Energy, Environment and Sustainability of Green Buildings

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6.1 INTRODUCTION

The Center for Health and Healing is a new part of the Oregon Health and Science University Campus located at Portland, Oregon, U.S.A finished in 2006. It consists of 16 floors and about 37,000 sq meters, while the use of the building is far from simple or single. The building contains clinical offices, day surgery suites, rehabilitation center, a three story wellness and fitness center including a swimming pool and a basketball court, a conference center, imaging, ambulatory surgery, out patients clinics, educational offices and laboratories all with their services and an additional three basement stories for the parking of 600 patient and employee cars. All these uses put a huge challenge in designing such multiple tasked building, rather than the challenge of reducing the cost of the mechanical system by 25% and reduce energy consumption more than the Oregon energy code by 60 percent. While each of the uses mentioned have special energy needs for cooling and heating, another challenge was the fluctuating temperatures and building heat needs around the year, as shown in Figure 35.

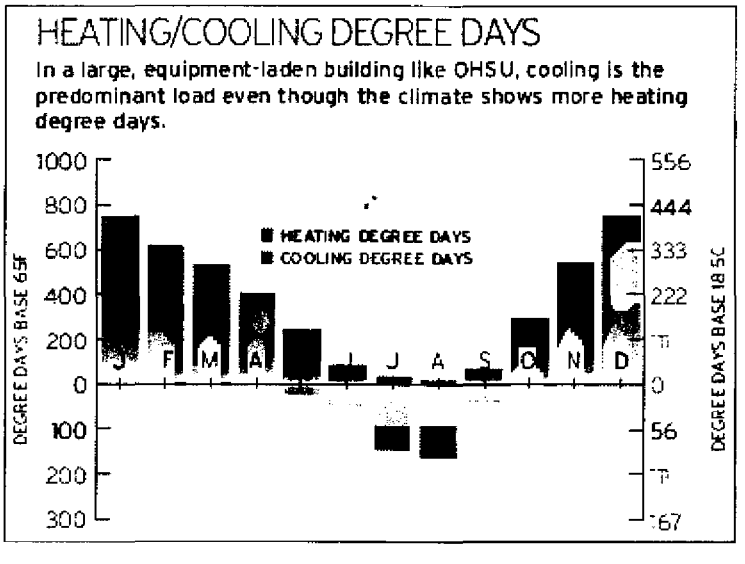

Figure 35: Heating and cooling degrees around the year, Gragg 2007