



# DESIGNING FLEXIBILITY INTO THE FULL TEMPERATURE RANGE OF GMP BIOPHARMA STORAGE

27AUG2020

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Masy BioServices

Chris Masiello, Director of Facilities  
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## -196°C to 70°C CHAMBERS



WAREHOUSES



WALK-IN COLD ROOMS



LN<sub>2</sub> FREEZERS



CASCADE FREEZERS



WALK-IN FREEZERS



FREEZERS & INCUBATORS



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1 STRATEGIC FRAMEWORK FOR FLEXIBILITY  
Who, What, When, Where and Why

2 DESIGN PHASE  
Extreme Cold To Warm Chambers

3 SCENARIOS  
Three Real World Examples

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Time for our first poll



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THE FIVE W's

WHO WHAT

WHY WHEN

WHERE

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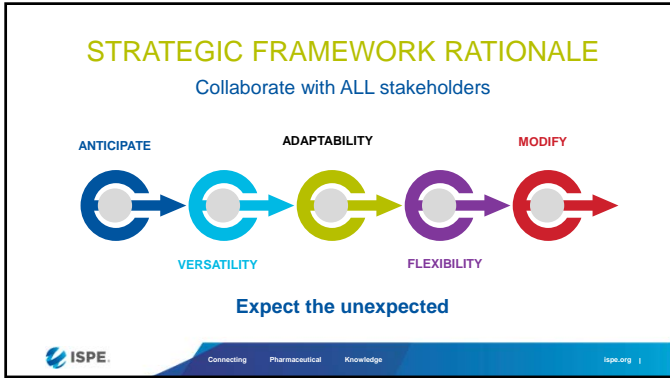
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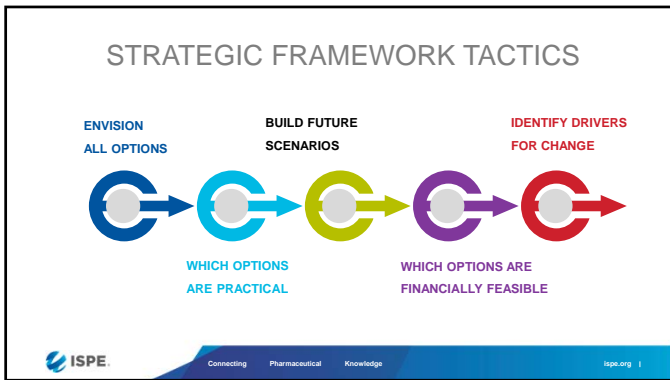
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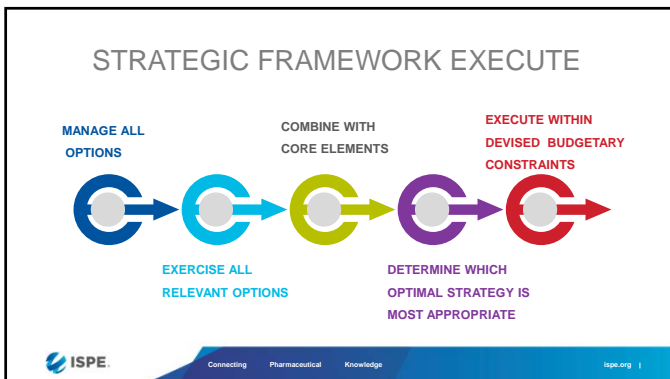
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# Time for our second poll



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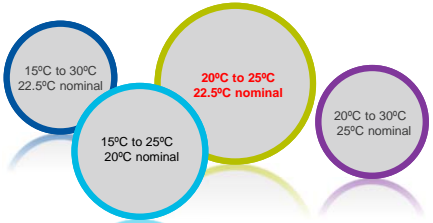
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## DESIGN PHASE Ambient Warehouse



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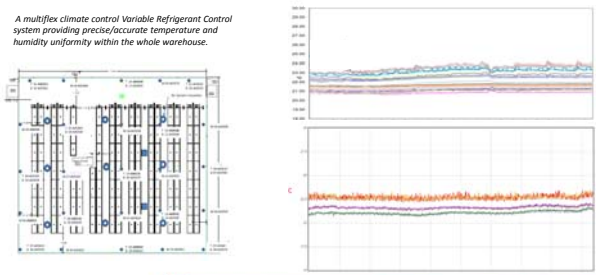
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## DESIGN PHASE Ambient Warehouse

A multi-flex climate control Variable Refrigerant Control system providing precise/accurate temperature and humidity uniformity within the whole warehouse.



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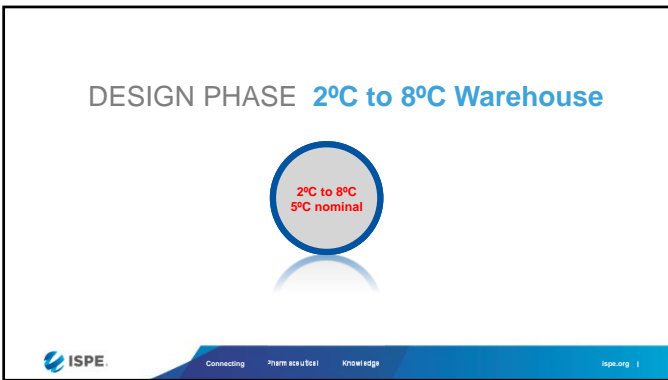
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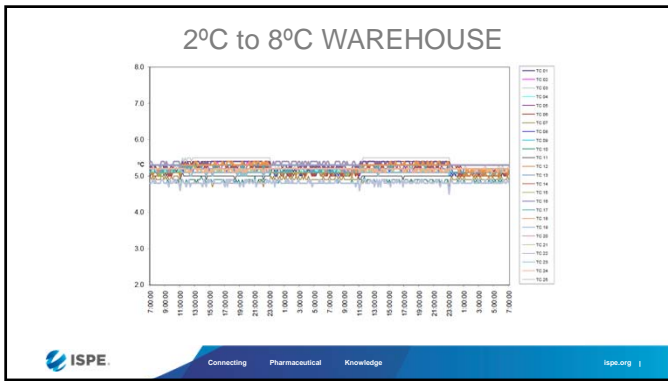
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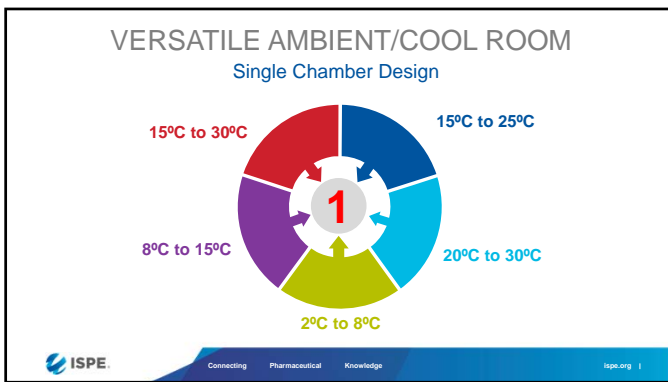
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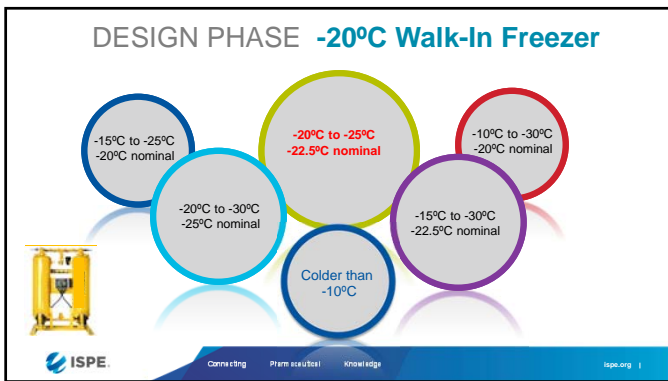
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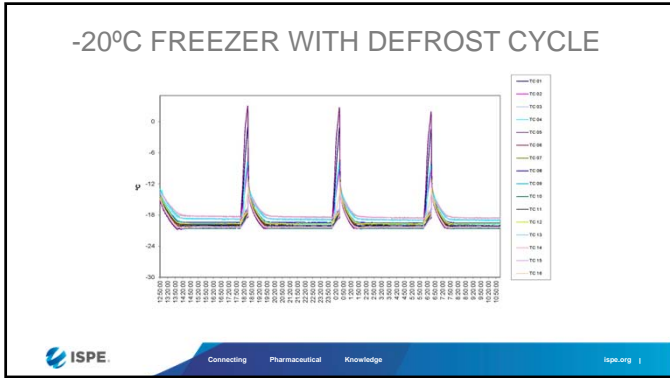
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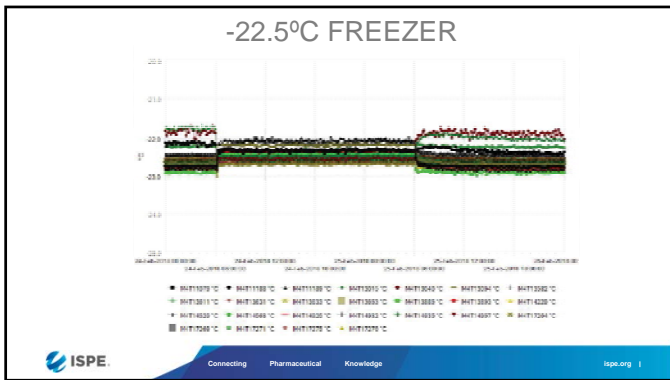
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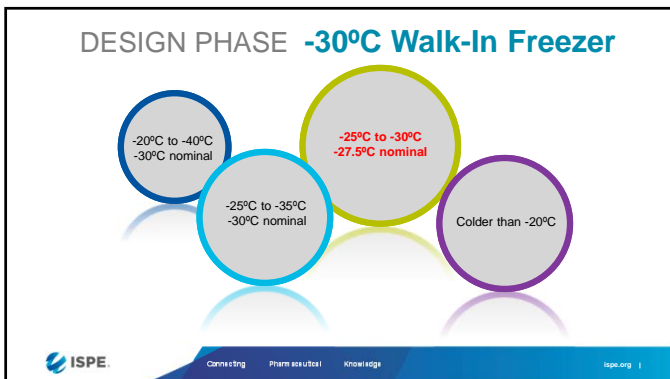
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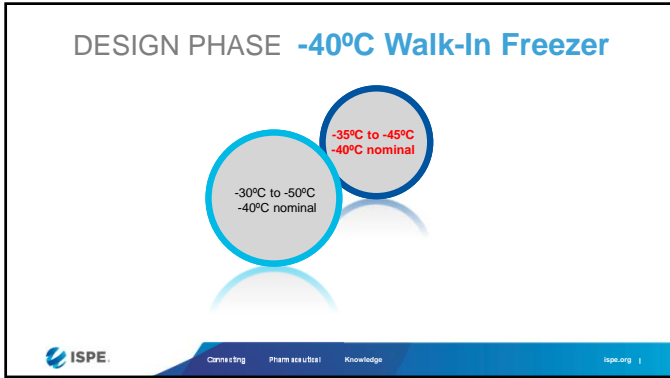
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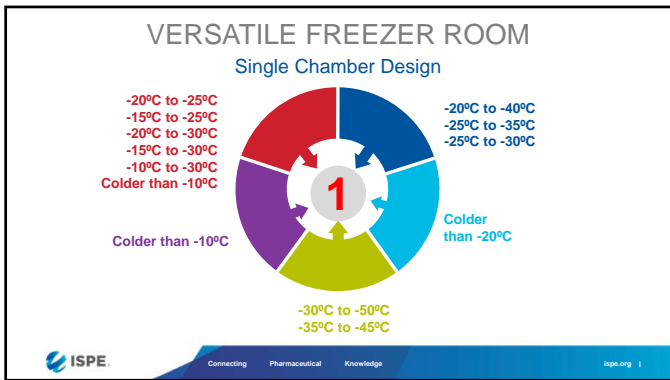
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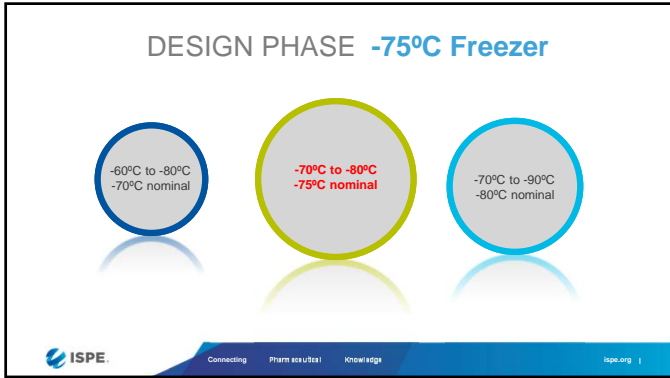
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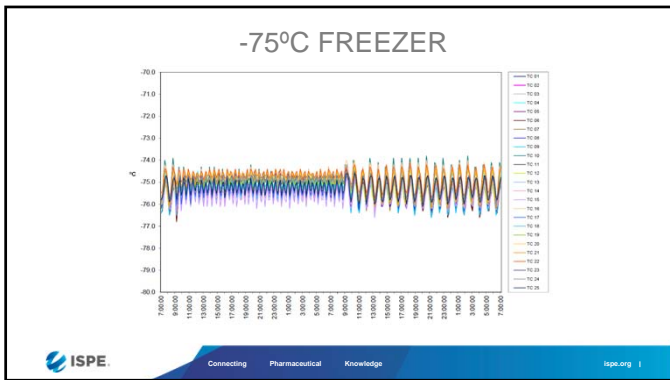
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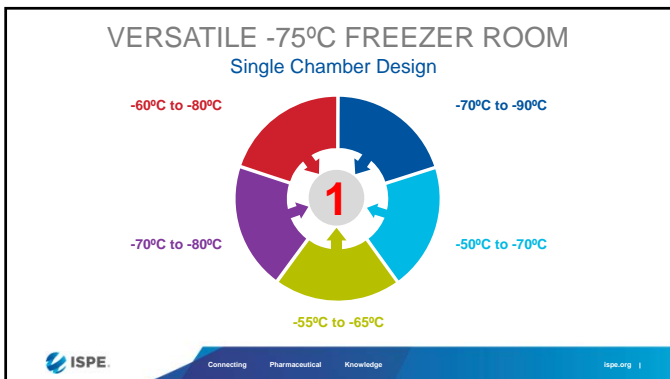
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**Flexible Freezer**  
5°C to -45°C



**Flexible Freezer**  
-40°C to -86°C



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**CRYOGENIC OPTIONS**

- BEST** ● LARGE MULTI-TENANT  
Shared space (Auto fill)
- OK** ● SINGLE DEDICATED  
(Auto fill)
- OUCH** ● SINGLE DEDICATED  
Manual fill



NO! NO!

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**CRYOGENIC LN<sub>2</sub> INFRASTRUCTURE**

**OWN**



**LEASE**



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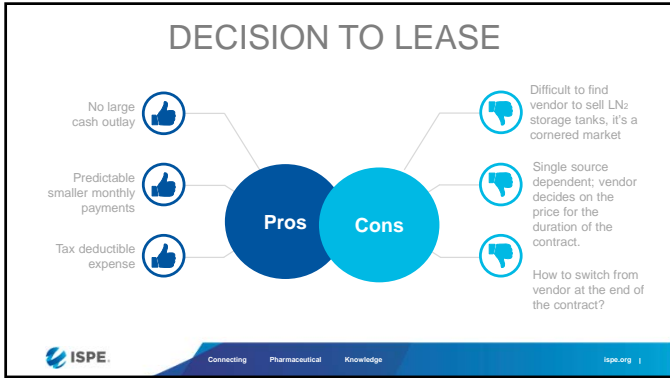
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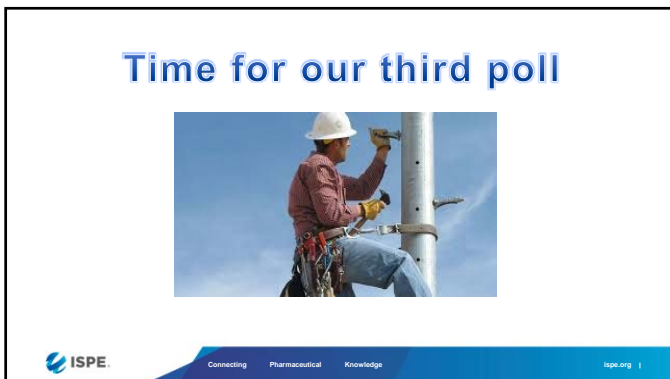
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### Scenario 1 – Large Biotech Company



**SOUNDS SIMPLE ENOUGH!**

ENGINEERING IS TASKED WITH FULFILLING THE BUSINESS REQUIREMENT OF A -20°C WALK-IN FREEZER

**WHAT DID THEY CONSIDER?**

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### Scenario 2 – Small Pharma Company



**2 YEARS AGO IT WAS INSTALLED**

FACILITIES NEEDS TO EXPAND THEIR 2°C TO 8°C WALK-IN COLD ROOM

**THEY THOUGHT THEY WOULD NEVER FILL IT!**

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### Scenario 3 CDMO for Pharma Production, Medium Scale



**WILL THESE TEMPERATURE CONDITIONS MEET THEIR CURRENT REQUIREMENTS?**

NEW FACILITY DESIGN, REQUIREMENT:  
2°C TO 8°C WALK-IN COLD ROOM,  
-20°C FREEZER ROOM

**WHAT ABOUT FUTURE NEEDS?**

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**COLLABORATE**

**BE FLEXIBLE WITH ROOM FOR GROWTH**

**ALLOCATE YOUR MONEY WISELY**

**DO IT RIGHT THE FIRST TIME**

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**QUESTIONS?**

Please feel free to reach out to us any time with any further questions.

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