CERN CO$_2$ling Distribution Test Setup
Scope of Project

- Establish the operating temperature of the inner most Pixel Layer modules in as close to detector like conditions as possible

- Materials
  - B180 high bay area and services
  - ATLAS Detector Mockup
  - Baby Demo 2 – cooling plant
  - CO$_2$ Distribution lines for sector 5 and 13
    - Including all manifolds and proper routing

- Timeline is to have an answer by the Pixel TDR at the end of 2017
  - After that the setup could be used for R&D

- Currently expression of interests from a few ITk institutes
  - Document is in preparation for review at the April ITk IB
Using the infrastructure already in place

- Cooling plant will go on support structure
  - Most services, power, chilled water, CO₂, already in place
    - Quite old need to be upgraded
- Basement has space for distribution manifold to model sector 13
- Scaffolding on top of detector mockup will house PP2 for sector 5
- Need to design, build, and install the manifolds, connectors, flex lines, etc.
  - Foam box for stave support
- Need to instrument set up with temperature/pressure sensors and DAQ system for monitoring
Vertical Drops Key Design Element

Sector 05
Voussoir Access Platform

USA 15
Compressors Room Floor

Sector 13
Voussoir Access Platform

Sector 13
Strut Access Platform

8979 mm

6435 mm

1800 mm

530 mm

3000 mm

6700 mm
Location in B180