**MarTac Environmental and Destructible Objects Spec**

**Summary**

Anything that isn’t a character in the combat field is an **object**. Walls and other static, LOS blocking boundaries will be built using chains of objects like wall segments, barrels, debris, etc. Some objects will be interactive - such as doors or switches, some will be destructible like walls and cars and some some will cause damage effects like exploding barrels.

**Object Properties**

There are several properties that objects can have in three categories: **Traversability**, **Integrity**, and **Interactivity**.

**Traversability**

Objects can be coarsely categorised in two ways:

* **Traversable** objects will **allow** mostcharacters through the grid square(s) they occupy, either by passing through while moving without penalty (for example a doorway or an object with clearance like a lamppost) or by allowing them to pass through with a cost (vaulting, climbing, jumping over etc.) Access permissions will be set on every traversable object as flags, allowing characters with an associated active or passive ability to pass:
* Vault (any character who can walk is assumed to be able to vault)
* Climb (characters can climb over some tall objects easily)
* Jump (some objects or “pits” can be jumped)
* Fly (depressions and low objects can be flown over)



* **Non-Traversable Objects** will **stop** most characters from moving through the space(s) they occupy. With the exception of a few characters that are equipped with abilities or devices that allow point-to-point teleportation or “phasing” through solid objects, non-traversable objects must be circumvented or destroyed in order to travel through their space.



**Integrity**

There are three states of Integrity. **Intact, Damaged and Destroyed**:



Integrity can be determined in two ways, either set by the Designer at level run, or determined through the course of play. By default all objects start at 100% Integrity unless modified by the Designer.

Damageable and Destroyable Flags

There are two flags that can be set on an object in the game:

* **Damageable** means the object’s Integrity can be pushed (or set) below 100%, and the resulting visual change triggered at a percentage higher than 0%. This allows content to be created with a range of possible “damage” thresholds to stop everything in the game from changing to damaged in the first AoE attack. Flag options include:
* **Damage threshold**
* **Damage model**
* **Damage effects (particles)**
* **Usable** (Boolean to specify whether an object can still be “used” as an interactive object (see below))
* **Reversible** (can characters with the ability to do so “repair” this object?)
* **Trigger** (can trigger an event like a reinforcement wave or dialogue)
* **Destroyable** means the object’s Integrity can be pushed (or set) to 0%, at which point the object is “gone” for all intents and gameplay purposes. Objects can be set to trigger a reaction upon “death” to enhance gameplay and to create cool tactical or strategic locations - like exploding barrels. Flag settings for destroyable objects include:
* **Destruction threshold**
* **Destroyed model** (visual placeholder of the object)
* **Destruction effects**
* **Reversible**
* **Trigger** (a reactive event, like an exploding barrel)

Indestructible Objects

If an object is flagged as neither Damageable or Destroyable it is considered to be **Indestructible.** These objects can still be Interactive (see below), they just won’t lose Integrity or be affected visible by attacks or other damage-causing events.

What is Destructible?

For the sake of simplicity, we’ll start with the rule that one **1x1 wall segments** and **most free-standing objects** will be destructible. Longer wall segments and wall joint (L. Cross and T) objects will not be destructible in combat.

Showing Destructible vs Indestructible Walls

We’ll need to clearly show the difference between wall segments that can be destroyed next to identical segments that can’t. This could be standard game logic like a crack or other structural flaw running through a “weak”, signs of repair or something in the object itself that shows volatility, like a gas cannister etc.



**Interactivity**

Interactivity covers the ways in which objects can be used or otherwise affected by characters. Any object can be made interactive, though obviously some - like doors or switches - should be so by default. Other objects, like computer consoles could be purely decorative or interactive depending on the specific mission needs.

Interactive Flag

* Any object can be flagged as **Interactive** which will allow sub-settings to be assigned that determine the means with which the object can be used (or by whom) as well as the reaction to interaction, for example:
* **Range**
* **User Team** (Player, Enemy, Attacker, Defender or All)
* **User Class** (Bruiser, Infiltrator, etc.)
* **User Name** (Captain America, Magneto, etc.)
* **Starting State** (On/Off)
* **OnTrigger** (effect when turned on)
* **OffTrigger** (exactly)
* **OnAnimation**
* **OffAnimation**

Notes, Addendum et Al

Some objects will probably need to be hardcoded, such as doors of various sizes or generic switches. The above “settings” are proposed to give the Design team flexibility in mission design and creating unique content without having to hit up the Engineers every time.