the deluge valve, to provide a hydraulic means to positively vent the priming water chamber. All deluge valve trim piping and devices shall be listed for use on a deluge system. The deluge valve trim shall be rated for 250 PSI working pressure. The deluge valve trim shall be galvanized. The deluge valve trim shall be equipped with an emergency manual release enclosed in a steel box with appropriate labeling. The deluge valve trim shall be equipped with alarm connections for the electrical or mechanical activation of water flow alarms. The Deluge Valve Trim shall be compatible with a Viking Model E-1 or F-1 Deluge Valve.

Water Control Valve Hydraulic Release System
The deluge valve shall utilize a hydraulic release. One of the following methods shall be incorporated in the release system:

A. Deluge systems utilizing hydraulic release of the deluge valve prime water pressure shall employ a rate-of-rise release detector. The rate-of-rise detector shall activate release when a rise of temperature of 15°F over the period of one minute is experienced. The rate-of-rise release shall have a means of installing a 155°F fixed temperature release on the device. Rate-of-rise release shall be automatically resetting. The device shall be UL Listed and Factory Mutual Approved. Systems utilizing nitrogen as an air supply shall be factory tested for such application. The Rate-of-Rise Release manufacturer to be The Viking Corporation. Rate-of-Rise Release to be Viking Model C-1.

B. Deluge systems utilizing hydraulic pilot line release systems shall incorporate a fixed temperature release device as part of the zone detection. If rate-of-rise detectors are utilized in the pilot line, a fixed temperature release shall be installed in the auxiliary release port of the rate-of-rise release detector. If the pilot line release is to utilize non-variable temperature detection, listed and approved fixed temperature releases shall be installed according to the manufacturer's specifications and installation guidelines. The Fixed Temperature Release manufacturer to be The Viking Corporation. Fixed Temperature Release to be Viking Model M.

C. Deluge systems utilizing pilot line release systems shall incorporate a fixed temperature release device as part of the zone detection. If rate-of-rise detectors are utilized in the pilot line, a fixed temperature release shall be installed in the auxiliary release port of the rate-of-rise release detector. If the pilot line release is to utilize non-variable temperature detection, listed and approved fixed temperature sprinklers shall be installed according to the manufacturer's specifications and installation guidelines. The Fixed Temperature Sprinkler manufacturer to be The Viking Corporation. Fixed Temperature Sprinkler to be Viking Model M.

Water Flow Annunciation

Water flow through the system be announced audibly by one or both of the following methods:

A. Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2 (G-2 not UL/FM).

B. Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Release System Test Location

An auxiliary test device shall be provided if system release devices are located inaccessibly. The auxiliary test device shall be of the same type as utilized in the deluge valves release system.

Trimpac™ Pneumatically Operated Deluge System

The fire sprinkler system shall be a Viking TRIMPAC pneumatically operated deluge system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC™ Deluge Pneumatic Release

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model B-2 can be utilized for pneumatic release deluge systems with the Viking Model E-1 or F-1 Deluge valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Deluge Pneumatic Release Model B-2 Part Number 13788B-2.

System Control Valve

The system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Control Valve Supervision

The system control valve shall be secured in the open position by means of a chain and lock or a valve supervisory switch connected to a constantly attended central station.

System Drain

The system main drain shall be sized according to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. he system main drain shall be piped to an adequately sized drain or out an exterior wall. Drains that terminate out an exterior wall shall be equipped with a galvanized 45° elbow pointed towards an adequately sized splash-block.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Pneumatic Actuator

Preaction or deluge systems utilizing a pneumatic release system shall employ a pneumatically actuated device between the detection and the operating systems. The pressure in the pneumatic release system shall be set at 30 PSI. This device shall actuate a release of water pressure in the deluge valve priming chamber upon release of the detection system. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

Water Control Valve Pneumatic Release System

When the deluge valve utilizes a pneumatic release. One of the following methods shall be incorporated in the release system:

A. Deluge systems utilizing pneumatic release of the deluge valve prime water pressure shall employ a rate-of-rise release detector. The rate-of-rise detector shall activate release when a rise of temperature of 15°F over the period of one minute is experienced. The rate-of-rise release shall have a means of installing a 155°F fixed temperature release on the device. The rate-of-rise release shall be

automatically resetting. The device shall be UL Listed and Factory Mutual Approved. Systems utilizing nitrogen as an air supply shall be factory tested for such application. The Rate-of-Rise Release manufacturer to be The Viking Corporation. Rate-of-Rise Release to be Viking Model C-1.

B. Deluge systems utilizing pneumatic pilot line release systems shall incorporate a fixed temperature release device as part of the zone detection. If rate-of-rise detectors are utilized in the pilot line, a fixed temperature release shall be installed in the auxiliary release port of the rate-of-rise release detector. If the pilot line release is to utilize non-variable temperature detection, listed and approved fixed temperature releases shall be installed according to the manufacturer's specifications and installation guidelines. The Fixed Temperature Release manufacturer to be The Viking Corporation. Fixed Temperature Release Model to be Viking Model M.

C. Deluge systems utilizing pilot line release systems shall incorporate a fixed temperature release device as part of the zone detection. If rate-of-rise detectors are utilized in the pilot line, a fixed temperature release shall be installed in the auxiliary release port of the rate-of-rise release detector. If the pilot line release is to utilize non-variable temperature detection, listed and approved fixed temperature sprinklers shall be installed according to the manufacturer's specifications and installation guidelines. The Fixed Temperature Sprinkler manufacturer to be The Viking Corporation. Fixed Temperature Sprinkler to be Viking Model M.

Water Flow Annunciation

Water flow through the system be shall be announced audibly by one or both of the following methods:

A. Water flow will activate a pneumatic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL/FM)

B. Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Release System Test Location

An auxiliary test device shall be provided if system release devices are located inaccessibly. The auxiliary test device shall be of the same type as utilized in the deluge valves release system.

Pneumatically Operated Deluge System

The fire sprinkler system shall be a pneumatically operated deluge system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

System Control Valve

The system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Control Valve Supervision

The system control valve shall be secured in the open position by means of a chain and lock or a valve supervisory switch connected to a constantly attended central station.

System Drain

The system main drain shall be sized according to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system main drain shall be piped to an adequately sized drain or out an exterior wall. Drains that terminate out an exterior wall shall be equipped with a galvanized 45° elbow pointed towards an adequately sized splash-block.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Water Control Valve Trim

The deluge valve trim shall incorporate a pressure operated relief valve (PORV) of the same manufacturer as the deluge valve, to provide a hydraulic means to positively vent the priming water chamber. All deluge valve trim piping and devices shall be listed for use on a deluge system. The deluge valve trim shall be rated for 250 PSI working pressure. The deluge valve trim shall be galvanized. The deluge valve trim shall be equipped with an emergency manual release enclosed in a steel box with appropriate labeling. The deluge valve trim shall be equipped with alarm connections for the electrical or mechanical activation of water flow alarms. The Deluge Valve Trim shall be compatible with a Viking Model E-1 or F-1 Deluge Valve.

Pneumatic Actuator

Preaction or deluge systems utilizing a pneumatic release system shall employ a pneumatically actuated device between the detection and the operating systems. The pressure in the pneumatic release system shall be set at 30 PSI. This device shall actuate a release of water pressure in the deluge valve priming chamber upon release of the detection system. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

Water Control Valve Pneumatic Release System

When the deluge valve utilizes a pneumatic release, one of the following methods shall be incorporated in the release system:

A. Deluge systems utilizing pneumatic release of the deluge valve prime water pressure shall employ a rate-of-rise release detector. The rate-of-rise detector shall activate release when a rise of temperature of 15°F over the period of one minute is experienced. The rate-of-rise release shall have a means of installing a 155°F fixed temperature release on the device. The rate-of-rise release shall be automatically resetting. The device shall be UL Listed and Factory Mutual Approved. Systems utilizing nitrogen as an air supply shall be factory tested for such application. The Rate-of-Rise Release manufacturer to be The Viking Corporation. Rate-of-Rise Release to be Viking Model C-1.

B. Deluge systems utilizing pneumatic pilot line release systems shall incorporate a fixed temperature release device as part of the zone detection. If rate-of-rise detectors are utilized in the pilot line, a fixed temperature release shall be installed in the auxiliary release port of the rate-of-rise release detector. If the pilot line release is to utilize non-variable temperature detection, listed and approved fixed temperature releases shall be installed according to the manufacturer's specifications and installation guidelines. The Fixed Temperature Release manufacturer to be The Viking Corporation. Fixed Temperature Release to be Viking Model M.

C. Deluge systems utilizing pilot line release systems shall incorporate a fixed temperature release device as part of the zone detection. If rate-of-rise detectors are utilized in the pilot line, a fixed temperature release shall be installed in the auxiliary release port of the rate-of-rise release detector. If the pilot line release is to utilize non-variable temperature detection, listed and approved fixed temperature sprinklers shall be installed according to the manufacturer's specifications and installation guidelines. The Fixed Temperature Sprinkler manufacturer to be The Viking Corporation. Fixed Temperature Sprinkler to be Viking Model M.

Water Flow Annunciation

Water flow through the system be shall be announced audibly by one or both of the following methods:

A. Water flow will activate a pneumatic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL/FM)

B. Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Release System Test Location

An auxiliary test device shall be provided if system release devices are located inaccessibly. The auxiliary test device shall be of the same type as utilized in the Deluge valves release system.

TRIMPAC™ Electrically Operated Deluge System

The fire sprinkler system shall be a Viking TRIMPAC electrically operated deluge system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC™ Deluge Electric Release

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model B-6 can be utilized for electric release deluge systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Deluge Electric Release Model B-1, part number 13787B-1.

System Control Valve

The system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved or grooved by grooved, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Water Control Valve Release Control Panel

The deluge valve release control panel shall be 120 VAC or 220 VAC powered with a 24 hour D/C backup power supply. The deluge valve release panel shall be capable of accepting cross-zoned detection as the means of system release. The deluge valve release control panel shall conform to N.F.P.A. 70, N.F.P.A. 72 and all other applicable codes. The deluge valve release control panel shall be listed for use with a Viking Model E-1 or F-1 deluge valve. The Deluge Panel shall be a Viking Model VFR-400 Release Control Panel.

Solenoid Valve

An electric solenoid valve shall be utilized to release the priming chamber water pressure. The solenoid valve shall be 24 VAC and conform to N.F.P.A. 70. The Solenoid shall be listed for use with a Viking Model E or F Deluge Valve.

Discharge Devices

(Insert applicable product specification.)

Supplemental Detection System

Electrical devices utilized in the supplemental detection system shall be compatible with the release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. The detection system shall be inspected, tested and maintained in accordance with all applicable standards and codes. (Insert applicable product specification.)

System Piping

System piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
Deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. Fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Electrically Operated Deluge System

The fire sprinkler system shall be an electrically operated deluge system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. All materials installed shall adhere to the manufacturer's installation guidelines.

SYSTEM DEVICES

System Control Valve
The system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Water Control Valve
The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved or grooved by grooved, respectively. The Deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Water Control Valve Trim
The deluge valve trim shall incorporate a pressure operated relief valve (PORV) of the same manufacturer as the deluge valve, to provide a hydraulic means to positively vent the priming water chamber. All deluge valve trim piping and devices shall be listed for use as deluge system. The deluge valve trim shall be galvanized and rated for 250 PSI working pressure. The Deluge Valve Trim shall be compatible with a Viking Model E-1 or F-1 Deluge Valve.

Water Control Valve Release Control Panel
The deluge valve release control panel shall be 120 VAC or 220 VAC powered with a 24 hour D/C backup power supply. The deluge valve release panel shall be capable of accepting cross-zoned detection as the means of system release. The deluge valve release control panel shall conform to N.F.P.A. 70, N.F.P.A. 72 and all other applicable codes. The deluge valve release control panel shall be listed for use with a Viking Model E-1 or F-1 deluge valve. The Deluge Panel shall be a Viking Model VFR-400 Release Control Panel.

Solenoid Valve
An electric solenoid valve shall be utilized to release the priming chamber water pressure. The solenoid valve shall be 24 VAC and conform to N.F.P.A. 70. The Solenoid shall be listed for use with a Viking Model E-1 or F-1 Deluge Valve.

Discharge Devices
(Insert applicable product specification.)

Supplemental Detection System
Electrical devices utilized in the supplemental detection system shall be compatible with the release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. The detection system shall be inspected, tested and maintained in accordance with all applicable standards and codes. (Insert applicable product specification.)

System Piping
System piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
Deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited

unless expressed otherwise.

Fittings
Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. Fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

VIKING SYSTEM SPECIFICATIONS

PREACTION SYSTEMS

Preaction System (Non Interlocked) Varied Detection Method

A preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be released by either an activation of the supplemental detection system or the activation of a sprinkler head on the system. The preaction system riser shall be of a listed and approved assembly. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems.

SYSTEM DEVICES

Water Control Valve
The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Pneumatic Actuator
The preaction or deluge systems utilizing pneumatic release detectors shall employ a pneumatic actuator between the detection and the operating systems. The device shall actuate a release in the deluge valve priming water supply. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. The Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers
Dry pendent sprinklers shall be utilized where sprinklers are placed in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the air supply inlet on the system riser.

Supplemental Detection System
A supplemental detection system shall be provided for all preaction systems. Acceptable supplemental detection devices are:

A. Pneumatic rate-of-rise compensating vent type detector with a fixed temperature release. (Insert applicable product specification.)

A. Pneumatic fixed temperature pilot operated release line. (Insert applicable product specification.)
C. Hydraulic rate-of-rise compensating vent type detector with a fixed temperature release. (Insert applicable product specification.)
D. Hydraulic fixed temperature pilot operated release line. (Insert applicable product specification.)
E. Electric fixed temperature self-restoring releases. (Insert applicable product specification.)
F. Electric smoke detection devices. Smoke detection devices to be compatible with system control panel. (Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The low air pressure supervisory switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Deluge Valve Release Control Panel
The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12 volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Preaction System (Single Interlocked) Varied Detection Methods

A preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by activation of the supplemental detection system only. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the most current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of the Single Interlock Release type.

SYSTEM DEVICES

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Pneumatic Actuator

Preaction or deluge systems utilizing pneumatic release detectors shall employ a pneumatic actuator between the detection and the operating systems. The device shall actuate a release in the deluge valve priming water supply. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. The Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve when electric releases are used as the supplemental detection system. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers

(Insert applicable product specification.)

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the air supply inlet on the system riser.

Supplemental Detection System
A supplemental detection system shall be provided for all preaction systems. Acceptable supplemental detection devices are:

A. Pneumatic rate-of-rise compensating vent type detector with a fixed temperature release. (Insert applicable product specification.)
B. Pneumatic fixed temperature pilot operated release line. (Insert applicable product specification.)
C. Hydraulic rate-of-rise compensating vent type detector with a fixed temperature release. (Insert applicable product specification.)
D. Hydraulic fixed temperature pilot operated release line. (Insert applicable product specification.)
E. Electric fixed temperature self-restoring releases. (Insert applicable product specification.)
F. Electric smoke detection devices. Smoke detection devices to be compatible with system control panel. (Insert applicable product specification.)
G. Other compatible listed electrical detectors.

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve..

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Deluge Valve Release Control Panel
The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with

ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Air Maintenance Device

Air supplies provided for sprinkler systems shall be equipped with an automatic air pressure maintenance device. The air maintenance device shall be equipped with a ¼" air supply bypass with a field adjustable air pressure regulator with a built in ball check valve to eliminate air loss when system is in service. The air maintenance device shall have a factory setting of 40 PSI. The Air Maintenance Device manufacturer to be The Viking Corporation. Air Maintenance Device to be Viking Model D-2.

Trimpac® Preaction System (Single Interlocked) Pneumatic Release

A Viking TRIMPAC Single Interlock Pneumatic Release Preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be released by an activation of the pneumatic release system only. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the most current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of the Single Interlock Release type.

SYSTEM DEVICES

Viking TRIMPAC® Single Interlock Pneumatic Release

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model B-4 can be utilized for pneumatic release single interlocked preaction systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Single Interlock Pneumatic Release Model B-4, part number 13793B-4.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Pneumatic Actuator

Preaction or deluge systems utilizing pneumatic release detectors shall employ a pneumatic actuator between the detection and the operating systems. The device shall actuate a release in the deluge valve priming water supply. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. The Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers

(Insert applicable product specification.)

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.

C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the air supply inlet on the system riser.

Supplemental Detection System
A supplemental detection system shall be provided for the preaction systems. Acceptable supplemental detection devices are:

A. Pneumatic rate-of-rise compensating vent type detector with a fixed temperature release. (Insert applicable product specification.)
B. Pneumatic fixed temperature pilot operated release line. (Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Air Maintenance Device
Air supplies provided for sprinkler systems shall be equipped with an automatic air pressure maintenance device. The air maintenance device shall be equipped with a ¼" air supply bypass with a field adjustable air pressure regulator with a built in ball check valve to eliminate air loss when system is in service. The air maintenance device shall have a factory setting of 40 PSI. The Air Maintenance Device manufacturer to be The Viking Corporation. Air Maintenance Device to be Viking Model D-2.

TRIMPAC® Preaction System (Single Interlocked) Electric Release

A Viking TRIMPAC Single Interlock Electric Release Preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be released by an electric solenoid valve. The electric solenoid valve will release the prime water only upon activation of the supplemental detection system. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Single Interlock Release type.

SYSTEM DEVICES

Viking TRIMPAC® Single Interlock Electric Release

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model B-3 can be utilized for electric release single interlocked preaction systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Single Interlock Electric Release Model B-3, part number 13792B-3.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Detection

The release system shall incorporate as part of the operation of the system, electrical detection system. (Insert applicable product specification.) The detection devices installed shall be compatible with the deluge valve release control panel.

Release Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers
Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. A riser mounted air compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The

water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Preaction System (Single Interlocked) Electric Release Cross-Zone

A preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be released by an electric solenoid valve. The electric solenoid valve will release the prime water only upon activation of both zones of the supplemental detection system. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Single Interlock Release type.

SYSTEM DEVICES

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved or grooved by grooved, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Detection

The release system shall incorporate as part of the operation of the system, a cross-zone detection system. (Insert applicable product specification.) The detection devices installed shall be compatible with the deluge valve release control panel.

Release Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers

(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. A riser mounted air compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Preaction System (Double Interlocked) Pneumatic/Pneumatic Release

A preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by a pneumatic supplemental detection device and valve system piping charged with compressed air. Pneumatic actuators in series in the release line assigned to the pneumatic release system and the system supervisory air pressure will open upon activation of the supplemental detection system and the activation of a sprinkler head on the system piping. The opening of the deluge valve shall not be dependent on the order of activation of the release devices, only that both devices must activate before the deluge valve will open. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Double Interlock Release type.

SYSTEM DEVICES

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Supplemental Detection System:

A supplemental detection system shall be provided for all preaction systems. Acceptable supplemental detection devices are:

A. Pneumatic rate-of-rise compensating vent type detector with a fixed temperature release. Preaction systems utilizing pneumatic release of the deluge valve prime water pressure shall employ a rate-of-rise release detector. The rate-of-rise release shall activate release when a rise of temperature of 15°F over the period of one minute is experienced. The rate-of-rise release shall have a means of installing a 155°F fixed temperature release on the device. The rate-of-rise release shall be automatically resetting. Device shall be UL Listed and Factory Mutual Approved. Systems utilizing nitrogen as an air supply shall be factory tested for such application. The Rate-of-Rise Release manufacturer to be The Viking Corporation. Rate-of-Rise Release to be Viking Model C-1.

B. Pneumatic fixed temperature pilot operated release line. Preaction systems utilizing pneumatic release of the deluge valve prime water pressure shall employ a fixed temperature release device. The fixed temperature release may be a listed fixed temperature release or listed upright sprinkler head. The device shall be UL Listed and Factory Mutual Approved. The Fixed Temperature Release manufacturer to be The Viking Corporation. Fixed Temperature Release to be Viking Model M, or Model M Upright Sprinklers.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers

(Insert applicable product specification.)

Compressed Air Supply

An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet and

a separate air maintenance device for the supplemental detection system.

B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser and a separate air maintenance device for the supplemental detection device.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the air supply inlet on the system riser.
D. A riser mounted air compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

TRIMPAC® Preaction System (Double Interlocked) Electric/Pneumatic Release

A Viking TRIMPAC Double Interlock Electric/Pneumatic Release Preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by an electric solenoid valve and a pneumatic actuator. Electric solenoid valve will open upon activation of the electrical supplemental detection system. Pneumatic actuator shall open upon activation of a sprinkler head on the sprinkler system. The opening of the deluge valve shall not be dependent on the order of activation of the release devices, only that both devices must activate before the deluge valve will open. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Double Interlock Release type.

SYSTEM DEVICES

Viking TRIMPAC® Double Interlock Preaction Electric/Pneumatic Release

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model B-5 can be utilized for electric**/**pneumatic release double interlocked preaction systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Double Interlocked Preaction Electric/Pneumatic Model B-5, part number 13794B-5.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Detection

The release system shall incorporate as part of the operation of the system, a compatible electric detection system. (Insert applicable detection system.) The detection devices installed shall be compatible with the Deluge Valve Release Control Panel.

Release Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no cases less than 175 PSI.

Dry Pendent Sprinklers
Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. A riser mounted compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The

water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Preaction System (Double Interlocked) Electric/Pneumatic Release

A preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by an electric solenoid valve and a pneumatic actuator. Electric solenoid valve will open upon activation of the electrical supplemental detection system. Pneumatic actuator shall open upon activation of a sprinkler head on the sprinkler system. The opening of the deluge valve shall not be dependent on the order of activation of the release devices, only that both devices must activate before the deluge valve will open. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Double Interlock Release type.

SYSTEM DEVICES

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Detection

The release system shall incorporate as part of the operation of the system, a compatible electric detection system. (Insert applicable detection system.) The detection devices installed shall be compatible with the Deluge Valve Release Control Panel.

Release Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no cases less than 175 PSI.

Dry Pendent Sprinklers

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers

(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. A riser mounted compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

TRIMPAC® Preaction System (Double Interlocked) Electric/Pneulectric Release

A Viking TRIMPAC Double Interlock Electric/Pneulectric preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by an electric solenoid valve. Electric solenoid valve will open upon activation of the electrical supplemental detection system and a low air pressure alarm caused by an opening of a sprinkler head. The opening of the deluge valve shall not be dependent on the order of activation of the release devices, only that both devices must activate before the deluge valve will open. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Double Interlock Release type.

SYSTEM DEVICES

Viking TRIMPAC® Double Interlock Preaction Electric/Pneu-lectric Release

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model B-6 can be utilized for electric/pneu-lectric release double interlocked preaction systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Double Interlocked Preaction Electric/Pneu-lectric Model B-6, part number 13796B-6.

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Detection

The detection shall be of the cross-zoned type. The electric detection system and the low air pressure alarm will be required prior to the opening of the normally closed solenoid valve, thereby, releasing the deluge valve prime pressure. Activation of one zone of detectors (electric detector or low air supervisory switch) will cause an alarm in the zone but release will not occur until the second zone is activated.

Release Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid

valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no cases less than 175 PSI.

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. A riser mounted compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 orG-2. (G-2 not UL Listed or FM Approved)

Preaction System (Double Interlocked) Electric/Pneulectric Release

A preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by an electric solenoid valve. Electric solenoid valve will open upon activation of the electrical supplemental detection system and a low air pressure alarm caused by an opening of a sprinkler head. The opening of the deluge valve shall not be dependent on the order of activation of the release devices, only that both devices must activate before the deluge valve will open. The preaction system riser shall be of a listed and approved assembly. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The Preaction System shall be of a Double Interlock Release type.

SYSTEM DEVICES

Water Control Valve

The deluge systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The deluge valve shall be externally resettable by hydraulic means. The deluge valve shall employ a positive vent on the priming line to ensure that the deluge valve will not prematurely reset. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Detection

The detection shall be of the cross-zoned type. The electric detection system and the low air pressure alarm will be required prior to the opening of the normally closed solenoid valve, thereby, releasing the deluge valve prime pressure. Activation of one zone of detectors (electric detector or low air supervisory switch) will cause an alarm in the zone but release will not occur until the second zone is activated.

Release Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no cases less than 175 PSI.

Dry Pendent Sprinklers

Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers

(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.
D. A riser mounted compressor listed as an air maintenance compressor.

Air Compressor
(Insert applicable product specification.)

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, part number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® SUREFIRE® Preaction System (Single Interlocked)

A failsafe preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by an activation of the electrical detection system only. The preaction system shall be of a listed and approved assembly and the manufacturer's components shall not be modified. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The failsafe preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the most current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The failsafe preaction system shall be of the Single Interlock Release type.

Note: If the electrical release system design requires the use of a "cross-zone" configuration additional consideration must be given to the Viking VFR400 Multi-Hazard Release Control Panel and its capabilities. To accomplish a "cross-zone" configuration the system design must designate this function to be provided from the Building Fire Alarm Control Panel (FACP). The initiating devices for area protected by the SUREFIRE preaction system shall be attached to the building (FACP) in a cross zoned configuration. Upon activation of the "cross-zoned" detection the (FACP) will send the initiating signal to input number 1 on the SUREFIRE Release Panel and activate the system.

SYSTEM DEVICES

Viking TRIMPAC® Single Interlock Preaction

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model D-1 can be utilized for single interlocked preaction systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Double Interlocked Preaction Pneumatic Model D-1, part number 13798D-1.

Water Control Valve

The deluge or preaction systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The Deluge valve shall be capable for installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Pneumatic Actuator

Preaction or deluge systems utilizing pneumatic release detectors shall employ a pneumatic actuator between the detection and the operating systems. The device shall actuate a release in the deluge valve priming water supply. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. The Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve when electric releases are used as the supplemental detection system. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve

The failsafe preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers
Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the air supply inlet on the system riser.

Supplemental Detection System
A supplemental detection system shall be provided for all preaction systems. Acceptable supplemental detection devices are:

A. Electric fixed temperature self-restoring releases. (Insert applicable product specification.)
B. Electric smoke detection devices. Smoke detection devices to be compatible with system control panel. (Insert applicable product specification.)
C. Other compatible listed electrical detectors.

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm

Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials

and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Deluge Valve Release Control Panel

The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Air Maintenance Device

Air supplies provided for sprinkler systems shall be equipped with an automatic air pressure maintenance device. The air maintenance device shall be equipped with a ¼" air supply bypass with a field adjustable air pressure regulator with a built in ball check valve to eliminate air loss when system is in service. The air maintenance device shall have a factory setting of 40 PSI. The Air Maintenance Device manufacturer to be The Viking Corporation. Air Maintenance Device to be Viking Model D-2.

TrimPac® SUREFIRE® Preaction System (Double Interlocked)

A failsafe preaction system shall be provided. The method of release of the deluge valve priming water pressure shall be by an activation of the electrical detection system only. The failsafe preaction system shall be of a listed and approved assembly and the manufacturer's components shall not be modified. The system riser shall be equipped with a rubber seated check valve downstream of the deluge valve and prior to the supervisory air connection. The preaction system shall be provided with all necessary appurtenances to complete the system. The system shall be installed in conformance with the most current Edition of N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The failsafe preaction system shall be of the Double Interlock Release type.

Note: If the electrical release system design requires the use of a "cross-zone" configuration additional consideration must be given to the Viking VFR400 Multi-Hazard Release Control Panel and its capabilities. To accomplish a "cross-zone" configuration the system design must designate this function to be provided from the Building Fire Alarm Control panel (FACP). The initiating devices for area protected by the SUREFIRE preaction system shall be attached to the building (FACP) in a cross zoned configuration. Upon activation of the "cross-zoned" detection the (FACP) will send the initiating signal to input number 1 on the SUREFIRE Release Panel and activate the system.

SYSTEM DEVICES

Viking TRIMPAC® Double Interlock Preaction

The deluge valve trim shall be a trim package for a deluge valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a deluge valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model D-2 can be utilized for double interlocked preaction systems with the Viking Model E-1 or F-1 Deluge Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Double Interlocked Preaction Pneumatic Model D-2, part number 13799D-2.

Water Control Valve

The deluge or preaction systems shall utilize a 90° pattern or straight-through pattern type of deluge valve. The inlet and outlet connections of deluge valve can be flanged by flanged, flanged by grooved, grooved by grooved or thread by thread, respectively. The deluge valve shall be capable of installation in the vertical or horizontal position. The deluge valve shall be UL Listed and Factory Mutual Approved. The deluge valve shall have a working pressure of 250 PSI. The valve trim shall be compatible and shall be installed following the manufacturer's specifications. The Deluge Valve manufacturer to be The Viking Corporation. Deluge Valve to be Viking Model E-1 or F-1.

Pneumatic Actuator

Preaction or deluge systems utilizing pneumatic release detectors shall employ a pneumatic actuator between the detection and the operating systems. The device shall actuate a release in the deluge valve priming water supply. The actuator of the pneumatic release system shall be UL Listed and Factory Mutual Approved for use with the deluge valve installed. The Pneumatic Actuator manufacturer to be The Viking Corporation. Pneumatic Actuator to be Viking Model H-1.

Solenoid Valve

The deluge valve priming water release device shall be an electrically operated solenoid valve when electric releases are used as the supplemental detection system. The solenoid valve shall be constructed of a ½" brass body with a stainless steel core tube, core, plugnut and springs. The solenoid valve shall have a maximum working pressure of 250 PSI. The solenoid valve shall be UL Listed for its intended use. The Solenoid Valve shall be listed for use with Viking Model E or F Deluge Valves and Viking Model H or J Flow Control Valves.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

Dry Pendent Sprinklers
Dry pendent sprinklers shall be utilized where the sprinklers are in the pendent position. (Insert applicable product specification.)

Brass Upright Sprinklers
(Insert applicable product specification.)

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the air supply inlet on the system riser.

Supplemental Detection System
A supplemental detection system shall be provided for all failsafe preaction systems. Acceptable supplemental detection devices are:

A. Electric fixed temperature self-restoring releases. (Insert applicable product specification.)
B. Electric smoke detection devices. Smoke detection devices to be compatible with system control panel. (Insert applicable product specification.)
C. Other compatible listed electrical detectors.

System Check Valve
Check valves shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve to be Viking Model F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

Pressure Supervisory Switch
A supervisory air pressure shall be maintained on all preaction systems with 20 sprinklers or more on the system piping. A low air pressure alarm will activate by way of a pressure supervisory alarm pressure switch. The low air pressure alarm switch shall be compatible with system devices. The low air pressure alarm switch enclosure shall be UL Listed and Factory Mutual Approved for the application in which it is used. The low air pressure alarm switch shall have the ability to be wired for Class A or Class B service. The Low Air Pressure Supervisory Switch shall be Potter, model number PS401A or PS402A.

Alarm Pressure Switch
Water flow will activate an alarm by way of an alarm pressure switch. The alarm pressure switch shall be compatible with the system devices. The alarm pressure enclosure shall be UL Listed and Factory Mutual Approved. The alarm pressure switch shall have the ability to be wired for Class A or Class B service. The Alarm Pressure Switch shall be Potter, model number PS101A or PS102A.

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or
accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

Deluge Valve Release Control Panel
The system release panel shall be capable of a dual hazard split release, dual hazard combined release, single hazard cross-zone release, single hazard two-zone release. The release panel shall be equipped with a local tone alarm to annunciate loss of A/C power, system trouble, circuit trouble and low auxiliary D/C power supply. The release panel shall be capable of supervising trouble and alarm audible alarms. The trouble and alarm audible alarms shall be able to be silenced at release panel. The release panel shall be housed in a vented enclosure with ambient temperature compatibility of 32°F to 120°F. The panel enclosure shall be of adequate size to house auxiliary D/C power supply. The auxiliary D/C power supply shall consist of (2) 12-volt lead acid batteries of the same ampere-hour rating. Actual ampere-hour rating to be established by auxiliary D/C power requirement. The Release Panel shall be a Viking VFR400 Multi-Hazard Release Control Panel.

Air Maintenance Device
Air supplies provided for sprinkler systems shall be equipped with an automatic air pressure maintenance device. The air maintenance device shall be equipped with a ¼" air supply bypass with a field adjustable air pressure regulator with a built in ball check valve to eliminate air loss when system is in service. The air maintenance device shall have a factory setting of 40 PSI. The Air Maintenance Device manufacturer to be The Viking Corporation. Air Maintenance Device to be Viking Model D-2.

VIKING SYSTEM SPECIFICATIONS

FIRECYCLE CYCLING SYSTEM

TrimPac® Firecycle® III - Deluge System

The fire sprinkler system shall be of the open sprinkler head deluge design. The deluge system shall be designed to limit the damage, which may be caused by excessive water flow. The deluge system shall be completely automatic and be designed for on/off operation. The method of detection shall be fixed temperature, self-restoring heat detectors. The on/off operation shall cycle when heat detector senses heat regeneration, when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. The strobe and alarm will not deactivate until system is manually reset to normal operation. The deluge system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition. The flow control valve shall incorporate as part of the deluge design a positive venting, pressure operated relief valve (PORV). The deluge valve TrimPac design shall utilize 2 electric solenoid valves; 1 normally open to set the PORV and 1 normally closed to retain the prime water pressure in the priming chamber. System shall be UL Listed and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Cycling Deluge System

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-2 can be utilized for cycling deluge systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Firecycle III Cycling Deluge Model E-2, part number 13802E-2.

Water Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. Valve body to be ductile iron. Valve trim shall be galvanized, compatible and listed for valve. Flow control valve shall be listed for a working pressure of not less than 250 PSI (17 BAR). Flow control valve shall be UL Listed and Factory Mutual Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve to be Model H-1 or J-1.

Firecycle lll Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle lll system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle lll Detector

The normally closed detectors utilized in the detection system of the Firecycle lll deluge system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle lll deluge system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800°F,

indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. Detector utilized in Firecycle lll Deluge System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector lll Cable Installed Without Conduit
Where local regulations permit, detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 04632A.

Firecycle Detector lll Cable Installed In Conduit
Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". The cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices
(Insert applicable product specification)

Detection System
The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping
System piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. Fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

TrimPac® Firecycle® lll - Wet System

The fire sprinkler system shall be a cycling wet system in design. Cycling wet system shall be designed to limit the damage, which may be caused by excessive water flow. Cycling wet system shall be completely automatic and be designed for on/off operation. The method of detection shall be fixed temperature, self-restoring heat detectors. On/off operation shall cycle when heat detector senses heat regeneration the system will operate, when detector cools and restores the system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Flow control valve shall operate as a check valve, clapper assembly closing on valve seat when higher pressures are present downstream of flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The cycling wet system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition. Flow control valve TrimPac design shall utilize 2 electric solenoid valves; 1 normally open and 1 normally closed. In an operation mode the normally closed solenoid valve shall open allowing the flow control valve priming chamber a reduced pressure zone to expel priming water pressure. Priming water pressure shall be redirected into the supply water stream downstream of the solenoid valves. In an operation mode the normally open solenoid valve shall close and latch closed when a water flow is detected by the riser flow switch. If power is lost to the system release control panel the system shall fail open or "fail safe". System shall be UL Listed and Factory Mutual Approved, and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Cyling Wet System

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-3 can be utilized for cycling wet systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Firecycle III Cycling Wet Model E-3, part number 12936E-3.

Firecycle III Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle lll Detector

The normally closed detectors utilized in the detection system of the Firecycle lll wet cycling system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle lll wet cycling system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800° F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. The detector utilized in Firecycle lll Cycling Wet System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector lll Cable Installed Without Conduit

Where local regulations permit, detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. The cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part

number of 04632A.

Firecycle Detector lll Cable Installed In Conduit

Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". Cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. The cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping

The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers

The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings

Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve

Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. Flow control valve shall be UL Listed and Factory Mutual Approved. Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection

A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve

The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

TrimPac® Firecycle® III - Single Interlocked Preaction

The fire sprinkler system shall be of the cycling single interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self restoring heat detector with a drop-off tab indicating the detector had been exposed to a temperature of 800°F and requires replacement. On/off operation shall cycle when heat detector senses heat regeneration, when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

System shall operate as a preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe" if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized for "fail safe" operation of the system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90 hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

System riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. Check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling single interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. Cycling single interlocked preaction system shall be a Firecycle lll Single Interlocked Preaction System. System shall be UL Listed and Factory Mutual Approved and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Single Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for single interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Single Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle III Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle lll Detector
The normally closed detectors utilized in the detection system of the Firecycle lll cycling preaction system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle lll preaction cycling system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800° F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. The detector utilized in Firecycle lll Cycling Preaction System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector lll Cable Installed Without Conduit
Where local regulations permit, the detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. The cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 04632A.

Firecycle Detector lll Cable Installed In Conduit
Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". The cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices
(Insert applicable product specification)

Detection System
The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping
The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
The preaction sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
The pipe fittings installed on the preaction sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve
Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is

reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve to be Model H-1 or J-1.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve
Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. Valve Model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor
(Insert applicable product specification.)

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Model to be F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® Firecycle® III - Double Interlocked Preaction

The fire sprinkler system shall be of the cycling double interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self-restoring heat detectors with a drop-off tab indicating the detector had been exposed to temperature in excess of 800°F and require replacement. On/off operation shall cycle when heat detector senses heat regeneration, when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

The system shall operate as a double interlocked preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe" if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized in the release system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90 hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

The system riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. The check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling double interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. The cycling single interlocked preaction system shall be a Firecycle lll Double Interlocked Preaction System. The system shall be UL Listed and installed according to the manufacturer's guidelines.

SYSTEM DEVICES

Viking TRIMPAC® Firecycle® III Double Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for double interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Double Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle lll Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Multi-Hazard Release Control Panel.

Firecycle lll Detector
The normally closed detectors utilized in the detection system of the Firecycle lll cycling preaction system shall be fixed temperature, rate compensating detectors listed for use on the Firecycle lll preaction cycling system. The detector shall incorporate a zinc alloy tell-tale tab that shall drop away if the detector is subjected to temperatures of 800° F, indicating that the detector requires replacement. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The mounting box shall be constructed of copper free aluminum with ½" threaded connections and (2) 5/16" mounting lugs. The detector shall withstand 1500°F temperatures for short periods of time without damage. Detector utilized in Firecycle lll Cycling Preaction System shall utilize Viking Model B Firecycle Detectors.

Firecycle Detector lll Cable Installed Without Conduit
Where local regulations permit, detector cable shall have an outer covering consisting of an aluminum sheath having a minimum thickness of 0.035". The outside diameter of detector cable shall be 0.330". The detector cable shall not emit toxic fumes during a fire. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG. The nominal resistance per 1000 Ft. of detector cable, at 77°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 04632A.

Firecycle Detector lll Cable Installed In Conduit
Where local regulations require installation of detector cable in conduit, detector cable shall have a thermoplastic zero halogen jacket for use in conduit. The maximum nominal diameter of shielded detector cable shall be 0.305". The cable insulation jacket shall be constructed of Silicon rubber. The cable utilized to connect detectors utilized in cycling system shall be of a two-wire conductor of a gage wire of 16 AWG bare soft copper. The nominal resistance per 1000 Ft. of detector cable, at 68°F shall be 2.05 Ohms when connected per Firecycle lll installation guidelines. The detector cable shall not propagate a fire. The detector cable shall not emit noxious fumes nor be toxic during a fire. The detector cable shall have the ability to cut to length in the field and spliced. Cable splicing must be made in a conduit box. The Detector Cable shall be manufactured for the Viking Corporation and shall have a part number of 09954.

Discharge Devices
(Insert applicable product specification)

Detection System
Electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping
The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve
Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force

of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve
Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor
(Insert applicable product specification.)

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor alarm shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Model to be F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® Firecycle® lll-OH Cycling Wet System

The fire sprinkler system shall be a cycling wet system in design. Cycling wet system shall be designed to limit the damage, which may be caused by excessive water flow. Cycling wet system shall be completely automatic and be designed for on/off operation. The method of detection shall be fixed temperature, self-restoring heat detectors. On/off operation shall cycle when heat detector senses heat regeneration the system will operate, when detector cools and restores the system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Flow control valve shall operate as a check valve, clapper assembly closing on valve seat when higher pressures are present downstream of flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The cycling wet system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition. Flow control valve trim design shall utilize 2 electric solenoid valves; 1 normally open and 1 normally closed. In an operation mode the normally closed solenoid valve shall open allowing the flow control valve priming chamber a reduced pressure zone to expel priming water pressure. Priming water pressure shall be redirected into the supply water stream downstream of the solenoid valves. In an operation mode the normally open solenoid valve shall close and latch closed when water flow is detected by the riser flow switch. If power is lost to the system release control panel, the system shall fail open or "fail safe". System shall be UL Listed and Factory Mutual Approved, and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Firecycle lll-OH Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III-OH system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Release Control Panel.

Viking TRIMPAC® Firecycle® lll Cyling Wet System

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-3 can be utilized for cycling wet systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Deluge Valve Trim shall be Viking TRIMPAC Firecycle III Cycling Wet Model E-3, part number 12936E-3.

Firecycle lll-OH Detector

The heat sensitive normally closed detectors utilized in the detection system of the Firecycle lll-OH cycling system shall be fixed temperature, rate-compensating detectors listed for use on the Firecycle lll-OH cycling system. The detector shall incorporate a wax heat activated exposure strip, which will discolor at 300°F indicating possible detector damage. The heat probe utilized in the heat detector shall be constructed of stainless steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The conduit box shall be a 4" Octagonal outlet box. The detector utilized in Firecycle lll-OH Cycling System shall utilize Viking Model C Firecycle-OH Detector.

Firecycle Detector lll-OH Cable

The cable used with the Firecycle III-OH system shall be listed power limited fire alarm cable (FPL). The cable shall be listed for a two-hour fire rating when installed in ½" or larger EMT (or conduit). The cable shall meet the 1999 National Fire Alarm Code for survivability and be UL Listed as a NEC type FPL Fire Alarm Cable.

Discharge Devices

(Insert applicable product specification)

Detection System

The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping
The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve
Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. Flow control valve shall be UL Listed and Factory Mutual Approved. Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

TrimPac® Firecycle® III-OH Cycling Single Interlocked Preaction

The fire sprinkler system shall be of the cycling single interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self restoring heat detector with a drop-off tab indicating the detector had been exposed to a temperature of 800°F and requires replacement. On/off operation shall cycle when heat detector senses heat regeneration; when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

System shall operate as a preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. Flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe", if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized for "fail safe" operation of the system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90-hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

System riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. Check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling single interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. Cycling single interlocked preaction system shall be a Firecycle lll-OH Single Interlocked Preaction System. System shall be UL Listed and Factory Mutual Approved, and installed according to the manufacturer's installation guidelines.

SYSTEM DEVICES

Firecycle III-OH Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III-OH system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Release Control Panel.

Viking TRIMPAC® Firecycle® III Single Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for single interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Single Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle lll-OH Detector
The heat sensitive normally closed detectors utilized in the detection system of the Firecycle lll-OH cycling system shall be fixed temperature, rate-compensating detectors listed for use on the Firecycle lll-OH cycling system. The detector shall incorporate a wax heat activated exposure strip, which will discolor at 300°F indicating possible detector damage. The heat probe utilized in the heat detector shall be constructed of stainless steel. The

resistance drop across the detector in a closed position shall be 0.03 Ohms. The conduit box shall be a 4" Octagonal outlet box. The detector utilized in Firecycle lll-OH Cycling System shall utilize Viking Model C Firecycle-OH Detector.

Firecycle Detector lll-OH Cable
The cable used with the Firecycle III-OH system shall be listed power limited fire alarm cable (FPL). The cable shall be listed for a two-hour fire rating when installed in ½" or larger EMT (or conduit). The cable shall meet the 1999 National Fire Alarm Code for survivability and be UL Listed as a NEC type FPL Fire Alarm Cable.

Discharge Devices
(Insert applicable product specification)

Detection System
The electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping
The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
The preaction sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
The pipe fittings installed on the preaction sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve
Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve to be Model H-1 or J-1.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve
Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for

periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. Valve Model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor
(Insert applicable product specification.)

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials and accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. The Water Motor Alarm to be Viking Model F-2 or G-2. (G-2 not UL Listed or FM Approved)

TrimPac® Firecycle® III-OH Cycling Double Interlocked Preaction

The fire sprinkler system shall be of the cycling double interlocked preaction design. The system shall be designed to limit the damage, which may be caused by excessive water flow. The system shall be completely automatic and be designed for on/off operation. The method of detection shall be an approved fixed temperature, self-restoring heat detectors with a drop-off tab indicating the detector had been exposed to temperature in excess of 800°F and require replacement. On/off operation shall cycle when heat detector senses heat regeneration; when detector cools and restores, system operation shall cease. Water flow shall be controlled through a 90° pattern or straight-through pattern, spring aided flow control valve. Once system has operated, a strobe and alarm shall be activated at the control panel. Strobe and alarm will not deactivate until system is manually reset to normal operation. The system release control panel shall be equipped with the capability for a discharge time from 30 seconds to 15 minutes after the detector circuit has returned to no fire or no heat present condition.

The system shall operate as a double interlocked preaction system as outlined in N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The flow control valve trim shall be equipped with a hydraulically latching pressure operated relief valve (PORV) to ensure system will fail open or "fail safe", if system were to lose power during operation.

The system shall incorporate a restricted regulated air supply to supervise the integrity of system piping network. Supervisory air shall be maintained at 30 PSI. A pneumatic actuator between the air supply and the system piping shall be utilized in the release system.

Cycling single interlocked preaction system shall be equipped with an A/C powered release control panel with a 90-hour battery backup power supply. The release control panel shall annunciate a trouble piezo alarm for the following conditions: low system air supply, detector zone disabled, power supply absent, low battery supply, inadequate field wiring.

The system riser shall be equipped with a rubber seated check valve with gauge connections and a system main drain connection. The check valve shall have a removable access plate for periodic inspection as per N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems.

Cycling double interlocked preaction system shall be a listed system with all system components listed for use in the system. The Cycling Single Interlocked Preaction System shall be manufactured by The Viking Corporation. The cycling single interlocked preaction system shall be a Firecycle lll-OH Double Interlocked Preaction System. The system shall be UL Listed and installed according to the manufacturer's guidelines.

SYSTEM DEVICES

Firecycle III-OH Release Control Panel

The control panel shall incorporate the necessary relays, timer, and alarm and trouble connections essential to the operation of a Firecycle III-OH system. The release control panel shall be housed in a UL Listed and Factory Mutual Approved enclosure. The release control panel shall be equipped with 2 detection circuits - 1 detection circuit for normally open detectors and 1 detection circuit for normally close detectors. The release control panel shall accommodate a back-up power supply. The Release Control Panel shall be a Viking Model VFR400 Release Control Panel.

Viking TRIMPAC® Firecycle® III Double Interlocked Preaction

The valve trim shall be a trim package for a flow control valve with a specific release device and release module for the desired application manufactured and tested in a metal enclosure. The metal enclosure shall be 16-gauge steel painted with a red epoxy powder coat. The standard trim normally required on a Firecycle valve will be enclosed in this single cabinet. The TRIMPAC shall provide access doors for the emergency release and alarm test valve for manual operation of these trim valves. The TRIMPAC shall be equipped with priming water pressure and water supply gauge view-ports for easy monitoring of water pressures. The enclosure shall be designed to protect the trim valves from inadvertent operation. The system shall be piped (or use the stainless steel hose package) from the valve body to the enclosure assembly. The TRIMPAC Model E-1 can be utilized for single interlocked preaction systems with the Viking Model H-1 or J-1 Flow Control Valves in all sizes. The unit shall be rated for 250 PSI (1724 kPa). The Firecycle Valve Trim shall be Viking TRIMPAC Firecycle III Single Interlocked Preaction Model E-1, part number 13801E-1.

Firecycle lll-OH Detector
The heat sensitive normally closed detectors utilized in the detection system of the Firecycle lll-OH cycling system shall be fixed temperature, rate-compensating detectors listed for use on the Firecycle lll-OH cycling system. The detector shall incorporate a wax heat activated exposure strip, which will discolor at 300°F indicating possible detector damage. The heat probe utilized in the heat detector shall be constructed of stainless

steel. The resistance drop across the detector in a closed position shall be 0.03 Ohms. The conduit box shall be a 4" Octagonal outlet box. The detector utilized in Firecycle lll-OH Cycling System shall utilize Viking Model C Firecycle-OH Detector.

Firecycle Detector lll-OH Cable
The cable used with the Firecycle III-OH system shall be listed power limited fire alarm cable (FPL). The cable shall be listed for a two-hour fire rating when installed in ½" or larger EMT (or conduit). The cable shall meet the 1999 National Fire Alarm Code for survivability and be UL Listed as a NEC type FPL Fire Alarm Cable.

Discharge Devices
(Insert applicable product specification)

Detection System
Electrical devices utilized in the supplemental detection system shall be compatible with the water control valve release control panel. Installation of electrical supplemental detection system shall be in accordance with N.F.P.A. 70, N.F.P.A. 72 and local installation requirements. An accessible detector shall be placed for annual testing of deluge system.

System Piping
The system piping shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The system piping shall be listed for the maximum system pressure it is to be exposed to. All system piping shall be metallic and shall be protected against corrosion if corrosive conditions exist.

Hangers
The deluge sprinkler system hangers shall conform to N.F.P.A. 13, Standard for Installation of Sprinkler Systems. System piping shall be substantially supported to prevent sway or thrust. The hanging of non-system components from the sprinkler piping shall be strictly prohibited. The use of non-metallic hanger materials shall be prohibited unless expressed otherwise.

Fittings
Pipe fittings installed on the deluge sprinkler system shall be in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fittings shall be listed for use at the system pressures to be encountered. The fittings shall be corrosion resistant if they are to be installed in a corrosive atmosphere.

Flow Control Valve
Sprinkler systems requiring a means of automatic or remote manual opening or closing of the water supply shall utilize a flow control valve with a spring aided clapper. The flow control valve shall be so constructed that the force of the spring and the differential of the valve clapper to water seat will close valve if detection or release system is reset. The valve trim shall be compatible and listed for valve. The flow control valve shall be UL Listed and FM Approved. The Flow Control Valve manufacturer to be The Viking Corporation. Valve Model to be H-1 or J-1.

Fire Department Connection
A system fire department connection shall be provided on the system riser in accordance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The fire department connection shall be of a brass body with an integral clapper assembly to separate flow between inlets. The fire department connection shall be installed in an area accessible for the first response unit. The fire department connection shall be UL Listed and Factory Mutual Approved for fire protection use.

System Control Valve
The preaction system control valve shall be a listed indicating type valve. The control valve shall be UL Listed and Factory Mutual Approved for fire protection installations. The system control valve shall be rated for normal system pressure but in no case less than 175 PSI.

System Check Valve
Check valves utilized in the sprinkler system riser shall be UL Listed and Factory Mutual Approved for use on fire protection systems. The sprinkler riser check valves shall be manufactured with supply side and system side gauge connections and a main drain outlet in conformance with N.F.P.A. 13, Standard for Installation of Sprinkler Systems. The check valves shall be constructed of a ductile iron body with a brass seat and a rubber faced clapper assembly hinged to a removable access cover. The check valves shall be equipped with a removable access cover for

periodic inspection as required in N.F.P.A. 25, Standard for Inspection, Testing and Maintenance of Water-Based Fire Protection Systems. The check valves shall have a working water pressure of 250 PSI. The Check Valve manufacturer to be The Viking Corporation. The Check Valve model to be F-1 Easy Riser Check Valve or Model L-1 or K-1 In-Line Check Valve.

Compressed Air Supply
An air supply capable of restoring system pressure within 30 minutes shall be provided. Acceptable air supply arrangements are:

A. Owner supplied air system with an air maintenance device on the supply side of the air supply inlet.
B. A tank mounted air compressor with an air maintenance device between the air compressor and the air supply inlet on the system riser.
C. A riser mounted air compressor feeding an air reservoir. An air maintenance device shall be placed between the air reservoir and the system riser.

Air Compressor
(Insert applicable product specification.)

Water Motor Alarm
Water flow will activate a hydraulic powered water motor alarm by way of integral valve alarm line trim piping. The water motor gong shall be connected to a water pressure retarding chamber to limit the propensity of unnecessary alarms. The water motor alarm shall be equipped with a rear closure plate to limit the access of foreign materials or accumulation of debris. The water motor alarm shall be UL Listed and Factory Mutual Approved for the application in which it is used. The Water Motor Alarm manufacturer to be The Viking Corporation. Model to be F-2 or G-2. (G-2 not UL Listed or FM Approved)