# Guide for Submittal of Concrete Proportions

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*This guide is intended to assist both the submitter and reviewer by providing a description of necessary information to ensure that the appropriate information is provided. Information required for the preparation and review of a concrete mixture submittal is contained in reference documents such as codes and standards, project drawings and specifications, and other contract documents. These requirements depend on the intended use of the concrete, the available information, and the size of the project. Use of this guide may be limited when contract documents define the submittal format. This guide emphasizes that the concrete mixture is a unique combination of specific ingredients, from particular sources, and in quantities necessary to achieve the intended purpose.*

***Special note on mass versus weight:*** *The mass of an object is defined as the amount of matter that is present. Mass is independent of any other property; weight is the force arising from particular gravitational field or other acceleration acting on a mass. The weight is thus dependent on both the mass and the acceleration due to gravity rotation. In the common engineering system, a pound of mass is accelerated by gravity to be 1 lb of force. There is no need for distinction, and mass and weight are often used interchangeably in that the units are the same. A mass of 1 lb exerts a weight of 1 lb. There is a hidden gravitational constant. In the SI system, mass is expressed in grams and weight in Newtons. A mass of 1 kg exerts a weight of 9.81 N. It is correct, therefore, to use the term "mass" when determining how much material is being loaded into the plant, and when the mixtures are designed and proportioned. The industry, however, conventionally uses weight for these items. In the common measurement system, this creates no confusion. Thus, the vernacular term for the massing elements of the concrete plant is the weigh hopper. The batch record showing masses of materials in the concrete mixture are collectively referred to as batch weights. In an acknowledgement of this widespread industry practice, and in order to make the document as widely useable as possible, the term "weight" is used throughout to represent mass in the text. This is technically incorrect but is in line with common practice. In all conversions, both mass and weight are given (kilograms and Newtons).*

**Keywords:** admixtures; aggregates; cementitious materials; durability; fine aggregates; fly ash; metakaolin; mixture proportioning; pozzolans; quality; silica fume; slag; slag cement; slump tests; water-cement ratio.



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