Data Centre, Site & Power

Visionary Solutions

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Establishing a strong foundation of trust is key
with our Employees, Partners and most importantly our Customers.

ABOUT US

Nasma is a technology based IT and Communications Solutions Provider and Systems Integrator. Nasma is principally involved in providing integrated IT and communication solutions to various industries including Energy, Oil and Gas, Utilities, Telecommunications, Government, Banking and Finance, Industrial and Health Care. Nasma offers its clients a comprehensive range of advanced technology IT and communication solutions to suit various application and requirements involving the fallowing:

- Telecommunication Backbone Systems and Infrastructure
- Networking Infrastructure & Security, Video, Voice, Data and Specialized Systems. Data Centre, Site and Power.
- Servers, Storage, Converged/ Dynamic/Virtualized Infrastructure.
- Audio Visual Solution and Collaborative Working Environ ment (CWE).
- Safety & Security Solutions.
- Software Applications.

In addition, Nasma, with its partners, have systems and products that can provide solutions and services in Process Control and Management for Oil & Gas and Energy markets. Nasma holds a team of highly skilled and motivated people with a broad range of experiences, focused on providing cost effective, innovative and reliable solutions engineered and supported locally. Nasma is committed to its customers and intends to be the leading solution provider and systems integrator providing advanced and cost effective solutions, engineered andsupported locally.

MISSION VISION

MISSION

To be the leading provider and high-integrity partner for IT and communications solutions engineered and supported locally enabling to achieve organisations vision and goals.

VISION

To be the leading solution provider and systems integration and go beyond by delivering the highest value to our customers, employees, suppliers, and shareholders, providing innovative, advanced and appropriate solutions, enabling organisations to deliver their business goals and building long-term relationships based on mutual trust and respect.

CORE VALUES

Teamwork We work as one team in a collaborative environment. We know that everything accomplished relies on the skills, integrity, commitment and dedication of our employees.

Effective People

Right people doing the right job. We offer challenging, fair, and rewarding employment for our employees and set high expectations for performance. We seek to create an environment where people become dynamic, creative and can make a difference allowing them to realise their full potential.

Honesty & Sincerity

We do what we say we will do. Everything we do reflects a commitment to the highest standards of personal and corporate ethics.

Rewarding Relationships

We believe in developing & adopting long term partnerships; focusing on creating values and trust by understanding the fact that relationship building is a process not an event.

Accountability

Taking ownership and responsibility. We understand your requirement and deliver high quality service by leveraging the resources and know-how of our business.

Data Centre, Site & Power

Nasma's Data Centre, Site & Power Business Unit builds data centers from ground up; from site preparation, insulation panels, electromechanical works, life safety & security systems, and in collaboration with the Data Center IT, Networking & Security Department, all the way to networking, compute, storage, and virtualization solutions. We deliver your new infrastructure ready for the installation of your critical business applications and databases, and walk you through to your environmental monitoring and systems management as well as data protection and information management. We can even assist you to certify it according to TIA-942 Tier Level of your choice.

- IT & Telecom Cooling - Precision Cooling, Enclosures & Containment Systems.
- Power Management - UPS, Power Distribution, PDU, Data Center Electrical Works.
- Standby Emergency Power. Data Centre Cabling - Optical Fiber and High-Speed Copper.
- Environment Monitoring & Data Center Infrastructure Management.
- Site Preparation.
- Safety & Protection Systems.
- Integrated Surveillance & Access Control.
- Special / Custom Applications - Mobile / Containerized Data Centre & Telecom
- Tower Compounds.

SOLUTIONS

IT & TELECOM COOLING

Managed Services are the practice of outsourcing day-to-day management responsibilities and functions as a strategic method for improving operations and cutting expenses. Nasma brings tried and tested operational methods of managed services such as end user support services, application support and maintenance, data center operations, telecommunications support and maintenance, network and security operations centers. Nasma provides experience rich methods and abilities for optimizing various internal operation processes, determining appropriate KPIs and measuring the success of these operations. Nasma also continues to support customer operations with provisioning professionals to augment and assist customers in their daily work. Nasma ensures that our professionals are vetted through a rigorous screening process.

Enclosures & Containment Systems

Nasma's IT enclosures and containment systems range from single network/server rack for small computer rooms all the way to multiple rackstightly integrated to Precision Cooling solutions used in medium to large data centers. Our technology partners, including Rittal GmbH, offer multi-functional rack enclosures design around customer feedback from around the world. These enclosures are built to meet current IT market trends and applications catering for high density computing and networking as well as broadcast and audio-video. Designed with cooling, power distribution, cable management and environmental monitoring in mind, our rack enclosures provide a reliable rack-mounting environment for mission-critical equipment.

Power Management

Nasma's power management solution includes:

- Uninterruptible Power Supplies (UPS).
- Power Distribution Racks (PDR).
- Power Distribution Units (PDU).

These equipment provide optimal power distribution and protection from individual IT and telecom products to complex, integrated systems that keep network closets, computer rooms, telecom shelters and data centers up and running. We partner with leading vendors such as Delta Power Systems and Ampole to provide clean and stable power while ensuring continuous operation in case of power failure as well as enabling maximum operating efficiency with the lowest cost.

Uninterruptible Power Supplies (UPS)

Our UPS range of products include low-power single phase (10 kVA or less) all the way to integrated/modular high-capacity 3-phase systems (up to 3200 kVA). These solutions feature industry leading performance of up to 98 % AC-AC efficiency, input power factor > 0.99, output power factor of 0.9 and low iTHD <3%.

Power Distribution Racks (PDR)

For medium to large data centers, our Power Distribution Racks (PDR) provides optimal, space saving solution that is easy to move and adapt to future reconfigurations. The PDR from both Rittal and Delta Power Systems offers superior power protection and monitoring, and the flexibility & scalability to match actual power distribution requirements, improving not only availability but also reducing initial capital investment.

Power Distribution Units (PDU)

Nasma's selection of Managed, Metered, Switched and basic PDUs fit the standard rack cabinets and requires no tools, and while mounting brackets are provided to facilitate the installation in third-party rack cabinet. Both Ritta I and Delta Power Systems units conserve valuable rack space, thanks to the Zero-U installation approach. Each PDU model allows either single or three phase input voltage. They are built the same upgradeable firmware to keep them functioning at optimal levels, and integrate with DCIM software.

Data Centre Electrical Works

NASMA is providing the following solution for the Data Center electrical cabling and containment systems

- Electrical Cabling - Data Centre Feed.
- Generator Set to Automatic Transfer Switch (ATS) Panel.
- Main Utility Room to ATS.
- Electrical Cabling - Inside Data Center.
- ATS Panel to Sub-Main Distribution Box (SMDB) .
- SMDB to non-IT load.
- SMDB to UPS.
- Load DB to Rack Power Distribution Unit (PDU).
- All required electrical cable containment e.g. GI frames
- mounted under the Raised Flooring.
- All electrical cables installed on electrical cable containment.
- All electrical sockets to be fitted in cable tray with holder.
- All sockets installed within Data Center shall be.
- industry standard and IP 65 rated.
- All existing power outlets above the Raised Floor will be relocated under it.
- Electrical Ground / Earth.

Standby Emergency Power

For any application where mission-critical operationsrequire an uninterrupted supply of power, emergency standby power is a must. High-availability of power translates to success in many industries, whether this power is used to meet uptime requirements of data centers and telecom cell sites, supporting life-saving procedures in health centers continues operations of critical financial transactions.

Ampole , a US-based company, is Nasma's partner forstandby systemsthat provide integrated and sustainable solutions. Our generatorsystems are powered by Cummins or Perkins, delivering continuous energy to maximize success, minimizes risk, and complies with life and safety codes.

Our portfolio includes:

- Diesel generator sets from 4 kW to 2.7 MW.
- Automatic Transfer switches from 20 amps to 3,000 amps.
- Sound-attenuated enclosures.
- Integrated smart technology digital controls.
- Reserve fuel tank and piping systems.
- Site preparation and build.

Structured Cabling

Optical Fiber and High-speed Copper Cabling Systems Often overlooked in many data center and SAN projects, the cabling inside the data centre is a critical component in the successful delivery, operation and maintenance of the IT systems. In particular scalability, moves, adds and changes (MACs), availability of key product information and the ability to get the product in the shortest possible time is critical. Our partners, Corning Cable Systems are market leaders in this field. Corning pre-terminated optical fiber and high-speed copper (Cat 6A and above) cabling systems designed to dramatically streamline the process of deploying an optical / high-speed copper networking infrastructure in the data center. This innovative, value-added system significantly reduces installation time and cost. Modular, pre-terminated components of the system are simple to configure and can be installed, connected and operational in a fraction of the time when compared to using conventional, field-terminated methods. The system's polarity-maintaining modular components guarantee compatibility, flexibility and excellent system performance for all optical configurations. The universal wired modular components make networking moves, adds and changes simple, fast and easy to complete with minimum disruption to neighboring areas.

Nasma Installation Practice

Nasma Data Centre team's experience in the IT field stretches back to the days of coax and twinax cables and has thus acquired, over the years, proper data cabling installation practice in accordance with industry standards and local regulations. This includes, among others.

Our portfolio includes:

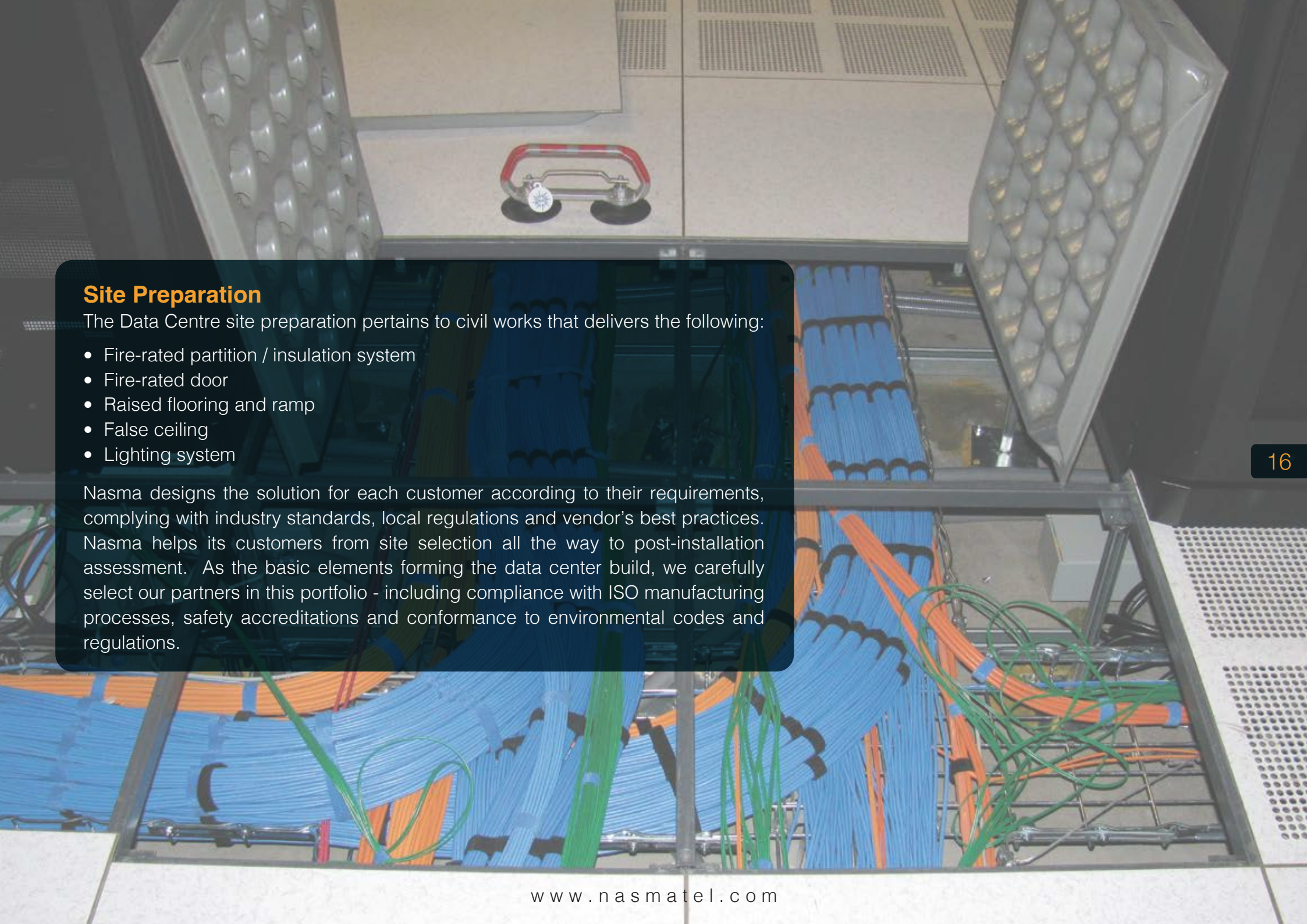
- All cables will be laid on proper cable tray as per TIA-942 standards.
- The routing of all copper and fiber cabling will be in a different containment (suspended) in order to avoid any interference with the power cabling.
- Patch panel and cables labeling follows
- ANSI/TIA/EIA 606-A Standard.
- All cabling will be terminated as per ANSI/TIA/EIA 606-A Standard and the supplier practice with proper and comprehensive labeling scheme.
- A certified testing result will be submitted for all installed cabling works.

Environment Monitoring

Nasma's Data Centre portfolio is not complete without environment monitoring and alarm system that is flexible and support complete features of environment monitoring and security management concept for preventive protection and to guard against follow on costs. At the same time, it offers consolidation point for connecting to facility management. Our sensors and monitors include the following as a minimum:

- Water Leak
- Power
- Temperature
- Humidity
- Fire

The Computer Multi Control III (CMC III) from Rittal is a complete security management concept designed to protect against consequential costs, and is also the central organizational unit for linking to facility management systems such as RiZone.

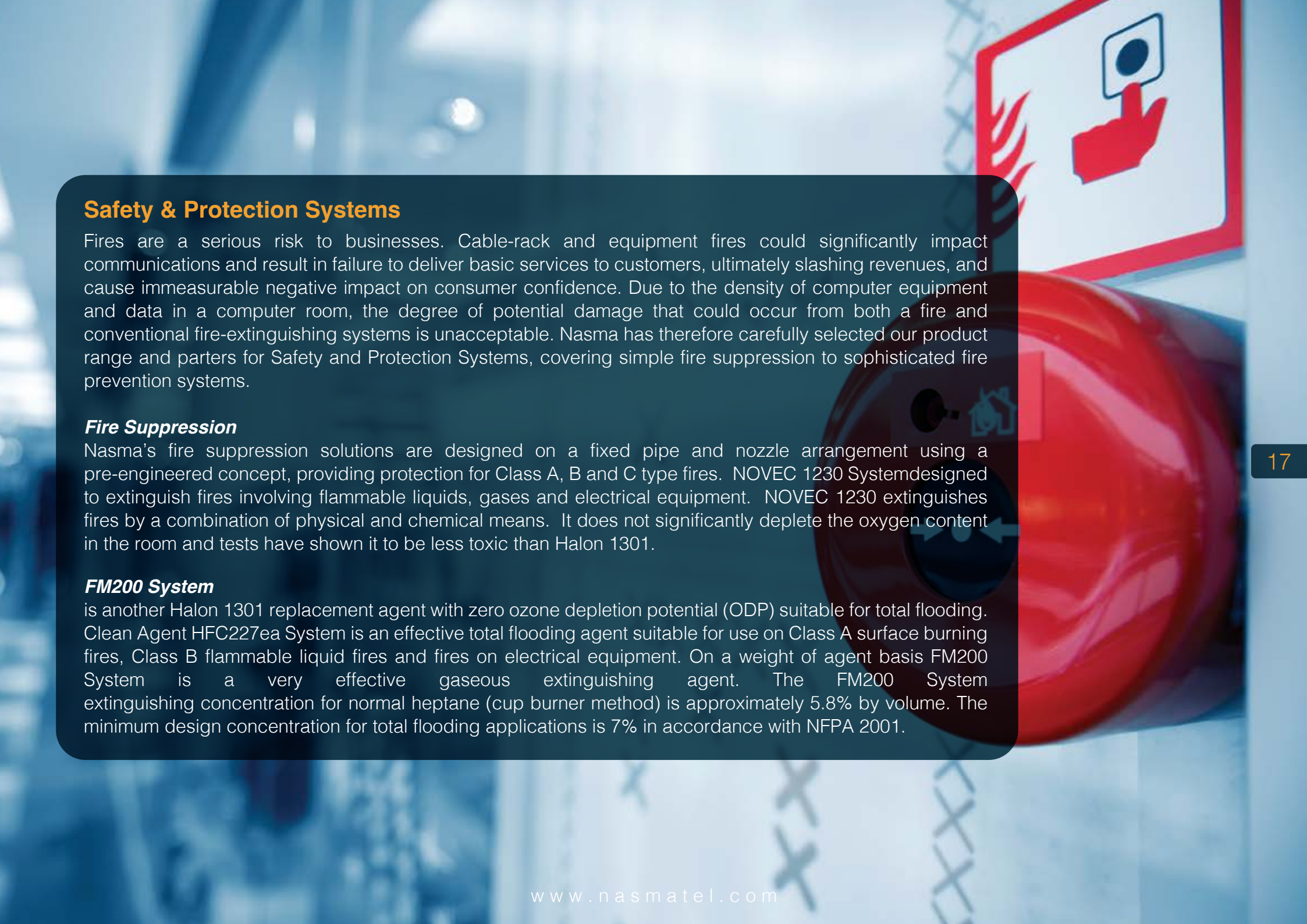


Site Preparation

The Data Centre site preparation pertains to civil works that delivers the following:

- Fire-rated partition / insulation system
- Fire-rated door
- Raised flooring and ramp
- False ceiling
- Lighting system

Nasma designs the solution for each customer according to their requirements, complying with industry standards, local regulations and vendor's best practices. Nasma helps its customers from site selection all the way to post-installation assessment. As the basic elements forming the data center build, we carefully select our partners in this portfolio - including compliance with ISO manufacturing processes, safety accreditations and conformance to environmental codes and regulations.



Safety & Protection Systems

Fires are a serious risk to businesses. Cable-rack and equipment fires could significantly impact communications and result in failure to deliver basic services to customers, ultimately slashing revenues, and cause immeasurable negative impact on consumer confidence. Due to the density of computer equipment and data in a computer room, the degree of potential damage that could occur from both a fire and conventional fire-extinguishing systems is unacceptable. Nasma has therefore carefully selected our product range and parters for Safety and Protection Systems, covering simple fire suppression to sophisticated fire prevention systems.

Fire Suppression

Nasma's fire suppression solutions are designed on a fixed pipe and nozzle arrangement using a pre-engineered concept, providing protection for Class A, B and C type fires. NOVEC 1230 Systemdesigned to extinguish fires involving flammable liquids, gases and electrical equipment. NOVEC 1230 extinguishes fires by a combination of physical and chemical means. It does not significantly deplete the oxygen content in the room and tests have shown it to be less toxic than Halon 1301.

FM200 System

is another Halon 1301 replacement agent with zero ozone depletion potential (ODP) suitable for total flooding. Clean Agent HFC227ea System is an effective total flooding agent suitable for use on Class A surface burning fires, Class B flammable liquid fires and fires on electrical equipment. On a weight of agent basis FM200 System is a very effective gaseous extinguishing agent. The FM200 System extinguishing concentration for normal heptane (cup burner method) is approximately 5.8% by volume. The minimum design concentration for total flooding applications is 7% in accordance with NFPA 2001.

Fire Prevention-preventing

the ignition process FirePASS® (Fire Prevention And Suppression System) fire preventative normobaric hypoxic environment provides the ultimate solution for the fire safety problem in computer rooms. FirePASS® by providing effluent ventilation of the protected facility with hypoxic (oxygendepleted) air produced by FirePASS® generators from ambient air. This creates a comfortable human-breathable atmosphere inside a facility, in which nothing can ignite or burn. This environment corresponds in partial pressure of oxygen to the altitude of 9,000', is completely safe for people.

This environment can be used as an alternative, which enhances the conventional fire-safety means without interfering with their performance, or even providing synergistic fire-safety effect. There is no need to remove an existing sprinkler system from your premises, simply because it will never be activated. Physically preventing the ignition process, the FirePASS® reduces risk of fire (as well as the fire extinguishment related damage risk) virtually to zero.

Custom / Special Applications

Mobile / Containerized Data Centre

The Rittal Data Centre Container DCC has been developed specifically for outdoor IT system operations. The perfect temporary data centre to bridge the duration of alterations, expansionmeasures or relocation, but no less ideally as a permanent IT or server room. The absolute highlight is the innovative direct free cooling, which brings savings of up to 40% on the usual costs for cooling. At the same time, the container guarantees seamless integration of a UPS, fire alarm/extinguisher system, power distribution, raised floor, access control and monitoring functions.

Facts & Features Basic-Model:

- Raised Floor - heavy weight raised floor for climatisation, or routing of data and energy cables usable. Overall height is 300 mm.
- 19“ TS8-Racks - usage of up to 329 U in 7 Server-Racks possible.
- Cold Aisle - specific cooling by foreclosure of the cold corridor exists.
- Power Distribution - energy supply by CEE-Plug, 125 A, 3 Ph/N/PE, 400 V / 50 Hz provided.
- The absolute highlight: Air-Con by Rittal Direct Free Cooling - up to 40% economy saving concerning the cooling costs possible by using the direct outdoor air for cooling the Rittal Data Centre Container.

BUSINESS PARTNERS

PROJECT REFERENCES

CLIENT	BRIEF DESCRIPTION	CURRENT STATUS
Ministry of Defense Pension Fund	Tier 3 Data Centre 2N Uninterruptible Power Supply - 160 kVA Diesel Generator Set - 1100 kVA 18x Self-Cooling Racks @ 20 kW each, 2N including environment monitoring system Physical Security (Access Control & CCTV) Site Preparation & Safety Systems - protected insulated walls with FirePASS fire prevention system using leading-edge technologies	Completed - 2013
Ministry of Regional Municipalities Electricity & Water Resources	Installation of Computer Room facility including Uninterruptible Power Supply, Electrical Cabling, Data Cabling and Network equipment	Completed - 2013
Central Bank of Oman	4x 80m Self-Supporting Telecom Towers including fencing 1x 45m Self-Supporting Telecom Tower including fencing 5x Telecom Shelters 3 x 3 x 3 including all electro-mechanical fit-out 5x N+1 Uninterruptible Power Supply - 6 kVA with common battery	Completed - 2014
Worley Parsons	4-rack Data Centre Solution, including Data Centre Cabling, Video Surveillance, Access Control, Redundant UPS and FM200 Installation Building Cabling - Optical Fiber & Copper Cat 6 Integrated Access Gates	Completed - 2014
NBO-CBO Building	Supply & installation of 10 no's CPI server cabinets Supply & installation of 20 intelligent PDU'd.	Completed - 2014
Petroleum Development Oman	Supply & installation of 10 no's CPI server cabinets Supply & installation of 20 intelligent PDU'd. 300 sq meter Tier III complete Data centre consultancy (Tier III Data center consultancy)	Completed - 2015

PROJECT REFERENCES

CLIENT	BRIEF DESCRIPTION	CURRENT STATUS
OMINVEST	Data Centre Upgrade, 2-Rack Rittal Compact Server Rack complete with in-rack cooling, power distribution, environment monitoring, video surveillance, access control, and NOVEC fire suppression.	Completed - 2015
Oman Cement Company SAOG	Replacement of Uninterruptible Power Supply (UPS) at Rusayl Factory Site Capacitor Banks for Improvement of Power Factor N+1 Modular UPS - 40 kVA, 415V 3P/3P, 90 minutes backup N+1 Modular UPS - 20 kVA, 415V 3P/3P, 90 minutes backup Standalone UPS 6 kVA, 230V 1P/1P, 90 minutes backup – 5 locations Standalone UPS 1 kVA, 230V 1P/1P, 90 minutes backup – 5 locations	Completed - 2015
Oman Oil Company Exploration and Production	Design, Supply, Installation and Migration from OOCEP's existing Cisco systems onto a new infrastructure optimized for OOCEP's infrastructure and systems delivery. This includes Structured Cabling works that cleaned-up much of the Data Centre cabling infrastructure.	Completed - 2015
Oman Fiber Optic Company	N+1 Diesel Generator Set - 25 kVA, Redundant/Cyclic Operation for 2 locations N+1 Uninterruptible Power Supply - 6 kVA with common battery for 1 location N+1 Uninterruptible Power Supply - 10 kVA with common battery for 7 locations	Completed - 2015
GCC-STAT)	Supply & implementation of 5 racks Data Centre. Supply & installation of Rittal LCP In-line 3-Rack Solution Supply & installation of Rittal Containment System Supply & installation of modular UPS System with 30-minute Backup Supply & installation of Civil & electrical system. Data Centre Cabling 3 Racks, pre-terminated FO, field-terminated Cat 6A CCTV / Access Control Novec 1230 fire suppression system Environment Monitoring	Completed - 2015

PROJECT REFERENCES

CLIENT	BRIEF DESCRIPTION	CURRENT STATUS
Redline Communications Company	Supply installation, testing and commissioning of intelligent preterminated structured cable system.	Completed - 2015
Oman Fiber Optic Company - BP	Data Centre - Site Preparation, Electrical, Mechanical N+1 Diesel Generator Set - 25 kVA, Redundant/Cyclic Operation for 2 locations N+1 Uninterruptible Power Supply - 6 kVA with common battery for 1 location N+1 Uninterruptible Power Supply - 10 kVA with common battery for 7 locations	Completed - 2015
Telecommunications Regulatory Authority	Deployment of building LAN solution for the new HQ Building Brief Description Deployment of Cisco Unified Communications solution for the new HQ Building	Completed - 2016
Oman International Container Terminal - Sohar	Deployment of campus LAN solution for the new facility in Sohar using Cisco Brief Description Catalyst Switches and MOXA Industrial Switches	Completed - 2016
Petroleum Development Oman (RHIP-Rabab Harweel)	Providing the design, procurement and installation of 48V DC power system with 48 hours battery back up unit and electrical distribution boards.	Completed - 2016
Central Bank of Oman Main Contractor – Galfar	Supply, installation, testing and commissioning of Data Center IT Cabinets 150 no's, 3Phase PDU & Accessories, Rack Access Control System, Environment Monitoring System, Overhead Fiber Runway System, Over Cable Ladder System & Hot Aisle Containment System.	Completed - 2018

PROJECT REFERENCES

CLIENT	BRIEF DESCRIPTION	CURRENT STATUS
Ministry of Defense	Supply, installation, testing and commissioning of 100KVA, 30KVA UPS 3 no's.	Completed - 2018
Petroleum Development Oman	Design, Supply and Install of DC power system with battery unit and electrical distribution system.	Completed - 2018
Petroleum Development Oman	Design, Supply and Install of DC power system with battery unit and electrical distribution system.	Completed - 2018
Ooredoo Oman	Supply, installation, testing, commissioning and load test of 100KVA modular UPS and 30KVA*3 UPS with 30 minutes battery back up system for MOD RAFO project.	Completed - 2018
Petroleum Development Oman (Yibal Khuff Construction Camp)	Providing the design, procurement and installation of rack mounted UPS system.	Completed - 2016
Petroleum Development Oman	Engineering, procurement, construction, and commissioning of DC UPS and electrical distribution system.	Completed - 2016
Petroleum Development Oman	Design, Supply and Install of DC power system with battery unit and electrical distribution system.	Completed - 2018
Central Bank of Oman	Supply installation, testing and commissioning of intelligent preterminated structured cable system.	Completed - 2018
Ibri College of Technology	Supply and Installation, Testing and Commissioning of Various Data Centre equipments at Ibri College of Technology.	Completed - 2020

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