



Client:	Project Name:	Project No:	
Area:	Drawing No's:	Date:	Sheet: 1 of 2
Check Conducted By:	Signature:	Check Approved By:	Signature:

## INTRODUCTION

The test procedure guideline has been prepared to explain the minimum standard for water balancing of hydronic systems.

### Procedure recommended general checks

1. Prior to commencing any testing and adjustment of water distribution systems ensure that the circuits have been successfully hydrostatically pressure tested, flushed and cleaned with approved methods are dosed with appropriate water treatment and are properly vented
2. Ensure all the filter/strainers in the system are clean
3. Prepare single line drawings of the entire system highlighting the design flow rates required to be achieved, pipe work sizes, measuring and adjustment valve locations
4. Produce a commissioning valve schedule showing valve types, sizes, design flow rates, design pressure drops as appropriate
5. Confirm that all isolating valves and balancing valves are fully open
6. Confirm all measuring points are accessible

### Procedure recommended for testing operation

1. Measure every branch flow rate using the branch balancing valves and check that the total flow rate of the branches matches the pump flow rate
2. Calculate the percentage of flow rate to each branch
3. Identify the index branch
4. Starting with the index branch, measure the flow of each terminal unit on this branch by measuring the pressure differential at the balancing valve of the terminal units and add the sum of the terminal units on this branch and compare to the original branch measurement. If different investigate and redo until they are the same.
5. Calculate the percentage to each terminal on the index branch to determine the index terminal
6. Using the index terminal as the datum compares the percentage of design flow rates against the percentage of design flow at each branch. Adjust the regulating valve on the second branch until the percentage of design flow matches the index circuit. Re-measure the index terminal branch and recalculate the % design flow and use as the new datum for the index branch. Carry on doing this until all the terminal units on the index branch are proportionally balanced against each other.
7. Once this is done move on the next branch and repeat. Carry on until all branches' terminals are proportionally balanced and all branches are proportionally balanced against each other.
8. When all branches are proportionally balanced check the total branch flows rates against the design flow rate for the system and adjust the pump speed until the design flow is achieved
9. Record all final water flow figures at each measuring valve and at the pump

## REFERENCE STANDARDS

CIBSE Commissioning Code W – Water Distribution Systems

NEBB Procedural Standards for Testing Adjusting and Balancing of Environmental Systems



**CHECKLIST**

AHU/FCU Reference					
Drawing Number					
	ITEM	VERIFICATION METHOD	RESULT	RESULT	RESULT
1	Check installation is complete, has been pressure tested, flushed, chemically dosed and filled with water and is vented	Site Inspection			
2	Check all filters/strainers are clean	Site Inspection			
3	Prepare single line drawings of the entire system highlighting design flows, design pressure drops, pipe sizes	Site Preparation			
4	Produce a commissioning valve schedule	Site Preparation			
5	Confirm all isolating valves and control valves are fully open	Site Inspection			
6	Check all measuring points and adjustment points are accessible	Site Inspection			
7	Measure each branch flow rate and check the sum of the branches against the design flow rate from the pump	Site Inspection			
8	Calculate the percentage of flow from each branch to determine the index branch	Site Inspection			
9	Proportionally balance each terminal and then branch using the index terminal on the index branch as a datum	Site Inspection			
10	Check the branch total flow rates against the design flow rate and adjust the pump speed to match the design flow rate	Site Inspection			
11	Record each branch, terminal and pump flows once system is fully balanced	Site Inspection			
Certified By Sub Contractor (initial):					
Date:					
Confirmed By (Head Contractor / Client) (initial):					
Date:					