



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**INSTALLATION QUALIFICATION  
FOR  
BUILDING MANAGEMENT SYSTEM**

Effective date: \_\_\_\_\_



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

The completion of this section indicates review of the contents by the relevant disciplines and approval by responsible individuals.

..... **ENGINEERS**

Description	Name	Designation	Signature	Date
Prepared By		AutoCAD Design Engineer		
Reviewed By		Project Engineer		
Reviewed By		Project Manager		

**DOCUMENT VERSION HISTORY :**

Version	Date	Pages	Prepared by	Description of change
1.0		All		



**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**TABLE OF CONTENTS**

<b>CONTENTS</b>		
<b>S.No.</b>	<b>DESCRIPTIONS</b>	<b>PAGE No.</b>
1	<b>INTRODUCTION</b>	6
1.1	Objective	6
1.2	Scope	6
1.3	Acronyms and Terms	7
2	<b>REFERENCE DOCUMENTS</b>	9
3	<b>DOCUMENT CONTROL</b>	10
4	<b>TESTING PRINCIPAL</b>	10
5	<b>OVERVIEW</b>	10
5.1	Design Requirements	11
5.2	Test Procedures	11
6	<b>TEST EXECUTION</b>	12
6.1	Hardware and Software Verification	12
6.1.1	Objective	12
6.1.2	AHU-SG-1 Hardware Verification	13
6.1.3	AHU-SG-2 Hardware Verification	15
6.1.4	AHU-SG-3 Hardware Verification	17
6.1.5	I/O List Verification	19
6.1.6	Assessment of Test Section Results	20
6.2	<b>Power on Check</b>	21
6.2.1	Objective	21
6.2.2	AHU-SG-1 Power on Check Verification:	21
6.2.3	AHU-SG-2 Power on Check Verification	22
6.2.4	AHU-SG-3 Power on Check Verification	23
6.2.5	Server cum Operator Work Station	24
6.2.6	Assessment of Test Section Results	24
6.3	<b>Physical Assembly Verification</b>	25
6.3.1	Objective	25
6.3.2	Physical Verification	25
6.3.3	Assessment of Test Section Results	26
6.4	<b>Installation Pre-requisites</b>	27
6.4.1	Objective	27
6.4.2	System documentation Verification	27
6.4.3	Security of Hardware and Data	28
6.4.4	Assessment of Test Section Results	29
6.5	<b>Data Base Server cum work station</b>	29
6.5.1	Objective	29
6.5.2	Hardware and Software components for Data Server cum work station	31
6.5.3	System Hardware & Software Installation Verification	33
6.5.4	Assessment of Test Section Results	36
7	<b>Deviation and Corrective action report</b>	37



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### TABLE OF CONTENTS

CONTENTS		
S.No.	DESCRIPTIONS	PAGE No.
8	<b>Provisional Approval for Unacceptable deviation</b>	38
9	<b>Attachments</b>	39
9.1	Attachments Registry for the Test Installation Qualification	39
9.2	Signature Registry	40
10	<b>Post Approval</b>	41



**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**1.0 INTRODUCTION:**

The Installation Qualification (IQ) verifies the installation of the software, instrumentation and equipment interfacing with the system against specifications. The goal is to ensure that all key aspects relating to the hardware and software installation conform to the approved design intentions as described in the design qualification and approved installation drawings.

The Installation Qualification (IQ) verifies field end devices, controllers, DDC Panels, Desigo CC software etc.

This document has been prepared by ..... Engineers to be used as the IQ plan for the Building Management System (BMS) installed in the M/s ..... The goal of the project is to provide a validated BMS.

**1.1 Objective:**

The purpose of this testing is to discover and correct all malfunctions on time, so that all parts of the system are functional before starting with final testing of applicable software in final phase of the project – Operation Qualification and Performance Qualification.

**1.2 Scope:**

The scope of this validation is limited to the design, installation and operation of the GMP-designated hardware and software of the system providing monitoring, alarming, trending, reporting and archiving of the data collected from field controllers performing building management & environment monitoring at .....



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 1.3 Acronyms and Terms:

Acronym	Description
%	Percent
Oc	Degree Celsius
AC	Alternating Current
a.m.	Ante Meridian (time period between midnight and noon)
BMS	Building Management System
Lon Bus	Dedicated SIEMENS Proprietary Communication Bus
CD	Compact Disc
CPU	Central Processing Unit
CQA	Central Quality Assurance
DDC	Direct Digital Controller
DDS	Detailed Design Specification
FDA	Food and Drug Administration
FRS	Functional Requirements Specification
GB	Giga Byte
GHz	Giga Hertz
CGMP	Current Good Manufacturing Practice
HVAC	Heating Ventilating and Air Conditioning
Hz	Hertz
ID	Identity
IEC	International Electro technical Commission
I/O	Input/output
LAN	Local Area Network
POT	Portable Operating Unit
MA	Milliamp
MB	Megabyte
NA	Not Applicable
NS	National Standards
OS	Operating System
PC	Personal Computer
RAM	Random Access Memory
SOP	Standard Operating Procedure
TCP/IP	Transmission Control Protocol/Internet Protocol
UPS	Uninterruptible Power Supply
VAC	Volts Alternating Current



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

<b>Term</b>	<b>Definition</b>
Lon Bus	Dedicated Siemens proprietary communication bus
BACNet	Building Automation and Control Network.
XWorks	Siemens software tool used with controller application programs
DesigoCC Pharma Solution	DESIGO CC server software that contains the system database and serves as a graphical user interface
PX Series	SIEMENS programmable controller platform to monitor & control the AHU System & Ventilation Units operation in standalone mode & networkable mode.



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**2.0 REFERENCE DOCUMENTS:**

Description	Author	Version
User Requirement Specifications Doc ID:		
DQ		





**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**3.0 DOCUMENT CONTROL:**

It is the responsibility of M/s ..... to maintain document as per ..... Laboratories Policy. Any change to this document should be managed according to M/s ..... and all changes shall be logged as subsequent version no. in History logs.

**4.0 TESTING PRINCIPAL:**

**Installation Qualification tests:**

1. During hardware testing procedure in Installation Qualification is necessary to check if all field elements Devices are properly Installed, wired and connected according to project specifications. Also is necessary to check if software address represent project-defined element.
2. Check all the I/O Details according to the I/O list.
3. Check the Communication of all the devices with Data base server and also check the database back up paths and how to restore it.

**5.0 OVERVIEW:**

This document defines the requirements for IQ testing and the specific instructions require to execute the testing. The Testing Requirements section defines all the aspects of test execution and the rules that apply including definition of the participants and their roles, documentation rules, and other requirements. The Test Scripts section includes all the test documentation forms. The sub-sections in this section describe each test, provide specific instructions, and provide the action/expected results forms where the individual test steps are defined and will be documented as either pass or fail.

**5.1 Design Requirements**

1. Complete set of drawings.
2. General Assembly drawings to verify installation with dimensional details.
3. Inputs and Outputs list of DDC.
4. Sensor Installed locations.
5. Electrical Wiring diagrams and Panel assembly diagrams.

Detailed Input and Outputs list along with Specification associated with computerized based BMS. A DDC Control System architecture diagram, along with a complete hardware listing of the components supplied with the computer system (if not listed on the architecture diagrams).



**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

Cable schedule of communication cables directly interfacing with the DDC and I/O modules. Include cable number, start and ending terminals for the cables and associated drawing numbers.

**5.2 Test Procedures:**

- All information must be completed using only ballpoint pen and shall be legible.
- Any individual involved in the execution of this document shall complete the signature log page.
- Any blank space shall be crossed out by a single line with N/A, initial and dated unless otherwise noted.
- When completing information on the various checkout sheets, write N/A if not applicable or available.
- Some test table fields may be populated with N/A during document creation. This denotes that entry in the corresponding field is not requiring for successful completion of the test. This notation is commonly used when test instructions are embedded in the test tables for clarity or when the actions directed in the instruction
- Field are performed and verified in another section of the test plan.
  - The person who executes each item will, at a minimum, sign their initials and the current date in the Performed By/Date box on the page for each item as it is performed.
  - The person who witnesses each item will, at a minimum, sign their initials and the current date in the Verified By/Date box on the page for each item as it is performed.

**6.0 TEST EXECUTION:**

**6.1 Hardware and Software Verification**

**6.1.1 Objective:** To verify physically that all the Hardware and Software is present according to the DQ.



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.1.2 AHU-SG-1: Hardware Verification

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.1.2.1	DDC Controller	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: <b>PXC-22.D</b> Qty: <b>01 Nos</b> Location- <b>AHU-SG-1</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		
6.1.2.2	DP Switch	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: <b>Qty: 01 Nos</b> Location- Across Filter- <b>AHU-SG-1</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		
6.1.2.3	DP Switch	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location- Fan <b>AHU-SG-1</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.1.2 AHU-SG-1: Hardware Verification**

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.1.2.4	T+RH Sensor	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location-Supply Air duct AHU-SG-1	Manufacturer: Model no.: Qty: Location-	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		
6.1.2.5	T+RH Sensor	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location-Return Air duct AHU-SG-1	Manufacturer: Model no.: Qty: Location-	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.1.3 AHU-SG-2 Hardware Verification

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.1.3.1	DDC Controller	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: <b>PXC-22.D</b> Qty: <b>01 Nos</b> Location- <b>AHU-SG-2</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		
6.1.3.2	DP Switch	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: <b>Qty: 01 Nos</b> Location- Across Filter- <b>AHU-SG-2</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		
6.1.3.3	DP Switch	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location- Fan <b>AHU-SG-2</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.1.3 AHU-SG-2 Hardware Verification

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.1.3.4	T+RH Sensor	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location-Supply Air duct AHU-SG-2	Manufacturer: Model no.: Qty: Location-	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		
6.1.3.5	T+RH Sensor	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location-Return Air duct AHU-SG-2	Manufacturer: Model no.: Qty: Location-	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.1.4 AHU-SG-3 Hardware Verification

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.1.4.1	DDC Controller	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: <b>PXC-22.D</b> Qty: <b>01 Nos</b> Location- <b>AHU-SG-3</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		
6.1.4.2	DP Switch	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: <b>Qty: 01 Nos</b> Location- Across Filter- <b>AHU-SG-3</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		
6.1.4.3	DP Switch	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location- Fan <b>AHU-SG-3</b>	Manufacturer:  Model no.:  Qty:  Location-	<input type="checkbox"/> Yes  <input type="checkbox"/> No, Deviation #		



Pharma Devils

# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.1.4 AHU-SG-3 Hardware Verification

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.1.4.4	T+RH Sensor	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location-Supply Air duct AHU-SG-3	Manufacturer:  Model no.:  Qty: Location-	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		
6.1.4.5	T+RH Sensor	Physical / Visual Verification	Manufacturer: <b>SIEMENS</b> Model no.: Qty: 01 Nos Location-Return Air duct AHU-SG-3	Manufacturer:  Model no.:  Qty: Location-	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		





**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.1.5 I/O List Verification**

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
						KE	HGPL
6.1.5.1	Input Output List	Physical / Visual Verification	Check each Input and output are allocated correctly	Attachment(s)# / printout(s)#: _____/_____ _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.1.6 Assessment of Test Section Results:**

**Comments / Observations:**

All Acceptance Criteria in this Test Section are Satisfied. This test section is: <input type="checkbox"/> Passed <input type="checkbox"/> Failed	Number of Deviations recorded (0 if none):
Test Executed By (Initials) / Date:	Test Reviewed By (Initials) / Date:



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.2 Power on Check:

#### 6.2.1 Objective:

Objective of this test is to check the current and voltage level of the system:

#### 6.2.2 AHU-SG-1 Power on Check Verification:

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.2.2.1	Power Supply	Check Voltage with the help of multimeter	Rating: Input :220-240VAC, Output-24V AC	Rating:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		
6.2.2.2	Power Cable	Physical / Visual Verification	Installed Correctly	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		
6.2.2.3	Communication Cable	Physical / Visual Verification	Installed Correctly	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		
6.2.2.4	DDC Controller	Physical / Visual Verification	LED: Green(Healthy) Red ( Fault)	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation #		



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.2.3 AHU-SG-2 Power on Check Verification:

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.2.3.1	Power Supply	Check Voltage with the help of multimeter	Rating: Input :220-240VAC, Output-24V AC	Rating:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.2.3.2	Power Cable	Physical / Visual Verification	Installed Correctly	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.2.3.3	Communication Cable	Physical / Visual Verification	Installed Correctly	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.2.3.4	DDC Controller	Physical / Visual Verification	LED: Green(Healthy) Red( Fault)	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.2.4 AHU-SG-3 Power on Check Verification:**

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.2.4.1	Power Supply	Check Voltage with the help of multimeter	Rating: Input :220-240VAC, Output-24V AC	Rating:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.2.4.2	Power Cable	Physical / Visual Verification	Installed Correctly	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.2.4.3	Communication Cable	Physical / Visual Verification	Installed Correctly	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.2.4.4	DDC Controller	Physical / Visual Verification	LED: Green(Healthy) Red (Fault)	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.2.5 Server cum Operator Work Station**

Production equipment for implementation: Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.2.5.1	Work Station	Check all the inbuilt benchmarks	Passed	Status:	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		

**6.2.6 Assessment of Test Section Results**

<p><b>Comments / Observations:</b></p>	
All Acceptance Criteria in this Test Section are Satisfied. This test section is: <input type="checkbox"/> Passed <input type="checkbox"/> Failed	Number of Deviations recorded (0 if none):
Test Executed By (Initials) / Date:	Test Reviewed By (Initials) / Date:



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.3 Physical Assembly Verification:

#### 6.3.1 Objective:

The objective is to verify that the hardware components of the system are properly labelled and interconnected.

#### 6.3.2 Physical Verification:

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.3.2.1	Confirm whether controller is connected via Ethernet to the control network	Physical / Visual Verification	Controller is connected to control network.		<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.3.2.2	All Critical units to be tested are labeled.	Physical / Visual Verification	All Critical units to be tested are labeled.		<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.3.2.3	Verify communication cables are correctly installed to the client/server network.	Physical / Visual Verification	Communication cables are correctly installed to the client/server network via Ethernet.		<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.3.3 Assessment of Test Section Results**

**Comments / Observations:**

All Acceptance Criteria in this Test Section are satisfied. This test section is:  Passed

Failed

Number of Deviations recorded (0 if none):

Test Executed By (Initials) / Date:

Test Reviewed By (Initials) / Date:





# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.4 Installation Pre-requisites:

#### 6.4.1 Objective:

This test section identifies documents & installation pre-requisites and general delivery requirements.

#### 6.4.2 System documentation Verification:

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.4.2.1	Verify that software activation keys / licenses are available.  Document location of keys.	Physical / Visual Verification	Software activation keys / licenses are available.	Attachment(s) # / printout(s) #: _____/_____ _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____  		
6.4.2.2	Verify whether all the personnel involved in the IQ are properly trained on ..... change control procedure.	Physical / Visual Verification	All the personnel involved in the IQ are properly trained on ..... change control procedure.	Attachment(s) # / printout(s) #: _____/_____ _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____  		
6.4.2.3	Verify the clock synchronization of Data Server with Plant PXC Controller.	Physical / Visual Verification	Attached validation documents are available and approved.	Attachment(s) # / printout(s) #: _____/_____ _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____  		



Pharma Devils

# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.4.3 Security of Hardware and Data.

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.4.3.1	Verify the project backup paths, procedures and restore process.	Physical / Visual Verification	Backup and restore procedure exists as applicable.  Backup Path:	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.4.3.2	Verify whether all the relevant personnel are properly trained .....backup procedure.	Physical / Visual Verification	All the relevant personnel are properly trained ..... Backup procedure	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.4.3.3	Verify system hardware components are properly installed and located in a clean and physically secured environment according to visual inspection. <ul style="list-style-type: none"> <li>• Data Server</li> <li>• Operator Work Station</li> </ul>	Physical / Visual Verification	System hardware components are properly installed and located in a clean and physically secured environment.	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.4.3.4	Verify whether system hardware components are installed in the environment as defined in the DQ.	Physical / Visual Verification	System hardware components are installed in the environment as defined in the DQ.	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.4.4 Assessment of Test Section Results:**

**Comments / Observations:**

All Acceptance Criteria in this Test Section are Satisfied. This test section is: <input type="checkbox"/> Passed <input type="checkbox"/> Failed	Number of Deviations recorded (0 if none):
Test Executed By (Initials) / Date:	Test Reviewed By (Initials) / Date:



**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.5 Data Base Server cum work station**

**6.5.1 Objective**

This test section identifies and documents hardware, software components and system configurations for the Data Server as defined in DQ.



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.5.2 Hardware and Software components for Data Server cum work station

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.5.2.1	<p>Record system summary information.</p> <p>(e.g. by opening MS Windows “System Information” at menu Accessories-&gt;system tools-&gt; tree system information)</p> <p>Attach a screen shot or record settings manually.</p>	Physical / Visual Verification	<p>System summary information</p> <p>is recorded for:</p> <ul style="list-style-type: none"> <li>• System Manufacturer:</li> <li>• System Model:</li> <li>• Processor/ Frequency: Intel i7 processor, 3Ghz</li> <li>• Total Physical Memory: 2 TB</li> <li>• RAM: 32 GB</li> <li>• Host Name:</li> <li>• Operating system name / Version / Service Pack: Windows 10 Professional</li> </ul>	<p>Attachment(s)# / printout(s)#:</p> <p>_____ / _____</p> <p>Total Physical memory:</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.5.2.2	<p>Record system storage drive information.</p> <p>(e.g. by opening MS Windows “System Information” at menu Accessories-&gt;system tools-&gt; tree Components / Storage / Drives)</p> <p>Attach a screen shot or record settings manually.</p>	Physical / Visual Verification	<p>System storage drive information</p> <p>is recorded for:</p> <ul style="list-style-type: none"> <li>• Free Disk Space</li> </ul>	<p>Attachment(s)# / printout(s)#:</p> <p>_____ / _____</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**6.5.2 Hardware and Software components for Data Server cum work station**

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
6.5.2.3	Transfer min 10 MB file from one drive to other	Physical / Visual Verification	No packet data loss	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		
6.5.2.4	Record IP address of server cum workstation  (e.g. by opening MS Windows "System Information" at menu Accessories->system tools-> tree Components / Network / Adapter)  Attach a screen shot or record settings manually.	Physical / Visual Verification	System IP address is recorded	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No, Deviation # _____		



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.5.3 Hardware and Software components for Data Server cum work station

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
						KE	HGPL
6.5.3.1	Verify The BMS Software	Physical / Visual Verification	Software Name: DESIGO CC Version:5.1 Records exist of configured: Configured user groups: Administrator, Engineer,Supervisor, Operator	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No,  Deviation # _____ _____		
6.5.3.2	Verify Login using User ID and Password	Physical / Visual Verification	By clicking the DESIGO CC Short cut Icon on Desktop software will be opened, software will not allow to operate without entering the user id and passwords	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No,  Deviation # _____ _____		
6.5.3.2	Verify Login Using Blank Password	Physical / Visual Verification	Not Able to Login in DESIGO CC	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No,  Deviation # _____ _____		
6.5.3.3	Verify That Audit Trails are enabled	Physical / Visual Verification	Audit trails are enabled	Attachment(s)# / printout(s)#: _____ / _____	<input type="checkbox"/> Yes <input type="checkbox"/> No,  Deviation # _____ _____		



# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 6.5.3 Hardware and Software components for Data Server cum work station

Step No.	Test Steps	Test Procedure	Expected Result(s) / Acceptance Criteria	Actual Result	Result ok?	Verified By	
						KE	HGPL
6.5.3.4	Verify The SQL Database Locations and Server Host Name  By using screen shots or manual entry.	Physical / Visual Verification	SQL Server Host Name :  Log Database:  Alarm Database:  Trend Database:	SQL Server Host Name:  Log Database:  Alarm Database:  Trend Database:	<input type="checkbox"/> Yes <input type="checkbox"/> No,  Deviation # _____		
6.5.3.5	Verify The Project Database Location  By using screen shots or manual entry.	Physical / Visual Verification	Project Location:  Backup Location:	Project Location:  Backup Location:	<input type="checkbox"/> Yes <input type="checkbox"/> No,  Deviation # _____		
6.5.3.6	Verify the monitor installed on the machine	Physical / Visual Verification	Monitor installed should be 19" LED Monitor	NA	<input type="checkbox"/> Yes <input type="checkbox"/> No,		









Pharma Devils

# PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

## INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM

### 8.0 Provisional Approval for Unacceptable deviation:

S.No.	Impact	Corrective Action	Assigned Date

Remarks:

**Engineering**

Sign & Date

**Validation**

Sign & Date

**Quality Assurance**

Sign & Date







**PHARMA DEVILS**  
QUALITY ASSURANCE DEPARTMENT

**INSTALLATION QUALIFICATION FOR BUILDING MANAGEMENT SYSTEM**

**10.0 Post Approval:**

<b>Customer:</b>	
<b>Project:</b>	Building Management System

.....

Responsibility	Name	Designation/Department	Signature	Date
Done By:				
Reviewed By:				
Approved By:				

.....

Responsibility	Name	Designation/Department	Signature	Date
Checked By:				
Reviewed By:				
Reviewed By:				
Reviewed By:				
Approved By:				