Table 1: Discipline areas for the Building Technology Ph.D. general (qualifying) exam

To pass the subject area mastery portion of the doctoral qualifying exam, students must earn three As and one B (or four As) in at least four subjects chosen across three of the seven areas from the table below. Substitutions of subjects not included in the list below will be considered on a case-by-case basis and will require approval from all BT faculty.

Area	Subjects
Thermal Sciences	4.424J/2.52J or 2.55 (Heat Transfer) 2.25 (Fluid Mechanics) 2.42 (Thermodynamics)
Building Systems and Performance	4.430 (Daylighting) 2.151 (Controls) 4.431 (Architectural Acoustics)
Structural Mechanics and Analysis	2.093 or 2.094 (Finite Element Analysis) 1.573 (Structural Mechanics) 1.581 (Structural Dynamics) 1.571 (Structural Analysis) 4.445 (Analysis of Historic Structures)
Materials and Construction	3.22 (Mechanical Behavior of Materials) 3.36 (Cellular Solids) 3.560 (Industrial Ecology of Materials)
Urban Systems and Resources	2.83 (Energy, Materials and Manufacturing) 11.526J/1.251J (Land Use and Transportation Planning) 15.871 (System Dynamics) 4.433 (Modeling Urban Energy Flows)
Optimization and Machine Learning	6.255J/15.093J (Optimization Methods) 6.252J/15.084J (Nonlinear Optimization) 4.450J/1.575J (Structural Optimization) 16.888J/IDS.338J (Multidisciplinary Optimization) 6.862 or 6.867 (Machine Learning) 15.077J/IDS.147J (Statistical Learning and Data Mining)
Computational Geometry	4.517 (Parametric Design and BIM) 4.521 or 4.522 (Visual Computing) GSD SCI-6338 (Introduction to Computational Design) 18.9501 (Differential Geometry) 6.838 (Shape Analysis)